RPR, NETN and Link 16

Interface Control Document

An example, generated from the data model by Sen. The reference that follows — every package, every type, every table — is written by the tool and is rewritten whenever the model changes.

This page is not. It is an ordinary Typst file included at a point the generated document leaves open, which is how a project puts its own cover, approvals and appendices around a reference it never has to edit.

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About this document

This is an example published with Sen's documentation. It was produced by running the model through `sen generate typst` and compiling the result, with no editing in between.

Everything from *Model overview* onwards is generated. It follows the model and only the model: if a type is added, renamed or given a new description, the next build says so, and nothing anyone wrote by hand is lost in the process.

This page, and the cover before it, are not generated. They are Typst files of your own that the document includes at points it leaves open for you:

`--front-matter`	A cover, before the contents.
`--before-reference`	Anything between the contents and the model — a scope, a set of conventions, an approvals table. This page.
`--after-reference`	Appendices, after the model.
`--style`	Every decision about how the document looks.

The generator does not read any of those files. It writes an `#raw("#include")` and Typst resolves it when the document is compiled, so a cover page can be anything Typst can set — and changing it never means regenerating the model.

Model overview

955 types in 4 packages. Every class descends from a single root.

Packages

Package	Types	Object classes	Fixed records	Enumerations	Variant records	Arrays	Quantities	Aliases	Optionals
hla	14	1	—	—	—	—	—	—	13
link16	24	—	16	—	—	4	—	4	—
netn	464	59	197	61	10	56	—	32	49
rpr	453	63	160	109	9	58	22	22	10

Class hierarchy across all packages

- hla.ObjectRoot 8
  - netn.ATP45HazardArea 23
  - netn.COMRoot 25
    - netn.CommunicationNetwork 26
    - netn.CommunicationNode 26
    - netn.Connection 27
    - netn.DisruptionEffect 27
    - netn.LinkStates 30
    - netn.PhysicalNetwork 43
  - netn.METOCRoot 30
    - netn.EnvironmentCondition 27
      - netn.SubsurfaceLayer 45
      - netn.Weather 48
        - netn.LandSurface 29
        - netn.TroposphereLayer 46
        - netn.WaterSurface 47
    - netn.Service 45
  - netn.ORGRoot 43
    - netn.EquipmentItem 28
      - netn.AisEquipmentItem 23
        - netn.AidToNavigation 23
        - netn.Basestation 23
        - netn.SARaircraft 44
        - netn.Vessel 47
    - netn.FederateApplication 28
    - netn.Force 29
    - netn.Installation 29
    - netn.Unit 46
  - netn.ProbabilityHazardContourGroup 44
  - netn.RawDataHazardContourGroup 44
  - netn.SEFacility 44
    - netn.CheckPoint 26
  - netn.SEGeoObject 45
    - netn.Location 30
    - netn.Path 43
    - netn.Region 44
  - rpr.ActiveSonarBeam 158
  - rpr.BaseEntity 160
    - rpr.AggregateEntity 159
      - netn.NETNAggregate 30
    - rpr.EnvironmentalEntity 164
    - rpr.PhysicalEntity 171
      - rpr.CulturalFeature 162
        - netn.NETNCulturalFeature 35
          - netn.COLPRO 25
          - netn.DecontaminationStation 27
      - rpr.Expendables 165
      - rpr.Lifeform 166
        - rpr.Human 165
          - netn.NETNHuman 37
            - netn.CBRNHuman 24
        - rpr.NonHuman 170

netn.NETNNonHuman 39
rpr.Munition 169
netn.NETNMunition 39
rpr.Platform 172
rpr.Aircraft 160
netn.NETNAircraft 32
netn.CBRNAircraft 23
rpr.AmphibiousVehicle 160
netn.NETNAmphibiousVehicle 34
netn.CBRNAmphibiousVehicle 24
rpr.GroundVehicle 165
netn.NETNGroundVehicle 36
netn.CBRNGroundVehicle 24
rpr.MultiDomainPlatform 169
netn.NETNMultiDomainPlatform 37
netn.CBRNMultiDomainPlatform 24
rpr.Spacecraft 176
netn.NETNSpacecraft 40
netn.CBRNSpacecraft 25
rpr.SubmersibleVessel 176
netn.NETNSubmersibleVessel 41
netn.CBRNSubmersibleVessel 25
rpr.SurfaceVessel 176
netn.NETNSurfaceVessel 42
netn.CBRNSurfaceVessel 25
rpr.Radio 173
rpr.Sensor 174
netn.CBRNDetector 24
netn.CBRNSensor 25
rpr.Supplies 176
rpr.EmbeddedSystem 162
rpr.Designator 162
rpr.EmitterSystem 163
rpr.IFF 165
rpr.NatoIFF 169
rpr.NatoIFFInterrogator 170
rpr.NatoIFFTransponder 170
rpr.RRB 173
rpr.SovietIFF 175
rpr.SovietIFFInterrogator 175
rpr.SovietIFFTransponder 176
rpr.MinefieldData 167
rpr.RadioReceiver 173
rpr.RadioTransmitter 174
rpr.UnderwaterAcousticsEmission 176
rpr.ActiveSonar 158
rpr.AdditionalPassiveActivities 159
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rpr.EnvironmentObject 164
rpr.ArealObject 160
rpr.MinefieldObject 169
rpr.OtherArealObject 170
rpr.LinearObject 167
rpr.BreachObject 161
rpr.BreachableLinearObject 161
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rpr.MinefieldLaneMarkerObject 168
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Reading the tables

Every property carries three flags, in this order.

Flag	Meaning
`RO`	Read-only: the value is published by whoever owns it and cannot be set from outside.
`RW`	Read-write: the value can be set as well as read.
`D`	Dynamic: the value changes over the life of an instance.
`S`	Static: the value is fixed once an instance exists.
`C`	Confirmed: delivery is acknowledged, and the update is retried until it arrives.
`BE`	Best effort: the update is sent once and may be lost.

hla

14 types.

Object classes

ObjectRoot HLA Base Class that contains the RTI object ID 8

ObjectRoot CLASS

HLA Base Class that contains the RTI object ID

Name	Type	Flags	Description
rtiId	string	RW D C	HLA RTI object ID

Optionals

MaybeBool 8
MaybeDuration 8
MaybeF32 8
MaybeF64 8
MaybeI16 8
MaybeI32 8
MaybeI64 9
MaybeString 9
MaybeTimeStamp 9
MaybeU16 9
MaybeU32 9
MaybeU64 9
MaybeU8 9

MaybeBool OPTIONAL

```
optional<bool> MaybeBool;
```

MaybeDuration OPTIONAL

```
optional<sen.Duration> MaybeDuration;
```

MaybeF32 OPTIONAL

```
optional<f32> MaybeF32;
```

MaybeF64 OPTIONAL

```
optional<f64> MaybeF64;
```

MaybeI16 OPTIONAL

```
optional<i16> MaybeI16;
```

MaybeI32 OPTIONAL

```
optional<i32> MaybeI32;
```

MaybeI64 OPTIONAL

```
optional<i64> MaybeI64;
```

MaybeString OPTIONAL

```
optional<string> MaybeString;
```

MaybeTimeStamp OPTIONAL

```
optional<sen.TimeStamp> MaybeTimeStamp;
```

MaybeU16 OPTIONAL

```
optional<u16> MaybeU16;
```

MaybeU32 OPTIONAL

```
optional<u32> MaybeU32;
```

MaybeU64 OPTIONAL

```
optional<u64> MaybeU64;
```

MaybeU8 OPTIONAL

```
optional<u8> MaybeU8;
```

link16

24 types.

Fixed records

JTIDSHeaderStruct	Link 16 Header Word (35 bits) for common messages, JTIDS voice, and VMF. Padded to 48 bits.	10
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JTIDSVoiceLPC12RadioSignal	Link 16 radio signal containing a voice message encoded using LPC12.	13
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RTTABStruct	JTIDS RTT A/B word (35 bits). Padded to 48 bits.	16
RTTReplyRadioSignal	Link 16 radio signal containing an RTT Reply message.	16
RTTReplyStruct	JTIDS RTT Reply word (35 bits). Padded to 48 bits.	17
TADILJWordStruct	TADIL-J word (75 bits) used for Fixed Word Format (FWF) messages and the Variable Message Format (VMF). Padded to 80 bits.	17
TDLBinaryRadioSignal	Parent class for all TDL radio signals.	17
VMFRadioSignal	Link 16 radio signal containing Variable Message Format (VMF) messages.	18

JTIDSHeaderStruct STRUCTURE

Link 16 Header Word (35 bits) for common messages, JTIDS voice, and VMF. Padded to 48 bits.

Name	Type	Description
data	OctetArray6	In total 48 bits, with the following fields: Bits 0-2: Time Slot Type. Bit 3: Relay Transmission Indicator. Bits 4-18: Source Track Number of Sender. Bits 19-34: Secure Data Unit Serial Number. Bits 35-47: Padding, set to 0.

Named by JTIDSMessageRadioSignal, JTIDSVoiceCVSDRadioSignal, JTIDSVoiceLPC10RadioSignal, JTIDSVoiceLPC12RadioSignal, VMFRadioSignal.

JTIDSLETRadioSignal STRUCTURE

Link 16 radio signal containing Link 16 Enhanced Throughput (LET) encoded messages.

Name	Type	Description
hostRadioIndex	string	The object instance ID of the radio transmitting this signal.
dataRate	rpr.BitRateBitPerSecondUnsignedInteger32	The rate at which the data is being transmitted.
signalDataLength	rpr.BitsUnsignedInteger16	The length of the signal data.
signalData	rpr.SignalDataLengthlessArray1Plus	The signal data.
tacticalDataLinkType	rpr.TacticalDataLinkTypeEnum16	The type of tactical data link used to transmitted this signal (if any).
tDLMessageCount	rpr.UnsignedInteger16	The number of tactical data link messages contained in this signal.
nPGNumber	NetworkParticipationGroupNumber	Network/Needline Participation Group (NPG) number. Not optional.
netNumber	NetworkNumber	Network Number. Not optional.
tsecCvll	CryptoVariable	Transmission Security Crypto Variable Logic Label. Optional for TSA Levels 0-2; default value: all bits set to one (no statement/wildcard).

Name	Type	Description
msecCvll	CryptoVariable	Message Security Crypto Variable Logic Label. Optional for TSA Levels 0-2; default value: all bits set to one (no statement/wildcard).
sISOSTD002Version	rpr.SISOSTD002VersionEnum8	Indicates which SISO-STD-002 version was used, i.e., whether byte swapping has or has not been used in the Message Data field (0 = SISO-STD-002-2006, legacy byte swapping employed; 1 = SISO-STD-002-2021, new method, bit stream, no byte swapping employed). Not optional.
link16Version	rpr.Link16VersionEnum8	Indicates which version of MIL-STD-6016 or STANAG 5516 is being used. Optional; default value: NoStatement.
timeSlotID	TimeSlotIdentifier	Time slot identification. Optional for low-fidelity TSA Levels (0, 1); default value: all bits set to one (no statement/wildcard).
perceivedTransmitTime	NTPTimestampStruct	The time at which the radio signal is transmitted. Optional for low-fidelity synchronization (TSA Levels 0-3); default value: all bits set to one (no statement/wildcard).
lETHeader	LETHeaderStruct	LET Header Word. Not optional.
tADILJMessage	TADILJWordStruct LengthlessArray1Plus	LET message data words. Not optional.

JTIDSMessageRadioSignal STRUCTURE

Link 16 radio signal containing Fixed Word Format (FWF) TADIL-J messages.

Name	Type	Description
hostRadioIndex	string	The object instance ID of the radio transmitting this signal.
dataRate	rpr.BitRateBitPerSecondUnsignedInteger32	The rate at which the data is being transmitted.
signalDataLength	rpr.BitsUnsignedInteger16	The length of the signal data.
signalData	rpr.SignalDataLengthlessArray1Plus	The signal data.
tacticalDataLinkType	rpr.TacticalDataLinkTypeEnum16	The type of tactical data link used to transmitted this signal (if any).
tDLMessageCount	rpr.UnsignedInteger16	The number of tactical data link messages contained in this signal.
nPGNumber	NetworkParticipationGroupNumber	Network/Needline Participation Group (NPG) number. Not optional.
netNumber	NetworkNumber	Network Number. Not optional.
tsecCvll	CryptoVariable	Transmission Security Crypto Variable Logic Label. Optional for TSA Levels 0-2; default value: all bits set to one (no statement/wildcard).
msecCvll	CryptoVariable	Message Security Crypto Variable Logic Label. Optional for TSA Levels 0-2; default value: all bits set to one (no statement/wildcard).
sISOSTD002Version	rpr.SISOSTD002VersionEnum8	Indicates which SISO-STD-002 version was used, i.e., whether byte swapping has or has not been used in the Message Data field (0 = SISO-STD-002-2006, legacy byte swapping employed; 1 = SISO-STD-002-2021, new method, bit stream, no byte swapping employed). Not optional.
link16Version	rpr.Link16VersionEnum8	Indicates which version of MIL-STD-6016 or STANAG 5516 is being used. Optional; default value: NoStatement.
timeSlotID	TimeSlotIdentifier	Time slot identification. Optional for low-fidelity TSA Levels (0, 1); default value: all bits set to one (no statement/wildcard).

Name	Type	Description
perceivedTransmitTime	NTPTimestampStruct	The time at which the radio signal is transmitted. Optional for low-fidelity synchronization (TSA Levels 0-3); default value: all bits set to one (no statement/wildcard).
jTIDSHeader	JTIDSHeaderStruct	Link 16 Header Word. Not optional.
tADILJMessage	TADILJWordStruct LengthlessArray1Plus	Link 16 message data words. Not optional.

JTIDSVoiceCVSDRadioSignal STRUCTURE

Link 16 radio signal containing a voice message encoded using CVSD.

Name	Type	Description
hostRadioIndex	string	The object instance ID of the radio transmitting this signal.
dataRate	rpr.BitRateBitPerSecondUnsignedInteger32	The rate at which the data is being transmitted.
signalDataLength	rpr.BitsUnsignedInteger16	The length of the signal data.
signalData	rpr.SignalDataLengthlessArray1Plus	The signal data.
tacticalDataLinkType	rpr.TacticalDataLinkTypeEnum16	The type of tactical data link used to transmitted this signal (if any).
tDLMessageCount	rpr.UnsignedInteger16	The number of tactical data link messages contained in this signal.
nPGNumber	NetworkParticipationGroupNumber	Network/Needline Participation Group (NPG) number. Not optional.
netNumber	NetworkNumber	Network Number. Not optional.
tsecCvll	CryptoVariable	Transmission Security Crypto Variable Logic Label. Optional for TSA Levels 0-2; default value: all bits set to one (no statement/wildcard).
msecCvll	CryptoVariable	Message Security Crypto Variable Logic Label. Optional for TSA Levels 0-2; default value: all bits set to one (no statement/wildcard).
sISOSTD002Version	rpr.SISOSTD002VersionEnum8	Indicates which SISO-STD-002 version was used, i.e., whether byte swapping has or has not been used in the Message Data field (0 = SISO-STD-002-2006, legacy byte swapping employed; 1 = SISO-STD-002-2021, new method, bit stream, no byte swapping employed). Not optional.
link16Version	rpr.Link16VersionEnum8	Indicates which version of MIL-STD-6016 or STANAG 5516 is being used. Optional; default value: NoStatement.
timeSlotID	TimeSlotIdentifier	Time slot identification. Optional for low-fidelity TSA Levels (0, 1); default value: all bits set to one (no statement/wildcard).
perceivedTransmitTime	NTPTimestampStruct	The time at which the radio signal is transmitted. Optional for low-fidelity synchronization (TSA Levels 0-3); default value: all bits set to one (no statement/wildcard).
dataLength	rpr.BitsUnsignedInteger16	The length of the encoded voice in the Data parameter, in bits. Not optional.
jTIDSHeader	JTIDSHeaderStruct	Link 16 Header Word. Not optional.
data	OctetLengthlessArray29Plus	JTIDS CVSD encoded voice data. Not optional.

JTIDSVoiceLPC10RadioSignal STRUCTURE

Link 16 radio signal containing a voice message encoded using LPC10.

Name	Type	Description
hostRadioIndex	string	The object instance ID of the radio transmitting this signal.
dataRate	rpr.BitRateBitPerSecondUnsignedInteger32	The rate at which the data is being transmitted.
signalDataLength	rpr.BitsUnsignedInteger16	The length of the signal data.
signalData	rpr.SignalDataLengthlessArray1Plus	The signal data.
tacticalDataLinkType	rpr.TacticalDataLinkTypeEnum16	The type of tactical data link used to transmitted this signal (if any).
tDLMessageCount	rpr.UnsignedInteger16	The number of tactical data link messages contained in this signal.
nPGNumber	NetworkParticipationGroupNumber	Network/Needline Participation Group (NPG) number. Not optional.
netNumber	NetworkNumber	Network Number. Not optional.
tsecCvll	CryptoVariable	Transmission Security Crypto Variable Logic Label. Optional for TSA Levels 0-2; default value: all bits set to one (no statement/wildcard).
msecCvll	CryptoVariable	Message Security Crypto Variable Logic Label. Optional for TSA Levels 0-2; default value: all bits set to one (no statement/wildcard).
sISOSTD002Version	rpr.SISOSTD002VersionEnum8	Indicates which SISO-STD-002 version was used, i.e., whether byte swapping has or has not been used in the Message Data field (0 = SISO-STD-002-2006, legacy byte swapping employed; 1 = SISO-STD-002-2021, new method, bit stream, no byte swapping employed). Not optional.
link16Version	rpr.Link16VersionEnum8	Indicates which version of MIL-STD-6016 or STANAG 5516 is being used. Optional; default value: NoStatement.
timeSlotID	TimeSlotIdentifier	Time slot identification. Optional for low-fidelity TSA Levels (0, 1); default value: all bits set to one (no statement/wildcard).
perceivedTransmitTime	NTPTimestampStruct	The time at which the radio signal is transmitted. Optional for low-fidelity synchronization (TSA Levels 0-3); default value: all bits set to one (no statement/wildcard).
dataLength	rpr.BitsUnsignedInteger16	The length of the encoded voice in the Data parameter, in bits. Not optional.
jTIDSHeader	JTIDSHeaderStruct	Link 16 Header Word. Not optional.
data	OctetLengthlessArray29Plus	JTIDS LPC10 encoded voice data. Not optional.

JTIDSVoiceLPC12RadioSignal STRUCTURE

Link 16 radio signal containing a voice message encoded using LPC12.

Name	Type	Description
hostRadioIndex	string	The object instance ID of the radio transmitting this signal.
dataRate	rpr.BitRateBitPerSecondUnsignedInteger32	The rate at which the data is being transmitted.
signalDataLength	rpr.BitsUnsignedInteger16	The length of the signal data.
signalData	rpr.SignalDataLengthlessArray1Plus	The signal data.
tacticalDataLinkType	rpr.TacticalDataLinkTypeEnum16	The type of tactical data link used to transmitted this signal (if any).

Name	Type	Description
tDLMessageCount	rpr.UnsignedInteger16	The number of tactical data link messages contained in this signal.
nPGNumber	NetworkParticipationGroupNumber	Network/Needline Participation Group (NPG) number. Not optional.
netNumber	NetworkNumber	Network Number. Not optional.
tsecCvll	CryptoVariable	Transmission Security Crypto Variable Logic Label. Optional for TSA Levels 0-2; default value: all bits set to one (no statement/wildcard).
msecCvll	CryptoVariable	Message Security Crypto Variable Logic Label. Optional for TSA Levels 0-2; default value: all bits set to one (no statement/wildcard).
sISOSTD002Version	rpr.SISOSTD002VersionEnum8	Indicates which SISO-STD-002 version was used, i.e., whether byte swapping has or has not been used in the Message Data field (0 = SISO-STD-002-2006, legacy byte swapping employed; 1 = SISO-STD-002-2021, new method, bit stream, no byte swapping employed). Not optional.
link16Version	rpr.Link16VersionEnum8	Indicates which version of MIL-STD-6016 or STANAG 5516 is being used. Optional; default value: NoStatement.
timeSlotID	TimeSlotIdentifier	Time slot identification. Optional for low-fidelity TSA Levels (0, 1); default value: all bits set to one (no statement/wildcard).
perceivedTransmitTime	NTPTimestampStruct	The time at which the radio signal is transmitted. Optional for low-fidelity synchronization (TSA Levels 0-3); default value: all bits set to one (no statement/wildcard).
dataLength	rpr.BitsUnsignedInteger16	The length of the encoded voice in the Data parameter, in bits. Not optional.
jTIDSHeader	JTIDSHeaderStruct	Link 16 Header Word. Not optional.
data	OctetLengthlessArray29Plus	JTIDS LPC12 encoded voice data. Not optional.

LETHeaderStruct STRUCTURE

Link 16 Enhanced Throughput (LET) Header Word (40 bits). Padded to 48 bits.

Name	Type	Description
data	OctetArray6	In total 48 bits, with the following fields: Bits 0-3: LET ID Symbol. Bit 4: Relay Transmission Indicator. Bits 5-8: LET Message Packing Type. Bits 9-23: Source Track Number of Sender. Bits 24-39: Secure Data Unit Serial Number. Bits 40-47: Padding, set to 0.

Named by JTIDSLETRadioSignal.

Link16RadioSignal STRUCTURE

Link 16 radio signal common base class.

Name	Type	Description
hostRadioIndex	string	The object instance ID of the radio transmitting this signal.
dataRate	rpr.BitRateBitPerSecondUnsignedInteger32	The rate at which the data is being transmitted.
signalDataLength	rpr.BitsUnsignedInteger16	The length of the signal data.
signalData	rpr.SignalDataLengthlessArray1Plus	The signal data.

Name	Type	Description
tacticalDataLinkType	rpr.TacticalDataLinkTypeEnum16	The type of tactical data link used to transmitted this signal (if any).
tDLMessageCount	rpr.UnsignedInteger16	The number of tactical data link messages contained in this signal.
nPGNumber	NetworkParticipationGroupNumber	Network/Needline Participation Group (NPG) number. Not optional.
netNumber	NetworkNumber	Network Number. Not optional.
tsecCvll	CryptoVariable	Transmission Security Crypto Variable Logic Label. Optional for TSA Levels 0-2; default value: all bits set to one (no statement/wildcard).
msecCvll	CryptoVariable	Message Security Crypto Variable Logic Label. Optional for TSA Levels 0-2; default value: all bits set to one (no statement/wildcard).
sISOSTD002Version	rpr.SISOSTD002VersionEnum8	Indicates which SISO-STD-002 version was used, i.e., whether byte swapping has or has not been used in the Message Data field (0 = SISO-STD-002-2006, legacy byte swapping employed; 1 = SISO-STD-002-2021, new method, bit stream, no byte swapping employed). Not optional.
link16Version	rpr.Link16VersionEnum8	Indicates which version of MIL-STD-6016 or STANAG 5516 is being used. Optional; default value: NoStatement.
timeSlotID	TimeSlotIdentifier	Time slot identification. Optional for low-fidelity TSA Levels (0, 1); default value: all bits set to one (no statement/wildcard).
perceivedTransmitTime	NTPTimestampStruct	The time at which the radio signal is transmitted. Optional for low-fidelity synchronization (TSA Levels 0-3); default value: all bits set to one (no statement/wildcard).

NTPTimestampStruct STRUCTURE

64-bit timestamp format according to RFC 5905. All bits set to one in both fields indicate a no statement/wildcard.

Name	Type	Description
seconds	rpr.UnsignedInteger32	Number of seconds since 0 h 1 January 1900 UTC.
fraction	rpr.UnsignedInteger32	Fraction of a second, in 1/(2^32) resolution (232 picoseconds).

Named by JTIDSLETRadioSignal, JTIDSMessageRadioSignal, JTIDSVoiceCVSDRadioSignal, JTIDSVoiceLPC10RadioSignal, JTIDSVoiceLPC12RadioSignal, Link16RadioSignal, RTTABRadioSignal, RTTReplyRadioSignal, VMFRadioSignal.

RTTABRadioSignal STRUCTURE

Link 16 radio signal containing an RTT/A or RTT/B message.

Name	Type	Description
hostRadioIndex	string	The object instance ID of the radio transmitting this signal.
dataRate	rpr.BitRateBitPerSecondUnsignedInteger32	The rate at which the data is being transmitted.
signalDataLength	rpr.BitsUnsignedInteger16	The length of the signal data.
signalData	rpr.SignalDataLengthlessArray1Plus	The signal data.
tacticalDataLinkType	rpr.TacticalDataLinkTypeEnum16	The type of tactical data link used to transmitted this signal (if any).
tDLMessageCount	rpr.UnsignedInteger16	The number of tactical data link messages contained in this signal.

Name	Type	Description
nPGNumber	NetworkParticipationGroupNumber	Network/Needline Participation Group (NPG) number. Not optional.
netNumber	NetworkNumber	Network Number. Not optional.
tsecCvll	CryptoVariable	Transmission Security Crypto Variable Logic Label. Optional for TSA Levels 0-2; default value: all bits set to one (no statement/wildcard).
msecCvll	CryptoVariable	Message Security Crypto Variable Logic Label. Optional for TSA Levels 0-2; default value: all bits set to one (no statement/wildcard).
sISOSTD002Version	rpr.SISOSTD002VersionEnum8	Indicates which SISO-STD-002 version was used, i.e., whether byte swapping has or has not been used in the Message Data field (0 = SISO-STD-002-2006, legacy byte swapping employed; 1 = SISO-STD-002-2021, new method, bit stream, no byte swapping employed). Not optional.
link16Version	rpr.Link16VersionEnum8	Indicates which version of MIL-STD-6016 or STANAG 5516 is being used. Optional; default value: NoStatement.
timeSlotID	TimeSlotIdentifier	Time slot identification. Optional for low-fidelity TSA Levels (0, 1); default value: all bits set to one (no statement/wildcard).
perceivedTransmitTime	NTPTimestampStruct	The time at which the radio signal is transmitted. Optional for low-fidelity synchronization (TSA Levels 0-3); default value: all bits set to one (no statement/wildcard).
rttab	RTTABStruct	JTIDS RTT A/B message word. Not optional.

RTTABStruct STRUCTURE

JTIDS RTT A/B word (35 bits). Padded to 48 bits.

Name	Type	Description
data	OctetArray6	In total 48 bits, with the following fields: Bits 0-2: Time Slot Type. Bit 3: RTT Interrogation Type. Bits 4-18: variable content, see MIL-STD-6016 or STANAG 5516. Bits 19-34: Secure Data Unit Serial Number. Bits 35-47: Padding, set to 0.

Named by RTTABRadioSignal.

RTTReplyRadioSignal STRUCTURE

Link 16 radio signal containing an RTT Reply message.

Name	Type	Description
hostRadioIndex	string	The object instance ID of the radio transmitting this signal.
dataRate	rpr.BitRateBitPerSecondUnsignedInteger32	The rate at which the data is being transmitted.
signalDataLength	rpr.BitsUnsignedInteger16	The length of the signal data.
signalData	rpr.SignalDataLengthlessArray1Plus	The signal data.
tacticalDataLinkType	rpr.TacticalDataLinkTypeEnum16	The type of tactical data link used to transmitted this signal (if any).
tDLMessageCount	rpr.UnsignedInteger16	The number of tactical data link messages contained in this signal.
nPGNumber	NetworkParticipationGroupNumber	Network/Needline Participation Group (NPG) number. Not optional.
netNumber	NetworkNumber	Network Number. Not optional.

Name	Type	Description
tsecCvll	CryptoVariable	Transmission Security Crypto Variable Logic Label. Optional for TSA Levels 0-2; default value: all bits set to one (no statement/wildcard).
msecCvll	CryptoVariable	Message Security Crypto Variable Logic Label. Optional for TSA Levels 0-2; default value: all bits set to one (no statement/wildcard).
sISOSTD002Version	rpr.SISOSTD002VersionEnum8	Indicates which SISO-STD-002 version was used, i.e., whether byte swapping has or has not been used in the Message Data field (0 = SISO-STD-002-2006, legacy byte swapping employed; 1 = SISO-STD-002-2021, new method, bit stream, no byte swapping employed). Not optional.
link16Version	rpr.Link16VersionEnum8	Indicates which version of MIL-STD-6016 or STANAG 5516 is being used. Optional; default value: NoStatement.
timeSlotID	TimeSlotIdentifier	Time slot identification. Optional for low-fidelity TSA Levels (0, 1); default value: all bits set to one (no statement/wildcard).
perceivedTransmitTime	NTPTimestampStruct	The time at which the radio signal is transmitted. Optional for low-fidelity synchronization (TSA Levels 0-3); default value: all bits set to one (no statement/wildcard).
rTTReply	RTTReplyStruct	JTIDS RTT reply message word. Not optional.

RTTReplyStruct STRUCTURE

JTIDS RTT Reply word (35 bits). Padded to 48 bits.

Name	Type	Description
data	OctetArray6	In total 48 bits, with the following fields: Bits 0-18: Time of Arrival. Bits 19-34: Secure Data Unit Serial Number. Bits 35-47: Padding, set to 0.

Named by RTTReplyRadioSignal.

TADILJWordStruct STRUCTURE

TADIL-J word (75 bits) used for Fixed Word Format (FWF) messages and the Variable Message Format (VMF). Padded to 80 bits.

Name	Type	Description
data	OctetArray10	In total 80 bits, with the following fields: Bits 0-1: Word Format. Bits 2-69: variable content, see MIL-STD-6016 or STANAG 5516 for FWF J-Words. Bits 70-74: Parity. Bits 75-79: Padding, set to 0.

Named by TADILJWordStructLengthlessArray1Plus.

TDLBinaryRadioSignal STRUCTURE

Parent class for all TDL radio signals.

Name	Type	Description
hostRadioIndex	string	The object instance ID of the radio transmitting this signal.
dataRate	rpr.BitRateBitPerSecondUnsignedInteger32	The rate at which the data is being transmitted.
signalDataLength	rpr.BitsUnsignedInteger16	The length of the signal data.
signalData	rpr.SignalDataLengthlessArray1Plus	The signal data.

Name	Type	Description
tacticalDataLinkType	rpr.TacticalDataLinkTypeEnum16	The type of tactical data link used to transmitted this signal (if any).
tDLMessageCount	rpr.UnsignedInteger16	The number of tactical data link messages contained in this signal.

VMFRadioSignal STRUCTURE

Link 16 radio signal containing Variable Message Format (VMF) messages.

Name	Type	Description
hostRadioIndex	string	The object instance ID of the radio transmitting this signal.
dataRate	rpr.BitRateBitPerSecondUnsignedInteger32	The rate at which the data is being transmitted.
signalDataLength	rpr.BitsUnsignedInteger16	The length of the signal data.
signalData	rpr.SignalDataLengthlessArray1Plus	The signal data.
tacticalDataLinkType	rpr.TacticalDataLinkTypeEnum16	The type of tactical data link used to transmitted this signal (if any).
tDLMessageCount	rpr.UnsignedInteger16	The number of tactical data link messages contained in this signal.
nPGNumber	NetworkParticipationGroupNumber	Network/Needline Participation Group (NPG) number. Not optional.
netNumber	NetworkNumber	Network Number. Not optional.
tsecCvll	CryptoVariable	Transmission Security Crypto Variable Logic Label. Optional for TSA Levels 0-2; default value: all bits set to one (no statement/wildcard).
msecCvll	CryptoVariable	Message Security Crypto Variable Logic Label. Optional for TSA Levels 0-2; default value: all bits set to one (no statement/wildcard).
sISOSTD002Version	rpr.SISOSTD002VersionEnum8	Indicates which SISO-STD-002 version was used, i.e., whether byte swapping has or has not been used in the Message Data field (0 = SISO-STD-002-2006, legacy byte swapping employed; 1 = SISO-STD-002-2021, new method, bit stream, no byte swapping employed). Not optional.
link16Version	rpr.Link16VersionEnum8	Indicates which version of MIL-STD-6016 or STANAG 5516 is being used. Optional; default value: NoStatement.
timeSlotID	TimeSlotIdentifier	Time slot identification. Optional for low-fidelity TSA Levels (0, 1); default value: all bits set to one (no statement/wildcard).
perceivedTransmitTime	NTPTimestampStruct	The time at which the radio signal is transmitted. Optional for low-fidelity synchronization (TSA Levels 0-3); default value: all bits set to one (no statement/wildcard).
jTIDSHeader	JTIDSHeaderStruct	Link 16 Header Word. Not optional.
messageData	TADILJWordStructLengthlessArray1Plus	Link 16 message data words with VMF information fields. Not optional.

Arrays

OctetArray10	Array of 10 octets.	18
OctetArray6	Array of 6 octets.	19
OctetLengthlessArray29Plus	Array of at least 29 octets, encoded without the number of array elements.	19
TADILJWordStructLengthlessArray1Plus	Array of at least 1 TADILJWordStruct, encoded without the number of array elements.	19

OctetArray10 SEQUENCE

Array of 10 octets.

```
sequence<rpr.Octet, 10> OctetArray10;
```

Named by TADILJWordStruct.

OctetArray6 SEQUENCE

Array of 6 octets.

```
sequence<rpr.Octet, 6> OctetArray6;
```

Named by JTIDSHeaderStruct, LETHeaderStruct, RTTABStruct, RTTReplyStruct.

OctetLengthlessArray29Plus SEQUENCE

Array of at least 29 octets, encoded without the number of array elements.

```
sequence<rpr.Octet> OctetLengthlessArray29Plus;
```

Named by JTIDSVoiceCVSDRadioSignal, JTIDSVoiceLPC10RadioSignal, JTIDSVoiceLPC12RadioSignal.

TADILJWordStructLengthlessArray1Plus SEQUENCE

Array of at least 1 TADILJWordStruct, encoded without the number of array elements.

```
sequence<TADILJWordStruct> TADILJWordStructLengthlessArray1Plus;
```

Named by JTIDSLETRadioSignal, JTIDSMessageRadioSignal, VMFRadioSignal.

Aliases

CryptoVariable	An integer identification of the crypto variable used for JTIDS transmission and message encryption. This variable allows for simulated crypto netting. Valid range: [0,127] and all bits set to one indicating no statement/wildcard.	19
NetworkNumber	Used to create virtual sub-circuits within NPG for stacked nets or between NPGs for multi-net operations. Valid range: [0,127].	19
NetworkParticipationGroupNumber	Used to segregate information within a JTIDS/MIDS network. Creates virtual networks of participants. Valid range: [0,511].	20
TimeSlotIdentifier	Bits 0-16 indicate the Time Slot Number; valid arrange [0,98303]. Time Slot 0 represents time slot A-1, and Time Slot 98303 represents C-32767. When the Epoch is 112, the last valid time slot is 45151 (end of the day). Bits 17-23 are padding and set to 0. Bits 24-31 indicate the Epoch number; valid range [0,112]. An epoch is 12.8 minutes long, 112.5 epochs in a 24 hour day. All bits set to one (including the padding field) indicate a no statement/wildcard.	20

CryptoVariable ALIAS

An integer identification of the crypto variable used for JTIDS transmission and message encryption. This variable allows for simulated crypto netting. Valid range: [0,127] and all bits set to one indicating no statement/wildcard.

```
alias CryptoVariable u8;
```

Named by JTIDSLETRadioSignal, JTIDSMessageRadioSignal, JTIDSVoiceCVSDRadioSignal, JTIDSVoiceLPC10RadioSignal, JTIDSVoiceLPC12RadioSignal, Link16RadioSignal, RTTABRadioSignal, RTTReplyRadioSignal, VMFRadioSignal.

NetworkNumber ALIAS

Used to create virtual sub-circuits within NPG for stacked nets or between NPGs for multi-net operations. Valid range: [0,127].

```
alias NetworkNumber u8;
```

Named by JTIDSLETRadioSignal, JTIDSMessageRadioSignal, JTIDSVoiceCVSDRadioSignal, JTIDSVoiceLPC10RadioSignal, JTIDSVoiceLPC12RadioSignal, Link16RadioSignal, RTTABRadioSignal, RTTReplyRadioSignal, VMFRadioSignal.

NetworkParticipationGroupNumber ALIAS

Used to segregate information within a JTIDS/MIDS network. Creates virtual networks of participants. Valid range: [0,511].

```
alias NetworkParticipationGroupNumber u16;
```

Named by JTIDSLETRadioSignal, JTIDSMessageRadioSignal, JTIDSVoiceCVSDRadioSignal, JTIDSVoiceLPC10RadioSignal, JTIDSVoiceLPC12RadioSignal, Link16RadioSignal, RTTABRadioSignal, RTTReplyRadioSignal, VMFRadioSignal.

TimeSlotIdentifier ALIAS

Bits 0-16 indicate the Time Slot Number; valid arrange [0,98303]. Time Slot 0 represents time slot A-1, and Time Slot 98303 represents C-32767. When the Epoch is 112, the last valid time slot is 45151 (end of the day). Bits 17-23 are padding and set to 0. Bits 24-31 indicate the Epoch number; valid range [0,112]. An epoch is 12.8 minutes long, 112.5 epochs in a 24 hour day. All bits set to one (including the padding field) indicate a no statement/wildcard.

```
alias TimeSlotIdentifier u32;
```

Named by JTIDSLETRadioSignal, JTIDSMessageRadioSignal, JTIDSVoiceCVSDRadioSignal, JTIDSVoiceLPC10RadioSignal, JTIDSVoiceLPC12RadioSignal, Link16RadioSignal, RTTABRadioSignal, RTTReplyRadioSignal, VMFRadioSignal.

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Object classes

ATP45HazardArea	Represents the footprint generated by a CBRN warning and reporting simulation. This follows the NATO ATP-45 doctrine to generate a hazard area.	23
AidToNavigation	This class defines additional attributes for aid to navigation (ATON) equipment.	23
AisEquipmentItem	This class defines additional attributes for AIS equipment. Depending on the kind of AIS equipment, further attributes are added in sub-classes.	23
Basestation	This class defines additional attributes for basestation equipment.	23
CBRNAircraft	Extension of NETN_Aircraft to provide CBRN modelling.	23
CBRNAmphibiousVehicle	Extension of NETN_AmphibiousVehicle to provide CBRN modelling.	24
CBRNDetector	Represents a CBRN detector. This object is used to pass information to a CBRN federate, which will model the detector internally and publish a CBRN_DetectorAlarm.	24
CBRNGroundVehicle	Extension of NETN_GroundVehicle to provide CBRN modelling.	24
CBRNHuman	Extension of NETN_Human to provide CBRN modelling.	24
CBRNMultiDomainPlatform	Extension of NETN_MultiDomainPlatform to provide CBRN modelling.	24
CBRNSensor	Represents a CBRN sensor. This object is used to pass information to a CBRN federate, which will return sensor readings by publishing CBRN_SensorUpdate interactions.	25
CBRNSpacecraft	Extension of NETN_Spacecraft to provide CBRN modelling.	25
CBRNSubmersibleVessel	Extension of NETN_SubmersibleVehicle to provide CBRN modelling.	25
CBRNSurfaceVessel	Extension of NETN_SurfaceVessel to provide CBRN modelling.	25
COLPRO	Represents a feature that provides Collective Protection (COLPRO) against a CBRN threat.	25
COMRoot	Abstract root class for all NETN-COM objects.	25
CheckPoint	A checkpoint defines a location where simulated aggregate and physical entities should stop and wait a specified time before continuing on their route. If the checkpoint is currently in operation the status attribute should be set to true. A system simulating movement of physical or aggregate entities can be either directly affected by the checkpoint by subscribing to its state or indirectly by receiving an NETN-ETR `Wait` task.	26
CommunicationNetwork	The CommunicationNetwork class specifies details about the type of and service used by a logical communication network. This corresponds to the CommunicationNet-Elements of MSDL Units and Equipments. Instances of this object class should be considered as optional. No federate should rely on this data to work with communication networks.	26
CommunicationNode	A CommunicationNode is the representation of the interface of a simulated entity to logical communication networks. The location of the CommunicationNode is derived from the referenced entity or specified explicitly (if the referenced entity is not registered in the federation). Connections to communication networks are established only if connectivity exists based on the status of available network devices and the simulation of links. Each potential connection is described in terms of requested connections (the equivalent to the information provided by MSDL).	26
Connection	Description of an outgoing connection from a sender to a set of receivers.	27
DecontaminationStation	Represents a feature that provides treatment for CBRN exposure.	27
DisruptionEffect	The `DisruptionEffect` object class is used to represent the disruption of connections between communication nodes in an affected area. Communication models can subscribe to disruption-effect objects and use the information to simulate the effect of disruption on communication nodes, connections and link states.	27
EnvironmentCondition	Root class for all types of EnvironmentCondition objects. The region where the EnvironmentCondition applies is defined by the GeoReference attribute, as follows. If GeoReference is provided as a geographical area, and the sub class in question has surface semantics (water/land), the EnvironmentCondition applies only within that area of the surface. If GeoReference is provided as a geographical area, and the sub class in question defines a Layer attribute, the EnvironmentCondition applies only within the volume bounded both by the Layer and by the body described by projecting each point of the area along a line through the center of the earth. (This means, e.g., that any volumes described by two adjacent geodetic quadrangles will never overlap, and if they belong to the same layer, will also be adjacent.) If GeoReference is provided as a RPREntityReference, NETNEntityReference or GMLFeatureReference identifying a feature (as opposed to a geometry object), the EnvironmentCondition is considered to apply only to the immediate vicinity of the referenced entity/feature: any Layer attribute specified by a sub class is ignored in this case. If not provided, the EnvironmentCondition is considered global, only restricted by the semantics of its particular sub class.	27
EquipmentItem	Representation of an equipment item based on attributes defined in the NETN-ORG extensions of MSDL.	28
FederateApplication	Representation of the allocation of initial modelling responsibility of units and equipment items to a federate application.	28

Force	Representation of a specific force and its relationship with other forces. Units belonging to a force all have the same relationship with units belonging to another force. The relationships between forces can be asymmetrical, e.g. Force A can be hostile to B while B is neutral to A. The relation may change during a federation execution.	29
Installation	Representation of an installation/facility based on attributes defined in the NETN-ORG extensions of MSDL.	29
LandSurface	The environment conditions related to a land surface. Besides the common attributes such as Temperature, Wind and Precipitaion etc. additional detail regarding snow, moisture, and ice conditions of the land surface can be represented. All attributes of LandSurfaceCondition objects are optional. An instance of this class without a GeoReference is considered to apply to all land surfaces.	29
LinkStates	Representation of the state of links in a physical network.	30
Location	A location is a geographical point in latitude, longitude and altitude above mean sea level.	30
METOCRoot	Superclass for Environment Conditions and Layers.	30
NETNAggregate	Aggregate extensions for NETN	30
NETNAircraft	Extension of RPR-FOM Aircraft object class.	32
NETNAmphibiousVehicle	Extensions for NETN	34
NETNCulturalFeature	Extensions for NETN	35
NETNGroundVehicle	Extensions for NETN	36
NETNHuman	Extensions for NETN	37
NETNMultiDomainPlatform	Extensions for NETN	37
NETNMunition	Extension for NETN	39
NETNNonHuman	Extensions for NETN	39
NETNSpacecraft	Extensions for NETN	40
NETNSubmersibleVessel	Extensions for NETN	41
NETNSurfaceVessel	Extensions for NETN	42
ORGRoot	Root object class for all NETN-ORG object classes. Includes unique identifier and unique name attributes inherited by all subclasses.	43
Path	A path is defiend as a sequence of at least two locations. Each location in the path is defined geodetic coordinates and altitude above the mean sea level.	43
PhysicalNetwork	This object class represents type-specific parameters/bounds for a physical network. Physical networks are simulated by LinkState objects and do not require that an instance of PhysicalNetwork exist in the federation.	43
ProbabilityHazardContourGroup	Represents the footprint covered by a CBRN hazard. This object covers the agent-specific effects which would be the output from a casualty model.	44
RawDataHazardContourGroup	Represents the footprint covered by a CBRN hazard. This object covers the raw data which would be the output from a dispersion model.	44
Region	A region is an area on the earth's surface defined by a polygon or a circle.	44
SARaircraft	This class defines additional attributes for SAR aircraft equipment.	44
SEFacility	Base class for NETN Syntetic Environment object classes.	44
SEGeoObject	Representation of geographically associated locations, paths, and regions with or without a defined name. E.g. a harbour may be represented as a Location with a specific name, a commonly used route can be represented as a named path and a region can be represented as an specific geographic are and reused as an object instance in the simulation.	45
Service	All systems providing EnvironmentCondition information as either object instances or as responses to service requests must register a Service object instance.	45
SubsurfaceLayer	EnvironmentCondition of a subsurface water layer. If GeoReference is not provided, the condition is considered global within the specified Layer.	45
TroposphereLayer	If overlapping Atmospheric Conditions exist the following merging rules apply: Humidity, AirTemperature and BarometricPressure are calculated as the average of the overlapping conditions. Visibility is calculated as the minimum visibility distance of the overlapping conditions. A TroposhpereLayer instance without a GeoReference is considered global within its specified Layer.	46
Unit	Representation of an organizational unit based on attributes defined in the NETN-ORG extensions of MSDL.	46
Vessel	This class defines additional attributes for vessel equipment.	47
WaterSurface	Condition of sea surface in the specified region. An instance of this class without a GeoReference is considered to apply to all water surfaces.	47
Weather	Information about the general weather condition can be represented using WeatherCondition objects. Common data such as Temperature, Wind and Precipitaion is represented but also details regarding Barometric Pressure and Humidity. Information about Visual Range and Haze conditions can also be represented. All attributes of WeatherCondition objects are optional. An instance of this class without a GeoReference is considered global above sea level.	48

ATP45HazardArea CLASS

Represents the footprint generated by a CBRN warning and reporting simulation. This follows the NATO ATP-45 doctrine to generate a hazard area.

Name	Type	Flags	Description
time	EpochTimeSecInt64	RO D BE	Simulation time at which this hazard area was generated.
validityTime	rpr.TimeSecond Integer32	RO D BE	Duration (in seconds) from the Time attribute that this hazard area prediction is valid.
locations	GeocentricPolygon	RO D BE	Array of locations that define the hazard area
aTP45HazardAreaType	ATP45HazardArea TypeEnum8	RO S BE	This hazard area's type
agentClass	AgentClassEnum8	RO S BE	The agent class
uniqueID	UuidArrayOf HLAbyte16	RO S BE	Unique representation of the area's ID.

AidToNavigation CLASS

This class defines additional attributes for aid to navigation (ATON) equipment.

AisEquipmentItem CLASS

This class defines additional attributes for AIS equipment. Depending on the kind of AIS equipment, further attributes are added in sub-classes.

Name	Type	Flags	Description
mmsi	i32	RO S C	Optional. The MMSI number (Maritime Mobile Service Identity) of the AIS station. If the value is not provided then the subscribing federate that is responsible for the modelling of the AIS station shall generate a value. Note that the value of each individual AIS station must be unique across all AIS stations in the simulation. Recycling MMSI numbers is not adviced since some systems may retain dead tracks for some time.
transmitterStatus	rpr.Transmitter OperationalStatus Enum8	RO D C	Optional. The initial status of the AIS Transmitter(s) of the AIS station. If the value is not provided then the value shall assumed to be ON.
radioSystemType	rpr.EntityTypeStruct	RO S C	Optional. The type of transmitter. If the value is not provided then the subscribing federate that is responsible for the modelling of the AIS station shall determine the type of transmitter.

Basestation CLASS

This class defines additional attributes for basestation equipment.

CBRNAircraft CLASS

Extension of NETN_Aircraft to provide CBRN modelling.

Name	Type	Flags	Description
contamination	ArrayOfAgentMass Struct	RO D BE	CBRN hazardous agent inside vehicle due to embedded units.

CBRNAmphibiousVehicle CLASS

Extension of NETN_AmphibiousVehicle to provide CBRN modelling.

Name	Type	Flags	Description
contamination	ArrayOfAgentMass Struct	RO D BE	CBRN hazardous agent inside vehicle due to embedded units.

CBRNDetector CLASS

Represents a CBRN detector. This object is used to pass information to a CBRN federate, which will model the detector internally and publish a CBRN_DetectorAlarm.

Name	Type	Flags	Description
uniqueID	UuidArrayOf HLAbyte16	RO S BE	Unique representation of the detector's ID.
processingTime	rpr.TimeSecond Integer32	RO S BE	Duration (in seconds) between the detector being exposed to a concentration of agent above its threshold and the detector raising an alarm.
averagingTime	rpr.TimeSecond Integer32	RO S BE	Duration (in seconds) over which the detector will collect samples.
detectableAgents	ArrayOfAgent ConcentrationStruct	RO S BE	Array of detectable agents and their thresholds.
alarm	CBRNAlarmStruct	RO D BE	Data representing the alarm of this detector. Defaults to no alarm if the attribute is not set.

CBRNGroundVehicle CLASS

Extension of NETN_GroundVehicle to provide CBRN modelling.

Name	Type	Flags	Description
contamination	ArrayOfAgentMass Struct	RO D BE	CBRN hazardous agent inside vehicle due to embedded units.

CBRNHuman CLASS

Extension of NETN_Human to provide CBRN modelling.

Name	Type	Flags	Description
exposures	ArrayOf CBRNExposureStruct	RO D BE	Array of agents to which this entity has been exposed to. Defaults to an empty array.
treatments	ArrayOfTreatment Struct	RO D BE	The types of treatment that this entity has used. Defaults to an empty array.
triageLevel	CBRNDamageEnum8	RO D BE	Triage level of this entity. Defaults to Uninjured.
iPEType	IPETypeEnum8	RO D BE	Type of IPE that the entity has donned. Defaults to None.

CBRNMultiDomainPlatform CLASS

Extension of NETN_MultiDomainPlatform to provide CBRN modelling.

Name	Type	Flags	Description
contamination	ArrayOfAgentMass Struct	RO D BE	CBRN hazardous agent inside vehicle due to embedded units.

CBRNSensor CLASS

Represents a CBRN sensor. This object is used to pass information to a CBRN federate, which will return sensor readings by publishing CBRN_SensorUpdate interactions.

Name	Type	Flags	Description
uniqueID	UuidArrayOf HLAbyte16	RO S BE	Unique representation of the sensor's ID.
updateFrequency	rpr.TimeSecond Integer32	RO S BE	Duration (in seconds) that this sensor would like between updated readings.
averagingTime	rpr.TimeSecond Integer32	RO S BE	Duration (in seconds) over which the sensor will collect samples.
detectableAgents	ArrayOfAgentType Enum	RO S BE	Array of agents that this sensor wishes to detect.
sensorReadings	ArrayOfCBRNSensor ReadingStruct	RO D BE	Latest sensor readings. Defaults to no readings if this attribute is not set.

CBRNSpacecraft CLASS

Extension of NETN_Spacecraft to provide CBRN modelling.

Name	Type	Flags	Description
contamination	ArrayOfAgentMass Struct	RO D BE	CBRN hazardous agent inside vehicle due to embedded units.

CBRNSubmersibleVessel CLASS

Extension of NETN_SubmersibleVehicle to provide CBRN modelling.

Name	Type	Flags	Description
contamination	ArrayOfAgentMass Struct	RO D BE	CBRN hazardous agent inside vehicle due to embedded units.

CBRNSurfaceVessel CLASS

Extension of NETN_SurfaceVessel to provide CBRN modelling.

Name	Type	Flags	Description
contamination	ArrayOfAgentMass Struct	RO D BE	CBRN hazardous agent inside vehicle due to embedded units.

COLPRO CLASS

Represents a feature that provides Collective Protection (COLPRO) against a CBRN threat.

Name	Type	Flags	Description
numberEntities	QuantityUInt32	RO S BE	The number of entities that this COLPRO can handle.
protection	ArrayOfProtection EffectivenessStruct	RO S BE	The effectiveness that this COLPRO offers for each agent.

COMRoot CLASS

Abstract root class for all NETN-COM objects.

Name	Type	Flags	Description
uniqueId	UUID	RO D C	Required. Unique identifer for all NETN-COM object classes.

CheckPoint CLASS

A checkpoint defines a location where simulated aggregate and physical entities should stop and wait a specified time before continuing on their route. If the checkpoint is currently in operation the status attribute should be set to true. A system simulating movement of physical or aggregate entities can be either directly affected by the checkpoint by subscribing to its state or indirectly by receiving an NETN-ETR `Wait` task.

Name	Type	Flags	Description
`delayTime`	rpr.TimeSecond Integer32	RO D C	Required. The time that an entity shall wait at the checkpoint before passing. The time is a nominal value; federates can use this for modifying delay time for different types of entities, e.g. add or subtract a value or multiply with a type depending factor.

CommunicationNetwork CLASS

The CommunicationNetwork class specifies details about the type of and service used by a logical communication network. This corresponds to the CommunicationNet-Elements of MSDL Units and Equipments. Instances of this object class should be considered as optional. No federate should rely on this data to work with communication networks.

Name	Type	Flags	Description
`uniqueName`	Text64	RO S C	Required. Unique communication network name. Unique in the context of communication networks.
`networkType`	Communication NetworkTypeEnum	RO S C	Optional. The communication network type of use.
`serviceType`	CommunicationService TypeEnum	RO S C	Optional. The type of service used on the communication network.

CommunicationNode CLASS

A CommunicationNode is the representation of the interface of a simulated entity to logical communication networks. The location of the CommunicationNode is derived from the referenced entity or specified explicitly (if the referenced entity is not registered in the federation). Connections to communication networks are established only if connectivity exists based on the status of available network devices and the simulation of links. Each potential connection is described in terms of requested connections (the equivalent to the information provided by MSDL).

Name	Type	Flags	Description
`entityId`	UUID	RO S C	Required. Reference by UUID to an object instance of one of the following classes: * NETN-MRM Aggregate Entity * NETN-Physical extensions of RPR Physical Entities. If the referenced entity exists in the federation, the location of the node is derived from the location of the entity. If the referenced entity does not exist in the federation, the location of the node is defined by the Location attribute.
`location`	rpr.WorldLocation Struct	RO D C	Optional. Specifies the location of the CommunicationNode in case the entity referenced by EntityId is not registered in the federation. If the entity referenced by EntityId exists in the federation, the location of the communication node is derived from that entity and the value of the Location attribute shall be ignored.
`requestedConnections`	RequestedConnection Array	RO D C	Required. Possible (requested) connections for the communication node.

Name	Type	Flags	Description
networkDevices	NetworkDeviceArray	RO D C	Required. Available network devices defining the association of a communication network (connection layer) with a physical network (link layer). Each network device can be associated with several communication networks but only to one physical network. Each network device also describes the transmitter and receiver capabilities.
incomingConnections	IncomingConnectionArray	RO D C	Optional. Description of all incoming connections to the receiving entity.

Connection CLASS

Description of an outgoing connection from a sender to a set of receivers.

Name	Type	Flags	Description
communicationNetworkName	Text64	RO S C	Required. A reference to the communication network this connection belongs to.
senderEntityId	UUID	RO S C	Required. A reference to the entity sending data using this connection.
receivers	ConnectionReceiverArray	RO D C	Required. Characteristics of the connections to individual receiving entities.

DecontaminationStation CLASS

Represents a feature that provides treatment for CBRN exposure.

Name	Type	Flags	Description
numberEntities	QuantityUInt32	RO S BE	The number of entities that this decontamination station can handle.
decontaminationPeriod	rpr.TimeSecondInteger32	RO S BE	Duration in seconds it takes to decontaminate an entity.
treatments	ArrayOfTreatmentStruct	RO D BE	The types of treatment that this decontamination station currently offers.

DisruptionEffect CLASS

The `DisruptionEffect` object class is used to represent the disruption of connections between communication nodes in an affected area. Communication models can subscribe to disruption-effect objects and use the information to simulate the effect of disruption on communication nodes, connections and link states.

Name	Type	Flags	Description
affectedNetworks	ArrayOfText64	RO D C	Optional. Names of all affected communication networks. If not provided all networks in the specified area are affected.
affectedArea	GeodeticQuadrangle	RO D C	Optional. Area affected by disruption. If not provided the default is a global disruption and all connections are affected.
effect	PercentFloat64	RO D C	Required. Level of disruption in percent. 100% equals No connectivity and 0% no disruption effect. The level of disruption can vary over time.

EnvironmentCondition CLASS

Root class for all types of EnvironmentCondition objects. The region where the EnvironmentCondition applies is defined by the GeoReference attribute, as follows. If GeoReference is provided as a geographical area, and the sub class in question has surface semantics (water/land), the EnvironmentCondition applies only within that area of the surface. If GeoReference

is provided as a geographical area, and the sub class in question defines a Layer attribute, the EnvironmentCondition applies only within the volume bounded both by the Layer and by the body described by projecting each point of the area along a line through the center of the earth. (This means, e.g., that any volumes described by two adjacent geodetic quadrangles will never overlap, and if they belong to the same layer, will also be adjacent.) If GeoReference is provided as a RPREntityReference, NETNEntityReference or GMLFeatureReference identifying a feature (as opposed to a geometry object), the EnvironmentCondition is considered to apply only to the immediate vicinity of the referenced entity/feature: any Layer attribute specified by a sub class is ignored in this case. If not provided, the EnvironmentCondition is considered global, only restricted by the semantics of its particular sub class.

Name	Type	Flags	Description
serviceId	UUID	RO S C	Required. Identifies the METOC Service which produced the EnvironmentCondition object.
geoReference	GeoReferenceVariant	RO S C	Optional. A geographical location, region, feature or simulated object.

EquipmentItem CLASS

Representation of an equipment item based on attributes defined in the NETN-ORG extensions of MSDL.

Name	Type	Flags	Description
nameNonSen	Text255	RO S C	Required. A unique name of the equipment item.
holdingUnit	UUID	RO D C	Required. Identifies the lowest level unit in the ORBAT to which this equipment item belongs.
mountedOn	UUID	RO D C	Optional. Reference to another equipment item on which this item is mounted or attached.
entityType	rpr.EntityTypeStruct	RO S C	Required. SISO-REF-010 code for entity type definitions. If unknown, use 0.0.0.0.0.0.0.
natoStockNumber	NatoStockNumber Array13	RO S C	Optional. NATO stock number code. 13 digits (0-9)
symbolId	string	RO D C	Required. A symbol identifier represented as a string.
symbolAmplification	EquipmentSymbol AmplificationStruct	RO D C	Optional. Text amplifications for the equipment's symbol. Static or very low update rate.
disposition	DispositionStruct	RO D C	Required. Detailed positional information on equipment item.
communicationNetworks	ArrayOf Communication Networks	RO D C	Optional. Set of Communication Networks that the equipment monitors and uses to communicate during a mission.
resolution	ModelResolutionType Enum32	RO D C	Optional. Enumeration indicating the level of fidelity appropriate for instancing the equipment in the simulation. Default value: NOT_SPECIFIED.

FederateApplication CLASS

Representation of the allocation of initial modelling responsibility of units and equipment items to a federate application.

Name	Type	Flags	Description
nameNonSen	Text255	RO S C	Required. A unique name in the organization to group units and equipment items. This group name is used to determine the initial allocation of modelling responsibility of units and equipment items to a federate. The federation agreements should specify how this name is to be interpreted and how the allocation will be performed. A common agreement and practice are to use the federate name as group name, i.e. the units and equipment items are allocated to the federate with that name. Typically one application will be

Name	Type	Flags	Description
			responsible for performing the allocation. Alternatives for the group name are for example: federate type name, a functional name.
units	ArrayOfUuid	RO D C	Optional. The units for which the federate has the responsibility of simulating. Default is an empty list.
equipmentItems	ArrayOfUuid	RO D C	Optional. The equipment for which the federate has the responsibility of simulating. Default is an empty list.
installations	ArrayOfUuid	RO D C	Optional. The installations for which the federate has the responsibility of simulating. Default is an empty list.

Force CLASS

Representation of a specific force and its relationship with other forces. Units belonging to a force all have the same relationship with units belonging to another force. The relationships between forces can be asymmetrical, e.g. Force A can be hostile to B while B is neutral to A. The relation may change during a federation execution.

Name	Type	Flags	Description
nameNonSen	Text255	RO S C	Required. Name of the force/side.
relations	ArrayOfRelations	RO D C	Optional. Sequence of relations, force-relation. Default is an empty array.

Installation CLASS

Representation of an installation/facility based on attributes defined in the NETN-ORG extensions of MSDL.

Name	Type	Flags	Description
nameNonSen	Text255	RO S C	Required. A unique name of the installation.
owner	UUID	RO D C	Required. Reference to the force, unit or equipment item owning or hosting the installation.
entityType	rpr.EntityTypeStruct	RO S C	Required. SISO-REF-010 code for entity type definitions. If unknown, use 0.0.0.0.0.0.0.
symbolId	string	RO D C	Required. A symbol identifier represented as a string.
symbolAmplification	InstallationSymbol AmplificationStruct	RO D C	Optional. Text amplifications for the installation's symbol. Static or very low update rate.
location	GeodeticPoint	RO D C	Required. Geographic location of the installation.

LandSurface CLASS

The environment conditions related to a land surface. Besides the common attributes such as Temperature, Wind and Precipitaion etc. additional detail regarding snow, moisture, and ice conditions of the land surface can be represented. All attributes of LandSurfaceCondition objects are optional. An instance of this class without a GeoReference is considered to apply to all land surfaces.

Name	Type	Flags	Description
snow	SnowStruct	RO D C	Optional. Current snow depth and density in the region/location specified by the EnvironmentCondition. Default is no snow. If EnvironmentConditions with overlapping regions/locations exist the average snow depth and density should be used.

Name	Type	Flags	Description
moisture	SurfaceMoistureEnum16	RO D C	Optional. Surface moisture in the region/location specified by the EnvironmentCondition. Default is 0 (Dry). If EnvironmentConditions with overlapping regions/locations exist, moisture is calculated as the highest enumerated value making the resulting value the one with most moisture.
iceCondition	RoadIceConditionEnum16	RO D C	Optional. Surface ice condition in the region/location specified by the EnvironmentCondition. Default is no ice. If EnvironmentConditions with overlapping regions/locations exist, surface ice condition is calculated as the highest enumerated value making the resulting value the one with the most severe ice condition.

LinkStates CLASS

Representation of the state of links in a physical network.

Name	Type	Flags	Description
physicalNetworkName	Text64	RO S C	Required. Reference to physical network by its unique name.
links	LinkStatusArray	RO D C	Required. Status of a set of physical network links.

Location CLASS

A location is a geographical point in latitude, longitude and altitude above mean sea level.

Name	Type	Flags	Description
point	GeodeticPoint	RO D C	Required. A geographical point in latitude, longitude, and altitude above mean sea level.

METOCRoot CLASS

Superclass for Environment Conditions and Layers.

Name	Type	Flags	Description
uniqueId	UUID	RO S C	Required. Unique identifier for the Environment Condition object or METOC Service.
nameNonSen	string	RO S C	Optional. Name of the Environment Condition or METOC Service.

NETNAggregate CLASS

Aggregate extensions for NETN

Name	Type	Flags	Description
uniqueId	UuidArrayOfHLAbyte16	RO S BE	Required. A unique identifier for the object. The Universally Unique Identifier (UUID) is either generated or defined as part of scenario initialization, e.g. using NETN-ORG MSDL data. The unique identifier can serve dual purposes. It is a unique identification of the NETN_Aggregate object instance but can also be a reference to a NETN-ORG unit element with the same unique identifier.

Name	Type	Flags	Description
status	ActiveStatusEnum8	RO D BE	Required. Indicate if this aggregate unit currently is being simulated or not. E.g. units mounted or embarked on transports can be set to inactive. During an inactive state, the attribute values may not reflect an accurate, current value. Therefore, any subscribing federate can ignore inactive units. An inactive instance may have its instance attributes updated by a federate but reflected updates shall be ignored by receiving federates. All attributes must be updated to represent the current status of the instance before setting the status to active.
subunitList	ArrayOfUuid	RO D C	Optional. Reference to disaggregated representations of subsets of the aggregate unit when registered in the federation. Each element should refer to an existing NETN_Aggregate object in the federation. If not published, disaggregation is not supported.
parentUnit	UuidArrayOf HLAbyte16	RO D C	Optional. Reference to parent aggregate entity. If not published, aggregation is not supported. The default value is 0000000000000000 (no parent unit).
dividedUnitList	ArrayOfUuid	RO D C	Optional. Reference to other aggregate or physical entities divided from the aggregate unit to represent specific subsets of holdings. If not published, a division is not supported.
sourceUnit	UuidArrayOf HLAbyte16	RO D BE	Optional. Reference to an active NETN_Aggregate instance, the source of a NETN-MRM division. If not published, merging is not supported. The default value is 0000000000000000 representing no source unit.
embeddedUnitList	ArrayOfUuid	RO D BE	Optional. Reference to units or platforms embarked on and transported by this unit. If not published, transport of embedded units not supported.
higherHeadquarters	UuidArrayOf HLAbyte16	RO D BE	Optional. A reference to an entity representing the aggregate unit's superior or headquarters from which orders are given and to which reports are sent. The highest level unit or headquarters will publish 0000000000000000 as its HigherHeadquarters value. The referenced entity may or may not be registered in the federation as a NETN_Aggregate and/or NETN-ORG unit. If not published, the aggregate does not have a superior unit or headquarter. The default value is 0000000000000000 (no higher headquarters).
mounted	f64	RO D BE	Optional. The percentage of aggregate personnel travelling on or in their organic transport. Default 100% - all personnel mounted.
symbolId	string	RO D BE	Optional. A symbol identifier represented as a string.
callsign	string	RO S BE	Required. A callsign used to address the unit. Callsigns should be unique in the context in which they are used but not required to be globally unique.

Name	Type	Flags	Description
echelon	EchelonEnum32	RO S BE	Optional. The size of the unit (level of command).
entityList	ArrayOfEntityStruct	RO D BE	Optional. This attribute provides data on all entities comprising the aggregate. Entities include equipment, e.g. platforms, weapons, sensors and lifeforms such as personnel. Each entity contains key status attributes and subunit allocation information. If not provided the status and allocation of entities is not modelled on an entity level.
suppliesStatus	NETNArrayOfSupply Struct	RO D BE	Optional. The type and quantities of supplies available (on hand) to the unit. If not provided, the amount of available supplies is undefined.
equipmentStatus	ArrayOfResource Status	RO D BE	Optional. This summarizes the health status of the equipment comprising the aggregate. If not provided, the status of equipment is undefined.
personnelStatus	ArrayOfResource Status	RO D BE	Optional. This summarizes the health status of personnel comprising the aggregate. If not provided, the status of personnel is undefined.
visualSignature	VisualSignatureStruct	RO D BE	Describes the unit's susceptibility to electro-optical detection.
hUMINTSignature	HUMINTSignature Struct	RO D BE	Describes the unit's susceptibility to human intelligence (HUMINT), i.e. information collected and provided by human sources.
electronicSignature	ElectronicSignature Struct	RO D BE	Describes the aggregate's susceptibility to electronic detection both as a summary value and by identifying aggregate sensors together with their operational status.
combatValue	f64	RO D BE	Optional. A summary value (in per cent) of unit effectiveness based on the level of training, leadership, morale, personnel and equipment operational status, etc. The default value is 100%.
coverStatus	f64	RO D BE	Optional. Describes the unit's protection from the effects of weapons fire. Default is 0% - Fully affected by weapon fire.
captureStatus	CaptureStatusEnum8	RO D BE	The status of an aggregate with respect to its control or influence over its own activities.
mission	MissionStruct	RO D BE	The operational task the aggregate has been ordered to perform.
activity	AggregateMission Enum16	RO D BE	Optional. The current activity of the platform. The value is based on the Joint Consultation, Command and Control Information Exchange Data Model (JC3IEDM) action-event-category-code. The JC3IEDM is a fully documented standard [NATO STANAG 5525] for an information exchange data model for the sharing of C2 information. Default is 0 (Other activity).
route	PathVariantStruct	RO D C	Optional. The current path of movement.
destination	PointVariantStruct	RO D C	Optional. The current destination of movement.
weaponsControlOrder	WeaponControlOrder Enum8	RO D BE	Optional. Describes current Weapon Control Order Free, Tight, or Hold. Default is 0 - Other.

NETNAircraft CLASS

Extension of RPR-FOM Aircraft object class.

Name	Type	Flags	Description
uniqueId	UuidArrayOf HLAbyte16	RO S BE	Required. A unique identifier for the object. The Universally Unique Identifier (UUID) is either generated or defined as part of scenario initialization, e.g. using NETN-ORG MSDL data for defining specific platforms as equipment assigned to units.
status	ActiveStatusEnum8	RO D BE	Required. Indicate if this platform currently is being simulated or not. E.g. platforms mounted or embarked on transports can be set to inactive. During an inactive state, the attribute values may not reflect an accurate, current value. Therefore, any subscribing federate can ignore inactive units. All attributes must be updated to represent the current status of the instance before setting the state to Active. An inactive instance may have its instance attributes updated by a federate but reflected updates shall be ignored by receiving federates. All attributes must be updated to represent the current status of the instance before status is set to active.
sourceUnit	UuidArrayOf HLAbyte16	RO D BE	Optional. Reference to an active NETN_Aggregate instance from which this physical entity was divided. If not published, merging is not supported. The default value is 00000000-0000-0000-0000-000000000000 (UUID with all zeros) representing no source unit.
embeddedUnitList	ArrayOfUuid	RO D BE	Optional. Reference to platforms or lifeforms embarked on this platform. If not published, transport of embedded units is not supported. Entities are referenced by UUID. E.g. when soldiers are transported in a NETN Physical entity, then references (UUIDs) to these soldier instances are added to the EmbeddedUnitList for the entity. When a soldier disembarks from the transporter, the reference (UUID) to that soldier is removed from the EmbeddedUnitList. The default value is an empty list.
callsign	string	RO S BE	Required. A callsign used to address the platform. Callsigns should be unique in the context in which they are used but not required to be globally unique.
activity	AggregateMission Enum16	RO D BE	Optional. The current activity of the platform. The value is based on the Joint Consultation, Command and Control Information Exchange Data Model (JC3IEDM) action-event-category-code. The JC3IEDM is a fully documented standard [NATO STANAG 5525] for an information exchange data model for the sharing of C2 information. The default value is 0 (Other activity).
route	PathVariantStruct	RO D BE	Optional. The current path of movement.
destination	PointVariantStruct	RO D BE	Optional. The current destination of movement.
symbolId	string	RO D BE	Optional. A symbol identifier represented as a string.

NETNAmphibiousVehicle CLASS

Extensions for NETN

Name	Type	Flags	Description
uniqueId	UuidArrayOf HLAbyte16	RO S BE	Required. A unique identifier for the object. The Universally Unique Identifier (UUID) is either generated or defined as part of scenario initialization, e.g. using NETN-ORG MSDL data for defining specific platforms as equipment assigned to units.
status	ActiveStatusEnum8	RO D BE	Required. Indicate if this platform currently is being simulated or not. E.g. platforms mounted or embarked on transports can be set to inactive. During an inactive state, the attribute values may not reflect an accurate, current value. Therefore, any subscribing federate can ignore inactive units. All attributes must be updated to represent the current status of the instance before setting the state to Active. An inactive instance may have its instance attributes updated by a federate but reflected updates shall be ignored by receiving federates. All attributes must be updated to represent the current status of the instance before status is set to active.
sourceUnit	UuidArrayOf HLAbyte16	RO D BE	Optional. Reference to an active NETN_Aggregate instance from which this physical entity was divided. If not published, merging is not supported. The default value is 00000000-0000-0000-0000-000000000000 (UUID with all zeros) representing no source unit.
embeddedUnitList	ArrayOfUuid	RO D BE	Optional. Reference to platforms or lifeforms embarked on this platform. If not published, transport of embedded units is not supported. Entities are referenced by UUID. E.g. when soldiers are transported in a NETN Physical entity, then references (UUIDs) to these soldier instances are added to the EmbeddedUnitList for the entity. When a soldier disembarks from the transporter, the reference (UUID) to that soldier is removed from the EmbeddedUnitList. The default value is an empty list.
callsign	string	RO S BE	Required. A callsign used to address the platform. Callsigns should be unique in the context in which they are used but not required to be globally unique.
activity	AggregateMission Enum16	RO D BE	Optional. The current activity of the platform. The value is based on the Joint Consultation, Command and Control Information Exchange Data Model (JC3IEDM) action-event-category-code. The JC3IEDM is a fully documented standard [NATO STANAG 5525] for an information exchange data model for the sharing of C2 information. The default value is 0 (Other activity).
route	PathVariantStruct	RO D BE	Optional. The current path of movement.
destination	PointVariantStruct	RO D BE	Optional. The current destination of movement.

Name	Type	Flags	Description
symbolId	string	RO D BE	Optional. A symbol identifier represented as a string.

NETNCulturalFeature CLASS

Extensions for NETN

Name	Type	Flags	Description
uniqueId	UuidArrayOf HLAbyte16	RO S BE	Required. A unique identifier for the object. The Universally Unique Identifier (UUID) is either generated or defined as part of scenario initialization, e.g. using NETN-ORG MSDL data for defining specific platforms as equipment assigned to units.
status	ActiveStatusEnum8	RO D BE	Required. Indicate if this platform currently is being simulated or not. E.g. platforms mounted or embarked on transports can be set to inactive. During an inactive state, the attribute values may not reflect an accurate, current value. Therefore, any subscribing federate can ignore inactive units. All attributes must be updated to represent the current status of the instance before setting the state to Active. An inactive instance may have its instance attributes updated by a federate but reflected updates shall be ignored by receiving federates. All attributes must be updated to represent the current status of the instance before status is set to active.
embeddedUnitList	ArrayOfUuid	RO D BE	Optional. Reference to platforms or lifeforms embarked on this entity. If not published, embarkment/disembarkment of embedded units not supported. Entities are referenced by UUID. E.g. when soldiers are inside in an NETN_CulturalFeature entity, then references (UUIDs) to these soldier instances are added to the EmbeddedUnitList for the entity. When a soldier leaves he NETN_CulturalFeature the reference (UUID) to that soldier is removed from the EmbeddedUnitList. The default value is an empty list.
callsign	string	RO S BE	Required. A callsign used to address the platform. Callsigns should be unique in the context in which they are used but not required to be globally unique.
activity	AggregateMission Enum16	RO D BE	Optional. The current activity of the platform. The value is based on the Joint Consultation, Command and Control Information Exchange Data Model (JC3IEDM) action-event-category-code. The JC3IEDM is a fully documented standard [NATO STANAG 5525] for an information exchange data model for the sharing of C2 information. The default value is 0 (Other activity).
symbolId	string	RO D BE	Optional. A symbol identifier represented as a string.

NETNGroundVehicle CLASS

Extensions for NETN

Name	Type	Flags	Description
uniqueId	UuidArrayOf HLAbyte16	RO S BE	Required. A unique identifier for the object. The Universally Unique Identifier (UUID) is either generated or defined as part of scenario initialization, e.g. using NETN-ORG MSDL data for defining specific platforms as equipment assigned to units.
status	ActiveStatusEnum8	RO D BE	Required. Indicate if this platform currently is being simulated or not. E.g. platforms mounted or embarked on transports can be set to inactive. During an inactive state, the attribute values may not reflect an accurate, current value. Therefore, any subscribing federate can ignore inactive units. All attributes must be updated to represent the current status of the instance before setting the state to Active. An inactive instance may have its instance attributes updated by a federate but reflected updates shall be ignored by receiving federates. All attributes must be updated to represent the current status of the instance before status is set to active.
sourceUnit	UuidArrayOf HLAbyte16	RO D BE	Optional. Reference to an active NETN_Aggregate instance from which this physical entity was divided. If not published, merging is not supported. The default value is 00000000-0000-0000-0000-000000000000 (UUID with all zeros) representing no source unit.
embeddedUnitList	ArrayOfUuid	RO D BE	Optional. Reference to platforms or lifeforms embarked on this platform. If not published, transport of embedded units is not supported. Entities are referenced by UUID. E.g. when soldiers are transported in a NETN Physical entity, then references (UUIDs) to these soldier instances are added to the EmbeddedUnitList for the entity. When a soldier disembarks from the transporter, the reference (UUID) to that soldier is removed from the EmbeddedUnitList. The default value is an empty list.
callsign	string	RO S BE	Required. A callsign used to address the platform. Callsigns should be unique in the context in which they are used but not required to be globally unique.
activity	AggregateMission Enum16	RO D BE	Optional. The current activity of the platform. The value is based on the Joint Consultation, Command and Control Information Exchange Data Model (JC3IEDM) action-event-category-code. The JC3IEDM is a fully documented standard [NATO STANAG 5525] for an information exchange data model for the sharing of C2 information. The default value is 0 (Other activity).
route	PathVariantStruct	RO D BE	Optional. The current path of movement.
destination	PointVariantStruct	RO D BE	Optional. The current destination of movement.

Name	Type	Flags	Description
symbolId	string	RO D BE	Optional. A symbol identifier represented as a string.

NETNHuman CLASS

Extensions for NETN

Name	Type	Flags	Description
uniqueId	UuidArrayOf HLAbyte16	RO S BE	Required. A unique identifier for the object. The Universally Unique Identifier (UUID) is either generated or defined as part of scenario initialization, e.g. using NETN-ORG MSDL data for defining specific platforms as equipment assigned to units.
status	ActiveStatusEnum8	RO D BE	Required. Indicate if this platform currently is being simulated or not. E.g. platforms mounted or embarked on transports can be set to inactive. During an inactive state, the attribute values may not reflect an accurate, current value. Therefore, any subscribing federate can ignore inactive units. All attributes must be updated to represent the current status of the instance before setting the state to Active. An inactive instance may have its instance attributes updated by a federate but reflected updates shall be ignored by receiving federates. All attributes must be updated to represent the current status of the instance before status is set to active.
sourceUnit	UuidArrayOf HLAbyte16	RO D BE	Optional. Reference to an active NETN_Aggregate instance from which this physical entity was divided. If not published, merging is not supported. The default value is 0000000000000000 representing no source unit.
callsign	string	RO S BE	Required. A callsign used to address the platform. Callsigns should be unique in the context in which they are used but not required to be globally unique.
activity	AggregateMission Enum16	RO D BE	Optional. The current activity of the platform. The value is based on the Joint Consultation, Command and Control Information Exchange Data Model (JC3IEDM) action-event-category-code. The JC3IEDM is a fully documented standard [NATO STANAG 5525] for an information exchange data model for the sharing of C2 information. The default value is 0 (Other activity).
route	PathVariantStruct	RO D BE	Optional. The current path of movement.
destination	PointVariantStruct	RO D BE	Optional. The current destination of movement.
symbolId	string	RO D BE	Optional. A symbol identifier represented as a string.

NETNMultiDomainPlatform CLASS

Extensions for NETN

Name	Type	Flags	Description
uniqueId	UuidArrayOf HLAbyte16	RO S BE	Required. A unique identifier for the object. The Universally Unique Identifier (UUID) is either generated or defined as part of scenario initialization, e.g. using NETN-ORG MSDL data for defining specific platforms as equipment assigned to units.
status	ActiveStatusEnum8	RO D BE	Required. Indicate if this platform currently is being simulated or not. E.g. platforms mounted or embarked on transports can be set to inactive. During an inactive state, the attribute values may not reflect an accurate, current value. Therefore, any subscribing federate can ignore inactive units. All attributes must be updated to represent the current status of the instance before setting the state to Active. An inactive instance may have its instance attributes updated by a federate but reflected updates shall be ignored by receiving federates. All attributes must be updated to represent the current status of the instance before status is set to active.
sourceUnit	UuidArrayOf HLAbyte16	RO D BE	Optional. Reference to an active NETN_Aggregate instance from which this physical entity was divided. If not published, merging is not supported. The default value is 00000000-0000-0000-0000-000000000000 (UUID with all zeros) representing no source unit.
embeddedUnitList	ArrayOfUuid	RO D BE	Optional. Reference to platforms or lifeforms embarked on this platform. If not published, transport of embedded units is not supported. Entities are referenced by UUID. E.g. when soldiers are transported in a NETN Physical entity, then references (UUIDs) to these soldier instances are added to the EmbeddedUnitList for the entity. When a soldier disembarks from the transporter, the reference (UUID) to that soldier is removed from the EmbeddedUnitList. The default value is an empty list.
callsign	string	RO S BE	Required. A callsign used to address the platform. Callsigns should be unique in the context in which they are used but not required to be globally unique.
activity	AggregateMission Enum16	RO D BE	Optional. The current activity of the platform. The value is based on the Joint Consultation, Command and Control Information Exchange Data Model (JC3IEDM) action-event-category-code. The JC3IEDM is a fully documented standard [NATO STANAG 5525] for an information exchange data model for the sharing of C2 information. The default value is 0 (Other activity).
route	PathVariantStruct	RO D BE	Optional. The current path of movement.
destination	PointVariantStruct	RO D BE	Optional. The current destination of movement.
symbolId	string	RO D BE	Optional. A symbol identifier represented as a string.

NETNMunition CLASS

Extension for NETN

Name	Type	Flags	Description
uniqueId	UuidArrayOf HLAbyte16	RO S BE	Required. A unique identifier for the object. The Universally Unique Identifier (UUID) is either generated or defined as part of scenario initialization, e.g. using NETN-ORG MSDL data for defining specific platforms as equipment assigned to units.
status	ActiveStatusEnum8	RO D BE	Required. Indicate if this platform currently is being simulated or not. E.g. platforms mounted or embarked on transports can be set to inactive. During an inactive state, the attribute values may not reflect an accurate, current value. Therefore, any subscribing federate can ignore inactive units. All attributes must be updated to represent the current status of the instance before setting the state to Active. An inactive instance may have its instance attributes updated by a federate but reflected updates shall be ignored by receiving federates. All attributes must be updated to represent the current status of the instance before status is set to active.
route	PathVariantStruct	RO D BE	Optional. The current path of movement.
destination	PointVariantStruct	RO D BE	Optional. The current destination of movement.
symbolId	string	RO D BE	Optional. A symbol identifier represented as a string.

NETNNonHuman CLASS

Extensions for NETN

Name	Type	Flags	Description
uniqueId	UuidArrayOf HLAbyte16	RO S BE	Required. A unique identifier for the object. The Universally Unique Identifier (UUID) is either generated or defined as part of scenario initialization, e.g. using NETN-ORG MSDL data for defining specific platforms as equipment assigned to units.
status	ActiveStatusEnum8	RO D BE	Required. Indicate if this platform currently is being simulated or not. E.g. platforms mounted or embarked on transports can be set to inactive. During an inactive state, the attribute values may not reflect an accurate, current value. Therefore, any subscribing federate can ignore inactive units. All attributes must be updated to represent the current status of the instance before setting the state to Active. An inactive instance may have its instance attributes updated by a federate but reflected updates shall be ignored by receiving federates. All attributes must be updated to represent the current status of the instance before status is set to active.
sourceUnit	UuidArrayOf HLAbyte16	RO D BE	Optional. Reference to an active NETN_Aggregate instance from which this

Name	Type	Flags	Description
			physical entity was divided. If not published, merging is not supported. The default value is 00000000-0000-0000-0000-000000000000 (UUID with all zeros) representing no source unit.
`callsign`	string	RO S BE	Required. A callsign used to address the platform. Callsigns should be unique in the context in which they are used but not required to be globally unique.
`activity`	AggregateMissionEnum16	RO D BE	Optional. The current activity of the platform. The value is based on the Joint Consultation, Command and Control Information Exchange Data Model (JC3IEDM) action-event-category-code. The JC3IEDM is a fully documented standard [NATO STANAG 5525] for an information exchange data model for the sharing of C2 information. The default value is 0 (Other activity).
`route`	PathVariantStruct	RO D BE	Optional. The current path of movement.
`destination`	PointVariantStruct	RO D BE	Optional. The current destination of movement.
`symbolId`	string	RO D BE	Optional. A symbol identifier represented as a string.

NETNSpacecraft CLASS

Extensions for NETN

Name	Type	Flags	Description
`uniqueId`	UuidArrayOfHLAbyte16	RO S BE	Required. A unique identifier for the object. The Universally Unique Identifier (UUID) is either generated or defined as part of scenario initialization, e.g. using NETN-ORG MSDL data for defining specific platforms as equipment assigned to units.
`status`	ActiveStatusEnum8	RO D BE	Required. Indicate if this platform currently is being simulated or not. E.g. platforms mounted or embarked on transports can be set to inactive. During an inactive state, the attribute values may not reflect an accurate, current value. Therefore, any subscribing federate can ignore inactive units. All attributes must be updated to represent the current status of the instance before setting the state to Active. An inactive instance may have its instance attributes updated by a federate but reflected updates shall be ignored by receiving federates. All attributes must be updated to represent the current status of the instance before status is set to active.
`sourceUnit`	UuidArrayOfHLAbyte16	RO D BE	Optional. Reference to an active NETN_Aggregate instance from which this physical entity was divided. If not published, merging is not supported. The default value is 00000000-0000-0000-0000-000000000000 (UUID with all zeros) representing no source unit.

Name	Type	Flags	Description
embeddedUnitList	ArrayOfUuid	RO D BE	Optional. Reference to platforms or lifeforms embarked on this platform. If not published, transport of embedded units is not supported. Entities are referenced by UUID. E.g. when soldiers are transported in a NETN Physical entity, then references (UUIDs) to these soldier instances are added to the EmbeddedUnitList for the entity. When a soldier disembarks from the transporter, the reference (UUID) to that soldier is removed from the EmbeddedUnitList. The default value is an empty list.
callsign	string	RO S BE	Required. A callsign used to address the platform. Callsigns should be unique in the context in which they are used but not required to be globally unique.
activity	AggregateMissionEnum16	RO D BE	Optional. The current activity of the platform. The value is based on the Joint Consultation, Command and Control Information Exchange Data Model (JC3IEDM) action-event-category-code. The JC3IEDM is a fully documented standard [NATO STANAG 5525] for an information exchange data model for the sharing of C2 information. The default value is 0 (Other activity).
route	PathVariantStruct	RO D BE	Optional. The current path of movement.
destination	PointVariantStruct	RO D BE	Optional. The current destination of movement.
symbolId	string	RO D BE	Optional. A symbol identifier represented as a string.

NETNSubmersibleVessel CLASS

Extensions for NETN

Name	Type	Flags	Description
uniqueId	UuidArrayOfHLAbyte16	RO S BE	Required. A unique identifier for the object. The Universally Unique Identifier (UUID) is either generated or defined as part of scenario initialization, e.g. using NETN-ORG MSDL data for defining specific platforms as equipment assigned to units.
status	ActiveStatusEnum8	RO D BE	Required. Indicate if this platform currently is being simulated or not. E.g. platforms mounted or embarked on transports can be set to inactive. During an inactive state, the attribute values may not reflect an accurate, current value. Therefore, any subscribing federate can ignore inactive units. All attributes must be updated to represent the current status of the instance before setting the state to Active. An inactive instance may have its instance attributes updated by a federate but reflected updates shall be ignored by receiving federates. All attributes must be updated to represent the current status of the instance before status is set to active.
sourceUnit	UuidArrayOfHLAbyte16	RO D BE	Optional. Reference to an active NETN_Aggregate instance from which this physical entity was divided. If not published,

Name	Type	Flags	Description
			merging is not supported. The default value is 00000000-0000-0000-0000-000000000000 (UUID with all zeros) representing no source unit.
`embeddedUnitList`	ArrayOfUuid	RO D BE	Optional. Reference to platforms or lifeforms embarked on this platform. If not published, transport of embedded units is not supported. Entities are referenced by UUID. E.g. when soldiers are transported in a NETN Physical entity, then references (UUIDs) to these soldier instances are added to the EmbeddedUnitList for the entity. When a soldier disembarks from the transporter, the reference (UUID) to that soldier is removed from the EmbeddedUnitList. The default value is an empty list.
`callsign`	string	RO S BE	Required. A callsign used to address the platform. Callsigns should be unique in the context in which they are used but not required to be globally unique.
`activity`	AggregateMissionEnum16	RO D BE	Optional. The current activity of the platform. The value is based on the Joint Consultation, Command and Control Information Exchange Data Model (JC3IEDM) action-event-category-code. The JC3IEDM is a fully documented standard [NATO STANAG 5525] for an information exchange data model for the sharing of C2 information. The default value is 0 (Other activity).
`route`	PathVariantStruct	RO D BE	Optional. The current path of movement.
`destination`	PointVariantStruct	RO D BE	Optional. The current destination of movement.
`symbolId`	string	RO D BE	Optional. A symbol identifier represented as a string.

`NETNSurfaceVessel` CLASS

Extensions for NETN

Name	Type	Flags	Description
`uniqueId`	UuidArrayOfHLAbyte16	RO S BE	Required. A unique identifier for the object. The Universally Unique Identifier (UUID) is either generated or defined as part of scenario initialization, e.g. using NETN-ORG MSDL data for defining specific platforms as equipment assigned to units.
`status`	ActiveStatusEnum8	RO D BE	Required. Indicate if this platform currently is being simulated or not. E.g. platforms mounted or embarked on transports can be set to inactive. During an inactive state, the attribute values may not reflect an accurate, current value. Therefore, any subscribing federate can ignore inactive units. All attributes must be updated to represent the current status of the instance before setting the state to Active. An inactive instance may have its instance attributes updated by a federate but reflected updates shall be ignored by receiving federates. All attributes must be updated to represent the

Name	Type	Flags	Description
			current status of the instance before status is set to active.
sourceUnit	UuidArrayOfHLAbyte16	RO D BE	Optional. Reference to an active NETN_Aggregate instance from which this physical entity was divided. If not published, merging is not supported. The default value is 0000000000000000 representing no source unit.
embeddedUnitList	ArrayOfUuid	RO D BE	Optional. Reference to platforms or lifeforms embarked on this platform. If not published, transport of embedded units is not supported. Entities are referenced by UUID. E.g. when soldiers are transported in a NETN Physical entity, then references (UUIDs) to these soldier instances are added to the EmbeddedUnitList for the entity. When a soldier disembarks from the transporter, the reference (UUID) to that soldier is removed from the EmbeddedUnitList. The default value is an empty list.
callsign	string	RO S BE	Required. A callsign used to address the platform. Callsigns should be unique in the context in which they are used but not required to be globally unique.
activity	AggregateMissionEnum16	RO D BE	Optional. The current activity of the platform. The value is based on the Joint Consultation, Command and Control Information Exchange Data Model (JC3IEDM) action-event-category-code. The JC3IEDM is a fully documented standard [NATO STANAG 5525] for an information exchange data model for the sharing of C2 information. The default value is 0 (Other activity).
route	PathVariantStruct	RO D BE	Optional. The current path of movement.
destination	PointVariantStruct	RO D BE	Optional. The current destination of movement.
symbolId	string	RO D BE	Optional. A symbol identifier represented as a string.

ORGRoot CLASS

Root object class for all NETN-ORG object classes. Includes unique identifier and unique name attributes inherited by all subclasses.

Name	Type	Flags	Description
uniqueId	UUID	RO S C	Required. Unique Identifier.

Path CLASS

A path is defiend as a sequence of at least two locations. Each location in the path is defined geodetic coordinates and altitude above the mean sea level.

Name	Type	Flags	Description
points	GeodeticPath	RO D C	Required. A path with at least 2 points expressed as GeodeticPoints.

PhysicalNetwork CLASS

This object class represents type-specific parameters/bounds for a physical network. Physical networks are simulated by LinkState objects and do not require that an instance of PhysicalNetwork exist in the federation.

Name	Type	Flags	Description
uniqueName	Text64	RO S C	Required. Unique physical network name. Uniqueness in the context of physical networks.
description	PhysicalNetwork DescriptionVariant	RO S C	Required. Characteristics of the physical network.

ProbabilityHazardContourGroup CLASS

Represents the footprint covered by a CBRN hazard. This object covers the agent-specific effects which would be the output from a casualty model.

Name	Type	Flags	Description
time	EpochTimeSecInt64	RO D BE	Simulation time at which this contour group was generated.
agent	AgentTypeEnum16	RO S BE	Agent reflected in this contour.
exposureType	ExposureTypeEnum8	RO S BE	Type of exposure.
contours	ArrayOfProbability HazardContourStruct	RO D BE	Array of contours. These should be ordered in a sequence of ascending PercentProbabilityLevel.
uniqueID	UuidArrayOf HLAbyte16	RO S BE	Unique representation of the contour's ID.

RawDataHazardContourGroup CLASS

Represents the footprint covered by a CBRN hazard. This object covers the raw data which would be the output from a dispersion model.

Name	Type	Flags	Description
time	EpochTimeSecInt64	RO D BE	Simulation time at which this contour group was generated.
agent	AgentTypeEnum16	RO S BE	Agent reflected in this contour.
hazardType	HazardTypeEnum8	RO S BE	Type of hazard.
contours	ArrayOfRawData HazardContourStruct	RO D BE	Array of contours. These should be ordered in a sequence of ascending ExposureLevel.
uniqueID	UuidArrayOf HLAbyte16	RO S BE	Unique representation of the contour's ID.

Region CLASS

A region is an area on the earth's surface defined by a polygon or a circle.

Name	Type	Flags	Description
area	AreaVariantStruct	RO D C	Required. Defines the area, either as a geodetic polygon, circle or quadrangle.

SARaircraft CLASS

This class defines additional attributes for SAR aircraft equipment.

SEFacility CLASS

Base class for NETN Syntetic Environment object classes.

Name	Type	Flags	Description
uniqueId	UuidArrayOf HLAbyte16	RO S C	Required. Pre-defined or generated unique identifier of the object instance.

Name	Type	Flags	Description
locationReference	GeoLocationReference Variant	RO S C	Required. A reference that identifies a geographical location directly or indirectly by reference to a simulated object.
nameNonSen	string	RO S C	Optional. Name of the facility.
symbolId	string	RO S C	Optional. A symbol identifier represented as a string.
status	ActiveStatusEnum8	RO D C	Optional. Specifies if the facility is active (operational) or not. Default value is 1 (Active).
objectType	rpr.EnvironmentObject TypeStruct	RO S C	Optional. Specifying the domain, the kind and the specific identification of the environment object.
forceId	rpr.ForceIdentifier Enum8	RO D C	Optional. The force that operates the facility. Default is 0 (Other).
percentComplete	f32	RO D C	Optional. Describes a level of completion when establishing/building of the facility. Expressed in percent [0-100]. Default is 100%.
damageState	rpr.DamageStatus Enum32	RO D C	Optional. The damage state on the facility. Default value is 0 (NoDamage).
comment	string	RO D C	Optional. A descriptive text comment.

SEGeoObject CLASS

Representation of geographically associated locations, paths, and regions with or without a defined name. E.g. a harbour may be represented as a Location with a specific name, a commonly used route can be represented as a named path and a region can be represented as an specific geographic are and reused as an object instance in the simulation.

Name	Type	Flags	Description
uniqueId	UuidArrayOf HLAbyte16	RO S C	Required. Unique identifier for the GeoObject.
nameNonSen	string	RO S C	Optional. Name of the GeoObject, e.g. Location name, Road name etc.

Service CLASS

All systems providing EnvironmentCondition information as either object instances or as responses to service requests must register a Service object instance.

Name	Type	Flags	Description
modelType	WeatherModelType Enum32	RO S C	Required. Type of METOC model provided by the Service. Specifies whether the Service delivers Simulated, Real (Historical), Live (Current) or Standard model data.

SubsurfaceLayer CLASS

EnvironmentCondition of a subsurface water layer. If GeoReference is not provided, the condition is considered global within the specified Layer.

Name	Type	Flags	Description
temperature	rpr.Temperature DegreeCelsiusFloat32	RO D C	Optional. Temperature in the region/location specified by the EnvironmentCondition. If EnvironmentConditions with overlapping regions/locations exist the average temperature should be used.
layer	LayerStruct	RO D C	Optional. A body of water extending from a (negative) base altitude upwards (see

Name	Type	Flags	Description
			LayerStruct). Any portion of the Layer extending above sea level is ignored. If Layer is not provided, it is considered to extend from the sea floor to the surface of the water.
`current`	CurrentStruct	RO D C	Optional. Describes current in the water layer. Default is no current. If EnvironmentConditions with overlapping regions/locations exist the average current direction and speed should be used.
`salinity`	f32	RO D C	Optional. Salinity of sea water on the practical salinity scale 1978 (PSS-78). Default value is 35 (equivalent to 35 parts per thousand). If EnvironmentConditions with overlapping regions/locations exist the average salinity should be used.
`bottomType`	SedimentTypeEnum32	RO D C	Optional. Type of sediment on the sea floor. Default is NoSediment. If EnvironmentConditions with overlapping regions/locations exist, the sediment type in the overlapping region is determined by the latest updated value.

`TroposphereLayer` CLASS

If overlapping Atmospheric Conditions exist the following merging rules apply: Humidity, AirTemperature and Barometric-Pressure are calculated as the average of the overlapping conditions. Visibility is calculated as the minimum visibility distance of the overlapping conditions. A TroposhpereLayer instance without a GeoReference is considered global within its specified Layer.

Name	Type	Flags	Description
`layer`	LayerStruct	RO D C	Optional. Volume of atmosphere extending from a base altitude upwards (see LayerStruct). Any portion of the Layer extending below sea level is ignored. If Layer is not provided, it is considered to extend from the surface of the earth upward indefinitely.
`cloud`	CloudStruct	RO D C	Optional. Data about Clouds in the Atmospheric layer. Default is no clouds. If EnvironmentConditions with overlapping regions/locations exist, the cloud condition in the overlapping region is determined by the latest updated value.

`Unit` CLASS

Representation of an organizational unit based on attributes defined in the NETN-ORG extensions of MSDL.

Name	Type	Flags	Description
`nameNonSen`	Text255	RO S C	Required. A unique name of the unit.
`superiorUnit`	UUID	RO D C	Required. Reference to the superior unit. If this unit has no superior unit (i.e. is the top-unit) then the value of this attribute shall be 00000000-0000-0000-0000-000000000000 (UUID with all zeros).
`embarkedIn`	UUID	RO D C	Optional. A reference to a unit or equipment item which is carrying/transporting the unit. Default value is 00000000-0000-0000-0000-000000000000

Name	Type	Flags	Description
			(UUID with all zeros) indicating that the unit is not embarked in or mounted on any other unit or equipment.
force	UUID	RO D C	Optional. A reference to the Force that the unit belongs to. A missing value is interpreted as the force being unknown/undetermined.
holdings	ArrayOfHoldings	RO D C	Optional. A set of holdings of the unit. Default is an empty list.
entityType	rpr.EntityTypeStruct	RO S C	Required. The entity type to use for representation of the unit as an aggregate entity. Entity types should be based on SISO-REF-010 and/or defined by federation agreements.
symbolId	string	RO D C	Required. A symbol identifier represented as a string.
symbolAmplification	UnitSymbol AmplificationStruct	RO D C	Optional. Text amplifications for the unit's symbol. Static or very low update rate.
disposition	DispositionStruct	RO D C	Required. Detailed positional information on unit.
formation	FormationStruct	RO D C	Optional. Formation of this unit.
isHq	bool	RO S C	Optional. Indicate whether the unit has a command function, e.g. if it is an HQ or not.
echelon	EchelonEnum32	RO S C	Optional. Symbol modifier identifying the command level. Default NONE.
communicationNetworks	ArrayOf Communication Networks	RO D C	Optional. Set of Communication Networks that the unit monitors and uses to communicate during a mission.

Vessel CLASS

This class defines additional attributes for vessel equipment.

Name	Type	Flags	Description
imo	i32	RO S C	Optional. The International Maritime Organization (IMO) number to identify the vessel. If the value is not provided then the subscribing federate that is responsible for the modelling of the vessel shall generate a value.

WaterSurface CLASS

Condition of sea surface in the specified region. An instance of this class without a GeoReference is considered to apply to all water surfaces.

Name	Type	Flags	Description
seaState	SeaStateEnum16	RO D C	Optional. State of sea surface. Default is Calm_glassy. If EnvironmentConditions with overlapping regions/locations exist, the sea state in the overlapping region is determined by the latest updated value.
salinity	f32	RO D C	Optional. Salinity of sea water on the practical salinity scale 1978 (PSS-78). Default value is 35 (equivalent to 35 parts per thousand). If EnvironmentConditions with overlapping regions/locations exist the average salinity should be used.
tide	rpr.MeterFloat32	RO D C	Optional. The height of the current tide relative to MSL. Default is 0. If EnvironmentConditions

Name	Type	Flags	Description
			with overlapping regions/locations exist, the value for the overlapping region is the average Tide value.
`ice`	IceStruct	RO D C	Optional. Ice condition on surface. Default is no ice. If EnvironmentConditions with overlapping regions/locations exist, the ice condition in the overlapping region is determined by the latest updated value.
`current`	CurrentStruct	RO D C	Optional. Current on water surface. Default is no current. Ignored if surface has 100% Ice coverage. If EnvironmentConditions with overlapping regions/locations exist, the current in the overlapping region is the average current direction and speed.
`wave`	WaveStruct	RO D C	Optional. Waves on the water surface. Default is no waves. Ignored if surface has 100% Ice coverage. If EnvironmentConditions with overlapping regions/locations exist, the wave condition in the overlapping region is determined by the latest updated value.
`swell`	WaveStruct	RO D C	Optional. Swell of the body of water. Default is no Swell. Ignored if surface has 100% Ice coverage. If EnvironmentConditions with overlapping regions/locations exist, the swell condition in the overlapping region is determined by the latest updated value.

Weather CLASS

Information about the general weather condition can be represented using WeatherCondition objects. Common data such as Temperature, Wind and Precipitaion is represented but also details regarding Barometric Pressure and Humidity. Information about Visual Range and Haze conditions can also be represented. All attributes of WeatherCondition objects are optional. An instance of this class without a GeoReference is considered global above sea level.

Name	Type	Flags	Description
`temperature`	rpr.Temperature DegreeCelsiusFloat32	RO D C	Optional. Temperature in the region/location specified by the EnvironmentCondition. If EnvironmentConditions with overlapping regions/locations exist the average temperature should be used.
`wind`	WindStruct	RO D C	Optional. Wind speed and direction in the region/location specified by the EnvironmentCondition. If EnvironmentConditions with overlapping regions/locations exist the average wind speed and direction should be used.
`precipitation`	PrecipitationStruct	RO D C	Optional. Current precipitation type and intensity in the region/location specified by the Environment Condition. Default is No Precipitation. If EnvironmentConditions with overlapping regions/locations exist the average intensity should be used. Conflicting precipitation types are resolved according to the following precedence: Snow, Hail, Rain, No Precipitation. E.g. If there is one overlapping Environment Condition with Snow the result is always Snow.
`haze`	HazeStruct	RO D C	Optional. Current Haze type and density in the region/location specified by the Environment Condition. Default is No Haze. If

Name	Type	Flags	Description
			EnvironmentConditions with overlapping regions/locations exist having the same Haze type the average density should be used.
humidity	f32	RO D C	Optional. Humidity in percent in the region/ location specified by the Environment Condition. Default is 75% (Normal value) If EnvironmentConditions with overlapping regions/locations exist the average humidity should be used.
barometricPressure	f32	RO D C	Optional. Barometric pressure measured in millibar or hectopascal (1 mbar = 1hPa) in the region/location specified by the Environment Condition. If EnvironmentConditions with overlapping regions/locations exist the average barometric pressure should be used.
visibilityRange	rpr.MeterFloat32	RO D C	Optional. The distance at which an object or light can be clearly discerned by the human eye in the region/location specified by the Environment Condition. If EnvironmentConditions with overlapping regions/locations exist the minimum distance should be used.

Fixed records

AISRadioSignal	This is the root interaction class for all AIS messages. The interaction class contains a reference to the embedded system that represents the AIS transmitter. The embedded system should be modelled as a RadioTransmitter, an RPR-FOM object class that is subclassed from Embedded System.	56
AcceptOffer	Use the AcceptOffer interaction to accept an offer received in an OfferService interaction.	56
AcknowledgeData	Acknowledge data for Message Types 7 and 13.	56
Activate	Request federate to change of status of AggregateUnit to Active. If required the unit will be registered in the federation.	57
AddPassage	Tasking of an entity to lay/build a passage between the two given points. The passage can, for example, be a passage through an obstacle or a bridge over a river. The tasked entity should be within a certain distance tolerance (specified in the federation agreement) of one of the points of the passage. A passage object should be registered in the federation with the provided UUID.	57
AgentConcentrationStruct	Concentration value associated with a specific agent.	57
AgentMassStruct	Mass of contaminant inside a vehicle brought in by an embedded unit.	58
Aggregate	Instruction to the AggregateFederate to perform aggregation of the specified AggregateUnit's parts.	58
AisBaseStationReportAndUTCDateResponseData	Common reporting structure for Message Types 4 and 11 for reporting UTC time and date and, at the same time, position. It is also used by AIS stations for determining if the station is within 120 NM for response to Messages Types 20 and 23.	58
AisBinaryMessageData	Binary Payload for Message Types 6 and 8. The interpretation of the binary payload is controlled by: - The Designated Area Code (DAC), which is a jurisdiction code: 366 for the United States. It uses the same encoding as the area designator in MMMSIs; see [ITU-MID]. 1 designates international (ITU) messages. - The FID, which is the Functional ID for a message subtype. In some sources this is abbreviated FI.	58
AisMessage	Super class for all AIS message types.	59
AisMessage1	Message Type 1: Position Report Class A. Message type for a scheduled position report; Class A shipborne mobile equipment. This message transmits information pertaining to a ships navigation: Longitude and latitude, time, heading, speed, ships navigation status (under power, at anchor...). This message is transmitted every 2 to 10 seconds while underway, and every 3 minutes while at anchor.	59
AisMessage10	Message Type 10: UTC/Date Inquiry. Request for UTC/Date information from an AIS base station.	59

AisMessage11	Message Type 11: UTC/Date Response. Identical to Message Type 4, with the semantics of a response to inquiry. This message type is only transmitted from a mobile station as a result of a UTC request message (Message Type 10).	60
AisMessage12	Type 12: Addressed Safety-Related Message. This is a point-to-point text message. The payload is interpreted as six-bit text.	60
AisMessage13	Message Type 13: Safety-Related Acknowledgement. This message type is a receipt acknowledgement to senders of previous messages of Message Type 12.	60
AisMessage14	Type 14: Safety-Related Broadcast Message. This is a broadcast text message. The payload is interpreted as six-bit text.	60
AisMessage17	Message Type 17: DGNSS Broadcast Binary Message. This message type is used to broadcast differential corrections for GPS.	61
AisMessage18	Message Type 18: Standard Class B CS Position Report. A less detailed report than message types 1-3 for vessels using Class B transmitters. Omits navigational status and rate of turn.	61
AisMessage19	Message Type 19: Extended Class B CS Position Report. A slightly more detailed report than Message Type 18 for vessels using Class B transmitters. Omits navigational status and rate of turn. Fields are as in the common navigation block and the Message Type 5 message.	61
AisMessage2	Message Type 2: Position Report Class A. Message type for an assigned scheduled position report; Class A shipborne mobile equipment. This message transmits information pertaining to a ships navigation: Longitude and latitude, time, heading, speed, ships navigation status (under power, at anchor...). This message is transmitted every 2 to 10 seconds while underway, and every 3 minutes while at anchor.	62
AisMessage21	Message Type 21: Aid-to-Navigation Report. Identification and location message to be emitted by aids to navigation such as buoys and lighthouses.	62
AisMessage24	Message Type 24: Static Data Report. Equivalent of Message Type 5 for ships using Class B equipment. Also used to associate an MMSI with a name on either class A or class B equipment. This message type may be in part A or part B format. According to the standard, parts A and B are expected to be broadcast in adjacent pairs.	63
AisMessage27	Message Type 27: Long Range AIS Broadcast message. This message type is primarily intended for long-range detection of AIS Class A equipped vessels (typically by satellite). This message has a similar content to Messages 1, 2 and 3, but the total number of bits has been compressed to allow for increased propagation delays associated with long-range detection.	64
AisMessage3	Message Type 3: Position Report Class A. Message type for a special position report, response to interrogation; Class A shipborne mobile equipment. This message transmits information pertaining to a ships navigation: Longitude and latitude, time, heading, speed, ships navigation status (under power, at anchor...). This message is transmitted every 2 to 10 seconds while underway, and every 3 minutes while at anchor.	64
AisMessage4	Message Type 4: Base Station Report. This message is to be used by fixed-location base stations to periodically report a position and time reference.	64
AisMessage5	Message Type 5: Static and Voyage Related Data. This message type is transmitted every 6 minutes and should only be used by Class A shipborne and SAR aircraft AIS stations when reporting static or voyage related data.	65
AisMessage6	Message Type 6: Binary Addressed Message. This message type is an addressed point-to-point message with a binary payload.	65
AisMessage7	Message Type 7: Binary Acknowledge. This message type is a receipt acknowledgement to the senders of a previous messages of Message Type 6. Up to 4 destination MMSIs can be acknowledged in one message.	66
AisMessage8	Message Type 8: Binary Broadcast Message. This message type is a broadcast message with a binary payload.	66
AisMessage9	Message type 9: Standard SAR Aircraft Position Report. Tracking information for search-and-rescue aircraft.	66
AisNavigationData	Message Types 1, 2 and 3 share a common reporting structure for navigational data, captured in this class.	67
AisStaticAndVoyageData	Common Static and Voyage Data for Message Types 5, 19 and 24.	67

AppointmentStruct	Date ; Time and Location of an appointment. When date and time is set to zero (0), implies no date-time specification	67
CBRNAlarmStruct	Properties of a CBRN alarm.	68
CBRNCasualty	Represents a CBRN casualty caused by exposure. This is for use with federates that cannot support the TriageLevel attribute in CBRN_Human.	68
CBRNDetectorAlarm	Represents the alarm trigger of a previously registered CBRN detector.	68
CBRNExposureStruct	Dosage exposure value associated with a specific agent.	68
CBRNFacilityUpdate	Represents an order for the specified entities to enter or leave the CBRN facility.	68
CBRNPlatformUpdate	Represents an update to the contaminating mass inside a vehicle due to embedded entities.	68
CBRNRelease	Communicates information associated with the release of hazardous agent.	69
CBRNSensorReadingStruct	Timed CBRN sensor reading.	69
CBRNSensorUpdate	Sends information about the current state of a previously registered CBRN sensor.	69
CBRNTreatmentCommand	Represents an order for the specified entities to receive the list of treatments.	69
COLPROUpdate	Represents an order for the specified entities to enter or leave the COLPRO.	70
CancelAllTasks	Management task to an entity to cancel all queued and ongoing tasks.	70
CancelOffer	Used by provider to cancel an already made offer before it has been accepted. Used if the OfferTimeOut has passed.	70
CancelRequestLOG	Used by either a service consuming entity or a service providing entity to inform about early termination of the service delivery or in some cases termination of the service request before delivery has begun.	70
CancelRequestTMR	A `CancelRequest` interaction can be sent by the **Request Federate** to cancel a request.	70
CancelSpecifiedTasks	Management task to an entity to cancel all specified tasks.	71
CapabilitiesSupportedETR	Provides the set of ETR_Task, ETR_SimCon and ETR_Report interactions that the federate modelling the entity supports. This interaction is in response to a QuerySupportedCapabilities.	71
CapabilitiesSupportedMRM	An interaction sent in respons to a QuerySupportedCapabilities request. The respons include a list of names of the supported capabilities for the Aggregate unit specified in the query. The names are one or more of 'Aggregate', 'Disaggregate', 'Divide', 'Merge', 'Activate' and 'Inactivate'.	71
ClearObstacle	Tasking of an entity to clear an obstacle or minefield with the given UUID. The tasked entity should be within a certain distance (tolerance specified in the federation agreement) of one of the points of the geometry of the obstacle.	72
CloudStruct	Description of cloud layer type, coverage and density.	72
CommunicationNetworkStruct	CommunicationNetInstance that equipment monitors or uses to communicate with a mission.	72
ConnectionReceiverStruct	Characteristics of a connection to a receiver.	72
CreateMinefield	Tasking of an entity to create a minefield within the specified geometry. When the task is completed, a minefield object should be published in the federation (e.g. RPR-FOM Minefield). This tasking interaction is different from the RPR-FOM MinefieldObjectTransaction interaction, which asks a federate to create a minefield magically.	73
CreateObstacle	Tasking of an entity to create an obstacle with the given geometry. The tasked entity should be within a certain distance (tolerance specified in the federation agreement) of one of the points of the geometry.	73
CurrentStruct	Water current direction and speed.	74
DamageStatusReport	Report on a unit's damage status.	74
Deactivate	Request change of status of AggregateUnit to Inactive and if indicated remove it from the federation.	74
DecontaminationStationUpdate	Represents an order for the specified entities to enter or leave the decontamination station.	74
Disaggregate	Instruction to perform a full disaggregation of a AggregatedUnit. All subunits and platforms will be registered in the federation.	75
Dismount	Tasking of an entity to dismount from a mounted position. When the task is completed, the tasked entity is no longer attached to or embarked in another entity.	75
DispositionStruct	Positioning of unit or equipment item.	75

DisruptCommunication	Tasking of an entity to introduce a communication network disruption.	75
Divide	Instruction to divide the simulated AggregateUnit into multiple simulated object. The resouces are divided among the simulated entities. After successful division two simulated entities represent the entire Unit. 1) The original AggregateUnit and 2) the divided unit or platform. Both these entities are simulated until merged.	76
ETRReport	A base interaction class for more specialized report interaction classes.	76
ETRRoot	Root interaction class for the Entitiy Tasking and Reporting (ETR) interaction classes.	77
ETRSimCon	A base interaction class for EXCON Task interaction classes.	77
ETRTask	A base interaction class for more specialized task interaction classes.	77
ETRTaskManagement	A base interaction class for more specialized task management interaction classes.	77
ElectronicSignatureStruct	A summary percentage of an aggregates susceptibility to detection of its electronic emissions. Zero percent means that the aggregate has no electronic emissions.	77
EntityStruct	An entity represented to the federation as part of the aggregate object which owns it.	78
EquipmentSymbolAmplificationStruct	Text amplifiers for Equipment symbols.	78
EstablishCheckPoint	Tasking of an entity to establish a checkpoint. The task defines a location where a checkpoint shall be established and then operated. The tasked entity should be within a certain distance (tolerance specified in the federation agreements) of the location of the checkpoint. If not, a separate move task should be issued first. During the execution of the task, a CheckPoint object (NETN-SE) should be registered in the federation. The completion and operational status of the CheckPoint object should be updated continuously during the execution of the task or at task completion. Immediately after the checkpoint has been established, it will be operated by the tasked entity for a specified duration of time.	79
FireAtEntity	Tasking of an entity to fire at another specified target entity.	79
FireAtEntityWM	Tasking of an entity to fire at a specified target entity with the specified weapon and munition data.	80
FireAtLocation	Tasking of an entity to fire at a location.	80
FireAtLocationWM	Tasking of an entity to fire at a location with the specified weapon and munition.	81
FollowEntity	Tasking of an entity to follow another entity at a specified distance.	81
FormationPositionStruct	The position of this unit/eqiupment in the higher unit formation.	81
FormationStruct	The formation of this unit.	82
GeodeticCircle	A geodetic point and radius specifying a circle on the surface of the earth WGS84 where the radius is a great circle distance on the surface.	82
GeodeticLocation	A geodetic point, specified by latitude and longitude, with unspecified altitude. WGS84	82
GeodeticPoint	A geodetic point, specified by latitude, longitude and altitude.	82
GeodeticQuadrangle	A latitude-longitude quadrangle is a region bounded by two meridians and two parallels.	83
HUMINTSignatureStruct	Describes the unit's susceptibility to human intelligence (HUMINT), i.e. information collected and provided by human sources.	83
HazeStruct	Type and density of haze material.	83
Holding	Static and dynamic data about the holding.	83
IPECommand	Represents an order for the specified entities to don protective equipment.	83
IceStruct	Ice type, thickness and coverage on water surface.	84
InWeaponRangeReport	Report on a unit's ability to reach specific targets with its weapon systems.	84
IncomingConnectionStruct	Characteristics of a specific incoming connection.	84
InitiateTransfer	An `InitiateTransfer` interaction is sent by a **Trigger Federate** to initiate a TMR request. Parameters include information on the participating federates, which object instances and what attributes are included in the transfer. The **Trigger Federate** shall generate a unique `EventId` to be used in all subsequent TMR interactions related to the event.	84
InstallationSymbolAmplificationStruct	Text amplifiers for Installation symbols.	85
LOGInteraction	Base class for all NETN Logistics Pattern Service Transactions.	86
LandSurfaceCondition	Response with condition for land surface.	86

LayerStruct	A layer of the Earth's environment expressed as a base altitude and a thickness.	86
LinkStatusStruct	Status of a physcial network link.	87
METOCInteraction	Root class for requesting environment data from a METOC Service.	87
MRMInteraction	Base class for all MRM interactions.	87
MagicMove	A simulation control task that instructs the entity to immediately jump to the specified location and update the new position and heading.	87
MagicResource	A simulation control task that instructs the entity to set amount of available resources immediately	87
Merge	Instruction to merg the simulated AggregateUnit with the selected divided parts. After successful merge the divided parts are removed from the federation and their resources are combined with the AggregatedUnit.	88
MissionStruct	The operational task the aggregate has been ordered to perform, the time the mission was assigned, and the estimated completion time.	88
Mount	Tasking of entity to mount the specified entity. The tasked entity should be within a certain distance (tolerance specified in the federation agreements) of the location of the entity to mount.	88
Move	Tasking of an entity to move in a specified direction for a given duration of time.	89
MoveIntoFormation	Tasking of an entity to move into the given formation on the given location with the given heading.	89
MoveToEntity	Tasking of an entity to move to another entity. If a path is provided, the entity should follow the path as its route to the entity. The entity should align with the path from its current position to the nearest position or waypoint on the path. The entity should leave the path at position or waypoint on the path closest to the destination entity. The entity moves directly towards the destination entity if no path (or a zero-length path) is provided.	89
MoveToLocation	Tasking of an entity to move to the specified destination location. If a path is provided, the entity should follow the path as its route to the destination. The entity should align with the path from its current position to the nearest position or waypoint on the path. The entity should leave the path at position or waypoint on the path closest to the destination. The entity moves directly towards the destination location if no path (or a zero-length path) is provided.	90
NETNSupplyStruct	Description of supply. Same encoding as RPR2 SupplyStruct.	90
NetworkDeviceEmptyCharactersticsStruct	Empty placeholder for future network device characteristics.	91
NetworkDeviceGenericTransmitterCharacteristicsStruct	Generic description of network device transmitter.	91
NetworkDeviceStruct	Describes the type and capability of a network device. Each device must have at least a transmitter (TX) or receiver (RX). Transceivers should define both.	91
Observe	Tasking of an entity to observe an area.	91
OfferRepair	Is sent by a federate simulating the service providing entity in response to a RequestRepair interaction.	92
OfferService	The OfferService is a response to a RequestService. Subclasses of this interaction for specific types of offers contain a more detailed description of the offer. This information may include when, where, how the service can be delivered.	92
OfferSupply	Used by a supply service provider to indicate which of the requested materiel (amount and type) can be offered. In this request the consumer decides whether the loading is done by the provider or by the consumer.	93
OfferTransfer	An `OfferTransfer` interaction is sent by a **Response Federate** as a reply to a `RequestTransfer` to indicate if a transfer can be accomplished or not. **Special Case**: When the transfer type is Divesting, the delivery order of the interaction `OfferTransfer` and the HLA ownership callback service `requestAttributeOwnershipRelease` at the receiving federate is not determined. Due to this, receiving a `requestAttributeOwnershipRelease` callback should be treated in the same way as receiving a `OfferTransfer` with a positive offer. The user-supplied tag in the callback contains the `EventId` which identifies a specific transfer process.	93
OfferTransport	An Offer for a Transport support. The OfferTransport interaction shall be sent by the service providing federate in response to a RequestTransport interaction.	93
OperateCheckPoint	Tasking of an entity to operate a checkpoint. The tasked entity should be within a certain distance (tolerance specified in the federation	94

	agreements) of the location of the checkpoint. If not, a separate move task should be issued first. The tasked entity activates an inactive checkpoint and operates the checkpoint for the specified duration of time.	
Patrol	Tasking of an entity to perform a patrol. The tasked entity moves from its current position to the start of the patrol route and then moves according to patrol route from its start point in the path, through all waypoints.	94
PatrolRepeating	Tasking of an entity to repeat a patrol for a given duration. When the duration time has passed, then the last cycle of the patrol is completed before the task ends. If the time of a cycle takes longer then the interval time, then the cycle starts directly (without delay). If the time of a cycle takes less then the interval time, then the entity waits at the first point of the patrol route until the next cycle is started.	95
PhysicalGenericNetworkStruct	Characteristics of a generic physical network.	95
PhysicalUndefinedNetworkStruct	(Empty) Characteristics of an undefined physical network.	96
PositionStatusReport	Report on a unit's position, speed, and heading.	96
PrecipitationStruct	Type and intensity of precipitation.	96
ProbabilityHazardContourStruct	Represents the footprint covered by a CBRN hazard. This object covers the agent-specific effects which would be the output from a casualty model.	96
ProtectionEffectivenessStruct	Protection effectiveness associated with a specific agent.	97
QuerySupportedCapabilitiesETR	Query which tasks, reports and SimCon actions that an entity supports. The queried entity shall respond with a CapabilitiesSupported message.	97
QuerySupportedCapabilitiesMRM	A request to query the capabilities of a specified federation to provide support for MRM events. The queried federate shall respond with a CapabilitiesSupported interaction.	97
RawDataHazardContourStruct	Contour locations bounding a given exposure value.	97
ReadyToReceiveService	Issued by a service consumer to indicate that service delivery can start. The time of service delivery may be significantly later than indicating ready for service delivery.	97
RejectOffer	Used to reject an offer made by a service providing entity as indicated in a OfferService interaction. By issuing a RejectOffer interaction the service consuming entity informs the providing entity that the offer has been rejected.	98
Relation	The specific value that represents the perceived hostility status.	98
ReleaseDistributionStruct	Mean and variance of the distribution of the particles or droplets in a release.	98
ReleaseDynamicsStruct	Defines the dynamic properties of a release.	98
ReleaseSizeStruct	Defines the properties of the initial size of a release.	98
RemoveCheckPoint	Tasking of an entity to remove a checkpoint. This task removes a previously established checkpoint. The tasked entity should be within a certain distance (tolerance specified in the federation agreements) of the location of the checkpoint. If not, a separate move task should be issued first. After completion of the task, the checkpoint object should be deleted from the federation.	98
RemovePassage	Task entity to remove the passage with the given UUID. The tasked entity should be within a certain distance tolerance (specified in the federation agreement) of one of the points of the passage to make the task possible.	99
RepairComplete	This interaction is sent by the provider when the repair service is delivered to the consumer	99
RepairStruct	Repairs associated with a specific materiel	99
RequestLandSurfaceCondition	Request for land surface condition data.	100
RequestMETOC	A request to a specified METOC Service to provide METOC data for a specific geographical reference. The request can result in either a response interaction including the requested data or registration of an EnvironmentCondition object for continuous updates.	100
RequestMRM	A base class for all MRM Request events.	100
RequestRepair	Sent by the consumer when a repair is needed. Specifies entity and type of repair	100
RequestService	A consumer federate initiates service negotiation using `RequestService`. A unique ServiceId and a reference to a `ConsumerEntity` are required parameters. A reference to a specific `ProviderEntity` and a system wall-clock time for when offers are expected `RequestTimeOut` are optional. Requests for specific types of services are defined as subclasses to `RequestService` and	101

	include parameters for detailing the requirements of the request. This may include information when, where and how the service should be delivered.	
RequestSubsurfaceLayerCondition	Request for sub-surface condition data.	101
RequestSupply	The consumer sends a `RequestSupply` interaction to request supplies. The amount and type of supplies are specified in the required `SuppliesData` parameter. The required `TransferDirection` parameter indicates whether supplies are transferred from Consumer to provider or from Provider to consumer.	102
RequestTransfer	A `RequestTransfer` interaction is sent by the requesting federate to the responding federate. If the request is the result of a `InitiateTransfer` interaction, the parameters from that interaction shall be copied and used in the request including `EventId`. If the request is not triggered the **Request Federate** shall generate a unique `EventId` to be used in all subsequent TMR interactions related to the event.	102
RequestTransport	A request for a Transport service. Use a RequestTransport interaction to initiate a transport, embarkment or disembarkment of a platform.	103
RequestTroposphereLayerCondition	Request for tropospheric environment condition data.	103
RequestWaterSurfaceCondition	Request for water surface condition data.	103
RequestWeatherCondition	Request for general weather data.	104
RequestedConnection	Characterisation of a requested connection.	104
ResourceStatusNumberStruct	The name of a resource and the number of instances of that resource by health status.	104
ResourceStatusReport	Report on a unit's remaining amount resources.	104
ResponseMETOC	Response to a RequestEnvironmentCondition. RequestId paramater should match the corresponding parameter in the request.	105
ResponseMRM	A response from the receiving federate indicating ability to comply with request.	105
SendSafetyRelatedBroadcastMessage	Tasks entity (the source) to send a safety related broadcast message (AIS message type 14). The source must represent an AIS station (vessel, SAR aircraft, etc).	105
SendSafetyRelatedMessage	Tasks entity (the source) to send a safety related message (AIS message type 12) to another entity (the destination). Both source and destination must represent an AIS station (vessel, SAR aircraft, etc).	106
SensorReport	Report on a unit's sensor detection of entities.	106
SensorStruct	Defines a sensor,operational status, damage status, coverage and ID	106
ServiceComplete	Used by a service providing entity to inform the service consuming entity that the service has been delivered.	107
ServiceReceived	Used by a service consuming entity to inform the service providing entity that the service has been delivered.	107
ServiceStarted	Issued by a service provider to inform about the start of service delivery. The time of service delivery start may be significantly later than receiving an indication from the consumer that the service delivery can start.	107
SetOrderedAltitude	Tasking of an entity to set move to specified altitude.	107
SetOrderedSpeed	Tasking of an entity to change speed.	107
SetRulesOfEngagement	Tasking of an entity to change its rules of engagement.	108
SetTransmitterStatus	Tasking of an entity to switch on/off all of its transmitters.	108
SnowStruct	Depth and density of snow cover.	109
SpotReport	Report on a unit's awareness of spotted entities.	109
SpottedEntity	Descripton of the observed entity. The symbol contains information about the spotted entity's relation to the spotter and details about the type and echelon at the spotted entity.	109
SpottedEquipment	Equipment at the spotted entity.	110
StatusReport	Report on a unit's own (perceived) state. This report should be generated with a frequency specified in the federation agreements.	110
StopAtSideOfRoad	Tasking of an entity to stop at the side of the road. This task is only relevant for an entity that is moving along a road to a destination. The executing move task is cancelled, and a new move is defined towards a position at the side of the road (the simulator has to calculate this location).	110
SubsurfaceLayerCondition	Response with subsurface body of water condition data.	110
SupplyComplete	This interaction is sent by the provider when the supply is delivered to the consumer	111
TMRInteraction	The `TMR_Interaction` interaction class is the base for all Transfer of Modelling Responsibility interactions. It provides a single parameter	111

	used in all TMR interactions to uniquely identify TMR transactions between participating federates.	
TaskStatusReport	A management task report regarding the status of a specific task assigned to an entity.	111
TransferResult	A `TransferResult` interaction is sent by the **Request Federate** to indicate successful or unsuccessful completion of the transfer.	112
TransportDestroyedEntities	Used by a service provider to update information on damage state of entities under transport.	112
TransportDisembarkmentStatus	Is sent by the service provider federate, to inform the service consumer of the disembarkment state, after the ServiceStarted interaction	112
TransportEmbarkmentStatus	Is sent by the service provider federate, to inform the service consumer of the embarkment state, after the ServiceStarted interaction	113
TreatmentStruct	Defines the properties for a CBRN treatment.	113
TroposphereLayerCondition	Response with environment condition in volume of air.	113
TurnToHeading	Tasking of an entity to turn to the specified heading.	114
TurnToOrientation	Tasking of an entity to rotate to a specified orientation, including pitch and roll.	114
UnderAttackStatusReport	Report from a unit that it is under attack.	114
UnitSymbolAmplificationStruct	Text amplifiers for Unit symbols.	115
VisualSignatureStruct	Specifies the visual structure	115
Wait	Tasking of an entity to wait for a duration of time.	116
WaterSurfaceCondition	Response with water surface condition data.	116
WaveStruct	Water surface wave conditions and direction.	117
WeatherCondition	Response with general weather condition data.	117
WindStruct	Wind direction and speeds.	117

AISRadioSignal STRUCTURE

This is the root interaction class for all AIS messages. The interaction class contains a reference to the embedded system that represents the AIS transmitter. The embedded system should be modelled as a RadioTransmitter, an RPR-FOM object class that is subclassed from Embedded System.

Name	Type	Description
`hostRadioIndex`	string	Optional (Default: not available). The HostRadioIndex is a unique string that identifies the name of the RadioTransmitter object.

AcceptOffer STRUCTURE

Use the AcceptOffer interaction to accept an offer received in an OfferService interaction.

Name	Type	Description
`requestId`	TransactionId	Required: Unique identifier for the requested service related to the transaction.
`offerId`	TransactionId	Required: Unique offer identifier.

AcknowledgeData STRUCTURE

Acknowledge data for Message Types 7 and 13.

Name	Type	Description
`hostRadioIndex`	string	Optional (Default: not available). The HostRadioIndex is a unique string that identifies the name of the RadioTransmitter object.
`messageId`	MsgIdEnumType	Required. Message type identifier.
`userId`	MMSIType	Required. The message is from the vessel identified by this MMSI.
`destination1`	MMSIType	Required. MMSI number 1.
`destination2`	i32	Optional (Default: not available). MMSI number 2.

Name	Type	Description
destination3	i32	Optional (Default: not available). MMSI number 3.
destination4	i32	Optional (Default: not available). MMSI number 4.

Activate STRUCTURE

Request federate to change of status of AggregateUnit to Active. If required the unit will be registered in the federation.

Name	Type	Description
eventId	TransactionId	Unique identifier for all MRM interactions belonging to the same request/respons event.
federate	string	Required. Intended federate responsible for performing the requested action. Sending federate should ensure that receiving federate can perform requested action. If not able to perform, a response interaction indicating failure should be returned.
aggregateUnit	UuidArrayOf HLAbyte16	Required for all requests except QuerySupportedCapabilities. Unique identifier for the NETN_Aggregate for which this request is related to.

AddPassage STRUCTURE

Tasking of an entity to lay/build a passage between the two given points. The passage can, for example, be a passage through an obstacle or a bridge over a river. The tasked entity should be within a certain distance tolerance (specified in the federation agreement) of one of the points of the passage. A passage object should be registered in the federation with the provided UUID.

Name	Type	Description
taskId	TransactionId	Required. Uniqie identifier for the task.
taskee	UUID	Required. Reference to the entity that will execute the task.
tasker	string	Optional. Callsign of the commander of the task. If missing, the commander is undefined.
startWhen	Datetime18	Required. Time when the task execution should start. Use the value 00000000000000.000 to indicate that the time is undefined.
why	string	Optional. A text describing the reason for this task.
taskMode	TaskModeEnum8	Required. Determines the task mode.
communicationNetwork Ids	ArrayOfText64	Optional. Reference to communication networks (NETN-COM) used to transfer tasking messages. If not provided, the task transmission should not be modelled and federates should receive and act on the task messages directly.
point1	rpr.WorldLocation Struct	Required. The line between point1 and point2 defines the geometry of the passage.
point2	rpr.WorldLocation Struct	Required. The line between point1 and point2 defines the geometry of the passage.
uniqueId	UUID	Required. A unique UUID of the passage.

AgentConcentrationStruct STRUCTURE

Concentration value associated with a specific agent.

Name	Type	Description
meanConcentration	MassConcentration Float32	Concentration in kg m-3.
agent	AgentTypeEnum16	Enumeration representation of the agent.

Named by ArrayOfAgentConcentrationStruct, CBRNSensorReadingStruct.

AgentMassStruct STRUCTURE

Mass of contaminant inside a vehicle brought in by an embedded unit.

Name	Type	Description
contaminatedMass	rpr.MassKilogram Float32	Mass in kg of contaminant.
agent	AgentTypeEnum16	Enumeration representation of the agent.

Named by ArrayOfAgentMassStruct.

Aggregate STRUCTURE

Instruction to the AggregateFederate to perform aggregation of the specified AggregateUnit's parts.

Name	Type	Description
eventId	TransactionId	Unique identifier for all MRM interactions belonging to the same request/respons event.
federate	string	Required. Intended federate responsible for performing the requested action. Sending federate should ensure that receiving federate can perform requested action. If not able to perform, a response interaction indicating failure should be returned.
aggregateUnit	UuidArrayOf HLAbyte16	Required for all requests except QuerySupportedCapabilities. Unique identifier for the NETN_Aggregate for which this request is related to.
removeSubunits	bool	Optional. Indicates if the disaggregate subunits (represented as aggregates in the federation) should be deleted from the federation execution. Default is TRUE - all subunits should be deleted. If FALSE all disaggregate subunits shall be set to inactive.

AisBaseStationReportAndUTCDateResponseData STRUCTURE

Common reporting structure for Message Types 4 and 11 for reporting UTC time and date and, at the same time, position. It is also used by AIS stations for determining if the station is within 120 NM for response to Messages Types 20 and 23.

Name	Type	Description
hostRadioIndex	string	Optional (Default: not available). The HostRadioIndex is a unique string that identifies the name of the RadioTransmitter object.
messageId	MsgIdEnumType	Required. Message type identifier.
userId	MMSIType	Required. The message is from the vessel identified by this MMSI.
uTCtime	i64	Optional (Default: not available). Time of report.
position	GeodeticLocation	Optional (Default: not available). AIS (Lat,Lon) position.

AisBinaryMessageData STRUCTURE

Binary Payload for Message Types 6 and 8. The interpretation of the binary payload is controlled by: - The Designated Area Code (DAC), which is a jurisdiction code: 366 for the United States. It uses the same encoding as the area designator in MMMSIs; see [ITU-MID]. 1 designates international (ITU) messages. - The FID, which is the Functional ID for a message subtype. In some sources this is abbreviated FI.

Name	Type	Description
hostRadioIndex	string	Optional (Default: not available). The HostRadioIndex is a unique string that identifies the name of the RadioTransmitter object.
messageId	MsgIdEnumType	Required. Message type identifier.

Name	Type	Description
userId	MMSIType	Required. The message is from the vessel identified by this MMSI.
designatedAreaCode	DesignatedAreaCode Type	Required. Designated area code (DAC).
functionId	FunctionIdType	Required. Functional ID (FID).
data	BinArrayType	Required. Binary data up to 920 bits.

AisMessage STRUCTURE

Super class for all AIS message types.

Name	Type	Description
hostRadioIndex	string	Optional (Default: not available). The HostRadioIndex is a unique string that identifies the name of the RadioTransmitter object.
messageId	MsgIdEnumType	Required. Message type identifier.
userId	MMSIType	Required. The message is from the vessel identified by this MMSI.

AisMessage1 STRUCTURE

Message Type 1: Position Report Class A. Message type for a scheduled position report; Class A shipborne mobile equipment. This message transmits information pertaining to a ships navigation: Longitude and latitude, time, heading, speed, ships navigation status (under power, at anchor...). This message is transmitted every 2 to 10 seconds while underway, and every 3 minutes while at anchor.

Name	Type	Description
hostRadioIndex	string	Optional (Default: not available). The HostRadioIndex is a unique string that identifies the name of the RadioTransmitter object.
messageId	MsgIdEnumType	Required. Message type identifier.
userId	MMSIType	Required. The message is from the vessel identified by this MMSI.
navigationalStatus	NavigationStatusEnum Type	Optional (Default: not defined). Navigational status.
rateOfTurn	f32	Optional (Default: not available). Rate of turn.
speedOverGround	rpr.VelocityMeterPer SecondFloat32	Optional (Default: not available). Speed over ground.
position	GeodeticLocation	Optional (Default: not available). AIS (Lat,Lon) position.
courseOverGround	f32	Optional (Default: not available). Course over ground.
trueHeading	f32	Optional (Default: not available). True heading.
uTCtime	i64	Optional (Default: not available). Time of the report.
specialManeuver Indicator	ManeuverIndicator EnumType	Optional (Default: not available). Maneuver indication.

AisMessage10 STRUCTURE

Message Type 10: UTC/Date Inquiry. Request for UTC/Date information from an AIS base station.

Name	Type	Description
hostRadioIndex	string	Optional (Default: not available). The HostRadioIndex is a unique string that identifies the name of the RadioTransmitter object.
messageId	MsgIdEnumType	Required. Message type identifier.

Name	Type	Description
userId	MMSIType	Required. The message is from the vessel identified by this MMSI.
destination	MMSIType	Required. Destination MMSI.

AisMessage11 STRUCTURE

Message Type 11: UTC/Date Response. Identical to Message Type 4, with the semantics of a response to inquiry. This message type is only transmitted from a mobile station as a result of a UTC request message (Message Type 10).

Name	Type	Description
hostRadioIndex	string	Optional (Default: not available). The HostRadioIndex is a unique string that identifies the name of the RadioTransmitter object.
messageId	MsgIdEnumType	Required. Message type identifier.
userId	MMSIType	Required. The message is from the vessel identified by this MMSI.
uTCtime	i64	Optional (Default: not available). Time of report.
position	GeodeticLocation	Optional (Default: not available). AIS (Lat,Lon) position.

AisMessage12 STRUCTURE

Type 12: Addressed Safety-Related Message. This is a point-to-point text message. The payload is interpreted as six-bit text.

Name	Type	Description
hostRadioIndex	string	Optional (Default: not available). The HostRadioIndex is a unique string that identifies the name of the RadioTransmitter object.
messageId	MsgIdEnumType	Required. Message type identifier.
userId	MMSIType	Required. The message is from the vessel identified by this MMSI.
destination	MMSIType	Required. Destination MMSI.
message	string	Required. 1-156 chars of six-bit text.

AisMessage13 STRUCTURE

Message Type 13: Safety-Related Acknowledgement. This message type is a receipt acknowledgement to senders of previous messages of Message Type 12.

Name	Type	Description
hostRadioIndex	string	Optional (Default: not available). The HostRadioIndex is a unique string that identifies the name of the RadioTransmitter object.
messageId	MsgIdEnumType	Required. Message type identifier.
userId	MMSIType	Required. The message is from the vessel identified by this MMSI.
destination1	MMSIType	Required. MMSI number 1.
destination2	i32	Optional (Default: not available). MMSI number 2.
destination3	i32	Optional (Default: not available). MMSI number 3.
destination4	i32	Optional (Default: not available). MMSI number 4.

AisMessage14 STRUCTURE

Type 14: Safety-Related Broadcast Message. This is a broadcast text message. The payload is interpreted as six-bit text.

Name	Type	Description
hostRadioIndex	string	Optional (Default: not available). The HostRadioIndex is a unique string that identifies the name of the RadioTransmitter object.
messageId	MsgIdEnumType	Required. Message type identifier.
userId	MMSIType	Required. The message is from the vessel identified by this MMSI.
message	string	Required. 1-161 chars of six-bit text.

AisMessage17 STRUCTURE

Message Type 17: DGNSS Broadcast Binary Message. This message type is used to broadcast differential corrections for GPS.

Name	Type	Description
hostRadioIndex	string	Optional (Default: not available). The HostRadioIndex is a unique string that identifies the name of the RadioTransmitter object.
messageId	MsgIdEnumType	Required. Message type identifier.
userId	MMSIType	Required. The message is from the vessel identified by this MMSI.
position	GeodeticLocation	Optional (Default: not available). Position data.

AisMessage18 STRUCTURE

Message Type 18: Standard Class B CS Position Report. A less detailed report than message types 1-3 for vessels using Class B transmitters. Omits navigational status and rate of turn.

Name	Type	Description
hostRadioIndex	string	Optional (Default: not available). The HostRadioIndex is a unique string that identifies the name of the RadioTransmitter object.
messageId	MsgIdEnumType	Required. Message type identifier.
userId	MMSIType	Required. The message is from the vessel identified by this MMSI.
speedOverGround	rpr.VelocityMeterPerSecondFloat32	Optional (Default: not available). Speed over ground.
position	GeodeticLocation	Optional (Default: not available). AIS (Lat,Lon) position.
courseOverGround	f32	Optional (Default: not available). Course over ground.
trueHeading	f32	Optional (Default: not available). True heading.
uTCtime	i64	Optional (Default: not available). Time of the report.

AisMessage19 STRUCTURE

Message Type 19: Extended Class B CS Position Report. A slightly more detailed report than Message Type 18 for vessels using Class B transmitters. Omits navigational status and rate of turn. Fields are as in the common navigation block and the Message Type 5 message.

Name	Type	Description
hostRadioIndex	string	Optional (Default: not available). The HostRadioIndex is a unique string that identifies the name of the RadioTransmitter object.
messageId	MsgIdEnumType	Required. Message type identifier.
userId	MMSIType	Required. The message is from the vessel identified by this MMSI.
callsign	string	Required. 7 six-bit characters for the callsign.

Name	Type	Description
name	string	Required. 20 six-bit characters for the name.
shipType	u8	Optional (Default: not available). Ship type.
dimensionBow	rpr.LengthMeterFloat32	Optional (Default: not available). GPS Ant. distance from bow.
dimensionStern	rpr.LengthMeterFloat32	Optional (Default: not available). GPS Ant. distance from stern.
dimensionPort	rpr.LengthMeterFloat32	Optional (Default: not available). GPS Ant. distance from port.
dimensionStarboard	rpr.LengthMeterFloat32	Optional (Default: not available). GPS Ant. distance from starboard.
speedOverGround	rpr.VelocityMeterPerSecondFloat32	Optional (Default: not available). Speed over ground.
position	GeodeticLocation	Optional (Default: not available). AIS (Lat,Lon) position.
courseOverGround	f32	Optional (Default: not available). Course over ground.
trueHeading	f32	Optional (Default: not available). True heading.
uTCtime	i64	Optional (Default: not available). Time of the report.

AisMessage2 STRUCTURE

Message Type 2: Position Report Class A. Message type for an assigned scheduled position report; Class A shipborne mobile equipment. This message transmits information pertaining to a ships navigation: Longitude and latitude, time, heading, speed, ships navigation status (under power, at anchor...). This message is transmitted every 2 to 10 seconds while underway, and every 3 minutes while at anchor.

Name	Type	Description
hostRadioIndex	string	Optional (Default: not available). The HostRadioIndex is a unique string that identifies the name of the RadioTransmitter object.
messageId	MsgIdEnumType	Required. Message type identifier.
userId	MMSIType	Required. The message is from the vessel identified by this MMSI.
navigationalStatus	NavigationStatusEnumType	Optional (Default: not defined). Navigational status.
rateOfTurn	f32	Optional (Default: not available). Rate of turn.
speedOverGround	rpr.VelocityMeterPerSecondFloat32	Optional (Default: not available). Speed over ground.
position	GeodeticLocation	Optional (Default: not available). AIS (Lat,Lon) position.
courseOverGround	f32	Optional (Default: not available). Course over ground.
trueHeading	f32	Optional (Default: not available). True heading.
uTCtime	i64	Optional (Default: not available). Time of the report.
specialManeuverIndicator	ManeuverIndicatorEnumType	Optional (Default: not available). Maneuver indication.

AisMessage21 STRUCTURE

Message Type 21: Aid-to-Navigation Report. Identification and location message to be emitted by aids to navigation such as buoys and lighthouses.

Name	Type	Description
hostRadioIndex	string	Optional (Default: not available). The HostRadioIndex is a unique string that identifies the name of the RadioTransmitter object.
messageId	MsgIdEnumType	Required. Message type identifier.

Name	Type	Description
userId	MMSIType	Required. The message is from the vessel identified by this MMSI.
aidType	AidTypeEnumType	Optional (Default: not specified). Type of aid.
name	string	Optional (Default: 34 six-bit @ charachters). Up to max 34 six-bit charachters for the name of the aid.
position	GeodeticLocation	Optional (Default: not available). AIS (Lat,Lon) position.
dimensionBow	rpr.LengthMeter Float32	Optional (Default: not available). Distance from bow.
dimensionStern	rpr.LengthMeter Float32	Optional (Default: not available). Distance from stern.
dimensionPort	rpr.LengthMeter Float32	Optional (Default: not available). Distance from port.
dimensionStarboard	rpr.LengthMeter Float32	Optional (Default: not available). Distance from starboard.
uTCtime	i64	Optional (Default: not available). Time of the report.
offPositionFlag	bool	Optional (Default: false). Off-Position Indicator. The Off-Position Indicator is for floating Aids-to-Navigation only: false means on position; true means off position. Only valid if UTCsecond is available.
virtualFlag	bool	Optional (Default: false). Virtual-aid flag. The Virtual Aid flag is interpreted as follows: false = real Aid to Navigation at indicated position; true = virtual Aid to Navigation simulated by nearby AIS station.

AisMessage24 STRUCTURE

Message Type 24: Static Data Report. Equivalent of Message Type 5 for ships using Class B equipment. Also used to associate an MMSI with a name on either class A or class B equipment. This message type may be in part A or part B format. According to the standard, parts A and B are expected to be broadcast in adjacent pairs.

Name	Type	Description
hostRadioIndex	string	Optional (Default: not available). The HostRadioIndex is a unique string that identifies the name of the RadioTransmitter object.
messageId	MsgIdEnumType	Required. Message type identifier.
userId	MMSIType	Required. The message is from the vessel identified by this MMSI.
callsign	string	Required. 7 six-bit characters for the callsign.
name	string	Required. 20 six-bit characters for the name.
shipType	u8	Optional (Default: not available). Ship type.
dimensionBow	rpr.LengthMeter Float32	Optional (Default: not available). GPS Ant. distance from bow.
dimensionStern	rpr.LengthMeter Float32	Optional (Default: not available). GPS Ant. distance from stern.
dimensionPort	rpr.LengthMeter Float32	Optional (Default: not available). GPS Ant. distance from port.
dimensionStarboard	rpr.LengthMeter Float32	Optional (Default: not available). GPS Ant. distance from starboard.
partNumber	PartNumberEnumType	Required. Part number.
manufacturerId	ManufacturerIdType	Required. (Part B) 3 six-bit chars.
unitModel	UnitModelType	Required. (Part B) Unit Model Code.
serialNumber	SerialNumberType	Required. (Part B) Serial Number.

AisMessage27 STRUCTURE

Message Type 27: Long Range AIS Broadcast message. This message type is primarily intended for long-range detection of AIS Class A equipped vessels (typically by satellite). This message has a similar content to Messages 1, 2 and 3, but the total number of bits has been compressed to allow for increased propagation delays associated with long-range detection.

Name	Type	Description
hostRadioIndex	string	Optional (Default: not available). The HostRadioIndex is a unique string that identifies the name of the RadioTransmitter object.
messageId	MsgIdEnumType	Required. Message type identifier.
userId	MMSIType	Required. The message is from the vessel identified by this MMSI.
navigationStatus	NavigationStatusEnumType	Optional (Default: not defined). Navigational status.
position	GeodeticLocation	Optional (Default: not available). AIS (Lat,Lon) position.
speedOverGround	rpr.VelocityMeterPerSecondFloat32	Optional (Default: not available). Speed over ground.
courseOverGround	f32	Optional (Default: not available). Course over ground.

AisMessage3 STRUCTURE

Message Type 3: Position Report Class A. Message type for a special position report, response to interrogation; Class A shipborne mobile equipment. This message transmits information pertaining to a ships navigation: Longitude and latitude, time, heading, speed, ships navigation status (under power, at anchor...). This message is transmitted every 2 to 10 seconds while underway, and every 3 minutes while at anchor.

Name	Type	Description
hostRadioIndex	string	Optional (Default: not available). The HostRadioIndex is a unique string that identifies the name of the RadioTransmitter object.
messageId	MsgIdEnumType	Required. Message type identifier.
userId	MMSIType	Required. The message is from the vessel identified by this MMSI.
navigationalStatus	NavigationStatusEnumType	Optional (Default: not defined). Navigational status.
rateOfTurn	f32	Optional (Default: not available). Rate of turn.
speedOverGround	rpr.VelocityMeterPerSecondFloat32	Optional (Default: not available). Speed over ground.
position	GeodeticLocation	Optional (Default: not available). AIS (Lat,Lon) position.
courseOverGround	f32	Optional (Default: not available). Course over ground.
trueHeading	f32	Optional (Default: not available). True heading.
uTCtime	i64	Optional (Default: not available). Time of the report.
specialManeuverIndicator	ManeuverIndicatorEnumType	Optional (Default: not available). Maneuver indication.

AisMessage4 STRUCTURE

Message Type 4: Base Station Report. This message is to be used by fixed-location base stations to periodically report a position and time reference.

Name	Type	Description
hostRadioIndex	string	Optional (Default: not available). The HostRadioIndex is a unique string that identifies the name of the RadioTransmitter object.
messageId	MsgIdEnumType	Required. Message type identifier.

Name	Type	Description
userId	MMSIType	Required. The message is from the vessel identified by this MMSI.
uTCtime	i64	Optional (Default: not available). Time of report.
position	GeodeticLocation	Optional (Default: not available). AIS (Lat,Lon) position.

AisMessage5 STRUCTURE

Message Type 5: Static and Voyage Related Data. This message type is transmitted every 6 minutes and should only be used by Class A shipborne and SAR aircraft AIS stations when reporting static or voyage related data.

Name	Type	Description
hostRadioIndex	string	Optional (Default: not available). The HostRadioIndex is a unique string that identifies the name of the RadioTransmitter object.
messageId	MsgIdEnumType	Required. Message type identifier.
userId	MMSIType	Required. The message is from the vessel identified by this MMSI.
callsign	string	Required. 7 six-bit characters for the callsign.
name	string	Required. 20 six-bit characters for the name.
shipType	u8	Optional (Default: not available). Ship type.
dimensionBow	rpr.LengthMeter Float32	Optional (Default: not available). GPS Ant. distance from bow.
dimensionStern	rpr.LengthMeter Float32	Optional (Default: not available). GPS Ant. distance from stern.
dimensionPort	rpr.LengthMeter Float32	Optional (Default: not available). GPS Ant. distance from port.
dimensionStarboard	rpr.LengthMeter Float32	Optional (Default: not available). GPS Ant. distance from starboard.
imo	i32	Optional (Default: zero). The IMO ship ID number. Not applicable to SAR aircraft.
eTAtime	i64	Optional (Default: not available). Estimated time of arrival. Not applicable to SAR aircraft. If a zero value is provided then this shall be interpreted as not available.
draught	f32	Optional (Default: not available). Maximum present static draught.
destination	string	Optional (Default: not available, 20 six-bit '@' value). 20 six-bit characters for the destination. For SAR aircraft, the use of this field may be decided by the responsible administration.

AisMessage6 STRUCTURE

Message Type 6: Binary Addressed Message. This message type is an addressed point-to-point message with a binary payload.

Name	Type	Description
hostRadioIndex	string	Optional (Default: not available). The HostRadioIndex is a unique string that identifies the name of the RadioTransmitter object.
messageId	MsgIdEnumType	Required. Message type identifier.
userId	MMSIType	Required. The message is from the vessel identified by this MMSI.
designatedAreaCode	DesignatedAreaCode Type	Required. Designated area code (DAC).
functionId	FunctionIdType	Required. Functional ID (FID).
data	BinArrayType	Required. Binary data up to 920 bits.

Name	Type	Description
destination	MMSIType	Required. Destination MMSI.

AisMessage7 STRUCTURE

Message Type 7: Binary Acknowledge. This message type is a receipt acknowledgement to the senders of a previous messages of Message Type 6. Up to 4 destination MMSIs can be acknowledged in one message.

Name	Type	Description
hostRadioIndex	string	Optional (Default: not available). The HostRadioIndex is a unique string that identifies the name of the RadioTransmitter object.
messageId	MsgIdEnumType	Required. Message type identifier.
userId	MMSIType	Required. The message is from the vessel identified by this MMSI.
destination1	MMSIType	Required. MMSI number 1.
destination2	i32	Optional (Default: not available). MMSI number 2.
destination3	i32	Optional (Default: not available). MMSI number 3.
destination4	i32	Optional (Default: not available). MMSI number 4.

AisMessage8 STRUCTURE

Message Type 8: Binary Broadcast Message. This message type is a broadcast message with a binary payload.

Name	Type	Description
hostRadioIndex	string	Optional (Default: not available). The HostRadioIndex is a unique string that identifies the name of the RadioTransmitter object.
messageId	MsgIdEnumType	Required. Message type identifier.
userId	MMSIType	Required. The message is from the vessel identified by this MMSI.
designatedAreaCode	DesignatedAreaCode Type	Required. Designated area code (DAC).
functionId	FunctionIdType	Required. Functional ID (FID).
data	BinArrayType	Required. Binary data up to 920 bits.

AisMessage9 STRUCTURE

Message type 9: Standard SAR Aircraft Position Report. Tracking information for search-and-rescue aircraft.

Name	Type	Description
hostRadioIndex	string	Optional (Default: not available). The HostRadioIndex is a unique string that identifies the name of the RadioTransmitter object.
messageId	MsgIdEnumType	Required. Message type identifier.
userId	MMSIType	Required. The message is from the vessel identified by this MMSI.
altitude	f64	Optional (Default: not available). Altitude.
speedOverGround	rpr.VelocityMeterPer SecondFloat32	Optional (Default: not available). Speed over ground.
position	GeodeticLocation	Optional (Default: not available). AIS (Lat,Lon) position.
courseOverGround	f32	Optional (Default: not available). Course over ground.
uTCtime	i64	Optional (Default: not available). Time of the report.

AisNavigationData STRUCTURE

Message Types 1, 2 and 3 share a common reporting structure for navigational data, captured in this class.

Name	Type	Description
hostRadioIndex	string	Optional (Default: not available). The HostRadioIndex is a unique string that identifies the name of the RadioTransmitter object.
messageId	MsgIdEnumType	Required. Message type identifier.
userId	MMSIType	Required. The message is from the vessel identified by this MMSI.
navigationalStatus	NavigationStatusEnumType	Optional (Default: not defined). Navigational status.
rateOfTurn	f32	Optional (Default: not available). Rate of turn.
speedOverGround	rpr.VelocityMeterPerSecondFloat32	Optional (Default: not available). Speed over ground.
position	GeodeticLocation	Optional (Default: not available). AIS (Lat,Lon) position.
courseOverGround	f32	Optional (Default: not available). Course over ground.
trueHeading	f32	Optional (Default: not available). True heading.
uTCtime	i64	Optional (Default: not available). Time of the report.
specialManeuverIndicator	ManeuverIndicatorEnumType	Optional (Default: not available). Maneuver indication.

AisStaticAndVoyageData STRUCTURE

Common Static and Voyage Data for Message Types 5, 19 and 24.

Name	Type	Description
hostRadioIndex	string	Optional (Default: not available). The HostRadioIndex is a unique string that identifies the name of the RadioTransmitter object.
messageId	MsgIdEnumType	Required. Message type identifier.
userId	MMSIType	Required. The message is from the vessel identified by this MMSI.
callsign	string	Required. 7 six-bit characters for the callsign.
name	string	Required. 20 six-bit characters for the name.
shipType	u8	Optional (Default: not available). Ship type.
dimensionBow	rpr.LengthMeterFloat32	Optional (Default: not available). GPS Ant. distance from bow.
dimensionStern	rpr.LengthMeterFloat32	Optional (Default: not available). GPS Ant. distance from stern.
dimensionPort	rpr.LengthMeterFloat32	Optional (Default: not available). GPS Ant. distance from port.
dimensionStarboard	rpr.LengthMeterFloat32	Optional (Default: not available). GPS Ant. distance from starboard.

AppointmentStruct STRUCTURE

Date ; Time and Location of an appointment. When date and time is set to zero (0), implies no date-time specification

Name	Type	Description
dateTime	EpochTimeSecInt64	Date time in second since 1 junuary 1970 for the appointment
location	rpr.WorldLocationStruct	Location of the appointment

Named by OfferRepair, OfferService, OfferSupply, OfferTransport, RequestRepair, RequestService, RequestSupply, RequestTransport.

CBRNAlarmStruct STRUCTURE

Properties of a CBRN alarm.

Name	Type	Description
time	EpochTimeSecInt64	Simulation time of this detector alarm.
location	rpr.WorldLocation Struct	Location of the detector alarm.
agent	AgentTypeEnum16	Agent that the detector believes to have triggered this alarm.

Named by CBRNDetector, CBRNDetectorAlarm.

CBRNCasualty STRUCTURE

Represents a CBRN casualty caused by exposure. This is for use with federates that cannot support the TriageLevel attribute in CBRN_Human.

Name	Type	Description
uniqueID	UuidArrayOf HLAbyte16	Unique representation of the entity's ID.
triageLevel	CBRNDamageEnum8	Triage level of this entity.
exposures	ArrayOf CBRNExposureStruct	Array of agents to which this unit has been exposed.

CBRNDetectorAlarm STRUCTURE

Represents the alarm trigger of a previously registered CBRN detector.

Name	Type	Description
detectorID	UuidArrayOf HLAbyte16	Unique representation of the detector's ID.
alarm	CBRNAlarmStruct	Details of the alarm.

CBRNExposureStruct STRUCTURE

Dosage exposure value associated with a specific agent.

Name	Type	Description
exposure	DosageKgSecondPer MeterCubedFloat32	Dosage value (in kg.s.m-3) which has caused this casualty. Defaults to 0.0.
agent	AgentTypeEnum16	Enumeration representation of the agent.

Named by ArrayOfCBRNExposureStruct.

CBRNFacilityUpdate STRUCTURE

Represents an order for the specified entities to enter or leave the CBRN facility.

Name	Type	Description
facilityID	UuidArrayOf HLAbyte16	The unique ID of the CBRN facility.
embeddedUnitList	ArrayOfUuid	List of unique IDs of the entities who will enter or exit the CBRN facility.
isEntry	bool	Determines whether the entities are entering (IsEntry = true) or exiting (IsEntry = false) the CBRN facility.

CBRNPlatformUpdate STRUCTURE

Represents an update to the contaminating mass inside a vehicle due to embedded entities.

Name	Type	Description
platformID	UuidArrayOf HLAbyte16	The unique ID of the platform.
contamination	ArrayOfAgentMass Struct	New state of CBRN hazardous agent inside vehicle due to embedded units.

CBRNRelease STRUCTURE

Communicates information associated with the release of hazardous agent.

Name	Type	Description
uniqueID	UuidArrayOf HLAbyte16	Unique representation of the release's ID.
agent	AgentTypeEnum16	The type of released CBRN hazardous agent.
location	rpr.WorldLocation Struct	Initial location of the release in the geocentric location system.
mass	rpr.MassKilogram Float32	Total released agent mass in kg.
duration	rpr.TimeSecond Integer32	Duration in seconds over which the release takes place.
releaseSize	ReleaseSizeStruct	The initial size of the release including initial Gaussian sigmas of the released puff and mean & variance of released particles.
releaseDynamics	ReleaseDynamics Struct	Temperature differance and density ratio of released material relative to the atmosphere.
releaseVelocity	rpr.VelocityVector Struct	Velocity of the source term.

CBRNSensorReadingStruct STRUCTURE

Timed CBRN sensor reading.

Name	Type	Description
time	EpochTimeSecInt64	Simulation time of this sensor reading.
reading	AgentConcentration Struct	Agent and concentration value in this reading.

Named by ArrayOfCBRNSensorReadingStruct.

CBRNSensorUpdate STRUCTURE

Sends information about the current state of a previously registered CBRN sensor.

Name	Type	Description
time	EpochTimeSecInt64	Time of this sensor update
sensorID	UuidArrayOf HLAbyte16	Unique representation of the sensor's ID.
readings	ArrayOfAgent ConcentrationStruct	Readings for this sensor

CBRNTreatmentCommand STRUCTURE

Represents an order for the specified entities to receive the list of treatments.

Name	Type	Description
unitList	ArrayOfUuid	List of unique IDs of the entities who will receive the treatment.

Name	Type	Description
`treatments`	TreatmentStruct	Type of treatment to be applied to the entities.

COLPROUpdate STRUCTURE

Represents an order for the specified entities to enter or leave the COLPRO.

Name	Type	Description
`facilityID`	UuidArrayOf HLAbyte16	The unique ID of the CBRN facility.
`embeddedUnitList`	ArrayOfUuid	List of unique IDs of the entities who will enter or exit the CBRN facility.
`isEntry`	bool	Determines whether the entities are entering (IsEntry = true) or exiting (IsEntry = false) the CBRN facility.

CancelAllTasks STRUCTURE

Management task to an entity to cancel all queued and ongoing tasks.

Name	Type	Description
`taskManagementId`	TransactionId	Required. Uniqie identifier for the management task.
`taskee`	UUID	Required. Reference to the entity that should execute the task.
`tasker`	string	Optional. Identifies the commander of the task.
`communicationNetwork Ids`	ArrayOfText64	Optional. Reference to communication networks (NETN-COM) used to transfer task management messages. If not provided, the message transmission should not be modelled and federates should receive and act on the task management messages directly.

CancelOffer STRUCTURE

Used by provider to cancel an already made offer before it has been accepted. Used if the OfferTimeOut has passed.

Name	Type	Description
`requestId`	TransactionId	Required: Unique identifier for the requested service related to the transaction.
`offerId`	TransactionId	Required: Reference to the cancelled offer.

CancelRequestLOG STRUCTURE

Used by either a service consuming entity or a service providing entity to inform about early termination of the service delivery or in some cases termination of the service request before delivery has begun.

Name	Type	Description
`requestId`	TransactionId	Required: Unique identifier for the requested service related to the transaction.
`reason`	string	Allows to inform about the reason of the cancel (free text)

CancelRequestTMR STRUCTURE

A `CancelRequest` interaction can be sent by the **Request Federate** to cancel a request.

Name	Type	Description
`eventId`	TransactionId	Required. The `EventId` is a unique reference to a specific execution of a TMR pattern. It consists of two values, a Counter and a Federate Handle. The value of this parameter

Name	Type	Description
		is also encoded and used as the User Supplied Tag in the HLA Ownership services to allow a correlation between the TMR interactions and HLA Ownership services. The `EventId` is generated by a trigger federate or, if no trigger federate is used, directly by the requesting federate. The value of this parameter should match all related TMR pattern interactions belonging to the same Transfer of Modelling Responsibilities event.
`reason`	CancellationReasonEnum32	Optional. An enumerated value that describes the reason for the cancellation: `Other` = When a Requesting Federate for some reason except time out decides not to complete a transfer. `TimeOut` = When a model's time limit for receiving a TMR offer has passed.

CancelSpecifiedTasks STRUCTURE

Management task to an entity to cancel all specified tasks.

Name	Type	Description
`taskManagementId`	TransactionId	Required. Uniqie identifier for the management task.
`taskee`	UUID	Required. Reference to the entity that should execute the task.
`tasker`	string	Optional. Identifies the commander of the task.
`communicationNetworkIds`	ArrayOfText64	Optional. Reference to communication networks (NETN-COM) used to transfer task management messages. If not provided, the message transmission should not be modelled and federates should receive and act on the task management messages directly.
`tasks`	ArrayOfTaskIds	Required. Tasks that should be cancelled.

CapabilitiesSupportedETR STRUCTURE

Provides the set of ETR_Task, ETR_SimCon and ETR_Report interactions that the federate modelling the entity supports. This interaction is in response to a QuerySupportedCapabilities.

Name	Type	Description
`taskId`	TransactionId	Required. Uniqie identifier for the simulation control task.
`taskee`	UUID	Required. Reference to the entity that should execute the task.
`tasker`	string	Optional. Indentifies the commander of the task.
`capabilityNames`	ArrayOfNames	Required. Array of task and report names that the entity supports; the names match with the FOM class names of NETN-ETR Tasks, Reports and SimCon interactions.

CapabilitiesSupportedMRM STRUCTURE

An interaction sent in respons to a QuerySupportedCapabilities request. The respons include a list of names of the supported capabilities for the Aggregate unit specified in the query. The names are one or more of 'Aggregate', 'Disaggregate', 'Divide', 'Merge', 'Activate' and 'Inactivate'.

Name	Type	Description
`eventId`	TransactionId	Unique identifier for all MRM interactions belonging to the same request/respons event.
`capabilityNames`	ArrayOfStringType	Required. A list of names of the supported capabilities for the Aggregate entity specified in the query. The names are one or more of 'Aggregate', 'Disaggregate', 'Divide', 'Merge', 'Activate' and 'Inactivate'.

ClearObstacle STRUCTURE

Tasking of an entity to clear an obstacle or minefield with the given UUID. The tasked entity should be within a certain distance (tolerance specified in the federation agreement) of one of the points of the geometry of the obstacle.

Name	Type	Description
taskId	TransactionId	Required. Uniqie identifier for the task.
taskee	UUID	Required. Reference to the entity that will execute the task.
tasker	string	Optional. Callsign of the commander of the task. If missing, the commander is undefined.
startWhen	Datetime18	Required. Time when the task execution should start. Use the value 00000000000000.000 to indicate that the time is undefined.
why	string	Optional. A text describing the reason for this task.
taskMode	TaskModeEnum8	Required. Determines the task mode.
communicationNetworkIds	ArrayOfText64	Optional. Reference to communication networks (NETN-COM) used to transfer tasking messages. If not provided, the task transmission should not be modelled and federates should receive and act on the task messages directly.
uniqueId	UUID	Required. Reference to the Obstacle to clear.

CloudStruct STRUCTURE

Description of cloud layer type, coverage and density.

Name	Type	Description
type	CloudTypeEnum32	Type of cloud
coverage	rpr.PercentFloat32	Cloud coverage as percent.
density	MassDensityFloat32	Average density of clouds.

Named by TroposphereLayer, TroposphereLayerCondition.

CommunicationNetworkStruct STRUCTURE

CommunicationNetInstance that equipment monitors or uses to communicate with a mission.

Name	Type	Description
service	CommunicationServiceTypeEnum32	Required. The type of service being used for communication.
owner	UUID	UUID reference to the Unit that owns a particular item of data as part of that unit's organization.
networkName	Text64	Name of the Communication network.

Named by ArrayOfCommunicationNetworks.

ConnectionReceiverStruct STRUCTURE

Characteristics of a connection to a receiver.

Name	Type	Description
receiverEntityId	UUID	Reference to a simulated entity receiving data through the connection.
latency	rpr.TimeMillisecondUnsignedInteger32	Latency in reaching the receiving entity.
bandwith	BitsPerSecond	The bandwith of the connection to the receiving entity,
reliability	PercentFloat64	The reliability of the connection to the receiving entity.
hopCount	rpr.Integer16	Number of hops required to reach the receiver. If set to 0 = not specified or calculated.

Named by ConnectionReceiverArray.

CreateMinefield STRUCTURE

Tasking of an entity to create a minefield within the specified geometry. When the task is completed, a minefield object should be published in the federation (e.g. RPR-FOM Minefield). This tasking interaction is different from the RPR-FOM MinefieldObjectTransaction interaction, which asks a federate to create a minefield magically.

Name	Type	Description
taskId	TransactionId	Required. Uniqie identifier for the task.
taskee	UUID	Required. Reference to the entity that will execute the task.
tasker	string	Optional. Callsign of the commander of the task. If missing, the commander is undefined.
startWhen	Datetime18	Required. Time when the task execution should start. Use the value 00000000000000.000 to indicate that the time is undefined.
why	string	Optional. A text describing the reason for this task.
taskMode	TaskModeEnum8	Required. Determines the task mode.
communicationNetworkIds	ArrayOfText64	Optional. Reference to communication networks (NETN-COM) used to transfer tasking messages. If not provided, the task transmission should not be modelled and federates should receive and act on the task messages directly.
uniqueId	UUID	Required. A unique UUID of the Obstacle.
obstacleType	rpr.EntityTypeStruct	Required. The type of the obstacle defined by the entity type of the obstacle (SISO REF-010 Land Culture Features) .
geometry	AreaVariantStruct	Required. Area of the obstacle.
typeOfMines	rpr.EntityTypeStruct	Required. Type of mines used defined in SISO-REF-010.
mineCountMineDensity	MineCountVariantStruct	Required. Count or density of mines.

CreateObstacle STRUCTURE

Tasking of an entity to create an obstacle with the given geometry. The tasked entity should be within a certain distance (tolerance specified in the federation agreement) of one of the points of the geometry.

Name	Type	Description
taskId	TransactionId	Required. Uniqie identifier for the task.
taskee	UUID	Required. Reference to the entity that will execute the task.
tasker	string	Optional. Callsign of the commander of the task. If missing, the commander is undefined.
startWhen	Datetime18	Required. Time when the task execution should start. Use the value 00000000000000.000 to indicate that the time is undefined.
why	string	Optional. A text describing the reason for this task.
taskMode	TaskModeEnum8	Required. Determines the task mode.
communicationNetworkIds	ArrayOfText64	Optional. Reference to communication networks (NETN-COM) used to transfer tasking messages. If not provided, the task transmission should not be modelled and federates should receive and act on the task messages directly.
uniqueId	UUID	Required. A unique UUID of the Obstacle.
obstacleType	rpr.EntityTypeStruct	Required. The type of the obstacle defined by the entity type of the obstacle (SISO REF-010 Land Culture Features) .
geometry	AreaVariantStruct	Required. Area of the obstacle.

CurrentStruct STRUCTURE

Water current direction and speed.

Name	Type	Description
direction	DirectionDegrees Float32	Direction of current.
speed	rpr.VelocityMeterPer SecondFloat32	Speed of current.

Named by SubsurfaceLayer, SubsurfaceLayerCondition, WaterSurface, WaterSurfaceCondition.

DamageStatusReport STRUCTURE

Report on a unit's damage status.

Name	Type	Description
reportId	TransactionId	Required. Uniqie identifier for the report.
when	Datetime18	Required. Date and time when the reported status was valid.
communicationNetwork Ids	ArrayOfText64	Optional. Reference to communication networks (NETN-COM) used to transfer report messages. If not provided, the report transmission should not be modelled and federates should receive and act on the report messages directly.
comments	string	Optional. Any additional comments associated with the report.
entityId	UUID	Required. The entity that is reported about.
damageType	DamageStatus EnhancedEnum32	Required. Damage state of the reported entity.

Deactivate STRUCTURE

Request change of status of AggregateUnit to Inactive and if indicated remove it from the federation.

Name	Type	Description
eventId	TransactionId	Unique identifier for all MRM interactions belonging to the same request/respons event.
federate	string	Required. Intended federate responsible for performing the requested action. Sending federate should ensure that receiving federate can perform requested action. If not able to perform, a response interaction indicating failure should be returned.
aggregateUnit	UuidArrayOf HLAbyte16	Required for all requests except QuerySupportedCapabilities. Unique identifier for the NETN_Aggregate for which this request is related to.
removeUnit	bool	Optional. Indicates if the Aggregate Unit shall be removed as an object instance in the federation. Default = FALSE - keep object instance in federation.

DecontaminationStationUpdate STRUCTURE

Represents an order for the specified entities to enter or leave the decontamination station.

Name	Type	Description
facilityID	UuidArrayOf HLAbyte16	The unique ID of the CBRN facility.
embeddedUnitList	ArrayOfUuid	List of unique IDs of the entities who will enter or exit the CBRN facility.
isEntry	bool	Determines whether the entities are entering (IsEntry = true) or exiting (IsEntry = false) the CBRN facility.

Disaggregate STRUCTURE

Instruction to perform a full disaggregation of a AggregatedUnit. All subunits and platforms will be registered in the federation.

Name	Type	Description
eventId	TransactionId	Unique identifier for all MRM interactions belonging to the same request/respons event.
federate	string	Required. Intended federate responsible for performing the requested action. Sending federate should ensure that receiving federate can perform requested action. If not able to perform, a response interaction indicating failure should be returned.
aggregateUnit	UuidArrayOf HLAbyte16	Required for all requests except QuerySupportedCapabilities. Unique identifier for the NETN_Aggregate for which this request is related to.

Dismount STRUCTURE

Tasking of an entity to dismount from a mounted position. When the task is completed, the tasked entity is no longer attached to or embarked in another entity.

Name	Type	Description
taskId	TransactionId	Required. Uniqie identifier for the task.
taskee	UUID	Required. Reference to the entity that will execute the task.
tasker	string	Optional. Callsign of the commander of the task. If missing, the commander is undefined.
startWhen	Datetime18	Required. Time when the task execution should start. Use the value 00000000000000.000 to indicate that the time is undefined.
why	string	Optional. A text describing the reason for this task.
taskMode	TaskModeEnum8	Required. Determines the task mode.
communicationNetwork Ids	ArrayOfText64	Optional. Reference to communication networks (NETN-COM) used to transfer tasking messages. If not provided, the task transmission should not be modelled and federates should receive and act on the task messages directly.

DispositionStruct STRUCTURE

Positioning of unit or equipment item.

Name	Type	Description
location	GeodeticPoint	Geodetic location.
directionOfMovement	DirectionDegrees Float32	Direction of movement.
speed	rpr.VelocityMeterPer SecondFloat32	Speed of movement.
formationPosition	FormationPosition Struct	The position of this unit/eqiupment in the higher unit formation.

Named by EquipmentItem, Unit.

DisruptCommunication STRUCTURE

Tasking of an entity to introduce a communication network disruption.

Name	Type	Description
taskId	TransactionId	Required. Uniqie identifier for the task.

Name	Type	Description
taskee	UUID	Required. Reference to the entity that will execute the task.
tasker	string	Optional. Callsign of the commander of the task. If missing, the commander is undefined.
startWhen	Datetime18	Required. Time when the task execution should start. Use the value 00000000000000.000 to indicate that the time is undefined.
why	string	Optional. A text describing the reason for this task.
taskMode	TaskModeEnum8	Required. Determines the task mode.
communicationNetwork Ids	ArrayOfText64	Optional. Reference to communication networks (NETN-COM) used to transfer tasking messages. If not provided, the task transmission should not be modelled and federates should receive and act on the task messages directly.
affectedCommunication Network	Text64	Required. Reference to the affected Communication Network. If not provided all communication networks are affected.
affectedArea	GeodeticQuadrangle	Required. Area affected by disruption.
disruptionEnabled	bool	Required. Disruption enabled or disabled. Default is True = Enabled.

Divide STRUCTURE

Instruction to divide the simulated AggregateUnit into multiple simulated object. The resouces are divided among the simulated entities. After successful division two simulated entities represent the entire Unit. 1) The original AggregateUnit and 2) the divided unit or platform. Both these entities are simulated until merged.

Name	Type	Description
eventId	TransactionId	Unique identifier for all MRM interactions belonging to the same request/respons event.
federate	string	Required. Intended federate responsible for performing the requested action. Sending federate should ensure that receiving federate can perform requested action. If not able to perform, a response interaction indicating failure should be returned.
aggregateUnit	UuidArrayOf HLAbyte16	Required for all requests except QuerySupportedCapabilities. Unique identifier for the NETN_Aggregate for which this request is related to.
equipment	ArrayOfResource Status	Optional. Amount of equipment of different type and health status to be divided.
personnel	ArrayOfResource Status	Optional. Amount of personnel of different type and health status to be divided.
supplies	NETNArrayOfSupply Struct	Optional. Amount of supplies to divide.
registerPhysical Entities	bool	Optional. If true all Equipment of type Platform and Lifeform are published as individual objects in the federation.

ETRReport STRUCTURE

A base interaction class for more specialized report interaction classes.

Name	Type	Description
reportId	TransactionId	Required. Uniqie identifier for the report.
when	Datetime18	Required. Date and time when the reported status was valid.
communicationNetwork Ids	ArrayOfText64	Optional. Reference to communication networks (NETN-COM) used to transfer report messages. If not provided, the report transmission should not be modelled and federates should receive and act on the report messages directly.

Name	Type	Description
comments	string	Optional. Any additional comments associated with the report.

ETRRoot STRUCTURE

Root interaction class for the Entitiy Tasking and Reporting (ETR) interaction classes.

ETRSimCon STRUCTURE

A base interaction class for EXCON Task interaction classes.

Name	Type	Description
taskId	TransactionId	Required. Uniqie identifier for the simulation control task.
taskee	UUID	Required. Reference to the entity that should execute the task.
tasker	string	Optional. Indentifies the commander of the task.

ETRTask STRUCTURE

A base interaction class for more specialized task interaction classes.

Name	Type	Description
taskId	TransactionId	Required. Uniqie identifier for the task.
taskee	UUID	Required. Reference to the entity that will execute the task.
tasker	string	Optional. Callsign of the commander of the task. If missing, the commander is undefined.
startWhen	Datetime18	Required. Time when the task execution should start. Use the value 00000000000000.000 to indicate that the time is undefined.
why	string	Optional. A text describing the reason for this task.
taskMode	TaskModeEnum8	Required. Determines the task mode.
communicationNetworkIds	ArrayOfText64	Optional. Reference to communication networks (NETN-COM) used to transfer tasking messages. If not provided, the task transmission should not be modelled and federates should receive and act on the task messages directly.

ETRTaskManagement STRUCTURE

A base interaction class for more specialized task management interaction classes.

Name	Type	Description
taskManagementId	TransactionId	Required. Uniqie identifier for the management task.
taskee	UUID	Required. Reference to the entity that should execute the task.
tasker	string	Optional. Identifies the commander of the task.
communicationNetworkIds	ArrayOfText64	Optional. Reference to communication networks (NETN-COM) used to transfer task management messages. If not provided, the message transmission should not be modelled and federates should receive and act on the task management messages directly.

ElectronicSignatureStruct STRUCTURE

A summary percentage of an aggregates susceptibility to detection of its electronic emissions. Zero percent means that the aggregate has no electronic emissions.

Name	Type	Description
electronicSignaturePercent	rpr.PercentUnsignedInteger32	A summary percentage of an aggregates susceptibility to detection of its electronic emissions. Zero percent means that the aggregate has no electronic emissions.
sensorArray	ArrayOfSensorStruct	A list of sensors owned by the aggregate together with their respective operational status and range

Named by NETNAggregate.

EntityStruct STRUCTURE

An entity represented to the federation as part of the aggregate object which owns it.

Name	Type	Description
callsign	string	The unique identifier of the object.
entityCategory	EntityCategoryEnum32	Indicates whether the entity is equipment, person, emitter, etc.
entityStatus	DamageStatusEnhancedEnum32	The damage state of the entity.
isDistinctObject	bool	A BaseEntity object has been created to represent this entity (true) or not (false). Default is false.
isUnavailable	bool	This entity is in use by another object (true) or not (false). Default is false.
facing	DirectionDegreesFloat32	Direction is measured in degrees clockwise from orientation of unit. Default is 0.
concealment	ConcealmentEnum32	Indicates whether the entity is concealed and, if so, how
offsetLocation	rpr.RelativePositionStruct	The entity location given as an offset from the location of the aggregate unit in meters.
unitAllocation	UuidArrayOfHLAbyte16	Reference to unit by UUID to which this entity is allocated as a resource. Unit may or may not be represented in the federation as a NETN_Aggregate and/or NETN-ORG Unit object.

Named by ArrayOfEntityStruct.

EquipmentSymbolAmplificationStruct STRUCTURE

Text amplifiers for Equipment symbols.

Name	Type	Description
quantity	Text9	A text amplifier in an equipment symbol that identifies the number of items present.
staffComments	Text20	A text amplifier for units, equipment and installations.
additionalInformation	Text20	A text amplifier for units, equipment and installations.
evaluationRating	Text2	A text amplifier for units, equipment and installations that consists of a one-letter reliability rating and a one-number credibility rating. Reliability Ratings: A-completely reliable B-usually reliable C-fairly reliable D-not usually reliable E-unreliable F-reliability cannot be judged Credibility Ratings: 1-confirmed by other sources 2-probably true 3-possibly true 4-doubtfully true 5-improbable 6-truth cannot be judged.
signatureEquipment	Text1	A text amplifier for hostile equipment; “!” indicates detectable electronic signatures.
hostile	Text3	A text amplifier for equipment; letters 'ENY' denote hostile symbols.
iffSifAis	Text15	A text amplifier displaying IFF/SIF/AIS identification modes and codes.
uniqueDesignation	Text21	A text amplifier for units, equipment and installations that uniquely identifies a particular symbol or track number.

Name	Type	Description
		Identifies acquisitions number when used with SIGINT symbology.
equipmentType	Text24	A text amplifier for equipment that indicates types of equipment.
engagementBarText	Text8	A text amplifier placed immediately atop the symbol in the engagement bar. May denote, 1) local/remote status; 2) engagement status; and 3) weapon type.

Named by EquipmentItem.

EstablishCheckPoint STRUCTURE

Tasking of an entity to establish a checkpoint. The task defines a location where a checkpoint shall be established and then operated. The tasked entity should be within a certain distance (tolerance specified in the federation agreements) of the location of the checkpoint. If not, a separate move task should be issued first. During the execution of the task, a CheckPoint object (NETN-SE) should be registered in the federation. The completion and operational status of the CheckPoint object should be updated continuously during the execution of the task or at task completion. Immediately after the checkpoint has been established, it will be operated by the tasked entity for a specified duration of time.

Name	Type	Description
taskId	TransactionId	Required. Uniqie identifier for the task.
taskee	UUID	Required. Reference to the entity that will execute the task.
tasker	string	Optional. Callsign of the commander of the task. If missing, the commander is undefined.
startWhen	Datetime18	Required. Time when the task execution should start. Use the value 00000000000000.000 to indicate that the time is undefined.
why	string	Optional. A text describing the reason for this task.
taskMode	TaskModeEnum8	Required. Determines the task mode.
communicationNetworkIds	ArrayOfText64	Optional. Reference to communication networks (NETN-COM) used to transfer tasking messages. If not provided, the task transmission should not be modelled and federates should receive and act on the task messages directly.
name	string	Required. The name of the Check Point.
location	rpr.WorldLocationStruct	Required. The location of the Check Point.
uniqueId	UUID	Required. Unique identifier for the SE_CheckPoint object to be created as a result of this task.
duration	TimeSecInt32	Required. The duration of the initial operation of the Check Point after it has been established.
locationUuid	UUID	Optional. The location for the checkpoint by reference to NETN-SE SE_GeoObject.

FireAtEntity STRUCTURE

Tasking of an entity to fire at another specified target entity.

Name	Type	Description
taskId	TransactionId	Required. Uniqie identifier for the task.
taskee	UUID	Required. Reference to the entity that will execute the task.
tasker	string	Optional. Callsign of the commander of the task. If missing, the commander is undefined.
startWhen	Datetime18	Required. Time when the task execution should start. Use the value 00000000000000.000 to indicate that the time is undefined.
why	string	Optional. A text describing the reason for this task.

Name	Type	Description
taskMode	TaskModeEnum8	Required. Determines the task mode.
communicationNetworkIds	ArrayOfText64	Optional. Reference to communication networks (NETN-COM) used to transfer tasking messages. If not provided, the task transmission should not be modelled and federates should receive and act on the task messages directly.
target	UUID	Required. Reference to the target entity.

FireAtEntityWM STRUCTURE

Tasking of an entity to fire at a specified target entity with the specified weapon and munition data.

Name	Type	Description
taskId	TransactionId	Required. Uniqie identifier for the task.
taskee	UUID	Required. Reference to the entity that will execute the task.
tasker	string	Optional. Callsign of the commander of the task. If missing, the commander is undefined.
startWhen	Datetime18	Required. Time when the task execution should start. Use the value 00000000000000.000 to indicate that the time is undefined.
why	string	Optional. A text describing the reason for this task.
taskMode	TaskModeEnum8	Required. Determines the task mode.
communicationNetworkIds	ArrayOfText64	Optional. Reference to communication networks (NETN-COM) used to transfer tasking messages. If not provided, the task transmission should not be modelled and federates should receive and act on the task messages directly.
target	UUID	Required. Reference to the target entity.
weaponTypeToUse	rpr.EntityTypeStruct	Required. Preferd weapon type.
munitionTypeToUse	rpr.EntityTypeStruct	Required. Prefered munition type.
quantityFired	rpr.Integer16	Required. Number of rounds.
rateOfFire	rpr.Float32	Required. Number of rounds per second.

FireAtLocation STRUCTURE

Tasking of an entity to fire at a location.

Name	Type	Description
taskId	TransactionId	Required. Uniqie identifier for the task.
taskee	UUID	Required. Reference to the entity that will execute the task.
tasker	string	Optional. Callsign of the commander of the task. If missing, the commander is undefined.
startWhen	Datetime18	Required. Time when the task execution should start. Use the value 00000000000000.000 to indicate that the time is undefined.
why	string	Optional. A text describing the reason for this task.
taskMode	TaskModeEnum8	Required. Determines the task mode.
communicationNetworkIds	ArrayOfText64	Optional. Reference to communication networks (NETN-COM) used to transfer tasking messages. If not provided, the task transmission should not be modelled and federates should receive and act on the task messages directly.
location	rpr.WorldLocationStruct	Required. The location to fire at.
duration	TimeSecInt32	Required. The duration of the fire (seconds).
locationUuid	UUID	Optional. The location to fire at by reference to a NETN SE, SE_GeoObject.

FireAtLocationWM STRUCTURE

Tasking of an entity to fire at a location with the specified weapon and munition.

Name	Type	Description
taskId	TransactionId	Required. Uniqie identifier for the task.
taskee	UUID	Required. Reference to the entity that will execute the task.
tasker	string	Optional. Callsign of the commander of the task. If missing, the commander is undefined.
startWhen	Datetime18	Required. Time when the task execution should start. Use the value 00000000000000.000 to indicate that the time is undefined.
why	string	Optional. A text describing the reason for this task.
taskMode	TaskModeEnum8	Required. Determines the task mode.
communicationNetworkIds	ArrayOfText64	Optional. Reference to communication networks (NETN-COM) used to transfer tasking messages. If not provided, the task transmission should not be modelled and federates should receive and act on the task messages directly.
location	rpr.WorldLocationStruct	Required. The location to fire at.
duration	TimeSecInt32	Required. The duration of the fire (seconds).
locationUuid	UUID	Optional. The location to fire at by reference to a NETN SE, SE_GeoObject.
weaponTypeToUse	rpr.EntityTypeStruct	Required. Preferd weapon type.
munitionTypeToUse	rpr.EntityTypeStruct	Required. Prefered muntion type.
quantityFired	rpr.Integer16	Required. Number of rounds to fire
rateOfFire	rpr.Float32	Required. Number of rounds per second.

FollowEntity STRUCTURE

Tasking of an entity to follow another entity at a specified distance.

Name	Type	Description
taskId	TransactionId	Required. Uniqie identifier for the task.
taskee	UUID	Required. Reference to the entity that will execute the task.
tasker	string	Optional. Callsign of the commander of the task. If missing, the commander is undefined.
startWhen	Datetime18	Required. Time when the task execution should start. Use the value 00000000000000.000 to indicate that the time is undefined.
why	string	Optional. A text describing the reason for this task.
taskMode	TaskModeEnum8	Required. Determines the task mode.
communicationNetworkIds	ArrayOfText64	Optional. Reference to communication networks (NETN-COM) used to transfer tasking messages. If not provided, the task transmission should not be modelled and federates should receive and act on the task messages directly.
entity	UUID	Required. Reference to the entity to follow.
behind	rpr.MeterFloat32	Required. The distance in meters behind the entity to follow.
right	rpr.MeterFloat32	Required. The distance in meters to the right of the entity to follow.
above	rpr.MeterFloat32	Required. The distance in meters above the entity to follow.
duration	TimeSecInt32	Required. The duration of the follow action (seconds).

FormationPositionStruct STRUCTURE

The position of this unit/eqiupment in the higher unit formation.

Name	Type	Description
outOfFormation	bool	Identifies if the element is maneuvering independently from the higher unit's formation.
formationOrder	FormationInt32	The placement, 1 to N, of a subordinate in the superior unit formation.
sensorOrientation	DirectionDegrees Float32	Orientation of the main sensor, sights, and weapon in compass degrees relative to orientation of the platform (equipment).

Named by DispositionStruct.

FormationStruct STRUCTURE

The formation of this unit.

Name	Type	Description
formationLocationType	FormationLocation TypeEnum32	The method used to correlate formation to location as center of mass or lead element.
formationSpacing	rpr.MeterFloat32	The default spacing in metres between subordinate elements one echelon below.
formationOrientation	DirectionDegrees Float32	Orientation in compass degrees for unit formations and equipment.
formationData	FormationDataStruct	The formation data specific to the specified formation type.

Named by Unit.

GeodeticCircle STRUCTURE

A geodetic point and radius specifying a circle on the surface of the earth WGS84 where the radius is a great circle distance on the surface.

Name	Type	Description
centerPoint	GeodeticLocation	The center of the circular area. Lat, Long on WGS84.
radius	rpr.MeterFloat32	The radius of the circular area.

Named by AreaVariantStruct, GeoLocationReferenceVariant, GeoReferenceVariant.

GeodeticLocation STRUCTURE

A geodetic point, specified by latitude and longitude, with unspecified altitude. WGS84

Name	Type	Description
latitude	LatLongDegrees Float64	The latitude in degrees.
longitude	LatLongDegrees Float64	The longitude in degrees.

Named by AisBaseStationReportAndUTCDateResponseData, AisMessage1, AisMessage11, AisMessage17, AisMessage18, AisMessage19, AisMessage2, AisMessage21, AisMessage27, AisMessage3, AisMessage4, AisMessage9, AisNavigationData, GeoLocationReferenceVariant, GeoReferenceVariant, GeodeticCircle, GeodeticPath, GeodeticPolygon, GeodeticQuadrangle.

GeodeticPoint STRUCTURE

A geodetic point, specified by latitude, longitude and altitude.

Name	Type	Description
latitude	LatLongDegrees Float64	The latitude in degrees.
longitude	LatLongDegrees Float64	The longitude in degrees.

Name	Type	Description
altitude	AltitudeMeterFloat64	Height Above Mean Sea Level

Named by DispositionStruct, Installation, Location.

GeodeticQuadrangle STRUCTURE

A latitude-longitude quadrangle is a region bounded by two meridians and two parallels.

Name	Type	Description
point1	GeodeticLocation	Lat, Long on WGS84
point2	GeodeticLocation	Lat, Long on WGS84

Named by AreaVariantStruct, DisruptCommunication, DisruptionEffect, GeoLocationReferenceVariant, GeoReferenceVariant.

HUMINTSignatureStruct STRUCTURE

Describes the unit's susceptibility to human intelligence (HUMINT), i.e. information collected and provided by human sources.

Name	Type	Description
hUMINTSignature Percent	rpr.PercentUnsigned Integer32	A summary percentage of an aggregates susceptibility to detection by human intelligence collectors. Zero percent signature means an aggregate is impervious to HUMINT.

Named by NETNAggregate.

HazeStruct STRUCTURE

Type and density of haze material.

Name	Type	Description
type	HazeTypeEnum32	Type of Haze.
density	MassDensityFloat32	Concentration/Density of haze measured in Kg/m3.

Named by LandSurfaceCondition, TroposphereLayerCondition, WaterSurfaceCondition, Weather, WeatherCondition.

Holding STRUCTURE

Static and dynamic data about the holding.

Name	Type	Description
operationalCount	QuantityFloat64	The number of specific OBJECT-TYPEs a specific OBJECT-ITEM has available for operations
onHandQuantity	QuantityFloat64	Current number of the holding.
requiredOnHand Quantity	QuantityFloat64	The required number of the holding.
isEquipment	bool	True if is equipment, false for expendables.
entityType	rpr.EntityTypeStruct	DIS enumeration. Use 0.0.0.0.0.0.0 when not defined.
nSNcode	NatoStockNumber Array13	13 digits (0-9)
nSNname	string	Nato Stock Number

Named by ArrayOfHoldings.

IPECommand STRUCTURE

Represents an order for the specified entities to don protective equipment.

Name	Type	Description
unitList	ArrayOfUuid	List of unique IDs of the entities who will don IPE.

Name	Type	Description
iPEType	IPETypeEnum8	Type of IPE that the entities will don.

IceStruct STRUCTURE

Ice type, thickness and coverage on water surface.

Name	Type	Description
type	IceTypeEnum16	Type of ice on water surface.
thickness	rpr.MeterFloat32	Thickness of ice on water surface.
coverage	rpr.PercentFloat32	Ice coverage on water surface.

Named by WaterSurface, WaterSurfaceCondition.

InWeaponRangeReport STRUCTURE

Report on a unit's ability to reach specific targets with its weapon systems.

Name	Type	Description
reportId	TransactionId	Required. Uniqie identifier for the report.
when	Datetime18	Required. Date and time when the reported status was valid.
communicationNetworkIds	ArrayOfText64	Optional. Reference to communication networks (NETN-COM) used to transfer report messages. If not provided, the report transmission should not be modelled and federates should receive and act on the report messages directly.
comments	string	Optional. Any additional comments associated with the report.
observer	UUID	Required. Reference to the entity that observed another entity in range of its weapons.
weaponType	rpr.EntityTypeStruct	Required. The type of the weapon that is in range.
entitiesInWeaponRange	ArrayOfUuid	Required. Reference to entities in rage of the weapon.

IncomingConnectionStruct STRUCTURE

Characteristics of a specific incoming connection.

Name	Type	Description
communicationNetworkName	Text64	Reference to the communication network associated with the incoming connection.
senderEntityId	UUID	Reference by UUID to the simulated entity sending on the connection.
latency	rpr.TimeMillisecond UnsignedInteger32	Delay in data delivery.
bandwidth	BitsPerSecond	Amount of data per time unit.
reliability	PercentFloat64	Reliability of connection in terms of availability. 100% = always available and no connection loss.
hopCount	rpr.Integer16	The number of hops in physical network required for sender entity to reach receiver entity.

Named by IncomingConnectionArray.

InitiateTransfer STRUCTURE

An `InitiateTransfer` interaction is sent by a **Trigger Federate** to initiate a TMR request. Parameters include information on the participating federates, which object instances and what attributes are included in the transfer. The **Trigger Federate** shall generate a unique `EventId` to be used in all subsequent TMR interactions related to the event.

Name	Type	Description
eventId	TransactionId	Required. The `EventId` is a unique reference to a specific execution of a TMR pattern. It consists of two values, a Counter and a Federate Handle. The value of this parameter is also encoded and used as the User Supplied Tag in the HLA Ownership services to allow a correlation between the TMR interactions and HLA Ownership services. The `EventId` is generated by a trigger federate or, if no trigger federate is used, directly by the requesting federate. The value of this parameter should match all related TMR pattern interactions belonging to the same Transfer of Modelling Responsibilities event.
requestFederate	string	Required. A name specifying the federate requesting the transfer.
responseFederate	string	Required unless TransferType is AquireWithoutNegotiation: A Federate Name specifying the federate that is the responding federate.
instances	ArrayOfUuid	Required. References (UUID) to NETN Platform, Lifeform or Aggregate instances included in the transfer.
attributes	AttributeNamesType	Required. The common set of attributes for all referenced instances to be included in the transfer. Reference to attributes is by attribute name.
transferType	TransferEnumType	Required. An enumerated value that indicates the direction of the transfer of the ownership and whether there shall be any negotiation: `Acquire` = Requesting Federate acquires instance attribute ownership from the Responding Federate (current owner), `Divest` = Requesting Federate (current owner) releases instance attribute ownership to Responding Federate and `AcquireWithoutNegotiating` = Requesting Federate acquires unowned instance attributes.

InstallationSymbolAmplificationStruct STRUCTURE

Text amplifiers for Installation symbols.

Name	Type	Description
staffComments	Text20	A text amplifier for units, equipment and installations.
additionalInformation	Text20	A text amplifier for units, equipment and installations.
evaluationRating	Text2	A text amplifier for units, equipment and installations that consists of a one-letter reliability rating and a one-number credibility rating. Reliability Ratings: A-completely reliable B-usually reliable C-fairly reliable D-not usually reliable E-unreliable F-reliability cannot be judged Credibility Ratings: 1-confirmed by other sources 2-probably true 3-possibly true 4-doubtfully true 5-improbable 6-truth cannot be judged.
combatEffectiveness	Text5	A text amplifier for units and installations that indicates unit effectiveness or installation capability.
iffSifAis	Text15	A text amplifier displaying IFF/SIF/AIS identification modes and codes.
uniqueDesignation	Text21	A text amplifier for units, equipment and installations that uniquely identifies a particular symbol or track number. Identifies acquisitions number when used with SIGINT symbology.
engagementBarText	Text8	A text amplifier placed immediately atop the symbol in the engagement bar. May denote, 1) local/remote status; 2) engagement status; and 3) weapon type.

Named by Installation.

LOGInteraction STRUCTURE

Base class for all NETN Logistics Pattern Service Transactions.

Name	Type	Description
requestId	TransactionId	Required: Unique identifier for the requested service related to the transaction.

LandSurfaceCondition STRUCTURE

Response with condition for land surface.

Name	Type	Description
eventId	TransactionId	Required: Unique identifier of the request. Will be referenced in a resulting resulting METOC_Response interaction.
environmentObjectId	UUID	Optional. Reference to an existing environment condition object if the corresponding request includes UpdateAsObject set to true.
geoReference	GeoReferenceVariant	Optional. Geographical reference to indicate for which point, area, path or object this request is related to. Default if not provided the environment condition data is global.
status	bool	Required: Specifies the result of the request action. TRUE indicates success.
temperature	rpr.Temperature DegreeCelsiusFloat32	Optional. Average temperature in the region/location.
wind	WindStruct	Optional. Average wind speed and direction in the region/location.
precipitation	PrecipitationStruct	Optional. Average precipitation intensisty region/location for a precipitation type in the following order of precedence Snow, Hail, Rain, NoPrecipitation.
haze	HazeStruct	Optional. Average haze density in the region/location,
humidity	f32	Optional. Average humidity in percent in the region/location.
barometricPressure	f32	Optional. Average barometric pressure measured in millibar or hectopascal (1 mbar = 1hPa) in the region/location.
visibilityRange	rpr.MeterFloat32	Optional. Average distance at which an object or light can be clearly discerned by the human eye in the region/location.
snow	SnowStruct	Optional. Average snow depth and density in the region/location.
moisture	SurfaceMoisture Enum16	Optional. Maximum surface moisture in the region/location.
iceCondition	RoadIceCondition Enum16	Optional. Most severe ice condition in the region/location.

LayerStruct STRUCTURE

A layer of the Earth's environment expressed as a base altitude and a thickness.

Name	Type	Description
base	rpr.MeterFloat32	The altitude of the bottom end of the layer, in meters above mean sea level (MSL). Negative values means the base is below mean sea level.
thickness	rpr.MeterFloat32	Thickness of the layer in meters above the base altitude. Always a positive value.

Named by RequestSubsurfaceLayerCondition, RequestTroposphereLayerCondition, SubsurfaceLayer, TroposphereLayer.

LinkStatusStruct STRUCTURE

Status of a physcial network link.

Name	Type	Description
transmitterDeviceId	UUID	Reference to Transmitting network device.
receiverDeviceId	UUID	Reference to Receiving network device.
latency	rpr.TimeMillisecond UnsignedInteger32	Delay in data delivery.
bandwidth	BitsPerSecond	Amount of data per time unit.
reliability	PercentFloat64	Reliability of connection in terms of availability. 100% = always available and no connection loss.
isBidirectional	bool	True is link is bi-directional. By default this value should be set to false.

Named by LinkStatusArray.

METOCInteraction STRUCTURE

Root class for requesting environment data from a METOC Service.

Name	Type	Description
eventId	TransactionId	Required: Unique identifier of the request. Will be referenced in a resulting resulting METOC_Response interaction.

MRMInteraction STRUCTURE

Base class for all MRM interactions.

Name	Type	Description
eventId	TransactionId	Unique identifier for all MRM interactions belonging to the same request/respons event.

MagicMove STRUCTURE

A simulation control task that instructs the entity to immediately jump to the specified location and update the new position and heading.

Name	Type	Description
taskId	TransactionId	Required. Uniqie identifier for the simulation control task.
taskee	UUID	Required. Reference to the entity that should execute the task.
tasker	string	Optional. Indentifies the commander of the task.
location	rpr.WorldLocation Struct	Required. Location of the entity.
heading	rpr.AngleRadian Float32	Required. Heading of the entity.
locationUuid	UUID	Optional. The new location for the entity. Refered by a UUID.

MagicResource STRUCTURE

A simulation control task that instructs the entity to set amount of available resources immediately

Name	Type	Description
taskId	TransactionId	Required. Uniqie identifier for the simulation control task.
taskee	UUID	Required. Reference to the entity that should execute the task.
tasker	string	Optional. Indentifies the commander of the task.

Name	Type	Description
resource	NETNSupplyStruct	Required. Defines the resource type that will get a new quantity value.

Merge STRUCTURE

Instruction to merg the simulated AggregateUnit with the selected divided parts. After successful merge the divided parts are removed from the federation and their resources are combined with the AggregatedUnit.

Name	Type	Description
eventId	TransactionId	Unique identifier for all MRM interactions belonging to the same request/respons event.
federate	string	Required. Intended federate responsible for performing the requested action. Sending federate should ensure that receiving federate can perform requested action. If not able to perform, a response interaction indicating failure should be returned.
aggregateUnit	UuidArrayOf HLAbyte16	Required for all requests except QuerySupportedCapabilities. Unique identifier for the NETN_Aggregate for which this request is related to.
subunits	ArrayOfUuid	Required. A set of unique identifiers of subelements of the AggregateUnit. These can be any subunit and/or equipment defined at a subunit on any level.

MissionStruct STRUCTURE

The operational task the aggregate has been ordered to perform, the time the mission was assigned, and the estimated completion time.

Name	Type	Description
startTime	EpochTimeSecInt64	An optional field providing the mission start time
endTime	EpochTimeSecInt64	An optional field providing the mission estimated end time
missionEnum	AggregateMission Enum16	The mission assigned to the aggregate

Named by NETNAggregate.

Mount STRUCTURE

Tasking of entity to mount the specified entity. The tasked entity should be within a certain distance (tolerance specified in the federation agreements) of the location of the entity to mount.

Name	Type	Description
taskId	TransactionId	Required. Uniqie identifier for the task.
taskee	UUID	Required. Reference to the entity that will execute the task.
tasker	string	Optional. Callsign of the commander of the task. If missing, the commander is undefined.
startWhen	Datetime18	Required. Time when the task execution should start. Use the value 00000000000000.000 to indicate that the time is undefined.
why	string	Optional. A text describing the reason for this task.
taskMode	TaskModeEnum8	Required. Determines the task mode.
communicationNetwork Ids	ArrayOfText64	Optional. Reference to communication networks (NETN-COM) used to transfer tasking messages. If not provided, the task transmission should not be modelled and federates should receive and act on the task messages directly.
entityId	UUID	Required. Reference to the entity to mount.

Move STRUCTURE

Tasking of an entity to move in a specified direction for a given duration of time.

Name	Type	Description
taskId	TransactionId	Required. Uniqie identifier for the task.
taskee	UUID	Required. Reference to the entity that will execute the task.
tasker	string	Optional. Callsign of the commander of the task. If missing, the commander is undefined.
startWhen	Datetime18	Required. Time when the task execution should start. Use the value 00000000000000.000 to indicate that the time is undefined.
why	string	Optional. A text describing the reason for this task.
taskMode	TaskModeEnum8	Required. Determines the task mode.
communicationNetworkIds	ArrayOfText64	Optional. Reference to communication networks (NETN-COM) used to transfer tasking messages. If not provided, the task transmission should not be modelled and federates should receive and act on the task messages directly.
direction	rpr.AngleRadianFloat32	Required. Direction of movement (azimuth direction).
duration	TimeSecInt32	Required. The duration of the move.

MoveIntoFormation STRUCTURE

Tasking of an entity to move into the given formation on the given location with the given heading.

Name	Type	Description
taskId	TransactionId	Required. Uniqie identifier for the task.
taskee	UUID	Required. Reference to the entity that will execute the task.
tasker	string	Optional. Callsign of the commander of the task. If missing, the commander is undefined.
startWhen	Datetime18	Required. Time when the task execution should start. Use the value 00000000000000.000 to indicate that the time is undefined.
why	string	Optional. A text describing the reason for this task.
taskMode	TaskModeEnum8	Required. Determines the task mode.
communicationNetworkIds	ArrayOfText64	Optional. Reference to communication networks (NETN-COM) used to transfer tasking messages. If not provided, the task transmission should not be modelled and federates should receive and act on the task messages directly.
formation	rpr.FormationEnum32	Required. The type of positional arrangement the entity.
location	rpr.WorldLocationStruct	Required. The location to move to.
distance	rpr.MeterFloat32	Required. The minimum distance between entities in the formation.
heading	rpr.AngleRadianFloat32	Required. The heading of the formation.
locationUuid	UUID	Optional. The location to move to by reference to a NETN SE, SE_GeoObject.

MoveToEntity STRUCTURE

Tasking of an entity to move to another entity. If a path is provided, the entity should follow the path as its route to the entity. The entity should align with the path from its current position to the nearest position or waypoint on the path. The entity should leave the path at position or waypoint on the path closest to the destination entity. The entity moves directly towards the destination entity if no path (or a zero-length path) is provided.

Name	Type	Description
taskId	TransactionId	Required. Uniqie identifier for the task.
taskee	UUID	Required. Reference to the entity that will execute the task.
tasker	string	Optional. Callsign of the commander of the task. If missing, the commander is undefined.
startWhen	Datetime18	Required. Time when the task execution should start. Use the value 00000000000000.000 to indicate that the time is undefined.
why	string	Optional. A text describing the reason for this task.
taskMode	TaskModeEnum8	Required. Determines the task mode.
communicationNetworkIds	ArrayOfText64	Optional. Reference to communication networks (NETN-COM) used to transfer tasking messages. If not provided, the task transmission should not be modelled and federates should receive and act on the task messages directly.
entity	UUID	Required. Reference to the entity to move to.
path	ArrayOfWorldLocationStruct	Optional. Route to the specified entity.
moveType	MoveTypeEnum32	Required. Indicates if roads have to be followed.
pathUuid	UUID	Optional. Path to use to get to the Location by reference to a NETN_SE, SE_GeoObject.

MoveToLocation STRUCTURE

Tasking of an entity to move to the specified destination location. If a path is provided, the entity should follow the path as its route to the destination. The entity should align with the path from its current position to the nearest position or waypoint on the path. The entity should leave the path at position or waypoint on the path closest to the destination. The entity moves directly towards the destination location if no path (or a zero-length path) is provided.

Name	Type	Description
taskId	TransactionId	Required. Uniqie identifier for the task.
taskee	UUID	Required. Reference to the entity that will execute the task.
tasker	string	Optional. Callsign of the commander of the task. If missing, the commander is undefined.
startWhen	Datetime18	Required. Time when the task execution should start. Use the value 00000000000000.000 to indicate that the time is undefined.
why	string	Optional. A text describing the reason for this task.
taskMode	TaskModeEnum8	Required. Determines the task mode.
communicationNetworkIds	ArrayOfText64	Optional. Reference to communication networks (NETN-COM) used to transfer tasking messages. If not provided, the task transmission should not be modelled and federates should receive and act on the task messages directly.
location	rpr.WorldLocationStruct	Required. The location to move to.
path	ArrayOfWorldLocationStruct	Optional. A route to use in order to move to the Location.
moveType	MoveTypeEnum32	Required. Indicates if roads have to be followed.
pathUuid	UUID	Optional. Path to use to get to the Location by reference to a NETN_SE, SE_GeoObject.
locationUuid	UUID	Optional. The location to move to, by reference to a NETN_SE, SE_GeoObject.

NETNSupplyStruct STRUCTURE

Description of supply. Same encoding as RPR2 SupplyStruct.

Name	Type	Description
supplyType	rpr.EntityTypeStruct	The type of supply (as described in the Bit Encoded Values for Use with Protocols for Distributed Interactive Simulation Applications)
quantity	QuantityFloat32	The number of units of the supply type. The unit measure depends on the supply type and shall use the SI units of measurement used for such supplies.

Named by MagicResource, NETNArrayOfSupplyStruct, ResourceStatusReport.

NetworkDeviceEmptyCharactersticsStruct STRUCTURE

Empty placeholder for future network device characteristics.

Named by NetworkDeviceReceiverCharacteristicsVariant, NetworkDeviceTransmitterCharacteristicsVariant.

NetworkDeviceGenericTransmitterCharacteristicsStruct STRUCTURE

Generic description of network device transmitter.

Name	Type	Description
maxLinkRange	rpr.MeterFloat32	Range limit for the link in meters. By default this value should be set to zero. If zero the max link range is based on the default value from the associated physical network.

Named by NetworkDeviceTransmitterCharacteristicsVariant.

NetworkDeviceStruct STRUCTURE

Describes the type and capability of a network device. Each device must have at least a transmitter (TX) or receiver (RX). Transceivers should define both.

Name	Type	Description
networkDeviceId	UUID	Unique identifier for network device.
networkDeviceModel	Text64	Optional name of the model of network device (e.g. a radio model name).
communicationNetworks	CommunicationNetworkArray	Reference to all communication networks this device is used for.
physicalNetworkName	Text64	Reference to physical network this device is connected to.
tx	NetworkDeviceTransmitterCharacteristicsVariant	Transmitter characteristics of the network device.
rx	NetworkDeviceReceiverCharacteristicsVariant	Receiver characteristics of the network device.
isRelay	bool	True if this network device acts as a relay. By default this value should be set to true.

Named by NetworkDeviceArray.

Observe STRUCTURE

Tasking of an entity to observe an area.

Name	Type	Description
taskId	TransactionId	Required. Uniqie identifier for the task.
taskee	UUID	Required. Reference to the entity that will execute the task.
tasker	string	Optional. Callsign of the commander of the task. If missing, the commander is undefined.

Name	Type	Description
startWhen	Datetime18	Required. Time when the task execution should start. Use the value 00000000000000.000 to indicate that the time is undefined.
why	string	Optional. A text describing the reason for this task.
taskMode	TaskModeEnum8	Required. Determines the task mode.
communicationNetworkIds	ArrayOfText64	Optional. Reference to communication networks (NETN-COM) used to transfer tasking messages. If not provided, the task transmission should not be modelled and federates should receive and act on the task messages directly.
observationArea	AreaVariantStruct	Required. Area to observe.

OfferRepair STRUCTURE

Is sent by a federate simulating the service providing entity in response to a RequestRepair interaction.

Name	Type	Description
requestId	TransactionId	Required: Unique identifier for the requested service related to the transaction.
offerId	TransactionId	Required: Unique offer identifier.
providerEntity	UuidArrayOf HLAbyte16	Required: Unique identifier of a simulated entity intended to perform the service. If not provided, the entity performing the service is considered unknown.
offerType	OfferTypeEnum32	Optional: Specifies if the offer is Negative (no Offer), Positive (Complete as requested) or Modified (not the same as the requested).
offerTimeOut	i64	Optional: The system wallclock time (in seconds after 1 January 1970) when the offer stops being valid. If not provided, the offer valid until otherwise specified.
startAppointment	AppointmentStruct	Optional: Time and location of the start of service delivery.
repairData	ArrayOfRepairStruct	Required: List of the type of repairs offered. May be different from the list of requested repairs. List of all offered repairs if isOffering = true otherwise Undefined

OfferService STRUCTURE

The OfferService is a response to a RequestService. Subclasses of this interaction for specific types of offers contain a more detailed description of the offer. This information may include when, where, how the service can be delivered.

Name	Type	Description
requestId	TransactionId	Required: Unique identifier for the requested service related to the transaction.
offerId	TransactionId	Required: Unique offer identifier.
providerEntity	UuidArrayOf HLAbyte16	Required: Unique identifier of a simulated entity intended to perform the service. If not provided, the entity performing the service is considered unknown.
offerType	OfferTypeEnum32	Optional: Specifies if the offer is Negative (no Offer), Positive (Complete as requested) or Modified (not the same as the requested).
offerTimeOut	i64	Optional: The system wallclock time (in seconds after 1 January 1970) when the offer stops being valid. If not provided, the offer valid until otherwise specified.
startAppointment	AppointmentStruct	Optional: Time and location of the start of service delivery.

OfferSupply STRUCTURE

Used by a supply service provider to indicate which of the requested materiel (amount and type) can be offered. In this request the consumer decides whether the loading is done by the provider or by the consumer.

Name	Type	Description
requestId	TransactionId	Required: Unique identifier for the requested service related to the transaction.
offerId	TransactionId	Required: Unique offer identifier.
providerEntity	UuidArrayOf HLAbyte16	Required: Unique identifier of a simulated entity intended to perform the service. If not provided, the entity performing the service is considered unknown.
offerType	OfferTypeEnum32	Optional: Specifies if the offer is Negative (no Offer), Positive (Complete as requested) or Modified (not the same as the requested).
offerTimeOut	i64	Optional: The system wallclock time (in seconds after 1 January 1970) when the offer stops being valid. If not provided, the offer valid until otherwise specified.
startAppointment	AppointmentStruct	Optional: Time and location of the start of service delivery.
suppliesData	NETNArrayOfSupply Struct	Required: List of type and quantity of supplies offered. May be different from the list of requested supplies. All offered supplies if isOffering = true otherwise Undefined

OfferTransfer STRUCTURE

An `OfferTransfer` interaction is sent by a **Response Federate** as a reply to a `RequestTransfer` to indicate if a transfer can be accomplished or not. **Special Case**: When the transfer type is Divesting, the delivery order of the interaction `OfferTransfer` and the HLA ownership callback service `requestAttributeOwnershipRelease` at the receiving federate is not determined. Due to this, receiving a `requestAttributeOwnershipRelease` callback should be treated in the same way as receiving a `OfferTransfer` with a positive offer. The user-supplied tag in the callback contains the `EventId` which identifies a specific transfer process.

Name	Type	Description
eventId	TransactionId	Required. The `EventId` is a unique reference to a specific execution of a TMR pattern. It consists of two values, a Counter and a Federate Handle. The value of this parameter is also encoded and used as the User Supplied Tag in the HLA Ownership services to allow a correlation between the TMR interactions and HLA Ownership services. The `EventId` is generated by a trigger federate or, if no trigger federate is used, directly by the requesting federate. The value of this parameter should match all related TMR pattern interactions belonging to the same Transfer of Modelling Responsibilities event.
isOffering	bool	Required. True if and only if for all instances all attributes in the request are offered. False if for any instance any attribute in the request is not offered.
reason	NoOfferReasonEnum Type	Optional. An enumerated value that shall specify the reason for a negative offer.

OfferTransport STRUCTURE

An Offer for a Transport support. The OfferTransport interaction shall be sent by the service providing federate in response to a RequestTransport interaction.

Name	Type	Description
requestId	TransactionId	Required: Unique identifier for the requested service related to the transaction.
offerId	TransactionId	Required: Unique offer identifier.

Name	Type	Description
providerEntity	UuidArrayOf HLAbyte16	Required: Unique identifier of a simulated entity intended to perform the service. If not provided, the entity performing the service is considered unknown.
offerType	OfferTypeEnum32	Optional: Specifies if the offer is Negative (no Offer), Positive (Complete as requested) or Modified (not the same as the requested).
offerTimeOut	i64	Optional: The system wallclock time (in seconds after 1 January 1970) when the offer stops being valid. If not provided, the offer valid until otherwise specified.
startAppointment	AppointmentStruct	Optional: Time and location of the start of service delivery.
transportData	ArrayOfUuid	Required: Entities to be transported.
endAppointment	AppointmentStruct	Optional: Location and time for disembarkment.
transporters	ArrayOfUuid	Optional: Platform list with transporters

OperateCheckPoint STRUCTURE

Tasking of an entity to operate a checkpoint. The tasked entity should be within a certain distance (tolerance specified in the federation agreements) of the location of the checkpoint. If not, a separate move task should be issued first. The tasked entity activates an inactive checkpoint and operates the checkpoint for the specified duration of time.

Name	Type	Description
taskId	TransactionId	Required. Uniqie identifier for the task.
taskee	UUID	Required. Reference to the entity that will execute the task.
tasker	string	Optional. Callsign of the commander of the task. If missing, the commander is undefined.
startWhen	Datetime18	Required. Time when the task execution should start. Use the value 00000000000000.000 to indicate that the time is undefined.
why	string	Optional. A text describing the reason for this task.
taskMode	TaskModeEnum8	Required. Determines the task mode.
communicationNetwork Ids	ArrayOfText64	Optional. Reference to communication networks (NETN-COM) used to transfer tasking messages. If not provided, the task transmission should not be modelled and federates should receive and act on the task messages directly.
uniqueId	UUID	Required. Reference to the checkpoint to operate.
duration	TimeSecInt32	Required. The duration of the operation of the checkpoint.

Patrol STRUCTURE

Tasking of an entity to perform a patrol. The tasked entity moves from its current position to the start of the patrol route and then moves according to patrol route from its start point in the path, through all waypoints.

Name	Type	Description
taskId	TransactionId	Required. Uniqie identifier for the task.
taskee	UUID	Required. Reference to the entity that will execute the task.
tasker	string	Optional. Callsign of the commander of the task. If missing, the commander is undefined.
startWhen	Datetime18	Required. Time when the task execution should start. Use the value 00000000000000.000 to indicate that the time is undefined.
why	string	Optional. A text describing the reason for this task.
taskMode	TaskModeEnum8	Required. Determines the task mode.
communicationNetwork Ids	ArrayOfText64	Optional. Reference to communication networks (NETN-COM) used to transfer tasking messages. If not provided, the task

Name	Type	Description
		transmission should not be modelled and federates should receive and act on the task messages directly.
path	ArrayOfWorldLocation Struct	Required. Specifies the route to patrol.
patrolType	PatrolTypeEnum32	Required. Defines how the patrol should be excuted. The full movement from start point, through the patrol route and back to the start point is called one cycle.
moveType	PatrolMoveType Enum32	Required. Defines how the entity shall move during the patrol route.
pathUuid	UUID	Optional. Path for the patrol by reference to a NETN_SE, SE_GeoObject.

PatrolRepeating STRUCTURE

Tasking of an entity to repeat a patrol for a given duration. When the duration time has passed, then the last cycle of the patrol is completed before the task ends. If the time of a cycle takes longer then the interval time, then the cycle starts directly (without delay). If the time of a cycle takes less then the interval time, then the entity waits at the first point of the patrol route until the next cycle is started.

Name	Type	Description
taskId	TransactionId	Required. Uniqie identifier for the task.
taskee	UUID	Required. Reference to the entity that will execute the task.
tasker	string	Optional. Callsign of the commander of the task. If missing, the commander is undefined.
startWhen	Datetime18	Required. Time when the task execution should start. Use the value 00000000000000.000 to indicate that the time is undefined.
why	string	Optional. A text describing the reason for this task.
taskMode	TaskModeEnum8	Required. Determines the task mode.
communicationNetwork Ids	ArrayOfText64	Optional. Reference to communication networks (NETN-COM) used to transfer tasking messages. If not provided, the task transmission should not be modelled and federates should receive and act on the task messages directly.
path	ArrayOfWorldLocation Struct	Required. Specifies the route to patrol.
patrolType	PatrolTypeEnum32	Required. Defines how the patrol should be excuted. The full movement from start point, through the patrol route and back to the start point is called one cycle.
moveType	PatrolMoveType Enum32	Required. Defines how the entity shall move during the patrol route.
pathUuid	UUID	Optional. Path for the patrol by reference to a NETN_SE, SE_GeoObject.
duration	TimeSecInt32	Required. The duration of the total patrol task.
intervalTime	TimeSecInt32	Required. The time between the start of two cycles, i.e. the time to complete a cycle and any waiting time before starting the next cycle.

PhysicalGenericNetworkStruct STRUCTURE

Characteristics of a generic physical network.

Name	Type	Description
maxHopCount	rpr.Integer32	The maximum nuber of hops allowed in the physical network.
defaultMaxLinkRange	rpr.MeterFloat32	The maximum distance between sending and receiving entities in a physical network link.

Name	Type	Description
latency	rpr.TimeMillisecond UnsignedInteger32	Delay in data delivery.
bandwidth	BitsPerSecond	Amount of data per time unit.
reliability	PercentFloat64	Reliability of connection in terms of availability. 100% = always available and no connection loss.

Named by PhysicalNetworkDescriptionVariant.

PhysicalUndefinedNetworkStruct STRUCTURE

(Empty) Characteristics of an undefined physical network.

Named by PhysicalNetworkDescriptionVariant.

PositionStatusReport STRUCTURE

Report on a unit's position, speed, and heading.

Name	Type	Description
reportId	TransactionId	Required. Uniqie identifier for the report.
when	Datetime18	Required. Date and time when the reported status was valid.
communicationNetwork Ids	ArrayOfText64	Optional. Reference to communication networks (NETN-COM) used to transfer report messages. If not provided, the report transmission should not be modelled and federates should receive and act on the report messages directly.
comments	string	Optional. Any additional comments associated with the report.
entityId	UUID	Required. The entity that is reported about.
position	rpr.WorldLocation Struct	Required. Position of the entity at the specified time.
heading	rpr.AngleRadian Float32	Required. Heading of the entity.
speed	rpr.VelocityMeterPer SecondFloat32	Required. Speed of the entity.

PrecipitationStruct STRUCTURE

Type and intensity of precipitation.

Name	Type	Description
type	PrecipitationType Enum32	Type of precipitation.
intensity	PrecipitationIntensity Float32	Amount of precipitation in mm/per hour.

Named by LandSurfaceCondition, TroposphereLayerCondition, WaterSurfaceCondition, Weather, WeatherCondition.

ProbabilityHazardContourStruct STRUCTURE

Represents the footprint covered by a CBRN hazard. This object covers the agent-specific effects which would be the output from a casualty model.

Name	Type	Description
percentProbability Level	rpr.PercentFloat32	Percentage of entities within this contour being affected to the define exposure level.
locations	GeocentricPolygon	Array of locations that define the probability contour.

Named by ArrayOfProbabilityHazardContourStruct.

ProtectionEffectivenessStruct STRUCTURE

Protection effectiveness associated with a specific agent.

Name	Type	Description
effectiveness	rpr.PercentFloat32	Percentage by which this protection reduces effects.
agent	AgentTypeEnum16	Enumeration representation of the agent.

Named by ArrayOfProtectionEffectivenessStruct.

QuerySupportedCapabilitiesETR STRUCTURE

Query which tasks, reports and SimCon actions that an entity supports. The queried entity shall respond with a CapabilitiesSupported message.

Name	Type	Description
taskId	TransactionId	Required. Uniqie identifier for the simulation control task.
taskee	UUID	Required. Reference to the entity that should execute the task.
tasker	string	Optional. Indentifies the commander of the task.

QuerySupportedCapabilitiesMRM STRUCTURE

A request to query the capabilities of a specified federation to provide support for MRM events. The queried federate shall respond with a CapabilitiesSupported interaction.

Name	Type	Description
eventId	TransactionId	Unique identifier for all MRM interactions belonging to the same request/respons event.
federate	string	Required. Intended federate responsible for performing the requested action. Sending federate should ensure that receiving federate can perform requested action. If not able to perform, a response interaction indicating failure should be returned.
aggregateUnit	UuidArrayOf HLAbyte16	Required for all requests except QuerySupportedCapabilities. Unique identifier for the NETN_Aggregate for which this request is related to.

RawDataHazardContourStruct STRUCTURE

Contour locations bounding a given exposure value.

Name	Type	Description
exposureLevel	ExposureFloat32	Quantity of exposure, measured in SI units.
locations	GeocentricPolygon	Array of locations that define the hazard contour.

Named by ArrayOfRawDataHazardContourStruct.

ReadyToReceiveService STRUCTURE

Issued by a service consumer to indicate that service delivery can start. The time of service delivery may be significantly later than indicating ready for service delivery.

Name	Type	Description
requestId	TransactionId	Required: Unique identifier for the requested service related to the transaction.

RejectOffer STRUCTURE

Used to reject an offer made by a service providing entity as indicated in a OfferService interaction. By issuing a RejectOffer interaction the service consuming entity informs the providing entity that the offer has been rejected.

Name	Type	Description
requestId	TransactionId	Required: Unique identifier for the requested service related to the transaction.
reason	string	Optional: Allows to inform about the reason of the cancel (free text)

Relation STRUCTURE

The specific value that represents the perceived hostility status.

Name	Type	Description
affiliate	UUID	The force that the current force has a relation to
relationship	HostilityStatusCodeEnum32	The level of the relation

Named by ArrayOfRelations.

ReleaseDistributionStruct STRUCTURE

Mean and variance of the distribution of the particles or droplets in a release.

Name	Type	Description
mean	MeanMetersFloat32	Mean size of the released material in meters.
variance	VarianceMetersSquaredFloat32	Variance of the distribution of released particulates/droplets.

Named by ReleaseSizeStruct.

ReleaseDynamicsStruct STRUCTURE

Defines the dynamic properties of a release.

Name	Type	Description
densityRatio	DensityRatioFloat32	Ratio of material density relative to the atmosphere.
temperatureDifference	rpr.TemperatureDegreeCelsiusFloat32	Difference in temperature between the released material and the atmosphere in Celsius.

Named by CBRNRelease.

ReleaseSizeStruct STRUCTURE

Defines the properties of the initial size of a release.

Name	Type	Description
sigmaArray	ArrayOfSigmas6	Initial Gaussian sigmas of the released puff.
releaseDistribution	ReleaseDistributionStruct	Details regarding the size of the released particles/droplets for non-gaseous materials.

Named by CBRNRelease.

RemoveCheckPoint STRUCTURE

Tasking of an entity to remove a checkpoint. This task removes a previously established checkpoint. The tasked entity should be within a certain distance (tolerance specified in the federation agreements) of the location of the checkpoint. If not, a separate move task should be issued first. After completion of the task, the checkpoint object should be deleted from the federation.

Name	Type	Description
taskId	TransactionId	Required. Uniqie identifier for the task.
taskee	UUID	Required. Reference to the entity that will execute the task.
tasker	string	Optional. Callsign of the commander of the task. If missing, the commander is undefined.
startWhen	Datetime18	Required. Time when the task execution should start. Use the value 00000000000000.000 to indicate that the time is undefined.
why	string	Optional. A text describing the reason for this task.
taskMode	TaskModeEnum8	Required. Determines the task mode.
communicationNetworkIds	ArrayOfText64	Optional. Reference to communication networks (NETN-COM) used to transfer tasking messages. If not provided, the task transmission should not be modelled and federates should receive and act on the task messages directly.
uniqueId	UUID	Required. Reference to the CheckPoint to remove.

RemovePassage STRUCTURE

Task entity to remove the passage with the given UUID. The tasked entity should be within a certain distance tolerance (specified in the federation agreement) of one of the points of the passage to make the task possible.

Name	Type	Description
taskId	TransactionId	Required. Uniqie identifier for the task.
taskee	UUID	Required. Reference to the entity that will execute the task.
tasker	string	Optional. Callsign of the commander of the task. If missing, the commander is undefined.
startWhen	Datetime18	Required. Time when the task execution should start. Use the value 00000000000000.000 to indicate that the time is undefined.
why	string	Optional. A text describing the reason for this task.
taskMode	TaskModeEnum8	Required. Determines the task mode.
communicationNetworkIds	ArrayOfText64	Optional. Reference to communication networks (NETN-COM) used to transfer tasking messages. If not provided, the task transmission should not be modelled and federates should receive and act on the task messages directly.
uniqueId	UUID	Required. Reference to a A unique UUID of the passage.

RepairComplete STRUCTURE

This interaction is sent by the provider when the repair service is delivered to the consumer

Name	Type	Description
requestId	TransactionId	Required: Unique identifier for the requested service related to the transaction.
repairData	ArrayOfRepairStruct	Required: List of the type of repairs done. May be different from the list of requested repairs.

RepairStruct STRUCTURE

Repairs associated with a specific materiel

Name	Type	Description
materielId	UuidArrayOfHLAbyte16	UUID for the materiel.
repairs	ArrayOfRepairTypeEnum	List of the types of repair associated with the materiel.

Named by ArrayOfRepairStruct.

RequestLandSurfaceCondition STRUCTURE

Request for land surface condition data.

Name	Type	Description
eventId	TransactionId	Required: Unique identifier of the request. Will be referenced in a resulting resulting METOC_Response interaction.
geoReference	GeoReferenceVariant	Optional. Geographical reference to indicate for which point, area, path or object this request is related to. If not provided, the request is for a global environment condition.
updateAsObject	bool	Optional. Indicates if the service is requested to represent the environment condition as an EnvironmentCondition object instance. Default is False.
serviceId	UUID	Required: Unique identifier of the model used for providing METOC information. Multiple Models may exist.

RequestMETOC STRUCTURE

A request to a specified METOC Service to provide METOC data for a specific geographical reference. The request can result in either a response interaction including the requested data or registration of an EnvironmentCondition object for continuous updates.

Name	Type	Description
eventId	TransactionId	Required: Unique identifier of the request. Will be referenced in a resulting resulting METOC_Response interaction.
geoReference	GeoReferenceVariant	Optional. Geographical reference to indicate for which point, area, path or object this request is related to. If not provided, the request is for a global environment condition.
updateAsObject	bool	Optional. Indicates if the service is requested to represent the environment condition as an EnvironmentCondition object instance. Default is False.
serviceId	UUID	Required: Unique identifier of the model used for providing METOC information. Multiple Models may exist.

RequestMRM STRUCTURE

A base class for all MRM Request events.

Name	Type	Description
eventId	TransactionId	Unique identifier for all MRM interactions belonging to the same request/respons event.
federate	string	Required. Intended federate responsible for performing the requested action. Sending federate should ensure that receiving federate can perform requested action. If not able to perform, a response interaction indicating failure should be returned.
aggregateUnit	UuidArrayOf HLAbyte16	Required for all requests except QuerySupportedCapabilities. Unique identifier for the NETN_Aggregate for which this request is related to.

RequestRepair STRUCTURE

Sent by the consumer when a repair is needed. Specifies entity and type of repair

Name	Type	Description
requestId	TransactionId	Required: Unique identifier for the requested service related to the transaction.
consumerEntity	UuidArrayOf HLAbyte16	Required: Unique identifier for a simulated entity that is the intended receiver of service
providerEntity	UuidArrayOf HLAbyte16	Optional: Unique identifier of a simulated entity intended to perform the service. If not provided, the entity performing the service is considered unknown.
requestTimeOut	i64	Optional: Wallclock time. The timeout time in seconds after 1 January 1970.
startAppointment	AppointmentStruct	Optional: The time and location of the start of the service delivery.
repairData	ArrayOfRepairStruct	Required: List of all requested repairs.

RequestService STRUCTURE

A consumer federate initiates service negotiation using `RequestService`. A unique ServiceId and a reference to a `ConsumerEntity` are required parameters. A reference to a specific `ProviderEntity` and a system wall-clock time for when offers are expected `RequestTimeOut` are optional. Requests for specific types of services are defined as subclasses to `RequestService` and include parameters for detailing the requirements of the request. This may include information when, where and how the service should be delivered.

Name	Type	Description
requestId	TransactionId	Required: Unique identifier for the requested service related to the transaction.
consumerEntity	UuidArrayOf HLAbyte16	Required: Unique identifier for a simulated entity that is the intended receiver of service
providerEntity	UuidArrayOf HLAbyte16	Optional: Unique identifier of a simulated entity intended to perform the service. If not provided, the entity performing the service is considered unknown.
requestTimeOut	i64	Optional: Wallclock time. The timeout time in seconds after 1 January 1970.
startAppointment	AppointmentStruct	Optional: The time and location of the start of the service delivery.

RequestSubsurfaceLayerCondition STRUCTURE

Request for sub-surface condition data.

Name	Type	Description
eventId	TransactionId	Required: Unique identifier of the request. Will be referenced in a resulting resulting METOC_Response interaction.
geoReference	GeoReferenceVariant	Optional. Geographical reference to indicate for which point, area, path or object this request is related to. If not provided, the request is for a global environment condition.
updateAsObject	bool	Optional. Indicates if the service is requested to represent the environment condition as an EnvironmentCondition object instance. Default is False.
serviceId	UUID	Required: Unique identifier of the model used for providing METOC information. Multiple Models may exist.
layer	LayerStruct	Optional. A description of layer for request of layered subsurface environment conditions. Default is the entire body of water in the identified area.

RequestSupply STRUCTURE

The consumer sends a `RequestSupply` interaction to request supplies. The amount and type of supplies are specified in the required `SuppliesData` parameter. The required `TransferDirection` parameter indicates whether supplies are transferred from Consumer to provider or from Provider to consumer.

Name	Type	Description
`requestId`	TransactionId	Required: Unique identifier for the requested service related to the transaction.
`consumerEntity`	UuidArrayOf HLAbyte16	Required: Unique identifier for a simulated entity that is the intended receiver of service
`providerEntity`	UuidArrayOf HLAbyte16	Optional: Unique identifier of a simulated entity intended to perform the service. If not provided, the entity performing the service is considered unknown.
`requestTimeOut`	i64	Optional: Wallclock time. The timeout time in seconds after 1 January 1970.
`startAppointment`	AppointmentStruct	Optional: The time and location of the start of the service delivery.
`suppliesData`	NETNArrayOfSupply Struct	Required: List of type and quantity of supplies requested.
`transferDirection`	TransferDirection Enum32	Required: Indicates if the transfer of supplies are from Consumer to Provider or from Provider to Consumer.

RequestTransfer STRUCTURE

A `RequestTransfer` interaction is sent by the requesting federate to the responding federate. If the request is the result of a `InitiateTransfer` interaction, the parameters from that interaction shall be copied and used in the request including `EventId`. If the request is not triggered the **Request Federate** shall generate a unique `EventId` to be used in all subsequent TMR interactions related to the event.

Name	Type	Description
`eventId`	TransactionId	Required. The `EventId` is a unique reference to a specific execution of a TMR pattern. It consists of two values, a Counter and a Federate Handle. The value of this parameter is also encoded and used as the User Supplied Tag in the HLA Ownership services to allow a correlation between the TMR interactions and HLA Ownership services. The `EventId` is generated by a trigger federate or, if no trigger federate is used, directly by the requesting federate. The value of this parameter should match all related TMR pattern interactions belonging to the same Transfer of Modelling Responsibilities event.
`responseFederate`	string	Required unless TransferType is AquireWithoutNegotiation: A Federate Name specifying the federate that is the responding federate.
`instances`	ArrayOfUuid	Required. References (UUID) to NETN Platform, Lifeform or Aggregate instances included in the transfer.
`attributes`	AttributeNamesType	Required. The common set of attributes for all referenced instances to be included in the transfer. Reference to attributes is by attribute name.
`transferType`	TransferEnumType	Required. An enumerated value that indicates the direction of the transfer of the ownership and whether there shall be any negotiation: `Acquire` = Requesting Federate acquires instance attribute ownership from the Responding Federate (current owner), `Divest` = Requesting Federate (current owner) releases instance attribute ownership to Responding Federate and `AcquireWithoutNegotiating` = Requesting Federate acquires unowned instance attributes.

RequestTransport STRUCTURE

A request for a Transport service. Use a RequestTransport interaction to initiate a transport, embarkment or disembarkment of a platform.

Name	Type	Description
requestId	TransactionId	Required: Unique identifier for the requested service related to the transaction.
consumerEntity	UuidArrayOf HLAbyte16	Required: Unique identifier for a simulated entity that is the intended receiver of service
providerEntity	UuidArrayOf HLAbyte16	Optional: Unique identifier of a simulated entity intended to perform the service. If not provided, the entity performing the service is considered unknown.
requestTimeOut	i64	Optional: Wallclock time. The timeout time in seconds after 1 January 1970.
startAppointment	AppointmentStruct	Optional: The time and location of the start of the service delivery.
transportData	ArrayOfUuid	Required: Entities to be transported.
endAppointment	AppointmentStruct	Optional: Location and time for disembarkment.

RequestTroposphereLayerCondition STRUCTURE

Request for tropospheric environment condition data.

Name	Type	Description
eventId	TransactionId	Required: Unique identifier of the request. Will be referenced in a resulting resulting METOC_Response interaction.
geoReference	GeoReferenceVariant	Optional. Geographical reference to indicate for which point, area, path or object this request is related to. If not provided, the request is for a global environment condition.
updateAsObject	bool	Optional. Indicates if the service is requested to represent the environment condition as an EnvironmentCondition object instance. Default is False.
serviceId	UUID	Required: Unique identifier of the model used for providing METOC information. Multiple Models may exist.
layer	LayerStruct	Optional. A description of layer for request of layered conditions troposphere environment condition. Default is the entire volume of air in the identified area.

RequestWaterSurfaceCondition STRUCTURE

Request for water surface condition data.

Name	Type	Description
eventId	TransactionId	Required: Unique identifier of the request. Will be referenced in a resulting resulting METOC_Response interaction.
geoReference	GeoReferenceVariant	Optional. Geographical reference to indicate for which point, area, path or object this request is related to. If not provided, the request is for a global environment condition.
updateAsObject	bool	Optional. Indicates if the service is requested to represent the environment condition as an EnvironmentCondition object instance. Default is False.
serviceId	UUID	Required: Unique identifier of the model used for providing METOC information. Multiple Models may exist.

RequestWeatherCondition STRUCTURE

Request for general weather data.

Name	Type	Description
eventId	TransactionId	Required: Unique identifier of the request. Will be referenced in a resulting resulting METOC_Response interaction.
geoReference	GeoReferenceVariant	Optional. Geographical reference to indicate for which point, area, path or object this request is related to. If not provided, the request is for a global environment condition.
updateAsObject	bool	Optional. Indicates if the service is requested to represent the environment condition as an EnvironmentCondition object instance. Default is False.
serviceId	UUID	Required: Unique identifier of the model used for providing METOC information. Multiple Models may exist.

RequestedConnection STRUCTURE

Characterisation of a requested connection.

Name	Type	Description
communicationNetwork Name	Text64	Reference to the communication network which the requested connection should belong to.
requestedConnection Type	ConnectionTypeEnum	The type of connection requested.
connectionId	UUID	Requested Id for the connection. If no Id is requested the value of this field should be all zeros.
destinationEntityIds	ArrayOfUuid	List of entities intended as destinations for this requested connection. Leave empty in case of broadcasting or multicasting.
networkDeviceId	UUID	Reference to the Network Device for the requested connection. If no specific network device is requested the value of this field should be all zeros.

Named by RequestedConnectionArray.

ResourceStatusNumberStruct STRUCTURE

The name of a resource and the number of instances of that resource by health status.

Name	Type	Description
numberHealthyOrIntact	QuantityFloat64	The number of healthy or intact resources
numberSlightlyDamaged	QuantityFloat64	The number of slightly damaged resources
numberModerately Damaged	QuantityFloat64	The number of moderately damaged resources
numberSignificantly Damaged	QuantityFloat64	The number of significantly damaged resources
numberDestroyed	QuantityFloat64	The number of destroyed or consumed resources
resourceName	string	The name of the resource
resourceType	rpr.EntityTypeStruct	The type of the resource (as described in the Bit Encoded Values for Use with Protocols for Distributed Interactive Simulation Applications)

Named by ArrayOfResourceStatus.

ResourceStatusReport STRUCTURE

Report on a unit's remaining amount resources.

Name	Type	Description
reportId	TransactionId	Required. Uniqie identifier for the report.
when	Datetime18	Required. Date and time when the reported status was valid.
communicationNetworkIds	ArrayOfText64	Optional. Reference to communication networks (NETN-COM) used to transfer report messages. If not provided, the report transmission should not be modelled and federates should receive and act on the report messages directly.
comments	string	Optional. Any additional comments associated with the report.
entityId	UUID	Required. The entity that is reported about.
resource	NETNSupplyStruct	Required. The type of resource and remaining quantity.

ResponseMETOC STRUCTURE

Response to a RequestEnvironmentCondition. RequestId paramater should match the corresponding parameter in the request.

Name	Type	Description
eventId	TransactionId	Required: Unique identifier of the request. Will be referenced in a resulting resulting METOC_Response interaction.
environmentObjectId	UUID	Optional. Reference to an existing environment condition object if the corresponding request includes UpdateAsObject set to true.
geoReference	GeoReferenceVariant	Optional. Geographical reference to indicate for which point, area, path or object this request is related to. Default if not provided the environment condition data is global.
status	bool	Required: Specifies the result of the request action. TRUE indicates success.

ResponseMRM STRUCTURE

A response from the receiving federate indicating ability to comply with request.

Name	Type	Description
eventId	TransactionId	Unique identifier for all MRM interactions belonging to the same request/respons event.
status	bool	Required. Specifies the result of the request action. TRUE indicates success.

SendSafetyRelatedBroadcastMessage STRUCTURE

Tasks entity (the source) to send a safety related broadcast message (AIS message type 14). The source must represent an AIS station (vessel, SAR aircraft, etc).

Name	Type	Description
taskId	TransactionId	Required. Uniqie identifier for the task.
taskee	UUID	Required. Reference to the entity that will execute the task.
tasker	string	Optional. Callsign of the commander of the task. If missing, the commander is undefined.
startWhen	Datetime18	Required. Time when the task execution should start. Use the value 00000000000000.000 to indicate that the time is undefined.
why	string	Optional. A text describing the reason for this task.
taskMode	TaskModeEnum8	Required. Determines the task mode.
communicationNetworkIds	ArrayOfText64	Optional. Reference to communication networks (NETN-COM) used to transfer tasking messages. If not provided, the task

Name	Type	Description
		transmission should not be modelled and federates should receive and act on the task messages directly.
message	string	Required. 1-161 chars of six-bit text.

SendSafetyRelatedMessage STRUCTURE

Tasks entity (the source) to send a safety related message (AIS message type 12) to another entity (the destination). Both source and destination must represent an AIS station (vessel, SAR aircraft, etc).

Name	Type	Description
taskId	TransactionId	Required. Uniqie identifier for the task.
taskee	UUID	Required. Reference to the entity that will execute the task.
tasker	string	Optional. Callsign of the commander of the task. If missing, the commander is undefined.
startWhen	Datetime18	Required. Time when the task execution should start. Use the value 00000000000000.000 to indicate that the time is undefined.
why	string	Optional. A text describing the reason for this task.
taskMode	TaskModeEnum8	Required. Determines the task mode.
communicationNetworkIds	ArrayOfText64	Optional. Reference to communication networks (NETN-COM) used to transfer tasking messages. If not provided, the task transmission should not be modelled and federates should receive and act on the task messages directly.
entity	UuidArrayOfHLAbyte16	Required. The entity that represents the destination. This must be an AIS station.
message	string	Required. 1-156 chars of six-bit text.

SensorReport STRUCTURE

Report on a unit's sensor detection of entities.

Name	Type	Description
reportId	TransactionId	Required. Uniqie identifier for the report.
when	Datetime18	Required. Date and time when the reported status was valid.
communicationNetworkIds	ArrayOfText64	Optional. Reference to communication networks (NETN-COM) used to transfer report messages. If not provided, the report transmission should not be modelled and federates should receive and act on the report messages directly.
comments	string	Optional. Any additional comments associated with the report.
observer	UUID	Required. Entity that observed the enemy (or neutral/unknown entity) and sends the spot report.
identificationLevel	IdentificationLevelEnum8	Required. The identification level of the entit(y)(ies) spotted.
spottedEntities	ArrayOfSpottedEntities	Required. Spotted entities at the time specified in the parameter 'When'.
sensorType	rpr.EntityTypeStruct	Required. The type of the sensor that detected the entities.

SensorStruct STRUCTURE

Defines a sensor,operational status, damage status, coverage and ID

Name	Type	Description
sensorStateEnum	SensorStateEnum32	The operational status of the sensor
sensorDamageState	rpr.DamageStatusEnum32	The damage status of the sensor

Name	Type	Description
sensorCoverage	RangeFloat32	The maximum range of the sensor
sensorID	string	A sensor owned by the aggregate

Named by ArrayOfSensorStruct.

ServiceComplete STRUCTURE

Used by a service providing entity to inform the service consuming entity that the service has been delivered.

Name	Type	Description
requestId	TransactionId	Required: Unique identifier for the requested service related to the transaction.

ServiceReceived STRUCTURE

Used by a service consuming entity to inform the service providing entity that the service has been delivered.

Name	Type	Description
requestId	TransactionId	Required: Unique identifier for the requested service related to the transaction.

ServiceStarted STRUCTURE

Issued by a service provider to inform about the start of service delivery. The time of service delivery start may be significantly later than receiving an indication from the consumer that the service delivery can start.

Name	Type	Description
requestId	TransactionId	Required: Unique identifier for the requested service related to the transaction.

SetOrderedAltitude STRUCTURE

Tasking of an entity to set move to specified altitude.

Name	Type	Description
taskId	TransactionId	Required. Uniqie identifier for the task.
taskee	UUID	Required. Reference to the entity that will execute the task.
tasker	string	Optional. Callsign of the commander of the task. If missing, the commander is undefined.
startWhen	Datetime18	Required. Time when the task execution should start. Use the value 00000000000000.000 to indicate that the time is undefined.
why	string	Optional. A text describing the reason for this task.
taskMode	TaskModeEnum8	Required. Determines the task mode.
communicationNetworkIds	ArrayOfText64	Optional. Reference to communication networks (NETN-COM) used to transfer tasking messages. If not provided, the task transmission should not be modelled and federates should receive and act on the task messages directly.
altitude	AltitudeMeterFloat64	Required. Defines the altitude.
altitudeType	AltitudeTypeEnum8	Required. Above the ground or sea.

SetOrderedSpeed STRUCTURE

Tasking of an entity to change speed.

Name	Type	Description
taskId	TransactionId	Required. Uniqie identifier for the task.

Name	Type	Description
taskee	UUID	Required. Reference to the entity that will execute the task.
tasker	string	Optional. Callsign of the commander of the task. If missing, the commander is undefined.
startWhen	Datetime18	Required. Time when the task execution should start. Use the value 00000000000000.000 to indicate that the time is undefined.
why	string	Optional. A text describing the reason for this task.
taskMode	TaskModeEnum8	Required. Determines the task mode.
communicationNetworkIds	ArrayOfText64	Optional. Reference to communication networks (NETN-COM) used to transfer tasking messages. If not provided, the task transmission should not be modelled and federates should receive and act on the task messages directly.
speed	rpr.VelocityMeterPerSecondFloat32	Required. Determines the ordered speed to set for an entity, in m/s.

SetRulesOfEngagement STRUCTURE

Tasking of an entity to change its rules of engagement.

Name	Type	Description
taskId	TransactionId	Required. Uniqie identifier for the task.
taskee	UUID	Required. Reference to the entity that will execute the task.
tasker	string	Optional. Callsign of the commander of the task. If missing, the commander is undefined.
startWhen	Datetime18	Required. Time when the task execution should start. Use the value 00000000000000.000 to indicate that the time is undefined.
why	string	Optional. A text describing the reason for this task.
taskMode	TaskModeEnum8	Required. Determines the task mode.
communicationNetworkIds	ArrayOfText64	Optional. Reference to communication networks (NETN-COM) used to transfer tasking messages. If not provided, the task transmission should not be modelled and federates should receive and act on the task messages directly.
rulesOfEngagement	RulesOfEngagementEnum8	Required. Determines the rules of engagment for a entity.

SetTransmitterStatus STRUCTURE

Tasking of an entity to switch on/off all of its transmitters.

Name	Type	Description
taskId	TransactionId	Required. Uniqie identifier for the task.
taskee	UUID	Required. Reference to the entity that will execute the task.
tasker	string	Optional. Callsign of the commander of the task. If missing, the commander is undefined.
startWhen	Datetime18	Required. Time when the task execution should start. Use the value 00000000000000.000 to indicate that the time is undefined.
why	string	Optional. A text describing the reason for this task.
taskMode	TaskModeEnum8	Required. Determines the task mode.
communicationNetworkIds	ArrayOfText64	Optional. Reference to communication networks (NETN-COM) used to transfer tasking messages. If not provided, the task transmission should not be modelled and federates should receive and act on the task messages directly.

Name	Type	Description
status	rpr.Transmitter OperationalStatus Enum8	Required. Status on the transmitter.

SnowStruct STRUCTURE

Depth and density of snow cover.

Name	Type	Description
depth	rpr.MeterFloat32	Snow depth on terrain.
density	MassDensityFloat32	kg/m3

Named by LandSurface, LandSurfaceCondition.

SpotReport STRUCTURE

Report on a unit's awareness of spotted entities.

Name	Type	Description
reportId	TransactionId	Required. Uniqie identifier for the report.
when	Datetime18	Required. Date and time when the reported status was valid.
communicationNetwork Ids	ArrayOfText64	Optional. Reference to communication networks (NETN-COM) used to transfer report messages. If not provided, the report transmission should not be modelled and federates should receive and act on the report messages directly.
comments	string	Optional. Any additional comments associated with the report.
observer	UUID	Required. Entity that observed the enemy (or neutral/unknown entity) and sends the spot report.
identificationLevel	IdentificationLevel Enum8	Required. The identification level of the entit(y)(ies) spotted.
spottedEntities	ArrayOfSpottedEntities	Required. Spotted entities at the time specified in the parameter 'When'.

SpottedEntity STRUCTURE

Descripton of the observed entity. The symbol contains information about the spotted entity's relation to the spotter and details about the type and echelon at the spotted entity.

Name	Type	Description
spottedEntity	UUID	The unique identifier for the entity
location	rpr.WorldLocation Struct	The location where the entity were spotted
orientation	rpr.OrientationStruct	The orientation in Psi, Theta, Phi [radians]
speed	rpr.VelocityMeterPer SecondFloat32	The speed of the entity (m/s). Default value: 0 m/s
equipment	ArrayOfSpotted Equipment	Spotted equipment list, type and number. Default value: Empty array.
activity	AggregateMission Enum16	The current activity of the entity. (Fromm NETN-Base) Default value: Moving (213)
symbol	string	Symbol identifier for the entity. The detailed level may vary and the publishing federate decides the level of details in the symbol description. E.g. Default Ground value: app6b:SUGP------***** Default Air value: app6b:SUAP------***** Default Sea Surface value: app6b:SUSP------***** Default Subsurface value: app6b:SUUP------*****

Named by ArrayOfSpottedEntities.

SpottedEquipment STRUCTURE

Equipment at the spotted entity.

Name	Type	Description
type	rpr.EntityTypeStruct	Use entity types from Supply Types, Expendibles or Sensors/ Emitters tables (SISO-REF-010-2010, 4.3), for aggregate entities, also use entity types from platform tables to describe the equipment type.
numberOfEquipment	QuantityInt32	The number of the equipment.

Named by ArrayOfSpottedEquipment.

StatusReport STRUCTURE

Report on a unit's own (perceived) state. This report should be generated with a frequency specified in the federation agreements.

Name	Type	Description
reportId	TransactionId	Required. Uniqie identifier for the report.
when	Datetime18	Required. Date and time when the reported status was valid.
communicationNetworkIds	ArrayOfText64	Optional. Reference to communication networks (NETN-COM) used to transfer report messages. If not provided, the report transmission should not be modelled and federates should receive and act on the report messages directly.
comments	string	Optional. Any additional comments associated with the report.
entityId	UUID	Required. The entity that is reported about.

StopAtSideOfRoad STRUCTURE

Tasking of an entity to stop at the side of the road. This task is only relevant for an entity that is moving along a road to a destination. The executing move task is cancelled, and a new move is defined towards a position at the side of the road (the simulator has to calculate this location).

Name	Type	Description
taskId	TransactionId	Required. Uniqie identifier for the task.
taskee	UUID	Required. Reference to the entity that will execute the task.
tasker	string	Optional. Callsign of the commander of the task. If missing, the commander is undefined.
startWhen	Datetime18	Required. Time when the task execution should start. Use the value 00000000000000.000 to indicate that the time is undefined.
why	string	Optional. A text describing the reason for this task.
taskMode	TaskModeEnum8	Required. Determines the task mode.
communicationNetworkIds	ArrayOfText64	Optional. Reference to communication networks (NETN-COM) used to transfer tasking messages. If not provided, the task transmission should not be modelled and federates should receive and act on the task messages directly.

SubsurfaceLayerCondition STRUCTURE

Response with subsurface body of water condition data.

Name	Type	Description
eventId	TransactionId	Required: Unique identifier of the request. Will be referenced in a resulting resulting METOC_Response interaction.

Name	Type	Description
environmentObjectId	UUID	Optional. Reference to an existing environment condition object if the corresponding request includes UpdateAsObject set to true.
geoReference	GeoReferenceVariant	Optional. Geographical reference to indicate for which point, area, path or object this request is related to. Default if not provided the environment condition data is global.
status	bool	Required: Specifies the result of the request action. TRUE indicates success.
temperature	rpr.Temperature DegreeCelsiusFloat32	Optional. Average temperature in the body of water.
current	CurrentStruct	Optional. Average current direction and speed in the body of water.
salinity	f32	Optional. Average salinity in the body of water.
bottomType	SedimentTypeEnum32	Optional. Type of sediment on the sea floor. Default is 0 (NoSediment). If EnvironmentConditions with overlapping regions/locations exist, the sediment type in the overlapping region is determined by the latest updated value.

SupplyComplete STRUCTURE

This interaction is sent by the provider when the supply is delivered to the consumer

Name	Type	Description
requestId	TransactionId	Required: Unique identifier for the requested service related to the transaction.
suppliesData	NETNArrayOfSupply Struct	Required: The amount of supplies, by type, that were transferred from provider to consumer.

TMRInteraction STRUCTURE

The `TMR_Interaction` interaction class is the base for all Transfer of Modelling Responsibility interactions. It provides a single parameter used in all TMR interactions to uniquely identify TMR transactions between participating federates.

Name	Type	Description
eventId	TransactionId	Required. The `EventId` is a unique reference to a specific execution of a TMR pattern. It consists of two values, a Counter and a Federate Handle. The value of this parameter is also encoded and used as the User Supplied Tag in the HLA Ownership services to allow a correlation between the TMR interactions and HLA Ownership services. The `EventId` is generated by a trigger federate or, if no trigger federate is used, directly by the requesting federate. The value of this parameter should match all related TMR pattern interactions belonging to the same Transfer of Modelling Responsibilities event.

TaskStatusReport STRUCTURE

A management task report regarding the status of a specific task assigned to an entity.

Name	Type	Description
taskManagementId	TransactionId	Required. Uniqie identifier for the management task.
taskee	UUID	Required. Reference to the entity that should execute the task.
tasker	string	Optional. Identifies the commander of the task.

Name	Type	Description
communicationNetworkIds	ArrayOfText64	Optional. Reference to communication networks (NETN-COM) used to transfer task management messages. If not provided, the message transmission should not be modelled and federates should receive and act on the task management messages directly.
taskId	TransactionId	Required. Identifies the task associated with the task report.
taskStatus	TaskStatusEnum32	Required. Indicates the status of the task.
when	Datetime18	Required. Creation date and time of the report.
comments	string	Optional. Any additional comments. For example reason for cancelling, errors, etc.

TransferResult STRUCTURE

A `TransferResult` interaction is sent by the **Request Federate** to indicate successful or unsuccessful completion of the transfer.

Name	Type	Description
eventId	TransactionId	Required. The `EventId` is a unique reference to a specific execution of a TMR pattern. It consists of two values, a Counter and a Federate Handle. The value of this parameter is also encoded and used as the User Supplied Tag in the HLA Ownership services to allow a correlation between the TMR interactions and HLA Ownership services. The `EventId` is generated by a trigger federate or, if no trigger federate is used, directly by the requesting federate. The value of this parameter should match all related TMR pattern interactions belonging to the same Transfer of Modelling Responsibilities event.
isCompleted	bool	Required. A Boolean value indicating the result of the transfer. TRUE = Transfer Completed Successfully.

TransportDestroyedEntities STRUCTURE

Used by a service provider to update information on damage state of entities under transport.

Name	Type	Description
requestId	TransactionId	Required: Unique identifier for the requested service related to the transaction.
destroyedObjects	ArrayOfUuid	Required: Identifies the objects that have been destroyed during transport.

TransportDisembarkmentStatus STRUCTURE

Is sent by the service provider federate, to inform the service consumer of the disembarkment state, after the ServiceStarted interaction

Name	Type	Description
requestId	TransactionId	Required: Unique identifier for the requested service related to the transaction.
disembarkedObjects	ArrayOfUuid	Required: References to disembarked entities. Updated during disembarkment.
transportUnitIdentifier	UuidArrayOfHLAbyte16	Required: UUID of entity performing the transport.

TransportEmbarkmentStatus STRUCTURE

Is sent by the service provider federate, to inform the service consumer of the embarkment state, after the ServiceStarted interaction

Name	Type	Description
requestId	TransactionId	Required: Unique identifier for the requested service related to the transaction.
embarkedObjects	ArrayOfUuid	Required: List of entities currently embarked. Updated during embarkment.
transportUnit Identifier	UuidArrayOf HLAbyte16	Required: Referens to entity providing the transport.

TreatmentStruct STRUCTURE

Defines the properties for a CBRN treatment.

Name	Type	Description
uniqueID	UuidArrayOf HLAbyte16	The ID of this treatment.
effectiveness	rpr.PercentFloat32	Percentage by which this treatment reduces effects.
duration	rpr.TimeSecond Integer32	Duration in seconds for which this treatment will remain effective.
treatmentWindow	rpr.TimeSecond Integer32	The time window in seconds between exposure and treatment for which this treatment is effective.
treatableAgents	ArrayOfAgentType Enum	Array of agents that can be treated using this treatment.

Named by ArrayOfTreatmentStruct, CBRNTreatmentCommand.

TroposphereLayerCondition STRUCTURE

Response with environment condition in volume of air.

Name	Type	Description
eventId	TransactionId	Required: Unique identifier of the request. Will be referenced in a resulting resulting METOC_Response interaction.
environmentObjectId	UUID	Optional. Reference to an existing environment condition object if the corresponding request includes UpdateAsObject set to true.
geoReference	GeoReferenceVariant	Optional. Geographical reference to indicate for which point, area, path or object this request is related to. Default if not provided the environment condition data is global.
status	bool	Required: Specifies the result of the request action. TRUE indicates success.
temperature	rpr.Temperature DegreeCelsiusFloat32	Optional. Average temperature in the region/location.
wind	WindStruct	Optional. Average wind speed and direction in the region/ location.
precipitation	PrecipitationStruct	Optional. Average precipitation intensisty region/location for a precipitation type in the following order of precedence Snow, Hail, Rain, NoPrecipitation.
haze	HazeStruct	Optional. Average haze density in the region/location,
humidity	f32	Optional. Average humidity in percent in the region/location.
barometricPressure	f32	Optional. Average barometric pressure measured in millibar or hectopascal (1 mbar = 1hPa) in the region/location.
visibilityRange	rpr.MeterFloat32	Optional. Average distance at which an object or light can be clearly discerned by the human eye in the region/location.

Name	Type	Description
cloud	CloudStruct	Optional. Cloud cover.

TurnToHeading STRUCTURE

Tasking of an entity to turn to the specified heading.

Name	Type	Description
taskId	TransactionId	Required. Uniqie identifier for the task.
taskee	UUID	Required. Reference to the entity that will execute the task.
tasker	string	Optional. Callsign of the commander of the task. If missing, the commander is undefined.
startWhen	Datetime18	Required. Time when the task execution should start. Use the value 00000000000000.000 to indicate that the time is undefined.
why	string	Optional. A text describing the reason for this task.
taskMode	TaskModeEnum8	Required. Determines the task mode.
communicationNetworkIds	ArrayOfText64	Optional. Reference to communication networks (NETN-COM) used to transfer tasking messages. If not provided, the task transmission should not be modelled and federates should receive and act on the task messages directly.
heading	rpr.AngleRadianFloat32	Required. The heading an entity has to turn to.

TurnToOrientation STRUCTURE

Tasking of an entity to rotate to a specified orientation, including pitch and roll.

Name	Type	Description
taskId	TransactionId	Required. Uniqie identifier for the task.
taskee	UUID	Required. Reference to the entity that will execute the task.
tasker	string	Optional. Callsign of the commander of the task. If missing, the commander is undefined.
startWhen	Datetime18	Required. Time when the task execution should start. Use the value 00000000000000.000 to indicate that the time is undefined.
why	string	Optional. A text describing the reason for this task.
taskMode	TaskModeEnum8	Required. Determines the task mode.
communicationNetworkIds	ArrayOfText64	Optional. Reference to communication networks (NETN-COM) used to transfer tasking messages. If not provided, the task transmission should not be modelled and federates should receive and act on the task messages directly.
heading	rpr.AngleRadianFloat32	Required. The heading an entity has to turn to.
pitch	rpr.AngleRadianFloat32	Required. Defines the angle ot the pitch.
roll	rpr.AngleRadianFloat32	Required. Defines the angle ot the roll.

UnderAttackStatusReport STRUCTURE

Report from a unit that it is under attack.

Name	Type	Description
reportId	TransactionId	Required. Uniqie identifier for the report.
when	Datetime18	Required. Date and time when the reported status was valid.

Name	Type	Description
communicationNetworkIds	ArrayOfText64	Optional. Reference to communication networks (NETN-COM) used to transfer report messages. If not provided, the report transmission should not be modelled and federates should receive and act on the report messages directly.
comments	string	Optional. Any additional comments associated with the report.
entityId	UUID	Required. The entity that is reported about.
fromDirection	rpr.AngleRadianFloat32	Required. Direction from which the entity is attacked, between 0..2π or -1 when not specified.
severeness	AttackTypeEnum32	Required. Severeness of the attack upon the reporting entity.

UnitSymbolAmplificationStruct STRUCTURE

Text amplifiers for Unit symbols.

Name	Type	Description
reinforcedOrReduced	Text3	A text amplifier in a unit symbol that displays (+) for reinforced, (-) for reduced, (±) reinforced and reduced.
staffComments	Text20	A text amplifier for units, equipment and installations.
additionalInformation	Text20	A text amplifier for units, equipment and installations.
evaluationRating	Text2	A text amplifier for units, equipment and installations that consists of a one-letter reliability rating and a one-number credibility rating. Reliability Ratings: A-completely reliable B-usually reliable C-fairly reliable D-not usually reliable E-unreliable F-reliability cannot be judged Credibility Ratings: 1-confirmed by other sources 2-probably true 3-possibly true 4-doubtfully true 5-improbable 6-truth cannot be judged.
combatEffectiveness	Text5	A text amplifier for units and installations that indicates unit effectiveness or installation capability.
higherFormation	Text21	A text amplifier for units that indicates number or title of higher echelon command (corps are designated by Roman numerals).
iffSifAis	Text15	A text amplifier displaying IFF/SIF/AIS identification modes and codes.
uniqueDesignation	Text21	A text amplifier for units, equipment and installations that uniquely identifies a particular symbol or track number. Identifies acquisitions number when used with SIGINT symbology.
specialHeadquarters	Text9	A text modifier for a unit's special C2 Headquarters.
engagementBarText	Text8	A text amplifier placed immediately atop the symbol in the engagement bar. May denote, 1) local/remote status; 2) engagement status; and 3) weapon type.

Named by Unit.

VisualSignatureStruct STRUCTURE

Specifies the visual structure

Name	Type	Description
dVOSignaturePercent	rpr.PercentUnsignedInteger32	A summary percentage of an aggregates susceptibility to detection by direct view optics, i.e. the human eye, binoculars, or telescopes. A unit with zero percent signature would be concealed from DVO detection.
i2SignaturePercent	rpr.PercentUnsignedInteger32	A summary percentage of an aggregates susceptibility to detection by Image Intensifying sensors. A unit with zero percent signature would be invisible to image intensifiers (I2).

Name	Type	Description
thermalSignaturePercent	rpr.PercentUnsignedInteger32	A summary percentage of an aggregates susceptibility to detection by thermal sensors. A unit with zero percent signature would be invisible to thermal sensors.

Named by NETNAggregate.

Wait STRUCTURE

Tasking of an entity to wait for a duration of time.

Name	Type	Description
taskId	TransactionId	Required. Uniqie identifier for the task.
taskee	UUID	Required. Reference to the entity that will execute the task.
tasker	string	Optional. Callsign of the commander of the task. If missing, the commander is undefined.
startWhen	Datetime18	Required. Time when the task execution should start. Use the value 00000000000000.000 to indicate that the time is undefined.
why	string	Optional. A text describing the reason for this task.
taskMode	TaskModeEnum8	Required. Determines the task mode.
communicationNetworkIds	ArrayOfText64	Optional. Reference to communication networks (NETN-COM) used to transfer tasking messages. If not provided, the task transmission should not be modelled and federates should receive and act on the task messages directly.
duration	TimeSecInt32	Required. Specifies the wait time (seconds).

WaterSurfaceCondition STRUCTURE

Response with water surface condition data.

Name	Type	Description
eventId	TransactionId	Required: Unique identifier of the request. Will be referenced in a resulting resulting METOC_Response interaction.
environmentObjectId	UUID	Optional. Reference to an existing environment condition object if the corresponding request includes UpdateAsObject set to true.
geoReference	GeoReferenceVariant	Optional. Geographical reference to indicate for which point, area, path or object this request is related to. Default if not provided the environment condition data is global.
status	bool	Required: Specifies the result of the request action. TRUE indicates success.
temperature	rpr.TemperatureDegreeCelsiusFloat32	Optional. Average temperature in the region/location.
wind	WindStruct	Optional. Average wind speed and direction in the region/location.
precipitation	PrecipitationStruct	Optional. Average precipitation intensisty region/location for a precipitation type in the following order of precedence Snow, Hail, Rain, NoPrecipitation.
haze	HazeStruct	Optional. Average haze density in the region/location,
humidity	f32	Optional. Average humidity in percent in the region/location.
barometricPressure	f32	Optional. Average barometric pressure measured in millibar or hectopascal (1 mbar = 1hPa) in the region/location.
visibilityRange	rpr.MeterFloat32	Optional. Average distance at which an object or light can be clearly discerned by the human eye in the region/location.
seaState	SeaStateEnum16	Optional. Sea state data.
salinity	f32	Optional. Salinity in the surface water.

Name	Type	Description
tide	rpr.MeterFloat32	Optional. The height relative to the MSL.
ice	IceStruct	Optional. Ice conditions on the water surface.
current	CurrentStruct	Optional. Surface water Current direction and speed. N/A if Ice
wave	WaveStruct	Optional. Surface Wave data. N/A if Ice
swell	WaveStruct	Optional. Surface water Swell data. N/A if Ice

WaveStruct STRUCTURE

Water surface wave conditions and direction.

Name	Type	Description
length	rpr.MeterFloat32	Distance from a particular phase on a wave to the same phase on an adjacent wave.
height	rpr.MeterFloat32	Average vertical distance between trough and crest produced by the wave.
period	rpr.TimeSecond Integer32	Wave period is the distance between two waves passing through a stationary point, measured in seconds.
direction	DirectionDegrees Float32	The direction in which the wave propagates.

Named by WaterSurface, WaterSurfaceCondition.

WeatherCondition STRUCTURE

Response with general weather condition data.

Name	Type	Description
eventId	TransactionId	Required: Unique identifier of the request. Will be referenced in a resulting resulting METOC_Response interaction.
environmentObjectId	UUID	Optional. Reference to an existing environment condition object if the corresponding request includes UpdateAsObject set to true.
geoReference	GeoReferenceVariant	Optional. Geographical reference to indicate for which point, area, path or object this request is related to. Default if not provided the environment condition data is global.
status	bool	Required: Specifies the result of the request action. TRUE indicates success.
temperature	rpr.Temperature DegreeCelsiusFloat32	Optional. Average temperature in the region/location.
wind	WindStruct	Optional. Average wind speed and direction in the region/location.
precipitation	PrecipitationStruct	Optional. Average precipitation intensisty region/location for a precipitation type in the following order of precedence Snow, Hail, Rain, NoPrecipitation.
haze	HazeStruct	Optional. Average haze density in the region/location,
humidity	f32	Optional. Average humidity in percent in the region/location.
barometricPressure	f32	Optional. Average barometric pressure measured in millibar or hectopascal (1 mbar = 1hPa) in the region/location.
visibilityRange	rpr.MeterFloat32	Optional. Average distance at which an object or light can be clearly discerned by the human eye in the region/location.

WindStruct STRUCTURE

Wind direction and speeds.

Name	Type	Description
`direction`	DirectionDegrees Float32	Required: Direction in degrees clockwise from due north.
`horizontalSpeed`	rpr.VelocityMeterPer SecondFloat32	Required: Wind speed (m/s) in the specified WindDirection.
`verticalSpeed`	rpr.VelocityMeterPer SecondFloat32	Optional. Wind speed in m/s. Negative number is a downdraft. Default is 0.

Named by LandSurfaceCondition, TroposphereLayerCondition, WaterSurfaceCondition, Weather, WeatherCondition.

Enumerations

ATP45HazardAreaTypeEnum8	Type of ATP-45 Hazard Area (simple or detailed).	119
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CBRNDamageEnum8	Level of damage due to CBRN exposure.	124
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CaptureStatusEnum8	The status of a person or unit with respect to their control or influence over their own activities. Default: 1 - Not Captured.	124
CloudTypeEnum32	Classification of different types of clouds.	124
CommunicationNetworkTypeEnum	The type of a communication network.	125
CommunicationServiceTypeEnum	The type of service used on a communication network. Service types as defined in MSDL. DATTRF: Data transfer FAX: Facsimile IFF: Identify Friend or Foe IMAGE: Image MCI: Multilateral Interoperability Programme (MIP) Common Interface Service MHS: Message Handling Service TDL: Tactical Data Link VIDSVC: Video Service VOCSVC:Voice Service NOS: Not Otherwise Specified	125
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FormationTypeEnum32	Enumerated choice for the type of formation being Ground, Air, Surface or Subsurface.	127
GeoLocationTypeEnum32	Specifies different ways to reference geographical locations.	127
GroundFormationTypeEnum32	Specifies the formations for groundunits.	127
HazardTypeEnum8	Type of dispersion output represented in a contour group.	128
HazeTypeEnum32	Type of visibility obstruction.	128
HostilityStatusCodeEnum32	The specific value that represents the perceived hostility status.	128
IPETypeEnum8	Types of Individual Protective Equipment.	128
IceTypeEnum16	Type of Ice.	129
IdentificationLevelEnum8	The identification level of an object.	129
ManeuverIndicatorEnumType	Enumeration value to indicate a maneuver.	129
MineCountEnum32	Type of mine count.	129
ModelResolutionTypeEnum32	Enumeration indicating the level of fidelity appropriate for instancing the unit or equipment in the simulation.	129
MoveTypeEnum32	CrossCountry: move directly to the destination without taking into account the roads. OnlyRoads: stay on the roads to get to the closest point to the destination that is still on a road; if there is no road very near to the start (within around 10 meters) there will be no movement at all. RoadsAndCrossCountry: move to the destination by taking into account the roads; it is allowed to go off the road.	129
MsgIdEnumType	Enumeration value for the message type.	130
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NoOfferReasonEnumType	Describes the reason why not accepting a TMR request	130

OfferTypeEnum32	Type of the offer (With restriction, positive, negative)	131
PartNumberEnumType	Identifier for the message part number.	131
PathTypeEnum32	Specifies if a path is defined by waypoints or by reference to a path object in the federation.	131
PatrolMoveTypeEnum32	Defines how the movment shall be done during the execution of the patrol. Other - Federate application specific.	131
PatrolTypeEnum32	Other - The behaviour is federate application specific (e.g. wait for next command, etc.) Circle - At the end of route, move to start point of patrol route (federate application determines the route) Reverse - Follow the patrol route in reverse order.	131
PhysicalNetworkTypeEnum	The type of a physical network.	131
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PrecipitationTypeEnum32	Type of precipitation.	132
RoadIceConditionEnum16	Ice condition for roads.	132
RulesOfEngagementEnum8	Rules of engagment for a simulated entity.	132
SeaStateEnum16	State of the sea measured in Douglas Sea Scale.	132
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SurfaceFormationTypeEnum32	Surface formation	133
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TaskModeEnum8	Execute task in non-concurrent mode or concurrent mode. In the non-concurrent mode the task is placed on the task list for the entity, which serves as a waiting list. Once the task is at the head of the task list, and the currently executing task completes, it is removed from the task list and started. Using this task mode, tasks are executed one after the other. In the concurrent mode, the task is executed concurrently with other tasks. As soon as the task is accepted for an entity, it is started. With this task mode, there is no task list involved.	133
TaskStatusEnum32	The status of a task.	134
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WeaponControlOrderEnum8	The enumerations for weapon control	134
WeatherModelTypeEnum32	Type of weather model used by a METOC service.	134

ATP45HazardAreaTypeEnum8 ENUMERATION

Type of ATP-45 Hazard Area (simple or detailed).

Held as u8.

simple	0
detailed	1

Named by ATP45HazardArea.

ActiveStatusEnum8 ENUMERATION

A state which indicates the status of an object concerning its participation in the simulation. An object in an inactive state is not simulated and does not interact with other objects.

Held as u8.

other	0
active	1
inactive	2

Named by NETNAggregate, NETNAircraft, NETNAmphibiousVehicle, NETNCulturalFeature, NETNGroundVehicle, NETNHuman, NETNMultiDomainPlatform, NETNMunition, NETNNonHuman, NETNSpacecraft, NETNSubmersibleVessel, NETNSurfaceVessel, SEFacility.

AgentClassEnum8 ENUMERATION

Class of Agent for an ATP-45 Hazard Area.

Held as u8.

chemical	0
biological	1
radiological	2
nuclear	3

Named by ATP45HazardArea.

AgentTypeEnum16 ENUMERATION

Type of CBRN hazardous agent.

Held as i16.

chemical	1000
choking	1100
cg	1102
persistentNerve	1200
ga	1201
gb	1202
gd	1203
gf	1204
vx	1205
nonPersistentNerve	1300
vesicant	1400
hd	1401
bloodAgent	1500
ac	1501
ck	1502
riotControl	1700
toxicIndustrialChemical	1800
tic1	1801
tic2	1802
biological	2000
bacterial	2100
anthrax	2101
plague	2102
toxin	2200
virus	2300
radiological	3000
alpha	3100
beta	3200
gamma	3300
delta	3400
nuclear	4000

Named by AgentConcentrationStruct, AgentMassStruct, ArrayOfAgentTypeEnum, CBRNAlarmStruct, CBRNExposureStruct, CBRNRelease, ProbabilityHazardContourGroup, ProtectionEffectivenessStruct, RawDataHazardContourGroup.

AggregateMissionEnum16 ENUMERATION

Representation of the general class or nature of activity related to a unit's mission. Enumerations are based on JC3IEDM action-event-category-code.

Held as i16.

abdication	1	armsTrade	22	bellyLanding	43
accident	2	arrestingLegal	23	blocking	44
accidentAircraftGround	3	arrestingOrObstructing	24	bombing	45
accidentMine	4	arson	25	bombingAccidental	46
accidentTraffic	5	artilleryFire	26	bombingDeliberate	47
accidentWeapon	6	assassination	27	boobyTrapDiscovery	48
accidentWorkplace	7	assembling	28	borderCrossingEscorted	49
advancing	8	assistingACriminal	29	borderCrossingForced	50
aerialEngagement	9	atmosphericPollution	30	borderCrossingIllegal	51
aerialShootDown	10	attackDeliberate	31	borderCrossingNotPlanned	52
airAssault	11	attackDiversion	32	borderCrossingPlanned	53
airborneAssault	12	attackElectronic	33	borderCrossingSurveilled	54
aircraftCrash	13	attackHasty	34	borderIncursion	55
aircraftLanding	14	attackMain	35	borderRaid	56
aircraftLaunchActivity	15	attackNotOtherwiseSpecified	36	breaching	57
aircraftLoss	16	attackSupporting	37	buildUp	58
airspaceViolation	17	attemptedMurder	38	burnedOutObject	59
alertCancellation	18	attemptedRape	39	bypass	60
ambush	19	attemptedRobbery	40	canalise	61
amphibiousOperation	20	attemptedSuicide	41	capture	62
armsProduction	21	avoiding	42	carrierLaunch	63

carrierRecovery 64
cbrnEvent 65
ceremonyOrParade 66
civilDemonstrationIllegal 67
civilDemonstrationLegal 68
civilDisobedience 69
civilUnrest 70
civilWar 71
clearingAir 72
clearingLandCombat 73
clearingObstacle 74
clearingRadioNet 75
codewordExecution 76
collisionMidAir 77
collisionObstacle 78
communicationsActivation 79
communicationsDeactivation 80
communicationsDisruption 81
communicationsInterception 82
communicationsOutage 83
communicationsRestoration 84
conductingConference 85
conductingForwardPassage OfLines 86
conductingMediaInterview 87
conductingPreparatoryFire 88
conductingRearwardPassage OfLines 89
conductingRecreational Activities 90
conductingRoadService 91
conductingSocialEvents 92
conductingSportingEvents 93
confiscation 94
consolidatingOfAPosition 95
constructing 96
containing 97
cooperating 98
counterAttack 99
counterAttackByFire 100
counterBatteryFire 101
coupDetat 102
covering 103
crimeAgainstHumanity 104
criminalIncident 105
crossing 106
dazzle 107
deathNaturalCauses 108
deathOfChiefOfState 109
deathOfSpiritualLeader 110
deception 111
deceptionElectronic 112
defeat 113
defending 114
deflecting 115
delaying 116
demolition 117
demonstration 118
denying 119
deploying 120
destroying 121
disease 122
disengaging 123
disrupting 124
distributing 125
diversion 126
driveByShooting 127
drought 128
drugConsumptionIllegal 129
drugDistributionIllegal 130
drugManufacturingIllegal 131
drugOperation 132
drugStorage 133
drugTransportation 134
earlyWarningAlert 135
earthquake 136
electionAssociatedViolence 137
electronicEmission 138
electronicWarfare 139
enemyContact 140
engaging 141
enveloping 142
epidemic 143
equipmentFailure 144
escaping 145
escorting 146
evacuating 147
execution 148
exploitation 149
explosion 150
famine 151
fire 152
firefighting 153
fix 154
fixAcoustic 155
fixElectromagnetic 156
fixElectroOptical 157
flood 158
followingAndAssuming 159
followingAndSupporting 160
forcedLanding 161
friendlyFire 162
generatingChemicalSmoke 163
genocide 164
governmentalCollapse 165
guarding 166
gunneryAirToAir 167
harassing 168
hiding 169
hijackingBoat 170
hijackingLandVehicle 171
hijackingNotOtherwise Specified 172
hijackingPlane 173
holdDefensive 174
holdOffensive 175
hostageTaking 176
humanRightsViolation 177
hunting 178
identifying 179
illumination 180
indirectFire 181
indiscriminateShooting 182
industrialEspionageIncident 183
infiltration 184
interception 185
interdiction 186
intimidation 187
invasion 188
isolation 189
issuingMediaArticle 190
issuingMediaDocumentary 191
issuingPressRelease 192
jamming 193
kidnapping 194
labourStrike 195
leaguer 196
letterBombExplosion 197
letterBombIncident 198
localElection 199
locating 200
looting 201
maintaining 202
marking 203
martialLawImplementation 204
massingOfForces 205
massiveDeportationOr Banishment 206
medicalEvacuation 207
militaryMobilisation 208
mineLaying 209
missingIndividual 210
missionStaging 211
mortarFire 212
moving 213
murder 214
mutualAssistancePact Agreement 215
nationalElection 216
nationalHoliday 217
nationalStateOfEmergency 218
naturalDisaster 219
navalGunFire 220
navalPlatformFlight Operations 221
networkSeizure 222
neutralizeChemical 223
neutralizeCombat 224
neutralizeExplosive 225
obscure 226
observing 227
occupying 228
oceansSeasOrWaterPollution 229
offensiveOrCounteroffensive 230
organisedCrime 231
outbreakOfRacialOrTribalOr EthnicWarfare 232
patrolling 233
peaceConference 234
peaceTreatyAgreement 235
penetrating 236
pestilence 237
petroleumProductSpills 238
picketing 239
poisoning 240
politicalDemonstration 241
politicalExecution 242
pOWReturn 243
prisonerExchange 244
procuring 245
protectionElectronic 246
providingAccommodation 247
providingAgriculturalSupport 248
providingBedding 249
providingCamps 250
providingConstruction Services 251
providingDecontamination Services 252
providingEducationServices 253
providingHealthcareServices 254
providingHostNationSupport 255
providingInfrastructure 256
providingLaundryServices 257
providingRepairServices 258
providingSecurityServices 259
providingShelter 260
providingStorageServices 261

providingTranshipment Services	262
proxyBombing	263
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reconnaissanceInForce	271
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recovering	273
recuperating	274
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refugeeMovement	276
reinforcing	277
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religiousDemonstration	279
religiousViolence	280
religiousWarfare	281
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repairing	284
resting	285
resupplying	286
retain	287
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revolution	289
riot	290
robbery	291
rocketFire	292
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screening	294
secessionOfPortionOfCountry	295
securing	296
securityCompromise	297
securityViolation	298
seizing	299
servingAsABreakoutForce	300
servingAsABridgeheadForce	301
servingAsAFlankGuard	302
servingAsAMainBody	303
servingAsAnAdvanceGuard	304
servingAsAnInPlaceForce	305
servingAsARearGuard	306
servingAsAReserve	307
settingUp	308
shooting	309
sniperAttack	310
spaceAccident	311
spying	312
stateOfWar	313
strafingAerial	314
strike	315
suicide	316
supporting	317
suppressing	318
surrender	319
surveillanceElectronic	320
suspensionOfHostilities	321
terrorism	322
threaten	323
torture	324
transporting	325
traversing	326
treatyViolation	327
troublemakingAgitating	328
troublemakingBullying	329
troublemakingHarassing	330
troublemakingHooliganism	331
troublemakingInciting	332
troublemakingIntimidating	333
turning	334
unexplodedOrdnance Discovery	335
vandalismOrRapeOrLootOrRansackOrPlunderOrSack	336
verifying	337
vesselSinking	338
volcanicEruption	339
warOrCrisisAlert	340
warOrMilitaryConference	341
warCrime	342
weaponFiring	343
withdrawal	344
withdrawalUnderPressure	345
witnessing	346
notOtherwiseSpecified	347
other	0

Named by MissionStruct, NETNAggregate, NETNAircraft, NETNAmphibiousVehicle, NETNCulturalFeature, NETNGroundVehicle, NETNHuman, NETNMultiDomainPlatform, NETNNonHuman, NETNSpacecraft, NETNSubmersibleVessel, NETNSurfaceVessel, SpottedEntity.

AidTypeEnumType ENUMERATION

Enumeration value for the aid type. According to [IALA], the aid type field has values 1-15 for fixed and 16-31 for floating aids to navigation.

Held as u8.

notSpecified	0
referencePoint	1
racon	2
fixedStructureOffShore	3
spare1	4
lightWithoutSectors	5
lightWithSectors	6
leadingLightFront	7
leadingLightRear	8
beaconCardinalN	9
beaconCardinalE	10
beaconCardinalS	11
beaconCardinalW	12
beaconPortHand	13
beaconStarboardHand	14
beaconPreferredChannelPortHand	15
beaconPreferredChannelStarboardHand	16
beaconIsolatedDanger	17
beaconSafeWater	18
beaconSpecialMark	19
cardinalMarkN	20
cardinalMarkE	21
cardinalMarkS	22
cardinalMarkW	23
portHandMark	24
starboardHandMark	25
preferredChannelPortHand	26
preferredChannelStarboardHand	27
isolatedDanger	28
safeWater	29
specialMark	30
lightVessel	31

Named by AisMessage21.

AirFormationTypeEnum32 ENUMERATION

Air formation

Held as i32.

notSpecified	0

Named by FormationDataStruct.

AltitudeTypeEnum8 ENUMERATION

The reference for altitude. AMSL = Above Mean Sea Level or AGL = Above Ground Level.

Held as u8.

amsl	1
agl	2

Named by SetOrderedAltitude.

AttackTypeEnum32 ENUMERATION

The kind of attack by the enemy.

Held as i32.

none	0
artillery	1
heavyArtillery	2
other	3

Named by UnderAttackStatusReport.

CBRNDamageEnum8 ENUMERATION

Level of damage due to CBRN exposure.

Held as u8.

uninjured	0
t3	1
t2	2
t1	3
t4	4
dead	5

Named by CBRNCasualty, CBRNHuman.

CancellationReasonEnum32 ENUMERATION

Describes the reason for a cancellation.

Held as i32.

other	0
timeOut	1

Named by CancelRequestTMR.

CaptureStatusEnum8 ENUMERATION

The status of a person or unit with respect to their control or influence over their own activities. Default: 1 - Not Captured.

Held as u8.

notCaptured	1
captured	2
attemptingSurrender	3
other	0

Named by NETNAggregate.

CloudTypeEnum32 ENUMERATION

Classification of different types of clouds.

Held as i32.

noCloud	1
altocumulus	5
altostratus	6
cirrocumulus	3
cirrostratus	4
cirrus	2
cumulonimbus	12
cumulus	9
nimbostratus	8
stratocumulus	7
stratus	10
unknown	13
cumulusCongestus	11
invalidCloudClassification	0

Named by CloudStruct.

CommunicationNetworkTypeEnum ENUMERATION

The type of a communication network.

Held as u8.

other	0
commandNet	1
operationsIntelligenceNet	2
adminLogisticsNet	3
fireSupportNet	4

Named by CommunicationNetwork.

CommunicationServiceTypeEnum ENUMERATION

The type of service used on a communication network. Service types as defined in MSDL. DATTRF: Data transfer FAX: Facsimile IFF: Identify Friend or Foe IMAGE: Image MCI: Multilateral Interoperability Programme (MIP) Common Interface Service MHS: Message Handling Service TDL: Tactical Data Link VIDSVC: Video Service VOCSVC:Voice Service NOS: Not Otherwise Specified

Held as u8.

dattrf	0
fax	1
iif	2
image	3
mci	4
mhs	5
tdl	6
vidsvc	7
vocsvc	8
nos	9

Named by CommunicationNetwork.

CommunicationServiceTypeEnum32 ENUMERATION

List of Communications Net Types for Army Units.

Held as i32.

dattrf	0
fax	1
iff	2
image	3
mci	4
mhs	5
tdl	6
vidsvc	7
vocsvc	8
nos	9

Named by CommunicationNetworkStruct.

ConcealmentEnum32 ENUMERATION

The reason for the objects concealment

Held as u32.

invalid	0
inOpen	1
mountedInternally	2
mountedExternally	3
underNet	4
underGround	5
insideStructure	6
fightingPositionCovered	7
fightingPositionUncovered	8

Named by EntityStruct.

ConnectionTypeEnum ENUMERATION

The type of a connection.

Held as u8.

broadcastTransceiver	0
broadcastTransmitter	1
broadcastReceiver	2
peerToPeer	3
unidirectional	4
multicast	5
intercept	6

Named by RequestedConnection.

DamageStatusEnhancedEnum32 ENUMERATION

The damage status of an object.

Held as i32.

noDamage	0
slightDamage	1
moderateDamage	2
significantDamage	3
destroyed	4

Named by DamageStatusReport, EntityStruct.

EchelonEnum32 ENUMERATION

The echelon level of a unit.

Held as i32.

none	0
team	1
crew	2
squad	3
section	4
platoon	5
detachment	6
company	7
battery	8
troop	9
battalion	10
squadron	11
regiment	12
group	13
brigade	14
division	15
corps	16
army	17
armygroup	18
front	19
region	20

Named by NETNAggregate, Unit.

EntityCategoryEnum32 ENUMERATION

Category of entity

Held as u32.

invalid	0	radioEntity	4
equipmentEntity	1		
personnelEntity	2		
emitterEntity	3		

Named by EntityStruct.

ExposureTypeEnum8 ENUMERATION

Type of exposure represented in a contour group.

Held as u8.

exposure	0
incapacitation	1
lethal	2

Named by ProbabilityHazardContourGroup.

FormationLocationTypeEnum32 ENUMERATION

Enumerated choice for the method used to correlate formation to location as center of mass or lead element.

Held as i32.

leadElement	0
centerOfMass	1

Named by FormationStruct.

FormationTypeEnum32 ENUMERATION

Enumerated choice for the type of formation being Ground, Air, Surface or Subsurface.

Held as i32.

ground	0
air	1
surface	2
subsurface	3

GeoLocationTypeEnum32 ENUMERATION

Specifies different ways to reference geographical locations.

Held as i32.

point	1
circle	2
polygon	3
quadrangle	4
path	5
netnUuid	6
rprEntity	7
nameReference	8

GroundFormationTypeEnum32 ENUMERATION

Specifies the formations for groundunits.

Held as i32.

column	0
staggeredColumn	1
echelonLeft	2
echelonRight	3
line	4
wedge	5
vee	6
assaultVee	7
fseColumn	8
stack	9
none	10

Named by FormationDataStruct.

HazardTypeEnum8 ENUMERATION

Type of dispersion output represented in a contour group.

Held as u8.

concentration	0
deposition	1
dosage	2
radiologicalDose	3
radiologicalDoseRate	4

Named by RawDataHazardContourGroup.

HazeTypeEnum32 ENUMERATION

Type of visibility obstruction.

Held as i32.

none	0
fog	1
iceFog	2
steamFog	3
mist	4
smoke	5
volcanicAsh	6
dust	7
sand	8
snow	9
otherBlue	10
otherRed	11
otherGreen	12

Named by HazeStruct.

HostilityStatusCodeEnum32 ENUMERATION

The specific value that represents the perceived hostility status.

Held as i32.

afr	0
aho	1
aiv	2
ant	3
faker	4
fr	5
ho	6
iv	7
joker	8
neutrl	9
pendng	10
suspct	11
unk	12

Named by Relation.

IPETypeEnum8 ENUMERATION

Types of Individual Protective Equipment.

Held as u8.

none	0	fourR	8
one	1		
oneR	2		
two	3		
twoR	4		
three	5		
threeR	6		
four	7		

Named by CBRNHuman, IPECommand.

IceTypeEnum16 ENUMERATION

Type of Ice.

Held as i16.

none	0
ice	1

Named by IceStruct.

IdentificationLevelEnum8 ENUMERATION

The identification level of an object.

Held as u8.

lost	0
detected	1
classified	2
identified	3
fullKnowledge	4

Named by SensorReport, SpotReport.

ManeuverIndicatorEnumType ENUMERATION

Enumeration value to indicate a maneuver.

Held as u8.

notAvailable	0
noSpecialManeuver	1
specialManeuver	2

Named by AisMessage1, AisMessage2, AisMessage3, AisNavigationData.

MineCountEnum32 ENUMERATION

Type of mine count.

Held as i32.

mineNumber	0
mineDensity	1

ModelResolutionTypeEnum32 ENUMERATION

Enumeration indicating the level of fidelity appropriate for instancing the unit or equipment in the simulation.

Held as i32.

none	0
minimal	1
standard	2
enhanced	3
high	4
notSpecified	5

Named by EquipmentItem.

MoveTypeEnum32 ENUMERATION

CrossCountry: move directly to the destination without taking into account the roads. OnlyRoads: stay on the roads to get to the closest point to the destination that is still on a road; if there is no road very near to the start (within around 10 meters) there will be no movement at all. RoadsAndCrossCountry: move to the destination by taking into account the roads; it is allowed to go off the road.

Held as i32.

crossCountry	0
onlyRoads	1
roadsAndCrossCountry	2

Named by MoveToEntity, MoveToLocation.

MsgIdEnumType ENUMERATION

Enumeration value for the message type.

Held as u8.

msg1	1
msg2	2
msg3	3
msg4	4
msg5	5
msg6	6
msg7	7
msg8	8
msg9	9
msg10	10
msg11	11
msg12	12
msg13	13
msg14	14
msg17	17
msg18	18
msg19	19
msg21	21
msg24	24
msg27	27

Named by AcknowledgeData, AisBaseStationReportAndUTCDateResponseData, AisBinaryMessageData, AisMessage, AisMessage1, AisMessage10, AisMessage11, AisMessage12, AisMessage13, AisMessage14, AisMessage17, AisMessage18, AisMessage19, AisMessage2, AisMessage21, AisMessage24, AisMessage27, AisMessage3, AisMessage4, AisMessage5, AisMessage6, AisMessage7, AisMessage8, AisMessage9, AisNavigationData, AisStaticAndVoyageData.

NavigationStatusEnumType ENUMERATION

Enumeration value to indicate the navigational status.

Held as u8.

underWayUsingEngine	0
atAnchor	1
notUnderCommand	2
restrictedManoeuverability	3
constrainedByHerDraught	4
moored	5
aground	6
engagedInFishing	7
underWaySailing	8
reserved1	9
reserved2	10
reserved3	11
reserved4	12
reserved5	13
aisSartIsActive	14
notDefined	15

Named by AisMessage1, AisMessage2, AisMessage27, AisMessage3, AisNavigationData.

NoOfferReasonEnumType ENUMERATION

Describes the reason why not accepting a TMR request

Held as i32.

other	0
capabilityDoesNotMatch	1
attributeSetTooRestricted	2

attributeSetTooExtensive	3
federateTooBusy	4
attributeSetNotCompatibleWithPublication	5
ownershipStateNotCompatibleWithRequest	6
entityNotKnown	7

Named by OfferTransfer.

OfferTypeEnum32 ENUMERATION

Type of the offer (With restriction, positive, negative)

Held as i32.

requestAcknowledgeWithRestriction	0
requestAcknowledgePositive	1
requestAcknowledgeNegative	2

Named by OfferRepair, OfferService, OfferSupply, OfferTransport.

PartNumberEnumType ENUMERATION

Identifier for the message part number.

Held as u8.

parta	0
partb	1

Named by AisMessage24.

PathTypeEnum32 ENUMERATION

Specifies if a path is defined by waypoints or by reference to a path object in the federation.

Held as i32.

waypoints	0
uuidReference	1

PatrolMoveTypeEnum32 ENUMERATION

Defines how the movment shall be done during the execution of the patrol. Other - Federate application specific.

Held as i32.

other	0
stealth	1
caution	2
open	3

Named by Patrol, PatrolRepeating.

PatrolTypeEnum32 ENUMERATION

Other - The behaviour is federate application specific (e.g. wait for next command, etc.) Circle - At the end of route, move to start point of patrol route (federate application determines the route) Reverse - Follow the patrol route in reverse order.

Held as i32.

other	0
circle	1
reverse	2

Named by Patrol, PatrolRepeating.

PhysicalNetworkTypeEnum ENUMERATION

The type of a physical network.

Held as u8.

noNetwork	0	undefined	1	generic	2

radio	3
cable	4
laser	5

PointTypeEnum32 ENUMERATION

Specifies if a point is defined by a location or by reference to a point object in the federation.

Held as `i32`.

location	0
uuidReference	1

PrecipitationTypeEnum32 ENUMERATION

Type of precipitation.

Held as `i32`.

noPrecipitation	0
rain	1
freezingRain	2
snow	3
hail	4

Named by PrecipitationStruct.

RoadIceConditionEnum16 ENUMERATION

Ice condition for roads.

Held as `i16`.

none	0
patches	1
blackIce	2
slush	3
sheetIce	4
extremeSheetIce	5

Named by LandSurface, LandSurfaceCondition.

RulesOfEngagementEnum8 ENUMERATION

Rules of engagment for a simulated entity.

Held as `u8`.

holdFire	0
fireAtWill	1
fireWhenFiredUpon	2

Named by SetRulesOfEngagement.

SeaStateEnum16 ENUMERATION

State of the sea measured in Douglas Sea Scale.

Held as `i16`.

calmGlassy	0
calmRippled	1
smoothWavelets	2
slight	3
moderate	4
rough	5
veryRough	6
high	7
veryHigh	8
phenomenal	9

Named by WaterSurface, WaterSurfaceCondition.

SedimentTypeEnum32 ENUMERATION

The type of sediment on the sea floor.

Held as i32.

noSediment	0
sand	1
mud	2
gravel	3
rock	4

Named by SubsurfaceLayer, SubsurfaceLayerCondition.

SensorStateEnum32 ENUMERATION

The emission states of aggregate sensors

Held as u32.

onButNotEmitting	2
off	1
other	0
onAndEmitting	3

Named by SensorStruct.

SubsurfaceFormationTypeEnum32 ENUMERATION

Subsurface formation

Held as i32.

notSpecified	0

Named by FormationDataStruct.

SurfaceFormationTypeEnum32 ENUMERATION

Surface formation

Held as i32.

notSpecified	0

Named by FormationDataStruct.

SurfaceMoistureEnum16 ENUMERATION

Road surface wetness or soil moisture.

Held as i16.

dry	0
wet	1
flooded	2
heavilyFlooded	3

Named by LandSurface, LandSurfaceCondition.

TaskModeEnum8 ENUMERATION

Execute task in non-concurrent mode or concurrent mode. In the non-concurrent mode the task is placed on the task list for the entity, which serves as a waiting list. Once the task is at the head of the task list, and the currently executing task completes, it is removed from the task list and started. Using this task mode, tasks are executed one after the other. In the concurrent mode, the task is executed concurrently with other tasks. As soon as the task is accepted for an entity, it is started. With this task mode, there is no task list involved.

Held as u8.

nonConcurrentMode	0
concurrentMode	1

Named by AddPassage, ClearObstacle, CreateMinefield, CreateObstacle, Dismount, DisruptCommunication, ETRTask, EstablishCheckPoint, FireAtEntity, FireAtEntityWM, FireAtLocation, FireAtLocationWM, FollowEntity, Mount, Move, MoveIntoFormation, MoveToEntity, MoveToLocation, Observe, OperateCheckPoint, Patrol, PatrolRepeating, RemoveCheckPoint, RemovePassage, SendSafetyRelatedBroadcastMessage, SendSafetyRelatedMessage, SetOrderedAltitude, SetOrderedSpeed, SetRulesOfEngagement, SetTransmitterStatus, StopAtSideOfRoad, TurnToHeading, TurnToOrientation, Wait.

TaskStatusEnum32 ENUMERATION

The status of a task.

Held as i32.

accepted	0
refused	1
cancelled	2
executing	3
completed	4
error	5

Named by TaskStatusReport.

TransferDirectionEnum32 ENUMERATION

Indicates the direction of flow of material or supplies during service delivery.

Held as i32.

fromConsumer	0
fromProvider	1

Named by RequestSupply.

TransferEnumType ENUMERATION

Transfer type

Held as i32.

other	0
acquire	1
divest	2
acquireWithoutNegotiating	3

Named by InitiateTransfer, RequestTransfer.

WeaponControlOrderEnum8 ENUMERATION

The enumerations for weapon control

Held as u8.

weaponsFree	1
weaponsHold	3
other	0
weaponsTight	2

Named by NETNAggregate.

WeatherModelTypeEnum32 ENUMERATION

Type of weather model used by a METOC service.

Held as i32.

none	0
simulated	1
realHistorical	2
live	3
standardModel	4

Named by Service.

Variant records

AreaVariantStruct	Description of an area relative to the earth's surface.	135
FormationDataStruct	Struct for enumerated choice for the type of formation being Ground, Air, Surface or Subsurface.	135
GeoLocationReferenceVariant	The area affected by an Environment Condition can be expressed as: - a location on the earth's surface represented by a Point, - an area on the earth's surface, represented by a Quadrangle, GeodeticPolygon, or GeodeticCircle, or - a reference to some other object/data. Objects that can be referenced are RPR entities, NETN entities, NETN-SE GeoObjects and GML Features.	135
GeoReferenceVariant	The area affected by an Environment Condition can be expressed as: - a location on the earth's surface represented by a Point, - an area on the earth's surface, represented by a Quadrangle, GeodeticPolygon, or GeodeticCircle, or - a reference to some other object/data. Objects that can be referenced are RPR entities, NETN entities, NETN-SE GeoObjects and GML Features.	136
MineCountVariantStruct	The number or density of mines.	136
NetworkDeviceReceiverCharacteristicsVariant	Characteristics of a network device receiver.	136
NetworkDeviceTransmitterCharacteristicsVariant	Characteristics of network device transmitter.	137
PathVariantStruct	Defines a path, either as a polygonal chain of waypoints or a UUID that refers to a path object in the federation.	137
PhysicalNetworkDescriptionVariant	Characteristics of physical networks depending on their type.	137
PointVariantStruct	Defines the point, either a Location or a UUID reference to a point object in the federation.	137

AreaVariantStruct VARIANT

Description of an area relative to the earth's surface.

Type	Description
GeodeticPolygon	A sequence of geodetic locations defining a geographical area bounded by a closed path where the first and last locations in the sequence are connected. Each point is a geodetic coordinate in WGS84 on the earth surface, and each segment is a great circle between locations.
GeodeticCircle	A geodetic point and radius specifying a circle on the surface of the earth WGS84 where the radius is a great circle distance on the surface.
GeodeticQuadrangle	A latitude-longitude quadrangle is a region bounded by two meridians and two parallels.

Named by CreateMinefield, CreateObstacle, Observe, Region.

FormationDataStruct VARIANT

Struct for enumerated choice for the type of formation being Ground, Air, Surface or Subsurface.

Type	Description
GroundFormationTypeEnum32	Ground formations.
AirFormationTypeEnum32	Air formations, currently not specified
SurfaceFormationTypeEnum32	Surface formations, currently not specified.
SubsurfaceFormationTypeEnum32	Subsurface formations, currently not specified.

Named by FormationStruct.

GeoLocationReferenceVariant VARIANT

The area affected by an Environment Condition can be expressed as: - a location on the earth's surface represented by a Point, - an area on the earth's surface, represented by a Quadrangle, GeodeticPolygon, or GeodeticCircle, or - a reference to some other object/data. Objects that can be referenced are RPR entities, NETN entities, NETN-SE GeoObjects and GML Features.

Type	Description
GeodeticLocation	A location on the surface of the earth defined by lat, lon WGS84.
GeodeticCircle	A geodetic point and radius specifying a circle on the surface of the earth WGS84 where the radius is a great circle distance on the surface.
GeodeticQuadrangle	A latitude-longitude quadrangle is a region bounded by two meridians and two parallels.
GeodeticPolygon	A polygon on the surface of the earth defined by a number of great-circle arcs represented as lat, lon Locations. WGS84.
UUID	Reference to an object instance of class Location, Path or Region, defined in NETN-SE FOM Module or a NETN Physical or Aggregate entity with UUID.
rpr.EntityIdentifierStruct	Reference to an instance of a leaf node subclass of RPR-FOM BaseEntity by its EntityIdentifier. E.g. an Aircraft, SurfaceVessel etc.

Named by SEFacility.

GeoReferenceVariant VARIANT

The area affected by an Environment Condition can be expressed as: - a location on the earth's surface represented by a Point, - an area on the earth's surface, represented by a Quadrangle, GeodeticPolygon, or GeodeticCircle, or - a reference to some other object/data. Objects that can be referenced are RPR entities, NETN entities, NETN-SE GeoObjects and GML Features.

Type	Description
GeodeticLocation	A location on the surface of the earth defined by lat, lon WGS84.
GeodeticCircle	A geodetic point and radius specifying a circle on the surface of the earth WGS84 where the radius is a great circle distance on the surface.
GeodeticQuadrangle	A latitude-longitude quadrangle is a region bounded by two meridians and two parallels.
GeodeticPolygon	A polygon on the surface of the earth defined by a number of great-circle arcs represented as lat, lon Locations. WGS84.
UUID	Reference to an object instance of class Location, Path or Region, defined in NETN-SE FOM Module or a NETN Physical or Aggregate entity with UUID.
rpr.EntityIdentifierStruct	Reference to an instance of a leaf node subclass of RPR-FOM BaseEntity by its EntityIdentifier. E.g. an Aircraft, SurfaceVessel etc.
string	Reference to a GML feature by its GML Identifier.

Named by EnvironmentCondition, LandSurfaceCondition, RequestLandSurfaceCondition, RequestMETOC, RequestSubsurfaceLayerCondition, RequestTroposphereLayerCondition, RequestWaterSurfaceCondition, RequestWeatherCondition, ResponseMETOC, SubsurfaceLayerCondition, TroposphereLayerCondition, WaterSurfaceCondition, WeatherCondition.

MineCountVariantStruct VARIANT

The number or density of mines.

Type	Description
rpr.Integer32	Number of mines.
rpr.PercentFloat32	Percentage of mines.

Named by CreateMinefield.

NetworkDeviceReceiverCharacteristicsVariant VARIANT

Characteristics of a network device receiver.

Type	Description
NetworkDeviceEmptyCharactersticsStruct	No network.
NetworkDeviceEmptyCharactersticsStruct	
NetworkDeviceEmptyCharactersticsStruct	NA

Named by NetworkDeviceStruct.

NetworkDeviceTransmitterCharacteristicsVariant VARIANT

Characteristics of network device transmitter.

Type	Description
NetworkDeviceEmpty CharactersticsStruct	No Network
NetworkDeviceEmpty CharactersticsStruct	
NetworkDeviceGeneric Transmitter CharacteristicsStruct	A generic description of transmitter characteristics.

Named by NetworkDeviceStruct.

PathVariantStruct VARIANT

Defines a path, either as a polygonal chain of waypoints or a UUID that refers to a path object in the federation.

Type	Description
ArrayOfWorldLocation Struct	The path defined by waypoints, not necessarily registered in the federation execution as a NETN_GeoObject.Path. The array can be empty (size=0).
UuidArrayOfHLAbyte16	A UUID that referes to a NETN_GeoObject.Path that is registred iin the federation execution.

Named by NETNAggregate, NETNAircraft, NETNAmphibiousVehicle, NETNGroundVehicle, NETNHuman, NETNMultiDomainPlatform, NETNMunition, NETNNonHuman, NETNSpacecraft, NETNSubmersibleVessel, NETNSurfaceVessel.

PhysicalNetworkDescriptionVariant VARIANT

Characteristics of physical networks depending on their type.

Type	Description
PhysicalUndefined NetworkStruct	(Empty) Characteristics of an undefined physical network.
PhysicalGenericNetwork Struct	Characteristics of a generic physical network.

Named by PhysicalNetwork.

PointVariantStruct VARIANT

Defines the point, either a Location or a UUID reference to a point object in the federation.

Type	Description
rpr.WorldLocationStruct	The geocentric location.
UuidArrayOfHLAbyte16	A UUID that refers to a NETN_GeoObject.Point.

Named by NETNAggregate, NETNAircraft, NETNAmphibiousVehicle, NETNGroundVehicle, NETNHuman, NETNMultiDomainPlatform, NETNMunition, NETNNonHuman, NETNSpacecraft, NETNSubmersibleVessel, NETNSurfaceVessel.

Arrays

ArrayOfAgentConcentrationStruct	Array of agents and their concentrations.	139
ArrayOfAgentMassStruct	Array of agents and their masses.	139
ArrayOfAgentTypeEnum	Array of agents.	139
ArrayOfCBRNExposureStruct	Array of agents and their dosages.	139
ArrayOfCBRNSensorReadingStruct	Array of sensor readings.	139
ArrayOfCommunicationNetworks	An array of Communication Networks.	139
ArrayOfEntityStruct	Data for one or more entities that comprise an entity list.	139
ArrayOfHoldings	Sequence of holdings.	139
ArrayOfNames	Array of Names.	140

ArrayOfProbabilityHazardContourStruct	Array of Probability Hazard Contours.	140
ArrayOfProtectionEffectivenessStruct	Array of the protection’s effectiveness.	140
ArrayOfRawDataHazardContourStruct	Array of Raw Data Hazard Contours.	140
ArrayOfRelations	Sequence of relations.	140
ArrayOfRepairStruct	List of repair descriptions (equipment and type of repairs).	140
ArrayOfRepairTypeEnum	List of repair types	140
ArrayOfResourceStatus	The array of health states for a named resource.	140
ArrayOfSensorStruct	Array with definitio0ns of sensors, 1+ cardinality	141
ArrayOfSigmas6	Size of the initial Gaussian puff sigma values.	141
ArrayOfSpottedEntities	The spotted entities at a specific time	141
ArrayOfSpottedEquipment	An array with spotted equipment at the spotted entity.	141
ArrayOfStringType	A generic representation of a set of strings.	141
ArrayOfTaskIds	Array of Task Ids.	141
ArrayOfText64	A set of names of max length 64 unicode characters.	141
ArrayOfTreatmentStruct	Array of TreatmentStruct types.	141
ArrayOfUuid	Deprecated. Array of Unique Identifiers expressed as UUIDs.	142
ArrayOfWorldLocationStruct	A polygonal chain (path) expressed as a sequence of geocentric points.	142
AttributeNamesType	Array of attribute names.	142
BinArrayType	Binary data.	142
CommunicationNetworkArray	References to a set of communication networks.	142
ConnectionReceiverArray	Connection characteristics for a number of receivers.	142
Datetime18	A designation of a specified chronological point measured using Coordinated Universal Time (UTC) ISO 8601:2000 as a standard of reference, constrained to 'zero meridian' i.e. Zulu time zone only. This is expressed as a composite field using a compacted ISO notation YYYYMMDDHHMMSS.SSS where YYYY represents a year, MM represents a month in values from 00 to 12, and DD represents a day in values from 00 to 31, HH represents an hour, MM represents a minute, and SS.SSS represents the number of seconds and milliseconds.	142
GeocentricPolygon	A polygon defined as a closed polygonal chain of geocentric world locations where the last location is connected to the first.	143
GeodeticPath	A sequence of geodetic locations defining a path where each segment is a great circle between locations.	143
GeodeticPolygon	A sequence of geodetic locations defining a geographical area bounded by a closed path where the first and last locations in the sequence are connected. Each point is a geodetic coordinate in WGS84 on the earth surface, and each segment is a great circle between locations.	143
IncomingConnectionArray	A set of incoming connections.	143
LinkStatusArray	The status of physical network links.	143
ManufacturerIdType	The manufacturer mnemonic code consisting of three 6 bit ASCII characters.	143
NETNArrayOfSupplyStruct	A set of supply descriptions.	143
NatoStockNumberArray13	13 digits (0-9)	144
NetworkDeviceArray	A set of nework devices.	144
RequestedConnectionArray	Characterisation of a set of requested connections.	144
Text1	Text of max length 1 characters.	144
Text15	Text of max length 15 characters.	144
Text2	Text of max length 2 characters.	144
Text20	Text of max length 20 characters.	144
Text21	Text of max length 21 characters.	144
Text24	Text of max length 24 characters.	145
Text255	Text of max length 255 characters.	145
Text3	Text of max length 3 characters.	145
Text5	Text of max length 5 characters.	145
Text64	Text of max length 64 characters.	145
Text8	Text of max length 8 characters.	145
Text9	Text of max length 9 characters.	145
TransactionId	Unique identifier for a transaction. Encoded according to RFC 4122, section 4.1.2 using 16 bytes. Also referred to as Variant 1 or RFC 4122/DCE 1.1 UUIDs.	145
UUID	4122, section 4.1.2 using 16 bytes. Also referred to as Variant 1 or RFC 4122/DCE 1.1 UUIDs. For example, 00112233-4455-8877-6699-aabbccddeeff is encoded as the bytes 00 11 22 33 44 55 88 77 66 99 aa bb cc dd ee ff.	146
UuidArrayOfHLAbyte16	Deprecated. UUIDs are exchanged as a byte array and are encoded according to RFC 4122, section 4.1.2 using 16 bytes. Also referred to as Variant 1 or RFC 4122/DCE 1.1 UUIDs. For example, 00112233-4455-8877-6699-aabbccddeeff is encoded as the bytes 00 11 22 33 44 55 88 77 66 99 aa bb cc dd ee ff.	146

ArrayOfAgentConcentrationStruct SEQUENCE

Array of agents and their concentrations.

```
sequence<AgentConcentrationStruct> ArrayOfAgentConcentrationStruct;
```

Named by CBRNDetector, CBRNSensorUpdate.

ArrayOfAgentMassStruct SEQUENCE

Array of agents and their masses.

```
sequence<AgentMassStruct> ArrayOfAgentMassStruct;
```

Named by CBRNAircraft, CBRNAmphibiousVehicle, CBRNGroundVehicle, CBRNMultiDomainPlatform, CBRNPlatformUpdate, CBRN-Spacecraft, CBRNSubmersibleVessel, CBRNSurfaceVessel.

ArrayOfAgentTypeEnum SEQUENCE

Array of agents.

```
sequence<AgentTypeEnum16> ArrayOfAgentTypeEnum;
```

Named by CBRNSensor, TreatmentStruct.

ArrayOfCBRNExposureStruct SEQUENCE

Array of agents and their dosages.

```
sequence<CBRNExposureStruct> ArrayOfCBRNExposureStruct;
```

Named by CBRNCasualty, CBRNHuman.

ArrayOfCBRNSensorReadingStruct SEQUENCE

Array of sensor readings.

```
sequence<CBRNSensorReadingStruct> ArrayOfCBRNSensorReadingStruct;
```

Named by CBRNSensor.

ArrayOfCommunicationNetworks SEQUENCE

An array of Communication Networks.

```
sequence<CommunicationNetworkStruct> ArrayOfCommunicationNetworks;
```

Named by EquipmentItem, Unit.

ArrayOfEntityStruct SEQUENCE

Data for one or more entities that comprise an entity list.

```
sequence<EntityStruct> ArrayOfEntityStruct;
```

Named by NETNAggregate.

ArrayOfHoldings SEQUENCE

Sequence of holdings.

```
sequence<Holding> ArrayOfHoldings;
```

Named by Unit.

ArrayOfNames SEQUENCE

Array of Names.

```
sequence<string> ArrayOfNames;
```

Named by CapabilitiesSupportedETR.

ArrayOfProbabilityHazardContourStruct SEQUENCE

Array of Probability Hazard Contours.

```
sequence<ProbabilityHazardContourStruct> ArrayOfProbabilityHazardContourStruct;
```

Named by ProbabilityHazardContourGroup.

ArrayOfProtectionEffectivenessStruct SEQUENCE

Array of the protection's effectiveness.

```
sequence<ProtectionEffectivenessStruct> ArrayOfProtectionEffectivenessStruct;
```

Named by COLPRO.

ArrayOfRawDataHazardContourStruct SEQUENCE

Array of Raw Data Hazard Contours.

```
sequence<RawDataHazardContourStruct> ArrayOfRawDataHazardContourStruct;
```

Named by RawDataHazardContourGroup.

ArrayOfRelations SEQUENCE

Sequence of relations.

```
sequence<Relation> ArrayOfRelations;
```

Named by Force.

ArrayOfRepairStruct SEQUENCE

List of repair descriptions (equipment and type of repairs).

```
sequence<RepairStruct> ArrayOfRepairStruct;
```

Named by OfferRepair, RepairComplete, RequestRepair.

ArrayOfRepairTypeEnum SEQUENCE

List of repair types

```
sequence<rpr.RepairTypeEnum16> ArrayOfRepairTypeEnum;
```

Named by RepairStruct.

ArrayOfResourceStatus SEQUENCE

The array of health states for a named resource.

```
sequence<ResourceStatusNumberStruct> ArrayOfResourceStatus;
```

Named by Divide, NETNAggregate.

ArrayOfSensorStruct SEQUENCE

Array with definitio0ns of sensors, 1+ cardinality

```
sequence<SensorStruct> ArrayOfSensorStruct;
```

Named by ElectronicSignatureStruct.

ArrayOfSigmas6 SEQUENCE

Size of the initial Gaussian puff sigma values.

```
sequence<rpr.LengthMeterFloat32, 6> ArrayOfSigmas6;
```

Named by ReleaseSizeStruct.

ArrayOfSpottedEntities SEQUENCE

The spotted entities at a specific time

```
sequence<SpottedEntity> ArrayOfSpottedEntities;
```

Named by SensorReport, SpotReport.

ArrayOfSpottedEquipment SEQUENCE

An array with spotted equipment at the spotted entity.

```
sequence<SpottedEquipment> ArrayOfSpottedEquipment;
```

Named by SpottedEntity.

ArrayOfStringType SEQUENCE

A generic representation of a set of strings.

```
sequence<string> ArrayOfStringType;
```

Named by CapabilitiesSupportedMRM.

ArrayOfTaskIds SEQUENCE

Array of Task Ids.

```
sequence<TransactionId> ArrayOfTaskIds;
```

Named by CancelSpecifiedTasks.

ArrayOfText64 SEQUENCE

A set of names of max length 64 unicode characters.

```
sequence<Text64> ArrayOfText64;
```

Named by AddPassage, CancelAllTasks, CancelSpecifiedTasks, ClearObstacle, CreateMinefield, CreateObstacle, DamageStatusReport, Dismount, DisruptCommunication, DisruptionEffect, ETRReport, ETRTask, ETRTaskManagement, EstablishCheckPoint, FireAtEntity, FireAtEntityWM, FireAtLocation, FireAtLocationWM, FollowEntity, InWeaponRangeReport, Mount, Move, MoveIntoFormation, MoveToEntity, MoveToLocation, Observe, OperateCheckPoint, Patrol, PatrolRepeating, PositionStatusReport, RemoveCheckPoint, RemovePassage, ResourceStatusReport, SendSafetyRelatedBroadcastMessage, SendSafetyRelatedMessage, SensorReport, SetOrderedAltitude, SetOrderedSpeed, SetRulesOfEngagement, SetTransmitterStatus, SpotReport, StatusReport, StopAtSideOfRoad, TaskStatusReport, TurnToHeading, TurnToOrientation, UnderAttackStatusReport, Wait.

ArrayOfTreatmentStruct SEQUENCE

Array of TreatmentStruct types.

```
sequence<TreatmentStruct> ArrayOfTreatmentStruct;
```

Named by CBRNHuman, DecontaminationStation.

ArrayOfUuid SEQUENCE

Deprecated. Array of Unique Identifiers expressed as UUIDs.

```
sequence<UuidArrayOfHLAbyte16> ArrayOfUuid;
```

Named by CBRNFacilityUpdate, CBRNTreatmentCommand, COLPROUpdate, DecontaminationStationUpdate, FederateApplication, IPECommand, InWeaponRangeReport, InitiateTransfer, Merge, NETNAggregate, NETNAircraft, NETNAmphibiousVehicle, NETNCulturalFeature, NETNGroundVehicle, NETNMultiDomainPlatform, NETNSpacecraft, NETNSubmersibleVessel, NETNSurfaceVessel, OfferTransport, RequestTransfer, RequestTransport, RequestedConnection, TransportDestroyedEntities, TransportDisembarkmentStatus, TransportEmbarkmentStatus.

ArrayOfWorldLocationStruct SEQUENCE

A polygonal chain (path) expressed as a sequence of geocentric points.

```
sequence<rpr.WorldLocationStruct> ArrayOfWorldLocationStruct;
```

Named by MoveToEntity, MoveToLocation, PathVariantStruct, Patrol, PatrolRepeating.

AttributeNamesType SEQUENCE

Array of attribute names.

```
sequence<string> AttributeNamesType;
```

Named by InitiateTransfer, RequestTransfer.

BinArrayType SEQUENCE

Binary data.

```
sequence<bool> BinArrayType;
```

Named by AisBinaryMessageData, AisMessage6, AisMessage8.

CommunicationNetworkArray SEQUENCE

References to a set of communication networks.

```
sequence<Text64> CommunicationNetworkArray;
```

Named by NetworkDeviceStruct.

ConnectionReceiverArray SEQUENCE

Connection characteristics for a number of receivers.

```
sequence<ConnectionReceiverStruct> ConnectionReceiverArray;
```

Named by Connection.

Datetime18 SEQUENCE

A designation of a specified chronological point measured using Coordinated Universal Time (UTC) ISO 8601:2000 as a standard of reference, constrained to 'zero meridian' i.e. Zulu time zone only. This is expressed as a composite field using a compacted ISO notation YYYYMMDDHHMMSS.SSS where YYYY represents a year, MM represents a month in values from 00 to 12, and DD represents a day in values from 00 to 31, HH represents an hour, MM represents a minute, and SS.SSS represents the number of seconds and milliseconds.

```
sequence<u16, 18> Datetime18;
```

Named by AddPassage, ClearObstacle, CreateMinefield, CreateObstacle, DamageStatusReport, Dismount, DisruptCommunication, ETRReport, ETRTask, EstablishCheckPoint, FireAtEntity, FireAtEntityWM, FireAtLocation, FireAtLocationWM, FollowEntity, InWeaponRangeReport, Mount, Move, MoveIntoFormation, MoveToEntity, MoveToLocation, Observe, OperateCheckPoint, Patrol, PatrolRepeating, PositionStatusReport, RemoveCheckPoint, RemovePassage, ResourceStatusReport, SendSafetyRelatedBroadcastMessage, SendSafetyRelatedMessage, SensorReport, SetOrderedAltitude, SetOrderedSpeed, SetRulesOfEngagement, SetTransmitterStatus, SpotReport, StatusReport, StopAtSideOfRoad, TaskStatusReport, TurnToHeading, TurnToOrientation, UnderAttackStatusReport, Wait.

GeocentricPolygon SEQUENCE

A polygon defined as a closed polygonal chain of geocentric world locations where the last location is connected to the first.

```
sequence<rpr.WorldLocationStruct> GeocentricPolygon;
```

Named by ATP45HazardArea, ProbabilityHazardContourStruct, RawDataHazardContourStruct.

GeodeticPath SEQUENCE

A sequence of geodetic locations defining a path where each segment is a great circle between locations.

```
sequence<GeodeticLocation> GeodeticPath;
```

Named by Path.

GeodeticPolygon SEQUENCE

A sequence of geodetic locations defining a geographical area bounded by a closed path where the first and last locations in the sequence are connected. Each point is a geodetic coordinate in WGS84 on the earth surface, and each segment is a great circle between locations.

```
sequence<GeodeticLocation> GeodeticPolygon;
```

Named by AreaVariantStruct, GeoLocationReferenceVariant, GeoReferenceVariant.

IncomingConnectionArray SEQUENCE

A set of incoming connections.

```
sequence<IncomingConnectionStruct> IncomingConnectionArray;
```

Named by CommunicationNode.

LinkStatusArray SEQUENCE

The status of physical network links.

```
sequence<LinkStatusStruct> LinkStatusArray;
```

Named by LinkStates.

ManufacturerIdType SEQUENCE

The manufacturer mnemonic code consisting of three 6 bit ASCII characters.

```
sequence<u8, 3> ManufacturerIdType;
```

Named by AisMessage24.

NETNArrayOfSupplyStruct SEQUENCE

A set of supply descriptions.

```
sequence<NETNSupplyStruct> NETNArrayOfSupplyStruct;
```

Named by Divide, NETNAggregate, OfferSupply, RequestSupply, SupplyComplete.

NatoStockNumberArray13 SEQUENCE

13 digits (0-9)

```
sequence<u8, 13> NatoStockNumberArray13;
```

Named by EquipmentItem, Holding.

NetworkDeviceArray SEQUENCE

A set of nework devices.

```
sequence<NetworkDeviceStruct> NetworkDeviceArray;
```

Named by CommunicationNode.

RequestedConnectionArray SEQUENCE

Characterisation of a set of requested connections.

```
sequence<RequestedConnection> RequestedConnectionArray;
```

Named by CommunicationNode.

Text1 SEQUENCE

Text of max length 1 characters.

```
sequence<u16, 1> Text1;
```

Named by EquipmentSymbolAmplificationStruct.

Text15 SEQUENCE

Text of max length 15 characters.

```
sequence<u16, 15> Text15;
```

Named by EquipmentSymbolAmplificationStruct, InstallationSymbolAmplificationStruct, UnitSymbolAmplificationStruct.

Text2 SEQUENCE

Text of max length 2 characters.

```
sequence<u16, 2> Text2;
```

Named by EquipmentSymbolAmplificationStruct, InstallationSymbolAmplificationStruct, UnitSymbolAmplificationStruct.

Text20 SEQUENCE

Text of max length 20 characters.

```
sequence<u16, 20> Text20;
```

Named by EquipmentSymbolAmplificationStruct, InstallationSymbolAmplificationStruct, UnitSymbolAmplificationStruct.

Text21 SEQUENCE

Text of max length 21 characters.

```
sequence<u16, 21> Text21;
```

Named by EquipmentSymbolAmplificationStruct, InstallationSymbolAmplificationStruct, UnitSymbolAmplificationStruct.

Text24 SEQUENCE

Text of max length 24 characters.

```
sequence<u16, 24> Text24;
```

Named by EquipmentSymbolAmplificationStruct.

Text255 SEQUENCE

Text of max length 255 characters.

```
sequence<u16, 255> Text255;
```

Named by EquipmentItem, FederateApplication, Force, Installation, Unit.

Text3 SEQUENCE

Text of max length 3 characters.

```
sequence<u16, 3> Text3;
```

Named by EquipmentSymbolAmplificationStruct, UnitSymbolAmplificationStruct.

Text5 SEQUENCE

Text of max length 5 characters.

```
sequence<u16, 5> Text5;
```

Named by InstallationSymbolAmplificationStruct, UnitSymbolAmplificationStruct.

Text64 SEQUENCE

Text of max length 64 characters.

```
sequence<u16, 64> Text64;
```

Named by ArrayOfText64, CommunicationNetwork, CommunicationNetworkArray, CommunicationNetworkStruct, Connection, Disrupt Communication, IncomingConnectionStruct, LinkStates, NetworkDeviceStruct, PhysicalNetwork, RequestedConnection.

Text8 SEQUENCE

Text of max length 8 characters.

```
sequence<u16, 8> Text8;
```

Named by EquipmentSymbolAmplificationStruct, InstallationSymbolAmplificationStruct, UnitSymbolAmplificationStruct.

Text9 SEQUENCE

Text of max length 9 characters.

```
sequence<u16, 9> Text9;
```

Named by EquipmentSymbolAmplificationStruct, UnitSymbolAmplificationStruct.

TransactionId SEQUENCE

Unique identifier for a transaction. Encoded according to RFC 4122, section 4.1.2 using 16 bytes. Also referred to as Variant 1 or RFC 4122/DCE 1.1 UUIDs.

```
sequence<u8, 16> TransactionId;
```

Named by AcceptOffer, Activate, AddPassage, Aggregate, ArrayOfTaskIds, CancelAllTasks, CancelOffer, CancelRequestLOG, Cancel RequestTMR, CancelSpecifiedTasks, CapabilitiesSupportedETR, CapabilitiesSupportedMRM, ClearObstacle, CreateMinefield, Create Obstacle, DamageStatusReport, Deactivate, Disaggregate, Dismount, DisruptCommunication, Divide, ETRReport, ETRSimCon, ETR-

Task, ETRTaskManagement, EstablishCheckPoint, FireAtEntity, FireAtEntityWM, FireAtLocation, FireAtLocationWM, FollowEntity, InWeaponRangeReport, InitiateTransfer, LOGInteraction, LandSurfaceCondition, METOCInteraction, MRMInteraction, MagicMove, MagicResource, Merge, Mount, Move, MoveIntoFormation, MoveToEntity, MoveToLocation, Observe, OfferRepair, OfferService, OfferSupply, OfferTransfer, OfferTransport, OperateCheckPoint, Patrol, PatrolRepeating, PositionStatusReport, QuerySupportedCapabilitiesETR, QuerySupportedCapabilitiesMRM, ReadyToReceiveService, RejectOffer, RemoveCheckPoint, RemovePassage, RepairComplete, RequestLandSurfaceCondition, RequestMETOC, RequestMRM, RequestRepair, RequestService, RequestSubsurfaceLayerCondition, RequestSupply, RequestTransfer, RequestTransport, RequestTroposphereLayerCondition, RequestWaterSurfaceCondition, RequestWeatherCondition, ResourceStatusReport, ResponseMETOC, ResponseMRM, SendSafetyRelatedBroadcastMessage, SendSafetyRelatedMessage, SensorReport, ServiceComplete, ServiceReceived, ServiceStarted, SetOrderedAltitude, SetOrderedSpeed, SetRulesOfEngagement, SetTransmitterStatus, SpotReport, StatusReport, StopAtSideOfRoad, SubsurfaceLayerCondition, SupplyComplete, TMRInteraction, TaskStatusReport, TransferResult, TransportDestroyedEntities, TransportDisembarkmentStatus, TransportEmbarkmentStatus, TroposphereLayerCondition, TurnToHeading, TurnToOrientation, UnderAttackStatusReport, Wait, WaterSurfaceCondition, WeatherCondition.

UUID SEQUENCE

4122, section 4.1.2 using 16 bytes. Also referred to as Variant 1 or RFC 4122/DCE 1.1 UUIDs. For example, 00112233-4455-8877-6699-aabbccddeeff is encoded as the bytes 00 11 22 33 44 55 88 77 66 99 aa bb cc dd ee ff.

```
sequence<u8, 16> UUID;
```

Named by AddPassage, COMRoot, CancelAllTasks, CancelSpecifiedTasks, CapabilitiesSupportedETR, ClearObstacle, CommunicationNetworkStruct, CommunicationNode, Connection, ConnectionReceiverStruct, CreateMinefield, CreateObstacle, DamageStatusReport, Dismount, DisruptCommunication, ETRSimCon, ETRTask, ETRTaskManagement, EnvironmentCondition, EquipmentItem, EstablishCheckPoint, FireAtEntity, FireAtEntityWM, FireAtLocation, FireAtLocationWM, FollowEntity, GeoLocationReferenceVariant, GeoReferenceVariant, InWeaponRangeReport, IncomingConnectionStruct, Installation, LandSurfaceCondition, LinkStatusStruct, METOCRoot, MagicMove, MagicResource, Mount, Move, MoveIntoFormation, MoveToEntity, MoveToLocation, NetworkDeviceStruct, ORGRoot, Observe, OperateCheckPoint, Patrol, PatrolRepeating, PositionStatusReport, QuerySupportedCapabilitiesETR, Relation, RemoveCheckPoint, RemovePassage, RequestLandSurfaceCondition, RequestMETOC, RequestSubsurfaceLayerCondition, RequestTroposphereLayerCondition, RequestWaterSurfaceCondition, RequestWeatherCondition, RequestedConnection, ResourceStatusReport, ResponseMETOC, SendSafetyRelatedBroadcastMessage, SendSafetyRelatedMessage, SensorReport, SetOrderedAltitude, SetOrderedSpeed, SetRulesOfEngagement, SetTransmitterStatus, SpotReport, SpottedEntity, StatusReport, StopAtSideOfRoad, SubsurfaceLayerCondition, TaskStatusReport, TroposphereLayerCondition, TurnToHeading, TurnToOrientation, UnderAttackStatusReport, Unit, Wait, WaterSurfaceCondition, WeatherCondition.

UuidArrayOfHLAbyte16 SEQUENCE

Deprecated. UUIDs are exchanged as a byte array and are encoded according to RFC 4122, section 4.1.2 using 16 bytes. Also referred to as Variant 1 or RFC 4122/DCE 1.1 UUIDs. For example, 00112233-4455-8877-6699-aabbccddeeff is encoded as the bytes 00 11 22 33 44 55 88 77 66 99 aa bb cc dd ee ff.

```
sequence<u8, 16> UuidArrayOfHLAbyte16;
```

Named by ATP45HazardArea, Activate, Aggregate, ArrayOfUuid, CBRNCasualty, CBRNDetector, CBRNDetectorAlarm, CBRNFacilityUpdate, CBRNPlatformUpdate, CBRNRelease, CBRNSensor, CBRNSensorUpdate, COLPROUpdate, Deactivate, DecontaminationStationUpdate, Disaggregate, Divide, EntityStruct, Merge, NETNAggregate, NETNAircraft, NETNAmphibiousVehicle, NETNCulturalFeature, NETNGroundVehicle, NETNHuman, NETNMultiDomainPlatform, NETNMunition, NETNNonHuman, NETNSpacecraft, NETNSubmersibleVessel, NETNSurfaceVessel, OfferRepair, OfferService, OfferSupply, OfferTransport, PathVariantStruct, PointVariantStruct, ProbabilityHazardContourGroup, QuerySupportedCapabilitiesMRM, RawDataHazardContourGroup, RepairStruct, RequestMRM, RequestRepair, RequestService, RequestSupply, RequestTransport, SEFacility, SEGeoObject, SendSafetyRelatedMessage, TransportDisembarkmentStatus, TransportEmbarkmentStatus, TreatmentStruct.

Aliases

AltitudeMeterFloat64	Generic representation of altitude defined by the context of use, i.e. height Above Mean Sea Level, height Above Ground Level.	147
AtmosphericPressureFloat32	Pressure measured in Millibar or Hecto Pascal. 1 mbar = 1 hPa	147
BitsPerSecond	Data transfer rate.	147
DegreesPerSecondFloat32	The turn rate in degrees per second, where: (a) zero value: not turning; (b) positive value: turning right; (c) negative value: turning left.	148
DensityRatioFloat32	Ratio of density of two materials in range [0, 1].	148
DesignatedAreaCodeType	A 10 bits value. Designated area code (DAC).	148
DirectionDegreesFloat32	Compass direction measured clockwise relative to true north. Calculate values outside the range [0, 360) as modulo 360.	148
DosageKgSecondPerMeterCubedFloat32	Dosage in SI units.	148
DraughtMeterFloat32	The vertical distance between the waterline and the bottom of the hull (keel), with the thickness of the hull included; Draught determines the minimum depth of water a ship or boat can safely navigate.	148

EpochTimeSecInt64	The number of seconds since 1 Jan 1970 (wallclock time) or since the start of the simulation (logical time).	148
ExposureFloat32	Data type for exposure.	148
FormationInt32	Defines the formation.	149
FunctionIdType	A 6 bits value. Functional ID (FID).	149
IMOType	A 30 bits value. The International Maritime Organization (IMO) number is a unique identifier for vessels. See https://www.itu.int/en/ITU-R. The IMO number is made of the three letters 'IMO' followed by a seven-digit number. This number consists of a six-digit sequential unique number followed by a check digit. The integrity of an IMO number can be verified using its check digit.This is done by multiplying each of the first six digits by a factor of 2 to 7 corresponding to their position from right to left. The rightmost digit of this sum is the check digit. For example, for IMO 9074729: (9×7) + (0×6) + (7×5) + (4×4) + (7×3) + (2×2) = 139. This attribute represents the 7 digits value of the IMO number. The value shall be zero for not available (default). The value shall also be zero for inland vessels.	149
LatLongDegreesFloat64	Represents a measure of either latitude or longitude in decimal degrees of arc.	149
MMSIType	A 30 bits value. The MMSI number (Maritime Mobile Service Identity) is a unique nine-digit number for identifying an AIS station.	149
MassConcentrationFloat32	Concentration of a substance measured as kg/m3.	149
MassDensityFloat32	Density of substance measured as kg per cubic meter.	149
MeanMetersFloat32	Mean of a Gaussian distribution, based on SI unit meter, unit symbol m.	150
PercentFloat64	A generic measure of percentage (0-100).	150
PrecipitationIntensityFloat32	Light rain — when the precipitation rate is < 2.5 mm (0.098 in) per hour. Moderate rain — when the precipitation rate is between 2.5 mm (0.098 in) - 7.6 mm (0.30 in) or 10 mm (0.39 in) per hour. Heavy rain — when the precipitation rate is > 7.6 mm (0.30 in) per hour, or between 10 mm (0.39 in) and 50 mm (2.0 in) per hour. Violent rain — when the precipitation rate is > 50 mm (2.0 in) per hour.	150
QuantityFloat32	A generic floating-point quantity.	150
QuantityFloat64	A generic floating-point quantity.	150
QuantityInt32	A generic discrete quantity.	150
QuantityUInt32	Quantity in range [0, 2^32-1]	150
RangeFloat32	Range of sensor	150
SalinityFloat32	Practical Salinity Unit (PSU) measured in g/kg.	151
SerialNumberType	A 20 bits value. (Part B) Serial Number.	151
ShipTypeType	A 8 bits value. The type of ship and cargo. See https://www.itu.int/en/ITU-R.	151
TimeSecInt32	A generic time interval in seconds.	151
UnitModelType	A 4 bits value. (Part B) Unit Model Code.	151
VarianceMetersSquaredFloat32	Variance of a Gaussian distribution, based on SI unit meter squared, unit symbol m2.	151

AltitudeMeterFloat64 ALIAS

Generic representation of altitude defined by the context of use, i.e. height Above Mean Sea Level, height Above Ground Level.

```
alias AltitudeMeterFloat64 f64;
```

Named by GeodeticPoint, SetOrderedAltitude.

AtmosphericPressureFloat32 ALIAS

Pressure measured in Millibar or Hecto Pascal. 1 mbar = 1 hPa

```
alias AtmosphericPressureFloat32 f32;
```

BitsPerSecond ALIAS

Data transfer rate.

```
alias BitsPerSecond i64;
```

Named by ConnectionReceiverStruct, IncomingConnectionStruct, LinkStatusStruct, PhysicalGenericNetworkStruct.

DegreesPerSecondFloat32 ALIAS

The turn rate in degrees per second, where: (a) zero value: not turning; (b) positive value: turning right; (c) negative value: turning left.

```
alias DegreesPerSecondFloat32 f32;
```

DensityRatioFloat32 ALIAS

Ratio of density of two materials in range [0, 1].

```
alias DensityRatioFloat32 f32;
```

Named by ReleaseDynamicsStruct.

DesignatedAreaCodeType ALIAS

A 10 bits value. Designated area code (DAC).

```
alias DesignatedAreaCodeType i32;
```

Named by AisBinaryMessageData, AisMessage6, AisMessage8.

DirectionDegreesFloat32 ALIAS

Compass direction measured clockwise relative to true north. Calculate values outside the range [0, 360) as modulo 360.

```
alias DirectionDegreesFloat32 f32;
```

Named by CurrentStruct, DispositionStruct, EntityStruct, FormationPositionStruct, FormationStruct, WaveStruct, WindStruct.

DosageKgSecondPerMeterCubedFloat32 ALIAS

Dosage in SI units.

```
alias DosageKgSecondPerMeterCubedFloat32 f32;
```

Named by CBRNExposureStruct.

DraughtMeterFloat32 ALIAS

The vertical distance between the waterline and the bottom of the hull (keel), with the thickness of the hull included; Draught determines the minimum depth of water a ship or boat can safely navigate.

```
alias DraughtMeterFloat32 f32;
```

EpochTimeSecInt64 ALIAS

The number of seconds since 1 Jan 1970 (wallclock time) or since the start of the simulation (logical time).

```
alias EpochTimeSecInt64 i64;
```

Named by ATP45HazardArea, AppointmentStruct, CBRNAlarmStruct, CBRNSensorReadingStruct, CBRNSensorUpdate, MissionStruct, ProbabilityHazardContourGroup, RawDataHazardContourGroup.

ExposureFloat32 ALIAS

Data type for exposure.

```
alias ExposureFloat32 f32;
```

Named by RawDataHazardContourStruct.

FormationInt32 ALIAS

Defines the formation.

```
alias FormationInt32 i32;
```

Named by FormationPositionStruct.

FunctionIdType ALIAS

A 6 bits value. Functional ID (FID).

```
alias FunctionIdType i32;
```

Named by AisBinaryMessageData, AisMessage6, AisMessage8.

IMOType ALIAS

A 30 bits value. The International Maritime Organization (IMO) number is a unique identifier for vessels. See https://www.itu.int/en/ITU-R. The IMO number is made of the three letters 'IMO' followed by a seven-digit number. This number consists of a six-digit sequential unique number followed by a check digit. The integrity of an IMO number can be verified using its check digit.This is done by multiplying each of the first six digits by a factor of 2 to 7 corresponding to their position from right to left. The rightmost digit of this sum is the check digit. For example, for IMO 9074729: (9×7) + (0×6) + (7×5) + (4×4) + (7×3) + (2×2) = 139. This attribute represents the 7 digits value of the IMO number. The value shall be zero for not available (default). The value shall also be zero for inland vessels.

```
alias IMOType i32;
```

LatLongDegreesFloat64 ALIAS

Represents a measure of either latitude or longitude in decimal degrees of arc.

```
alias LatLongDegreesFloat64 f64;
```

Named by GeodeticLocation, GeodeticPoint.

MMSIType ALIAS

A 30 bits value. The MMSI number (Maritime Mobile Service Identity) is a unique nine-digit number for identifying an AIS station.

```
alias MMSIType i32;
```

Named by AcknowledgeData, AisBaseStationReportAndUTCDateResponseData, AisBinaryMessageData, AisMessage, AisMessage1, AisMessage10, AisMessage11, AisMessage12, AisMessage13, AisMessage14, AisMessage17, AisMessage18, AisMessage19, AisMessage2, AisMessage21, AisMessage24, AisMessage27, AisMessage3, AisMessage4, AisMessage5, AisMessage6, AisMessage7, AisMessage8, AisMessage9, AisNavigationData, AisStaticAndVoyageData.

MassConcentrationFloat32 ALIAS

Concentration of a substance measured as kg/m3.

```
alias MassConcentrationFloat32 f32;
```

Named by AgentConcentrationStruct.

MassDensityFloat32 ALIAS

Density of substance measured as kg per cubic meter.

```
alias MassDensityFloat32 f32;
```

Named by CloudStruct, HazeStruct, SnowStruct.

MeanMetersFloat32 ALIAS

Mean of a Gaussian distribution, based on SI unit meter, unit symbol m.

```
alias MeanMetersFloat32 f32;
```

Named by ReleaseDistributionStruct.

PercentFloat64 ALIAS

A generic measure of percentage (0-100).

```
alias PercentFloat64 f64;
```

Named by ConnectionReceiverStruct, DisruptionEffect, IncomingConnectionStruct, LinkStatusStruct, PhysicalGenericNetworkStruct.

PrecipitationIntensityFloat32 ALIAS

Light rain — when the precipitation rate is < 2.5 mm (0.098 in) per hour. Moderate rain — when the precipitation rate is between 2.5 mm (0.098 in) - 7.6 mm (0.30 in) or 10 mm (0.39 in) per hour. Heavy rain — when the precipitation rate is > 7.6 mm (0.30 in) per hour, or between 10 mm (0.39 in) and 50 mm (2.0 in) per hour. Violent rain — when the precipitation rate is > 50 mm (2.0 in) per hour.

```
alias PrecipitationIntensityFloat32 f32;
```

Named by PrecipitationStruct.

QuantityFloat32 ALIAS

A generic floating-point quantity.

```
alias QuantityFloat32 f32;
```

Named by NETNSupplyStruct.

QuantityFloat64 ALIAS

A generic floating-point quantity.

```
alias QuantityFloat64 f64;
```

Named by Holding, ResourceStatusNumberStruct.

QuantityInt32 ALIAS

A generic discrete quantity.

```
alias QuantityInt32 i32;
```

Named by SpottedEquipment.

QuantityUInt32 ALIAS

Quantity in range [0, 2^32-1]

```
alias QuantityUInt32 u32;
```

Named by COLPRO, DecontaminationStation.

RangeFloat32 ALIAS

Range of sensor

```
alias RangeFloat32 f32;
```

Named by SensorStruct.

SalinityFloat32 ALIAS

Practical Salinity Unit (PSU) measured in g/kg.

```
alias SalinityFloat32 f32;
```

SerialNumberType ALIAS

A 20 bits value. (Part B) Serial Number.

```
alias SerialNumberType i32;
```

Named by AisMessage24.

ShipTypeType ALIAS

A 8 bits value. The type of ship and cargo. See https://www.itu.int/en/ITU-R.

```
alias ShipTypeType u8;
```

TimeSecInt32 ALIAS

A generic time interval in seconds.

```
alias TimeSecInt32 i32;
```

Named by EstablishCheckPoint, FireAtLocation, FireAtLocationWM, FollowEntity, Move, OperateCheckPoint, PatrolRepeating, Wait.

UnitModelType ALIAS

A 4 bits value. (Part B) Unit Model Code.

```
alias UnitModelType u8;
```

Named by AisMessage24.

VarianceMetersSquaredFloat32 ALIAS

Variance of a Gaussian distribution, based on SI unit meter squared, unit symbol m2.

```
alias VarianceMetersSquaredFloat32 f32;
```

Named by ReleaseDistributionStruct.

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MaybeActiveStatusEnum8 OPTIONAL

```
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```

MaybeAggregateMissionEnum16 OPTIONAL

```
optional<AggregateMissionEnum16> MaybeAggregateMissionEnum16;
```

MaybeAidTypeEnumType OPTIONAL

```
optional<AidTypeEnumType> MaybeAidTypeEnumType;
```

MaybeAppointmentStruct OPTIONAL

```
optional<AppointmentStruct> MaybeAppointmentStruct;
```

MaybeArrayOfCommunicationNetworks OPTIONAL

```
optional<ArrayOfCommunicationNetworks> MaybeArrayOfCommunicationNetworks;
```

MaybeArrayOfEntityStruct OPTIONAL

```
optional<ArrayOfEntityStruct> MaybeArrayOfEntityStruct;
```

MaybeArrayOfHoldings OPTIONAL

```
optional<ArrayOfHoldings> MaybeArrayOfHoldings;
```

MaybeArrayOfRelations OPTIONAL

```
optional<ArrayOfRelations> MaybeArrayOfRelations;
```

MaybeArrayOfResourceStatus OPTIONAL

```
optional<ArrayOfResourceStatus> MaybeArrayOfResourceStatus;
```

MaybeArrayOfText64 OPTIONAL

```
optional<ArrayOfText64> MaybeArrayOfText64;
```

MaybeArrayOfUuid OPTIONAL

```
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MaybeHazeStruct OPTIONAL

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MaybeInstallationSymbolAmplificationStruct OPTIONAL

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MaybeNatoStockNumberArray13 OPTIONAL

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MaybePathVariantStruct OPTIONAL

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MaybeUnitSymbolAmplificationStruct OPTIONAL

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MaybeWeaponControlOrderEnum8 OPTIONAL

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MaybeWindStruct OPTIONAL

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Object classes

ActiveSonar	Describes the state of an active sonar system.	158
ActiveSonarBeam	A sector of concentrated acoustic energy from an active sonar device.	158
AdditionalPassiveActivities	Describes the steady state components of non-propulsion passive emissions such as those held in the Additional Narrowband Database (ANDB).	159
AggregateEntity	A group of one or more separate objects that operate together as part of an organization. These objects may be discrete, may be other aggregate objects, or may be a mixture of both.	159
Aircraft	A platform entity that operates mainly in the air, such as aircraft, balloons, etc. This includes the entities when they are on the ground.	160
AmphibiousVehicle	A platform entity that can operate both on the land and the sea.	160
ArealObject	A synthetic environment object that is geometrically anchored to the terrain with a set of three or more points, which comes to a closure.	160
BaseEntity	A base class of aggregate and discrete scenario domain participants. The BaseEntity class is characterized by being located at a particular location in space and independently movable, if capable of movement at all. It specifically excludes elements normally considered to be a component of another element. The BaseEntity class is intended to be a container for common attributes for entities of this type. Since it lacks sufficient class specific attributes that are required for simulation purposes, federates cannot publish objects of this class. Certain simulation management federates, e.g. viewers, may subscribe to this class. Simulation federates will normally subscribe to one of the subclasses, to gain the extra information required to properly simulate the entity.	160
BreachObject	A breach linear object.	161
BreachableLinearObject	A linear object that can be breached.	161
BreachablePointObject	A point object that can be breached.	161
BurstPointObject	A burst point object.	161
CraterObject	A pit, depression, or cavity formed in the surface of the earth by an explosion. The depression's shape can range from saucer to conical, depending largely of the depth of burst.	162
CulturalFeature	Engineering and natural effects such as craters, bridges, vehicle tracks, etc.	162
Designator	A system used to designate or mark a location or object, such as a laser designator which supports a laser-guided weapon engagement.	162
EmbeddedSystem	A base class used to associate components such as sensor and emitting systems with their parent entity object.	162
EmitterBeam	A sector of concentrated energy from a device that radiates an electromagnetic signal. See also IEEE 1278.1-1995 Section 5.4.7.1.	163
EmitterSystem	A device that radiates an electromagnetic signal, such as a radar or jammer.	163
EnvironmentObject	A base class of environment point, linear, or areal object classes.	164
EnvironmentProcess	An object class used to communicate information about environmental processes and effects.	164
EnvironmentalEntity	An object which has physical extent but not necessarily fixed size and shape, such as meteorological effects such as clouds or smokes.	164
ExhaustSmokeObject	An exhaust smoke linear object.	164
Expendables	Countermeasures devices that are dispensed from another entity. The devices may be active emitters or passive reflectors of energy.	165
GriddedData	An object class used to depict global, spatially varying environmental effects.	165
GroundVehicle	A platform entity that operates wholly on the surface of the earth.	165
Human	A human lifeform.	165
IFF	Interrogator Friend or Foe (IFF) system, Air Traffic Control Beacon and Transponder system, collision avoidance and navigational aids systems.	165
JammerBeam	An emitter beam that is designed to jam or otherwise interfere or confuse another emitter system	166
Lifeform	A living military platform (human or not).	166
LinearObject	A synthetic environment object that has size and an orientation and is geometrically anchored to the terrain with one point.	167
Minefield	An area of ground or water containing mines laid with or without a pattern.	167
MinefieldData	The MinefieldData object class provides data about collections of mines within a minefield on an individual mine basis.	167
MinefieldLaneMarkerObject	A minefield lane marker showing a cleared lane through a specific minefield, defined as a linear object.	168
MinefieldObject	A mine, mine weapon, mine row, mine strip, mine lane, mine marker or minefield, defined as an areal environment object.	169
MultiDomainPlatform	A platform entity that operates in more than one domain (excluding those combinations explicitly defined as subclasses of the superclass of this class).	169
Munition	A complete device charged with explosives, propellants, pyrotechnics, initiating composition, or nuclear, biological or chemical material for use in military operations, including demolitions.	169

NatoIFF	NATO Identification Friend or Foe (IFF) system that uses electromagnetic transmissions to which friendly forces' equipment automatically responds.	169
NatoIFFInterrogator	The part of an IFF system that first transmits electromagnetic signals.	170
NatoIFFTransponder	The part of a specific IFF system that responds (for example by emitting pulses) to the electromagnetic signals.	170
NonHuman	An animal or other non-human lifeform.	170
OtherArealObject	Areal objects other than Minefield objects.	170
OtherLinearObject	Linear objects other than BreachableLinear, Breach, ExhaustSmoke, or MinefieldLaneMarker objects.	170
OtherPointObject	Point objects other than Breachable, Burst, Crater, RibbonBridge, or Structure objects.	170
PhysicalEntity	A base class of all discrete platform scenario domain participants.	171
Platform	A physical object under the control of armed forces upon which sensor, communication, or weapon systems may be mounted.	172
PointObject	A synthetic environment object that is geometrically anchored to the terrain with a single point.	172
PropulsionNoise	Describes the steady state component of unintended passive emissions that are normally associated with the power plant	173
RRB	RRB IFF transponder system	173
RadarBeam	A sector of concentrated energy from a device that radiates an electromagnetic signal.	173
Radio	Electronic devices for the communication of both audio and data, operated by entities belonging to armed forces.	173
RadioReceiver	A device that converts incoming electromagnetic waves in the radio frequency range into information.	173
RadioTransmitter	A device that sends out information encoded in electromagnetic waves in the radio frequency range.	174
RibbonBridgeObject	A ribbon bridge object.	174
Sensor	Sensors and emitters, such as stand-alone radars, jammers, and detection systems, that are not part of another platform or system described by another Physical Entity, and are operated by armed forces.	174
SovietIFF	Soviet type IFF system	175
SovietIFFInterrogator	Soviet IFF Interrogator	175
SovietIFFTransponder	Soviet IFF Transponder	176
Spacecraft	A platform entity that operates mainly in space.	176
StructureObject	A building structure, building rubble, stationary bridge, AVLB object.	176
SubmersibleVessel	A platform entity that operates either on the surface of the sea, or beneath it.	176
Supplies	Supplies other than munitions, such as fuel, food and personnel.	176
SurfaceVessel	A platform entity that operates wholly on the surface of the sea.	176
UnderwaterAcousticsEmission	The underwater acoustic classes used to communicate underwater acoustic active, intentional emissions and Passive Signature or Unintentional Emissions information. These emissions are used during undersea warfare scenarios to detect, classify, and track hostile forces when electronic warfare mechanisms are unavailable.	176

ActiveSonar CLASS

Describes the state of an active sonar system.

Name	Type	Flags	Description
acousticName	ActiveSonarEnum16	RO S BE	Defines the type of sonar being represented.
functionCode	ActiveSonarFunctionCodeEnum8	RO D BE	Declares the current primary use of the sonar. It may be used by simulatons to infer intent.
acousticsIdentifier	Octet	RO S BE	Unique identifier for the sonar on an entity, Starts with 1

ActiveSonarBeam CLASS

A sector of concentrated acoustic energy from an active sonar device.

Name	Type	Flags	Description
activeEmissionParameterIndex	Integer16	RO D BE	An index into the database of active (intentional) underwater acoustics emissions.
activeSonarIdentifier	string	RO S BE	The RTI ID of the ActiveSonar emitting this beam
azimuthBeamwidth	AngleRadianFloat32	RO D BE	The horizontal width of the main beam (as opposed to any side lobes) measured from beam center to the 3 dB down point. Omni

Name	Type	Flags	Description
			directional beams shall have a beam width of 0 radians.
azimuthCenter	AngleRadianFloat32	RO D BE	The center azimuthal bearing of the main beam (as opposed to side lobes) in relation to the own ship heading, clockwise positive. Omnidirection beams shall have an azimuthal center of 0 radians.
beamIdentifier	Octet	RO S BE	The identification of the active sonar beam, which must be unique on the active sonar system.
elevationBeamwidth	AngleRadianFloat32	RO D BE	Vertical angle from beam center to 3db down point. O is omnidirectional
elevationCenter	AngleRadianFloat32	RO D BE	The angle of axis of the beam center to the horizontal plane. Positive upward.
eventIdentifier	EventIdentifierStruct	RO D BE	Used to associate changes to the beam with its ActiveSonar.
scanPattern	ActiveSonarScan PatternEnum16	RO D BE	The pattern that describes the angular movement of the sonar beam during its sweep.

AdditionalPassiveActivities CLASS

Describes the steady state components of non-propulsion passive emissions such as those held in the Additional Narrow-band Database (ANDB).

Name	Type	Flags	Description
activityCode	UnsignedInteger16	RO D BE	Database index used to indicate the passive signature of the entity
activityParameter	Integer16	RO D BE	The current state of this activity.
isSilent	bool	RO D BE	Used to silence an additional passive activity without destroying this object.

AggregateEntity CLASS

A group of one or more separate objects that operate together as part of an organization. These objects may be discrete, may be other aggregate objects, or may be a mixture of both.

Name	Type	Flags	Description
aggregateMarking	AggregateMarking Struct	RO D BE	A unique marking or combination of characters used to distinguish the aggregate from other aggregates.
aggregateState	AggregateStateEnum8	RO D BE	An indicator of the extent of association of objects form an operating group.
dimensions	DimensionStruct	RO D BE	The size of the area covered by the units in the aggregate.
entityIdentifiers	RTIobjectIdArray	RO D BE	The identification of entities that are contained within the aggregate.
forceIdentifier	ForceIdentifierEnum8	RO D BE	The identification of the force that the aggregate belongs to.
formation	FormationEnum32	RO D BE	The category of positional arrangement of the entities within the aggregate.
numberOfSilent Entities	Integer16	RO D BE	The number of elements in the SilentEntities list.
numberOfVariable Datums	UnsignedInteger32	RO D BE	The number of records in the VariableDatums structure.
silentAggregates	SilentAggregateStruct LengthlessArray	RO D BE	The numbers and types, of silent aggregates contained in the aggregate. Silent aggregates

Name	Type	Flags	Description
			are sub-aggregates that are in the aggregate, but that are not separately represented in the virtual world.
silentEntities	SilentEntityStruct LengthlessArray	RO D BE	The numbers and types, of silent entities in the aggregate. Silent entities are entities that are in the aggregate, but that are not separately represented in the virtual world.
subAggregate Identifiers	RTIobjectIdArray	RO D BE	The identifications of aggregates represented in the virtual world that are contained in the aggregate.
variableDatums	VariableDatumStruct LengthlessArray	RO D BE	Extra data that describes the aggregate.

Aircraft CLASS

A platform entity that operates mainly in the air, such as aircraft, balloons, etc. This includes the entities when they are on the ground.

AmphibiousVehicle CLASS

A platform entity that can operate both on the land and the sea.

ArealObject CLASS

A synthetic environment object that is geometrically anchored to the terrain with a set of three or more points, which comes to a closure.

Name	Type	Flags	Description
pointsData	WorldLocationStruct LengthlessArray	RO D BE	Specifies the physical location (a collection of points) of the object
percentComplete	PercentUnsigned Integer32	RO D BE	Specifies the percent completion of the object
damagedAppearance	DamageStatus Enum32	RO D BE	Specifies the damaged appearance of the object
objectPreDistributed	bool	RO D BE	Specifies whether or not the object was created before the start of the exercise
deactivated	bool	RO D BE	Specifies whether or not the object has been deactivated (it has ceased to exist in the synthetic environment)
smoking	bool	RO D BE	Specifies whether or not the object is smoking (creating a smoke plume)
flaming	bool	RO D BE	Specifies whether or not the object is aflame

BaseEntity CLASS

A base class of aggregate and discrete scenario domain participants. The BaseEntity class is characterized by being located at a particular location in space and independently movable, if capable of movement at all. It specifically excludes elements normally considered to be a component of another element. The BaseEntity class is intended to be a container for common attributes for entities of this type. Since it lacks sufficient class specific attributes that are required for simulation purposes, federates cannot publish objects of this class. Certain simulation management federates, e.g. viewers, may subscribe to this class. Simulation federates will normally subscribe to one of the subclasses, to gain the extra information required to properly simulate the entity.

Name	Type	Flags	Description
entityType	EntityTypeStruct	RO S BE	The category of the entity.
entityIdentifier	EntityIdentifierStruct	RO S BE	The unique identifier for the entity instance.

Name	Type	Flags	Description
isPartOf	IsPartOfStruct	RO D BE	Defines if the entity if a constituent part of another entity (denoted the host entity). If the entity is a constituent part of another entity then the HostEntityIdentifier shall be set to the EntityIdentifier of the host entity and the HostRTIObjectIdentifier shall be set to the RTI object instance ID of the host entity. If the entity is not a constituent part of another entity then the HostEntityIdentifier shall be set to 0.0.0 and the HostRTIObjectIdentifier shall be set to the empty string.
spatial	SpatialVariantStruct	RO D BE	Spatial state stored in one variant record attribute.
relativeSpatial	SpatialVariantStruct	RO D BE	Relative spatial state stored in one variant record attribute.

BreachObject CLASS

A breach linear object.

Name	Type	Flags	Description
segmentRecords	BreachStruct LengthlessArray	RO D BE	Specifies a breach linear object

BreachableLinearObject CLASS

A linear object that can be breached.

Name	Type	Flags	Description
segmentRecords	BreachableSegment StructLengthlessArray	RO D BE	Specifies a breachable linear object

BreachablePointObject CLASS

A point object that can be breached.

Name	Type	Flags	Description
breachedStatus	BreachedStatusEnum8	RO D BE	Specifies the breached appearance of the object

BurstPointObject CLASS

A burst point object.

Name	Type	Flags	Description
percentOpacity	PercentUnsigned Integer32	RO D BE	Specifies the opacity of the smoke
cylinderSize	UnsignedInteger32	RO D BE	Specifies the radius of the cylinder approximating an individual smoke burst ; for multiple bursts, the center bottom of each cylinder is calculated based on the model used to represent the multiple bursts
cylinderHeight	UnsignedInteger32	RO D BE	Specifies the height of the cylinder approximating an individual smoke burst ; for multiple bursts, the center bottom of each cylinder is calculated based on the model used to represent the multiple bursts

Name	Type	Flags	Description
numberOfBursts	UnsignedInteger32	RO D BE	Specifies the number of bursts in the instance of tactical smoke
chemicalContent	ChemicalContent Enum32	RO D BE	Specifies the chemical content of the smoke

CraterObject CLASS

A pit, depression, or cavity formed in the surface of the earth by an explosion. The depression's shape can range from saucer to conical, depending largely of the depth of burst.

Name	Type	Flags	Description
craterSize	UnsignedInteger32	RO D BE	Specifies the diameter of the crater, where the center of the crater is at the point object location

CulturalFeature CLASS

Engineering and natural effects such as craters, bridges, vehicle tracks, etc.

Name	Type	Flags	Description
externalLightsOn	bool	RO D BE	Whether the cultural feature's external lights are on or not.
internalHeatSourceOn	bool	RO D BE	Whether the cultural feature's internal heat source is on or not.
internalLightsOn	bool	RO D BE	Whether the cultural feature's internal lights are on or not.

Designator CLASS

A system used to designate or mark a location or object, such as a laser designator which supports a laser-guided weapon engagement.

Name	Type	Flags	Description
codeName	DesignatorCodeName Enum16	RO S BE	The code name of the designator system.
designatedObject Identifier	string	RO D BE	The object instance ID of the entity that is currently being designated (if any).
designatorCode	DesignatorCode Enum16	RO D BE	The designator code being used by the designating entity.
designatorEmission Wavelength	WavelengthMicron Float32	RO D BE	The wavelength of the designator system.
designatorOutputPower	PowerWattFloat32	RO D BE	The output power of the designator system.
designatorSpot Location	WorldLocationStruct	RO D BE	The location, in the world coordinate system, of the designator spot.
deadReckoning Algorithm	DeadReckoning AlgorithmEnum8	RO D BE	Dead reckoning algorithm used by the issuing object.
relativeSpotLocation	RelativePositionStruct	RO D BE	The location of the designator spot, relative to the object being designated (if any).
spotLinear AccelerationVector	AccelerationVector Struct	RO D BE	The rate of change in linear velocity of the designator spot over time.

EmbeddedSystem CLASS

A base class used to associate components such as sensor and emitting systems with their parent entity object.

Name	Type	Flags	Description
entityIdentifier	EntityIdentifierStruct	RO S BE	The EntityIdentifier of the object which this embedded system is a part of.
hostObjectIdentifier	string	RO S BE	The RTI object instance ID of the object of which this embedded system is part of.
relativePosition	RelativePositionStruct	RO D BE	The position of the embedded system, relative to the host object's position.

EmitterBeam CLASS

A sector of concentrated energy from a device that radiates an electromagnetic signal. See also IEEE 1278.1-1995 Section 5.4.7.1.

Name	Type	Flags	Description
beamAzimuthCenter	AngleRadianFloat32	RO D BE	The azimuth center of the emitter beam's scan volume relative to the emitter system.
beamAzimuthSweep	AngleRadianFloat32	RO D BE	The azimuth half-angle of the emitter beam's scan volume relative to the emitter system.
beamElevationCenter	AngleRadianFloat32	RO D BE	The elevation center of the emitter beam's scan volume relative to the emitter system.
beamElevationSweep	AngleRadianFloat32	RO D BE	The elevation half-angle of the emitter beam's scan volume relative to the emitter system.
beamFunctionCode	BeamFunctionCodeEnum8	RO D BE	The function of the emitter beam.
beamIdentifier	Octet	RO S BE	The identification of the emitter beam (must be unique on the emitter system).
beamParameterIndex	UnsignedInteger16	RO D BE	The index, into the federation specific emissions database, of the current operating mode of the emitter beam.
effectiveRadiatedPower	PowerRatioDecibelMilliwattFloat32	RO D BE	The effective radiated power of the emitter beam.
emissionFrequency	FrequencyHertzFloat32	RO D BE	The center frequency of the emitter beam.
emitterSystemIdentifier	string	RO S BE	The identification of the emitter system that is generating this emitter beam.
eventIdentifier	EventIdentifierStruct	RO D BE	The EventIdentifier is used by the generating federate to associate related events. The event number shall start at one at the beginning of the exercise, and be incremented by one for each event.
frequencyRange	FrequencyHertzFloat32	RO D BE	The bandwidth of the frequencies covered by the emitter beam.
pulseRepetitionFrequency	FrequencyHertzFloat32	RO D BE	The Pulse Repetition Frequency of the emitter beam.
pulseWidth	TimeMicrosecondFloat32	RO D BE	The pulse width of the emitter beam.
sweepSynch	PercentFloat32	RO D BE	The percentage of time a scan is through its pattern from its origin.

EmitterSystem CLASS

A device that radiates an electromagnetic signal, such as a radar or jammer.

Name	Type	Flags	Description
emitterFunctionCode	EmitterFunctionEnum8	RO D BE	The function of the emitter system.
emitterType	EmitterTypeEnum16	RO S BE	The type of the emitter system.

Name	Type	Flags	Description
emitterIndex	Octet	RO S BE	A unique number, which uniquely identifies the emitter system from other on the same host entity.
eventIdentifier	EventIdentifierStruct	RO D BE	The EventIdentifier is used by the generating federate to associate related events. The event number shall start at one at the beginning of the exercise, and be incremented by one for each event.

EnvironmentObject CLASS

A base class of environment point, linear, or areal object classes.

Name	Type	Flags	Description
objectIdentifier	EntityIdentifierStruct	RO S BE	Identifies this EnvironmentObject instance (point, linear or areal)
referencedObject Identifier	string	RO D BE	Identifies the Synthetic Environment object instance to which this EnvironmentObject instance is associated
forceIdentifier	ForceIdentifierEnum8	RO D BE	Identifies the force that created or modified this EnvironmentObject instance
objectType	EnvironmentObject TypeStruct	RO S BE	Identifies the type of this EnvironmentObject instance

EnvironmentProcess CLASS

An object class used to communicate information about environmental processes and effects.

Name	Type	Flags	Description
processIdentifier	EntityIdentifierStruct	RO S BE	Identifies which process issued the environmental process update
type	EnvironmentType Struct	RO S BE	Identifies the environmental process type
modelType	EnvironmentModel TypeEnum8	RO D BE	Identifies the model used for generating this environmental process update ; defined in 1278.1a as being exercise specific
environmentProcess Active	bool	RO D BE	Specifies the status of the environmental process (active or inactive)
sequenceNumber	u16	RO D BE	Optional, used to support update sequencing ; if not used, set to EP_NO_SEQUENCE ; when used, set to zero for each exercise and incremented by one for each update sent
environmentRecData	EnvironmentRecStruct Array	RO D BE	Specifies environment records

EnvironmentalEntity CLASS

An object which has physical extent but not necessarily fixed size and shape, such as meteorological effects such as clouds or smokes.

Name	Type	Flags	Description
opacityCode	OpacityCodeEnum32	RO D BE	Specifies the density of an environmental entity

ExhaustSmokeObject CLASS

An exhaust smoke linear object.

Name	Type	Flags	Description
segmentRecords	ExhaustSmokeStruct LengthlessArray	RO D BE	Specifies an exhaust smoke linear object

Expendables CLASS

Countermeasures devices that are dispensed from another entity. The devices may be active emitters or passive reflectors of energy.

GriddedData CLASS

An object class used to depict global, spatially varying environmental effects.

Name	Type	Flags	Description
gridIdentifier	EntityIdentifierStruct	RO S BE	Identifies the environmental simulation application
coordinateSystem	EnvironmentData CoordinateSystem Enum16	RO D BE	Specifies the coordinate system used to locate the data grid
numberOfGridAxes	Octet	RO D BE	Specifies the number of grid axes used to define the data grid (e.g. three grid axes for an x, y, z coordinate system)
constantGrid	EnvironmentGridType Enum8	RO D BE	Specifies whether the grid axes remain constant for the life of the data grid
environmentType	EnvironmentType Struct	RO S BE	Identifies the type of environmental entity being described
orientation	OrientationStruct	RO D BE	Specifies the orientation of the data grid, with Euler angles
sampleTime	UnsignedInteger64	RO D BE	Specifies the valid time of the environmental data sample
totalValues	UnsignedInteger32	RO D BE	Specifies the number of data values that make up this grid
vectorDimension	Octet	RO D BE	Specifies the number of data values at each grid point ; VectorDimension shall be one for scalar data, and shall be greater than one when multiple enumerated environmental data values are sent for each grid point (e.g. u, v, w wind components have VectorDimension = 3)
gridAxisInfo	GridAxisStruct LengthlessArray	RO D BE	Specifies information on grid axes
gridDataInfo	GridDataStruct LengthlessArray	RO D BE	Specifies information on grid data representations

GroundVehicle CLASS

A platform entity that operates wholly on the surface of the earth.

Human CLASS

A human lifeform.

IFF CLASS

Interrogator Friend or Foe (IFF) system, Air Traffic Control Beacon and Transponder system, collision avoidance and navigational aids systems.

Name	Type	Flags	Description
beamAzimuthCenter	AngleRadianFloat32	RO D BE	The azimuth center of the IFF beam's scan volume relative to the IFF system.
beamAzimuthSweep	AngleRadianFloat32	RO D BE	The azimuth half-angle of the IFF beam's scan volume relative to the IFF system.
beamElevationCenter	AngleRadianFloat32	RO D BE	The elevation center of the IFF beam's scan volume relative to the IFF system.
beamElevationSweep	AngleRadianFloat32	RO D BE	The elevation half-angle of the IFF beam's scan volume relative to the IFF system.
beamSweepSync	PercentFloat32	RO D BE	The percentage of time a scan is through its pattern from its origin.
eventIdentifier	EventIdentifierStruct	RO D BE	Used to associate related events.
fundamentalParameterData	FundamentalParameterDataStruct LengthlessArray	RO D BE	The fundamental energy radiation characteristics of the IFF/ATC/NAVAIDS system.
layer2DataAvailable	bool	RO D BE	Specifies if level 2 data is available for this IFF system. If level 2 data is available then the BeamAzimuthCenter, BeamAzimuthSweep, BeamElevationCenter, BeamElevationSweep, BeamSweepSync, FundamentalParameterData, SecondaryOperationalDataParameter1, and SecondaryOperationalDataParameter2 attributes shall be generated.
secondaryOperationalDataParameter1	IffOperationalParameter1Enum8	RO D BE	Additional characteristics of the IFF/ATC/NAVAIDS emitting system.
secondaryOperationalDataParameter2	IffOperationalParameter2Enum8	RO D BE	Additional characteristics of the IFF/ATC/NAVAIDS emitting system.
systemMode	IffSystemModeEnum8	RO D BE	Mode of operation.
systemName	IffSystemNameEnum16	RO S BE	Particular named type of the IFF system in use.
systemType	IffSystemTypeEnum16	RO S BE	General type of IFF system in use.
systemIsOn	bool	RO D BE	Whether or not the system is on.
systemIsOperational	bool	RO D BE	Whether or not the system is operational.

JammerBeam CLASS

An emitter beam that is designed to jam or otherwise interfere or confuse another emitter system

Name	Type	Flags	Description
jammingModeSequence	UnsignedInteger32	RO D BE	The jamming mode technique or series of techniques being applied.
jammedObjectIdentifiers	RTIobjectIdArray	RO D BE	Identification of the emitter beams being jammed.
highDensityJam	bool	RO D BE	When TRUE the receiving simulation can assume that all emitter beams that are in the scan pattern of the jammer beam are being jammed

Lifeform CLASS

A living military platform (human or not).

Name	Type	Flags	Description
flashLightsOn	bool	RO D BE	Whether the lifeform's flash lights are on or not.
stanceCode	StanceCodeEnum32	RO D BE	The stance of the lifeform.

Name	Type	Flags	Description
primaryWeaponState	WeaponStateEnum32	RO D BE	The state of the soldier's primary weapon system.
secondaryWeaponState	WeaponStateEnum32	RO D BE	The state of the soldier's secondary weapon system.
complianceState	ComplianceStateEnum32	RO D BE	The compliance of the lifeform.

LinearObject CLASS

A synthetic environment object that has size and an orientation and is geometrically anchored to the terrain with one point.

Minefield CLASS

An area of ground or water containing mines laid with or without a pattern.

Name	Type	Flags	Description
activeStatus	MinefieldStatusEnum8	RO D C	Specifies the active status of the minefield
forceIdentifier	ForceIdentifierEnum8	RO D C	Identifies the force to which the minefield belongs
lane	MinefieldLaneEnum8	RO D C	Specifies whether or not the minefield has an active lane
minefieldAppearanceType	MinefieldTypeEnum8	RO D C	Specifies the appearance information needed for displaying the symbology of the minefield
minefieldIdentifier	EntityIdentifierStruct	RO S C	Uniquely identifies this minefield instance in association with the federate's site and application
minefieldLocation	WorldLocationStruct	RO D C	Specifies the location of the center of the minefield
minefieldOrientation	OrientationStruct	RO D C	Specifies the orientation of the minefield, with Euler angles
minefieldType	EntityTypeStruct	RO D C	Specifies the minefield type
mineTypes	EntityTypeStruct LengthlessArray	RO D C	Specifies the type of each mine contained within the minefield
perimeterPointCoordinates	PerimeterPointStruct LengthlessArray	RO D C	Specifies the location of each perimeter point, relative to the minefield location
protocolMode	MinefieldProtocolEnum8	RO D C	Specifies the mode (Heartbeat or Query Response Protocol) being used to communicate data about the minefield
state	bool	RO D C	Specifies whether or not the minefield has been deactivated

MinefieldData CLASS

The MinefieldData object class provides data about collections of mines within a minefield on an individual mine basis.

Name	Type	Flags	Description
groundBurialDepthOffset	DepthMeterFloat32LengthlessArray	RO D BE	Specifies the offset of the origin of the mine coordinate system with respect to the ground surface
fusing	MineFusingStruct LengthlessArray	RO D BE	Specifies the primary and secondary fuse and anti-handling device for each mine in a collection of mines
mineEmplacementTime	ClockTimeStruct LengthlessArray	RO D BE	Specifies the real-world (UTC) emplacement time of each mine in a collection of mines

Name	Type	Flags	Description
mineEntityIdentifier	MineIdentifier LengthlessArray	RO D BE	Identifies the mine entity identifier; the MineEntityID in conjunction with the MinefieldID form the unique identifier for each mine
minefieldIdentifier	string	RO D BE	Identifies the minefield to which the mines belong
mineLocation	WorldLocationStruct LengthlessArray	RO D BE	Specifies the location of the mine relative to the minefield location for each mine in a collection of mines
mineOrientation	OrientationStruct LengthlessArray	RO D BE	Specifies the orientation of the center axis direction of fire of the mine, relative to the minefield Coordinate System for each mine in a collection of mines
mineType	EntityTypeStruct	RO D BE	Specifies the type of mine for the collection of mines contained within the MinefieldData object
numberTripDetonation Wires	Unsigned Integer8Lengthless Array	RO D BE	Specifies the number of trip detonation wires that exist for each mine in a collection of mines
numberWireVertices	Unsigned Integer8Lengthless Array	RO D BE	Specifies the number of vertices for each trip wire of each mine in a collection of mines
paintScheme	MinefieldPaintScheme LengthlessArray	RO D BE	Specifies the camouflage scheme/color of the mine
reflectance	MineDielectric DifferenceLengthless Array	RO D BE	Specifies the local dielectric difference between the mine and the surrounding soil
scalarDetection Coefficient	Unsigned Integer8Lengthless Array	RO D BE	Specifies the coefficient to be utilized to insure proper correlation between detectors located on different simulation platforms
sensorTypes	MinefieldSensorType LengthlessArray	RO D BE	In QRP mode, specifies the requesting sensor types which were specified in the minefield query whereas in Heartbeat mode, specifies the sensor types that are being served by the minefield
snowBurialDepthOffset	DepthMeter Float32Lengthless Array	RO D BE	Specifies the offset of the origin of the mine coordinate system with respect to the snow surface
thermalContrast	TemperatureDegree Celsius Float32Lengthless Array	RO D BE	Specifies the temperature difference between the mine and the surround soil in degrees Centigrade
waterBurialDepth Offset	DepthMeter Float32Lengthless Array	RO D BE	Specifies the offset of the origin of the mine coordinate system with respect to the water surface
wireVertices	WorldLocationStruct LengthlessArray	RO D BE	Specifies the locations of vertices in a trip wire

MinefieldLaneMarkerObject CLASS

A minefield lane marker showing a cleared lane through a specific minefield, defined as a linear object.

Name	Type	Flags	Description
segmentRecords	MinefieldLaneMarker StructLengthlessArray	RO D BE	Specifies a minefield lane marker showing a cleared lane through a minefield

MinefieldObject CLASS

A mine, mine weapon, mine row, mine strip, mine lane, mine marker or minefield, defined as an areal environment object.

Name	Type	Flags	Description
breachedStatus	BreachedStatusEnum8	RO D BE	Specifies the breached appearance of the minefield object
mineCount	UnsignedInteger32	RO D BE	Specifies the number of mines in the minefield

MultiDomainPlatform CLASS

A platform entity that operates in more than one domain (excluding those combinations explicitly defined as subclasses of the superclass of this class).

Munition CLASS

A complete device charged with explosives, propellants, pyrotechnics, initiating composition, or nuclear, biological or chemical material for use in military operations, including demolitions.

Name	Type	Flags	Description
launcherFlashPresent	bool	RO D BE	Whether the flash of the munition being launched is present or not.

NatoIFF CLASS

NATO Identification Friend or Foe (IFF) system that uses electromagnetic transmissions to which friendly forces' equipment automatically responds.

Name	Type	Flags	Description
alternateMode4	IffAlternate Mode4Enum8	RO D BE	IFF Alternate Mode 4.
mode1Enabled	bool	RO D BE	Specifies whether or not Mode 1 is enabled.
mode1IsDamaged	bool	RO D BE	Specifies whether or not Mode 1 is damaged.
mode1IsMalfunctioning	bool	RO D BE	Specifies whether or not Mode 1 is malfunctioning.
mode1IsOn	bool	RO D BE	Specifies whether or not Mode 1 is on.
mode2Enabled	bool	RO D BE	Specifies whether or not Mode 2 is enabled.
mode2IsDamaged	bool	RO D BE	Specifies whether or not Mode 2 is damaged.
mode2IsMalfunctioning	bool	RO D BE	Specifies whether or not Mode 2 is malfunctioning.
mode2IsOn	bool	RO D BE	Specifies whether or not Mode 2 is on.
mode3AEnabled	bool	RO D BE	Specifies whether or not Mode 3 is enabled.
mode3AIsDamaged	bool	RO D BE	Specifies whether or not Mode 3 is damaged.
mode3AIs Malfunctioning	bool	RO D BE	Specifies whether or not Mode 3 is malfunctioning.
mode3AIsOn	bool	RO D BE	Specifies whether or not Mode 3 is on.
mode4Enabled	bool	RO D BE	Specifies whether or not Mode 4 is enabled.
mode4IsDamaged	bool	RO D BE	Specifies whether or not Mode 4 is damaged.
mode4IsMalfunctioning	bool	RO D BE	Specifies whether or not Mode 4 is malfunctioning.
mode4IsOn	bool	RO D BE	Specifies whether or not Mode 4 is on.
mode4PseudoCrypto	UnsignedInteger16	RO D BE	Mode 4 Pseudo-Crypto value (0-4094).
mode4PseudoCrypto Available	bool	RO D BE	Specifies whether or not Mode 4 pseudo-crypto value is available.
mode5CEnabled	bool	RO D BE	Specifies whether or not Parameter 5 - Mode C is enabled.

Name	Type	Flags	Description
mode5CIsDamaged	bool	RO D BE	Specifies whether or not Parameter 5 - Mode C is damaged.
mode5CIs Malfunctioning	bool	RO D BE	Specifies whether or not Parameter 5 - Mode C is malfunctioning.
mode5CIsOn	bool	RO D BE	Specifies whether or not Parameter 5 - Mode C is on.
modeSEnabled	bool	RO D BE	Specifies whether or not Parameter 6 - Mode S is enabled.
modeSIsDamaged	bool	RO D BE	Specifies whether or not Parameter 6 - Mode S is damaged.
modeSIsMalfunctioning	bool	RO D BE	Specifies whether or not Parameter 6 - Mode S is malfunctioning.
modeSIsOn	bool	RO D BE	Specifies whether or not Parameter 6 - Mode S is on.
modeSIsTcasI	bool	RO D BE	Specifies which Traffic Alert/Collision Avoidance System is used. FALSE means TCAS I, TRUE means TCAS II.

NatoIFFInterrogator CLASS

The part of an IFF system that first transmits electromagnetic signals.

NatoIFFTransponder CLASS

The part of a specific IFF system that responds (for example by emitting pulses) to the electromagnetic signals.

Name	Type	Flags	Description
emergencyOn	bool	RO D BE	Specifies whether or not emergency is on.
identSquawkFlashOn	bool	RO D BE	Specifies whether or not the squawk ident/flash is on.
mode1Code	UnsignedInteger16	RO D BE	Mode 1 code, two octal values.
mode2Code	UnsignedInteger16	RO D BE	Mode 2 code, four octal values.
mode3ACode	UnsignedInteger16	RO D BE	Mode 3 code, four octal values.
mode5CAltitude	TransponderMode CAltitude100Foot Integer16	RO D BE	Parameter 5 - Mode C altitude.
mode5CAltitude Available	bool	RO D BE	Specifies whether or not Parameter 5 - Mode C altitude is available.
stiOn	bool	RO D BE	Specifies whether or not STI is on.

NonHuman CLASS

An animal or other non-human lifeform.

OtherArealObject CLASS

Areal objects other than Minefield objects.

OtherLinearObject CLASS

Linear objects other than BreachableLinear, Breach, ExhaustSmoke, or MinefieldLaneMarker objects.

OtherPointObject CLASS

Point objects other than Breachable, Burst, Crater, RibbonBridge, or Structure objects.

PhysicalEntity CLASS

A base class of all discrete platform scenario domain participants.

Name	Type	Flags	Description
acousticSignatureIndex	Integer16	RO D BE	Index used to obtain the acoustics (sound through air) signature state of the entity.
alternateEntityType	EntityTypeStruct	RO S BE	The category of entity to be used when viewed by entities on the 'opposite' side.
articulatedParametersArray	ArticulatedParameterStructLengthlessArray	RO D BE	Identification of the visible parts, and their states, of the entity which are capable of independent motion.
camouflageType	CamouflageEnum32	RO D BE	The type of camouflage in use (if any).
damageState	DamageStatusEnum32	RO D BE	The state of damage of the entity.
engineSmokeOn	bool	RO D BE	Whether the entity's engine is generating smoke or not.
firePowerDisabled	bool	RO D BE	Whether the entity's main weapon system has been disabled or not.
flamesPresent	bool	RO D BE	Whether the entity is on fire (with visible flames) or not.
forceIdentifier	ForceIdentifierEnum8	RO D BE	The identification of the force that the entity belongs to.
hasAmmunitionSupplyCap	bool	RO D BE	Whether the entity has the capability to supply other entities with ammunition.
hasFuelSupplyCap	bool	RO D BE	Whether the entity has the capability to supply other entities with fuel or not.
hasRecoveryCap	bool	RO D BE	Whether the entity has the capability to recover other entities or not.
hasRepairCap	bool	RO D BE	Whether the entity has the capability to repair other entities or not.
immobilized	bool	RO D BE	Whether the entity is immobilized or not.
infraredSignatureIndex	Integer16	RO D BE	Index used to obtain the infra-red signature state of the entity.
isConcealed	bool	RO D BE	Whether the entity is concealed or not.
liveEntityMeasuredSpeed	VelocityDecimeterPerSecondInteger16	RO D BE	The entity's own measurement of speed (e.g. air speed for aircraft).
marking	MarkingStruct	RO D BE	A unique marking or combination of characters used to distinguish the entity from other entities.
powerPlantOn	bool	RO D BE	Whether the entity's power plant is on or not.
propulsionSystemsData	PropulsionSystemDataStructLengthlessArray	RO D BE	The basic operating data of the propulsion systems aboard the entity.
radarCrossSectionSignatureIndex	Integer16	RO D BE	Index used to obtain the radar cross section signature state of the entity.
smokePlumePresent	bool	RO D BE	Whether the entity is generating smoke or not (intentional or unintentional).
tentDeployed	bool	RO D BE	Whether the entity has deployed tent or not.
trailingEffectsCode	TrailingEffectsCodeEnum32	RO D BE	The type and size of any trail that the entity is making.
vectoringNozzleSystemData	VectoringNozzleSystemDataStructLengthlessArray	RO D BE	The basic operational data for the vectoring nozzle systems aboard the entity.

Platform CLASS

A physical object under the control of armed forces upon which sensor, communication, or weapon systems may be mounted.

Name	Type	Flags	Description
afterburnerOn	bool	RO D BE	Whether the entity's afterburner is on or not.
antiCollisionLightsOn	bool	RO D BE	Whether the entity's anti-collision lights are on or not.
blackOutBrakeLightsOn	bool	RO D BE	Whether the entity's black out brake lights are on or not.
blackOutLightsOn	bool	RO D BE	Whether the entity's black out lights are on or not.
brakeLightsOn	bool	RO D BE	Whether the entity's brake lights are on or not.
formationLightsOn	bool	RO D BE	Whether the entity's formation lights are on or not.
hatchState	HatchStateEnum32	RO D BE	The state of the entity's (main) hatch.
headLightsOn	bool	RO D BE	Whether the entity's headlights are on or not.
interiorLightsOn	bool	RO D BE	Whether the entity's internal lights are on or not.
landingLightsOn	bool	RO D BE	Whether the entity's landing lights are on or not.
launcherRaised	bool	RO D BE	Whether the entity's weapon launcher is in the raised position.
navigationLightsOn	bool	RO D BE	Whether the entity's navigation lights are on or not.
rampDeployed	bool	RO D BE	Whether the entity has deployed a ramp or not.
runningLightsOn	bool	RO D BE	Whether the entity's running lights are on or not.
spotLightsOn	bool	RO D BE	Whether the entity's spotlights are on or not.
tailLightsOn	bool	RO D BE	Whether the entity's tail lights are on or not.

PointObject CLASS

A synthetic environment object that is geometrically anchored to the terrain with a single point.

Name	Type	Flags	Description
location	WorldLocationStruct	RO D BE	Specifies the location of the object based on x, y and z coordinates
orientation	OrientationStruct	RO D BE	Specifies the angles of rotation around the coordinate axis between the object's attitude and the reference coordinate system axes ; these are calculated as the Tait-Bryan Euler angles, specifying the successive rotations needed to transform from the world coordinate system to the object coordinate system
percentComplete	PercentUnsigned Integer32	RO D BE	Specifies the percent completion of the object
damagedAppearance	DamageStatus Enum32	RO D BE	Specifies the damaged appearance of the object instance
objectPreDistributed	bool	RO D BE	Specifies whether or not the object was created before the start of the exercise
deactivated	bool	RO D BE	Specifies whether or not the object has been deactivated (it has ceased to exist in the synthetic environment)
smoking	bool	RO D BE	Specifies whether or not the object is smoking (creating a smoke plume)
flaming	bool	RO D BE	Specifies whether or not the object is aflame

PropulsionNoise CLASS

Describes the steady state component of unintended passive emissions that are normally associated with the power plant

Name	Type	Flags	Description
hullMaskerOn	bool	RO D BE	Whether the hull masker silencing system is on.
passiveParameterIndex	UnsignedInteger16	RO D BE	Database index to look up the entities acoustic signature
propulsionPlant Configuration	PropulsionPlantEnum8	RO D BE	The operating mode of the propulsion plant
shaftRateData	ShaftDataStruct LengthlessArray1Plus	RO D BE	Information about each of the propulsion shafts associated with the entity. Shafts are ordered from port to starboard, when looking from the stern to the bow.

RRB CLASS

RRB IFF transponder system

Name	Type	Flags	Description
code	Octet	RO D BE	RRB Code (range 0-16)
powerReduction	bool	RO D BE	Specifies whether or not power reduction is on.
isDamaged	bool	RO D BE	Specifies whether or not the system is damaged.
isMalfunctioning	bool	RO D BE	Specifies whether or not the system is malfunctioning.
isOn	bool	RO D BE	Specifies whether or not the system is on.
radarEnhancement	bool	RO D BE	Specifies whether or not the radar enhancement is on.

RadarBeam CLASS

A sector of concentrated energy from a device that radiates an electromagnetic signal.

Name	Type	Flags	Description
highDensityTrack	bool	RO D BE	When TRUE the receiving simulation can assume that all targets that are in the scan pattern of the radar beam are being tracked
trackObject Identifiers	RTIobjectIdArray	RO D BE	Identification of the entities being tracked.

Radio CLASS

Electronic devices for the communication of both audio and data, operated by entities belonging to armed forces.

RadioReceiver CLASS

A device that converts incoming electromagnetic waves in the radio frequency range into information.

Name	Type	Flags	Description
radioIndex	UnsignedInteger16	RO S BE	A number that uniquely identifies this radio receiver from other receivers on the host object.
receivedPower	PowerRatioDecibel MilliwattFloat32	RO D BE	The radio frequency power received, after applying any propagation loss and antenna gain.
receivedTransmitter Identifier	string	RO D BE	The object instance ID of the transmitter that generated the received radio signal.
receiverOperational Status	ReceiverOperational StatusEnum16	RO D BE	The operational state of the radio receiver.

RadioTransmitter CLASS

A device that sends out information encoded in electromagnetic waves in the radio frequency range.

Name	Type	Flags	Description
antennaPatternData	AntennaPatternVariantStructLengthlessArray	RO D BE	The radiation pattern of the radio's antenna.
cryptographicMode	CryptographicModeEnum32	RO D BE	The mode of the cryptographic system.
cryptoSystem	CryptographicSystemTypeEnum16	RO D BE	The type of cryptographic equipment in use.
encryptionKeyIdentifier	UnsignedInteger16	RO D BE	The identification of the key used to encrypt the radio signals being transmitted. The transmitter and receiver should be considered to be using the same key if these numbers match.
frequency	FrequencyHertzUnsignedInteger64	RO D BE	The center frequency of the radio transmissions.
frequencyBandwidth	FrequencyHertzFloat32	RO D BE	The bandpass of the radio transmissions.
radioIndex	UnsignedInteger16	RO S BE	A number that uniquely identifies this radio from others on the host.
radioInputSource	RadioInputSourceEnum8	RO D BE	Specifies which position or data port provided the input for the transmission.
radioSystemType	RadioTypeStruct	RO S BE	The type of radio transmitter.
rFModulationSystemType	RFModulationSystemTypeEnum16	RO D BE	The radio system type associated with this transmitter.
rFModulationType	RFModulationTypeVariantStruct	RO D BE	Classification of the modulation type.
spreadSpectrum	SpreadSpectrumVariantStruct	RO D BE	Describes the spread spectrum characteristics of the transmission, such as frequency hopping or other spread spectrum transmission modes.
streamTag	UnsignedInteger64	RO D BE	A globally unique identifier for the associated audio stream
timeHopInUse	bool	RO D BE	Whether the radio is using time hopping or not.
transmittedPower	PowerRatioDecibelMilliwattFloat32	RO D BE	The average transmitted power.
transmitterOperationalStatus	TransmitterOperationalStatusEnum8	RO D BE	The current operational state of the radio transmitter.
worldLocation	WorldLocationStruct	RO D BE	The location of the antenna in the world coordinate system.

RibbonBridgeObject CLASS

A ribbon bridge object.

Name	Type	Flags	Description
numberOfSegments	UnsignedInteger32	RO D BE	Specifies the number of segments composing the ribbon bridge

Sensor CLASS

Sensors and emitters, such as stand-alone radars, jammers, and detection systems, that are not part of another platform or system described by another Physical Entity, and are operated by armed forces.

Name	Type	Flags	Description
antennaRaised	bool	RO D BE	Whether the sensor/emitter's antenna is raised or not.

Name	Type	Flags	Description
blackoutLightsOn	bool	RO D BE	Whether the sensor/emitter's blackout lights are on or not.
lightsOn	bool	RO D BE	Whether the sensor/emitter's lights are on or not.
interiorLightsOn	bool	RO D BE	Whether the sensor/emitter's interior lights are on or not.
missionKill	bool	RO D BE	Whether the sensor/emitter has sustained damage that will prevent it carrying out its mission or not (e.g. damaged antenna).

SovietIFF CLASS

Soviet type IFF system

Name	Type	Flags	Description
parameter1Enabled	bool	RO D BE	Specifies whether or not Parameter 1 is enabled.
parameter1IsDamaged	bool	RO D BE	Specifies whether or not Parameter 1 is damaged.
parameter1Is Malfunctioning	bool	RO D BE	Specifies whether or not Parameter 1 is malfunctioning.
parameter1IsOn	bool	RO D BE	Specifies whether or not Parameter 1 is on.
parameter2Enabled	bool	RO D BE	Specifies whether or not Parameter 2 is enabled.
parameter2IsDamaged	bool	RO D BE	Specifies whether or not Parameter 2 is damaged.
parameter2Is Malfunctioning	bool	RO D BE	Specifies whether or not Parameter 2 is malfunctioning.
parameter2IsOn	bool	RO D BE	Specifies whether or not Parameter 2 is on.
parameter3Enabled	bool	RO D BE	Specifies whether or not Parameter 3 is enabled.
parameter3IsDamaged	bool	RO D BE	Specifies whether or not Parameter 3 is damaged.
parameter3Is Malfunctioning	bool	RO D BE	Specifies whether or not Parameter 3 is malfunctioning.
parameter3IsOn	bool	RO D BE	Specifies whether or not Parameter 3 is on.
parameter4Enabled	bool	RO D BE	Specifies whether or not Parameter 4 is enabled.
parameter4IsDamaged	bool	RO D BE	Specifies whether or not Parameter 4 is damaged.
parameter4Is Malfunctioning	bool	RO D BE	Specifies whether or not Parameter 4 is malfunctioning.
parameter4IsOn	bool	RO D BE	Specifies whether or not Parameter 4 is on.
parameter5Enabled	bool	RO D BE	Specifies whether or not Parameter 5 is enabled.
parameter5IsDamaged	bool	RO D BE	Specifies whether or not Parameter 5 is damaged.
parameter5Is Malfunctioning	bool	RO D BE	Specifies whether or not Parameter 5 is malfunctioning.
parameter5IsOn	bool	RO D BE	Specifies whether or not Parameter 5 is on.
parameter6Enabled	bool	RO D BE	Specifies whether or not Parameter 6 is enabled.
parameter6IsDamaged	bool	RO D BE	Specifies whether or not Parameter 6 is damaged.
parameter6Is Malfunctioning	bool	RO D BE	Specifies whether or not Parameter 6 is malfunctioning.
parameter6IsOn	bool	RO D BE	Specifies whether or not Parameter 6 is on.

SovietIFFInterrogator CLASS

Soviet IFF Interrogator

SovietIFFTransponder CLASS

Soviet IFF Transponder

Spacecraft CLASS

A platform entity that operates mainly in space.

StructureObject CLASS

A building structure, building rubble, stationary bridge, AVLB object.

SubmersibleVessel CLASS

A platform entity that operates either on the surface of the sea, or beneath it.

Supplies CLASS

Supplies other than munitions, such as fuel, food and personnel.

SurfaceVessel CLASS

A platform entity that operates wholly on the surface of the sea.

UnderwaterAcousticsEmission CLASS

The underwater acoustic classes used to communicate underwater acoustic active, intentional emissions and Passive Signature or Unintentional Emissions information. These emissions are used during undersea warfare scenarios to detect, classify, and track hostile forces when electronic warfare mechanisms are unavailable.

Name	Type	Flags	Description
`eventIdentifier`	EventIdentifierStruct	RO D BE	The generating federate uses the Event Identifier to associate related events. The event number begins at one at the beginning of the exercise and is incremented by one for each event.

Fixed records

AccelerationVectorStruct	The magnitude of the change in linear velocity over time.	181
Acknowledge	A Simulation Management (SIMAN) interaction designed to acknowledge receipt of a SIMAN PDU from a Simulation Manager federate and to inform the Simulation Manager federate whether the federate has implemented the request.	181
AcknowledgeR	A Simulation Management (SIMAN) interaction designed to acknowledge receipt of a SIMAN PDU, with a specified acknowledgement protocol, from a Simulation Manager federate and to inform the Simulation Manager federate whether the federate has implemented the request.	181
AcousticTransient	Specifies the occurrence of a transient acoustic event such as torpedo tube floodings, hatch slams, and wrench drops.	182
ActionRequest	A Simulation Management (SIMAN) interaction sent from a Simulation Manager federate to one or more federates to request that they perform a specified action.	182
ActionRequestR	A Simulation Management (SIMAN) interaction sent from a Simulation Manager federate to one or more federates to request that they perform a specified action. The Simulation Manager federate specifies the acknowledgement protocol to be used.	182
ActionRequestToObject	A Simulation Management (SIMAN) interaction sent from a Simulation Manager federate to one or more specific object instances to request that they perform a specified action.	183
ActionRequestToObjectR	A Simulation Management (SIMAN) interaction sent from a Simulation Manager federate to one or more specific object instances to request that they perform a specified action. The Simulation Manager federate specifies the acknowledgement protocol to be used.	183

ActionResponse	A Simulation Management (SIMAN) interaction designed to acknowledge receipt of an ActionResponse interaction from a Simulation Manager federate and to inform the Simulation Manager federate whether the federate has implemented the request.	183
ActionResponseFromObject	A Simulation Management (SIMAN) interaction designed to acknowledge receipt of an ActionResponseToObject interaction from a Simulation Manager federate and to inform the Simulation Manager federate whether the object has implemented the request.	183
ActionResponseFromObjectR	A Simulation Management (SIMAN) interaction designed to acknowledge receipt of an ActionResponseToObjectR interaction from a Simulation Manager federate and to inform the Simulation Manager federate whether the object has implemented the request.	183
ActionResponseR	A Simulation Management (SIMAN) interaction designed to acknowledge receipt of an ActionResponseR interaction from a Simulation Manager federate and to inform the Simulation Manager federate whether the federate has implemented the request.	184
AggregateMarkingStruct	Unique marking associated with an aggregate.	184
AngularVelocityVectorStruct	The rate at which the orientation is changing over time, in body coordinates.	184
ApplicationSpecificRadioSignal	A radio signal that can be used for an application specific encoding scheme.	184
ArealObjectTransaction	An interaction for modifying instances of the ArealObject class.	185
ArticulatedParameterStruct	Structure to specify a movable or attached part of an entity. Based on the Articulation Parameter record as specified in IEEE 1278.1-1995 section 5.2.5. Note that usage of this datatype for the PhyscialEntity object class attribute ArticulatedParametersArray and MunitionDetonation interaction class parameter ArticulatedPartData shall be in accordance with IEEE 1278.1-1995 Annex A.	185
ArticulatedPartsStruct	Structure to represent the state of a movable part of an entity.	186
AttachedPartsStruct	Structure to represent removable parts that may be attached to an entity.	186
AttributeChangeRequest	A Simulation Management (SIMAN) interaction, sent from a Simulation Manager federate to ask that a specified attribute be set to a specified value.	186
AttributeChangeRequestR	A Simulation Management (SIMAN) interaction, sent from a Simulation Manager federate to ask that a specified attribute be set to a specified value. The Simulation Manager federate specifies the acknowledgement protocol to be used.	186
AttributeChangeResult	A Simulation Management (SIMAN) interaction designed to acknowledge receipt of an AttributeChangeRequest interaction from a Simulation Manager federate, and to inform the Simulation Manager federate whether the attribute was set to the specified value or not.	187
AttributeChangeResultR	A Simulation Management (SIMAN) interaction designed to acknowledge receipt of an AttributeChangeRequest interaction from a Simulation Manager federate, and to inform the Simulation Manager federate whether the attribute was set to the specified value or not. The Simulation Manager federate specifies the acknowledgement protocol to be used.	187
AttributeValuePairStruct	Pair of an AttributeHandle identifying an attribute and data for that attribute.	187
AudioDataTypeStruct	Specifies an encoded audio radio signal.	187
BeamAntennaStruct	Specifies the direction, pattern, and polarization of radiation from a radio transmitter's antenna.	187
BreachObjectTransaction	An interaction sent to an environment manager to request the creation, modification, or deletion of instances of the BreachObject class.	188
BreachStruct	Record specifying the characteristics of a breach linear object segment	188
BreachableLinearObjectTransaction	An interaction sent to an environment manager to request the creation, modification, or deletion of instances of the BreachableLinearObject class.	188
BreachablePointObjectTransaction	An interaction sent to an environment manager to request the creation, modification, or deletion of instances of the BreachablePointObject class.	189
BreachableSegmentStruct	Record specifying the characteristics of a breachable linear object segment	189
BurstPointObjectTransaction	An interaction sent to an environment manager to request the creation, modification, or deletion of instances of the BurstPointObject class.	190
COMBICStateRecStruct	Record specifying COMBIC state record	191
ClockTimeStruct	Specification of the point in time of an occurrence. Based on the Clock Time record as specified in IEEE 1278.1-1995 section 5.2.8.	191
Collision	The act or instance of coming together with solid impact.	191
CollisionElastic	The act or instance of coming together with solid impact in an elastic manner. An elastic collision allows a higher fidelity collision to be modeled, taking into account linear and rotational momentum transfer, variable elasticity, and momentum transfer that is dependent on surface orientation.	192
Comment	A Simulation Management (SIMAN) interaction used to insert messages and information into a log stream and closely matches the structures used by the Data interaction class. This information is usually unsolicited in nature. The information contained within the Interaction should be used for commenting purposes only.	192
Cone1GeomRecStruct	Record specifying Cone 1 geometry record	193
Cone2GeomRecStruct	Record specifying Cone 2 geometry record	193

ConstituentPartRelationshipStruct	The relationship of the constituent part object to its host object. Based on the Relationship record as specified in IEEE 1278.1a-1998 section 5.2.56.	193
CraterObjectTransaction	An interaction sent to an environment manager to request the creation, modification, or deletion of instances of the CraterObject class.	193
CreateEntity	A Simulation Management (SIMAN) interaction, sent from a Simulation Manager to request that an application creates an entity. See DIS 4.5.5.4.1 and DIS 5.3.6 for details.	194
CreateEntityR	A Simulation Management (SIMAN) interaction, sent from a Simulation Manager to request that an application creates an entity, using a specified acknowledgement service. See DIS 4.5.11.3.1 and DIS 5.3.12.1 for details.	194
CreateObjectRequest	A Simulation Management (SIMAN) interaction, sent from a Simulation Manager federate to another federate requesting that it create an object instance of a particular type.	195
CreateObjectRequestR	A Simulation Management (SIMAN) interaction, sent from a Simulation Manager federate to another federate requesting that it create an object instance of a particular type. The Simulation Manager federate specifies the acknowledgement protocol to be used.	195
CreateObjectResult	A Simulation Management (SIMAN) interaction designed to acknowledge receipt of a CreateObjectRequest from a Simulation Manager federate and to inform the Simulation Manager federate whether the object creation was successful or not.	195
CreateObjectResultR	A Simulation Management (SIMAN) interaction designed to acknowledge receipt of a CreateObjectRequest from a Simulation Manager federate and to inform the Simulation Manager federate whether the object creation was successful or not. The Simulation Manager federate specifies the acknowledgement protocol to be used.	195
Data	A Simulation Management (SIMAN) interaction designed to acknowledge either a) a DataQuery interaction (in which case the Data interaction contains the results of the query) or b) a SetData interaction (in which case the Data interaction contains the data that the federate was able to set).	196
DataQuery	A Simulation Management (SIMAN) interaction, sent from a Simulation Manager federate to request that a federate supply the current values of specified data.	196
DataQueryR	A Simulation Management (SIMAN) interaction, sent from a Simulation Manager federate to request that a federate supply the current values of specified data. The Simulation Manager federate specifies the acknowledgement protocol to be used.	196
DataR	A Simulation Management (SIMAN) interaction designed to acknowledge either a) a DataQueryR interaction (in which case the DataR interaction contains the results of the query) or b) a SetDataR interaction (in which case the DataR interaction contains the data that the federate was able to set).	197
DatabaseIndexRadioSignal	A radio signal that represents transmission of a pre-determined message by using a pre-defined database index.	197
DimensionRateStruct	Record specifying length X, Y, Z rates	197
DimensionStruct	Bounding box in X,Y,Z axis.	198
Ellipsoid1GeomRecStruct	Record specifying Ellipsoid 1 geometry record	198
Ellipsoid2GeomRecStruct	Record specifying Ellipsoid 2 geometry record	198
EncodedAudioRadioSignal	A radio signal used to transmit voice/audio data encoded according to a standard encoding scheme.	198
EntityCoordinateVectorStruct	Vector in the entity coordinate system. Based on the Entity Coordinate Vector record as specified in IEEE 1278.1-1995 section 5.2.33a.	199
EntityIdentifierStruct	Unique, exercise-wide identification of the entity, or a symbolic group address referencing multiple entities or a simulation application. Based on the Entity Identifier record as specified in IEEE 1278.1-1995 section 5.2.14.	199
EntityTypeStruct	Type of entity. Based on the Entity Type record as specified in IEEE 1278.1-1995 section 5.2.16.	199
EnvironmentObjectTransaction	A base interaction for modifying instances of point, linear and areal environment object classes.	200
EnvironmentObjectTypeStruct	Record specifying the domain, the kind and the specific identification of the environment object	200
EnvironmentRecStruct	Record specifying an environment (geometry or state) record	200
EnvironmentTypeStruct	Record specifying the kind of environment, the domain and any extra information necessary for describing the environmental entity	200
EventIdentifierStruct	Identification of an event. Based on the Event Identifier record as specified in IEEE 1278.1-1995 section 5.2.18.	201
EventReport	A Simulation Management (SIMAN) interaction designed to allow a federate to alert a Simulation Manager federate that a particular event has occurred.	201
ExhaustSmokeObjectTransaction	An interaction sent to an environment manager to request the creation, modification, or deletion of instances of the ExhaustSmokeObject class.	201
ExhaustSmokeStruct	Record specifying the characteristics of a linear object smoke segment	202

FederateIdentifierStruct	Unique identification of the simulation application (federate) in an exercise, or a symbolic group address referencing multiple simulation applications. Based on the Simulation Address record as specified in IEEE 1278.1-1995 section 5.2.14.1.	202
FixedDatumStruct	Identifier and value for a fixed datum.	202
FlareStateRecStruct	Record specifying Flare state record	203
FundamentalParameterDataStruct	Fundamental Parameter Data record.	203
GaussPlumeGeomRecStruct	Record specifying Gaussian Plume geometry record	203
GaussPuffGeomRecStruct	Record specifying Gaussian Puff geometry record	204
GridAxisStruct	Record specifying grid Xi axis data	204
GridDataStruct	Record specifying grid data representation	204
GridValueType0Struct	Record specifying type 0 data representation	204
GridValueType1Struct	Record specifying type 1 data representation	205
GridValueType2Struct	Record specifying type 2 data representation	205
IrregularGridAxisStruct	Record specifying irregular (variable spacing) axis data	205
IsPartOfStruct	Defines the spatial relationship between two objects.	205
JTIDSTransmitterStruct	Contains JTIDS specific information about the JTIDS transmitter system.	206
Line1GeomRecStruct	Record specifying Line 1 geometry record	206
Line2GeomRecStruct	Record specifying Line 2 geometry record	206
LinearObjectTransaction	An interaction for modifying instances of the LinearObject class.	206
LinearSegmentStruct	Specifies linear object segment characteristics.	207
Link11BTransmitterStruct	Contains specific information about the Link 11B transmitter system.	207
Link11TransmitterStruct	Contains specific information about the Link 11 transmitter system.	207
MarkingStruct	Character set used in the marking and the string of characters to be interpreted for display.	208
MineFusingStruct	Record specifying the type of primary fuse, the type of the secondary fuse and the anti-handling device status of a mine	208
MinefieldLaneMarkerObjectTransaction	An interaction sent to an environment manager to request the creation, modification, or deletion of instances of the MinefieldLaneMarkerObject class.	208
MinefieldLaneMarkerStruct	Record specifying a minefield lane marker segment	209
MinefieldObjectTransaction	An interaction sent to an environment manager to request the creation, modification, or deletion of instances of the MinefieldObject class.	209
MinefieldQuery	Provides the means by which a federate shall query a minefield simulation for information on the individual mines within the minefield operating in QRP mode.	209
MinefieldResponseNACK	A response to a MinefieldQuery providing information on individual mines within a minefield.	210
MunitionDetonation	Communicates information associated with the impact or detonation of a munition	210
NamedLocationStruct	The discrete positional relationship of the constituent part object with respect to its host object. Based on the specifications in IEEE 1278.1a-1998 of the IsPartOf PDU 'Location of Part' (paragraph 5.3.9.4e) and 'Named Location' (paragraph 5.3.9.4f) fields.	211
OrientationStruct	The orientation of an object in the world coordinate system, as specified in IEEE Std 1278.1-1995 section 1.3.2.	211
OtherArealObjectTransaction	An interaction sent to an environment manager to request the creation, modification, or deletion of instances of the OtherArealObject class.	211
OtherLinearObjectTransaction	An interaction sent to an environment manager to request the creation, modification, or deletion of instances of the OtherLinearObject class.	212
OtherPointObjectTransaction	An interaction sent to an environment manager to request the creation, modification, or deletion of instances of the OtherPointObject class.	212
PerimeterPointStruct	Record specifying the location of a perimeter point	213
PlumeDimensionRateStruct	Record specifying plume dimension rates	213
PlumeDimensionStruct	Record specifying plume dimensions	213
Point2GeomRecStruct	Record specifying Point 2 geometry record	213
PointObjectTransaction	An interaction for modifying instances of the PointObject class.	214
PropulsionSystemDataStruct	Information describing a propulsion system in terms of power settings and current RPM.	214
RadioSignal	The wireless transmission and reception of audio or digital data by means of electromagnetic waves.	215
RadioTypeStruct	Specifies the type of a radio.	215
RawBinaryRadioSignal	A radio signal used to transmit raw binary data.	215
RecordQueryR	A Simulation Management (SIMAN) interaction designed to allow a Simulation Manager federate to request data, in record format, from another federate.	215
RecordR	A Simulation Management (SIMAN) interaction designed to acknowledge receipt of a RecordQueryR or SetRecordR interaction from a Simulation Manager federate and to inform the Simulation Manager federate whether the federate has implemented the request.	216
RecordSetStruct	A set of records and record details.	216
RecordStruct	Record data.	216
RectVol1GeomRecStruct	Record specifying Rectangular Volume 1 geometry record	217

RectVol2GeomRecStruct	Record specifying Rectangular Volume 2 geometry record	217
RectVol3GeomRecStruct	Record specifying Rectangular Volume 3 geometry record	217
RelativePositionStruct	Relative position in right-handed Cartesian coordinates.	217
RelativeRangeBearingStruct	Relative position in polar coordinates.	217
RemoveEntity	A Simulation Management (SIMAN) interaction, sent from a Simulation Manager to request that a specified entity be removed from the simulation.	218
RemoveEntityR	A Simulation Management (SIMAN) interaction, sent from a Simulation Manager to request that a specified entity be removed from the simulation.	218
RemoveObjectRequest	A Simulation Management (SIMAN) interaction, sent from a Simulation Manager to request that one or more specified objects be removed from the simulation.	218
RemoveObjectRequestR	A Simulation Management (SIMAN) interaction, sent from a Simulation Manager to request that one or more specified objects be removed from the simulation.	218
RemoveObjectResult	A Simulation Management (SIMAN) interaction designed to acknowledge receipt of a RemoveObjectRequest interaction, and to inform the Simulation Manager federate whether the removal was successful or not.	219
RemoveObjectResultR	A Simulation Management (SIMAN) interaction designed to acknowledge receipt of a RemoveObjectRequestR interaction, and to inform the Simulation Manager federate whether the removal was successful or not.	219
RepairComplete	Notifies the requesting entity that the requested repair has been completed.	219
RepairResponse	Acknowledges the notification of the completion of a repair.	219
ResupplyCancel	Communicates the canceling of a service function by either the receiving or the supplying entity.	219
ResupplyOffer	Communicates the offer of supplies from a supplying entity to a receiving entity.	219
ResupplyReceived	Acknowledge the receipt of supplies.	220
RibbonBridgeObjectTransaction	An interaction sent to an environment manager to request the creation, modification, or deletion of instances of the RibbonBridgeObject class.	220
SINCGARSModulationStruct	Modulation parameters for SINCGARS radio system	221
ServiceRequest	A request for logistics support. The requesting entity issues the interaction to the supplying entity asking for repair or specific supplies.	221
SetData	A Simulation Management (SIMAN) interaction, sent from a Simulation Manager federate to request that a federate sets the values of specified data to specified values.	221
SetDataR	A Simulation Management (SIMAN) interaction, sent from a Simulation Manager federate to request that a federate sets the values of specified data to specified values. The Simulation Manager federate specifies the acknowledgement protocol to be used.	221
SetRecordR	A Simulation Management (SIMAN) interaction, sent from a Simulation Manager federate to request that a federate sets the values of specified data to specified values (provided in record format).	222
ShaftDataStruct	Rotation state of a ship's propulsion shaft	222
SilentAggregateStruct	These fields contain information about subaggregates not registered in the federation.	223
SilentEntityStruct	These fields contain information about entities not registered in the federation.	223
SpatialFPStruct	Spatial structure for Dead Reckoning Algorithm FPW (2) and FPB (6).	223
SpatialFVStruct	Spatial structure for Dead Reckoning Algorithm FVW (5) and RVB (9).	223
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SpatialRVStruct	Spatial structure for Dead Reckoning Algorithm RVW (4) and RVB (8).	224
SpatialStaticStruct	Spatial structure for Dead Reckoning Algorithm Static (1).	224
Sphere1GeomRecStruct	Record specifying Bounding Sphere & Sphere 1 geometry record	225
Sphere2GeomRecStruct	Record specifying Sphere 2 geometry record	225
SphericalHarmonicAntennaStruct	Specifies the direction and radiation pattern from a radio transmitter's antenna.	225
StartResume	A Simulation Management (SIMAN) interaction, sent from a Simulation Manager federate to either a) start simulating one or more entities or b) resume simulation of one or more entities after a pause.	225
StartResumeR	A Simulation Management (SIMAN) interaction, sent from a Simulation Manager federate to either a) start simulating one or more entities or b) resume simulation of one or more entities after a pause. The Simulation Manager federate specifies the acknowledgement protocol to be used.	226
StopFreeze	A Simulation Management (SIMAN) interaction, sent from a Simulation Manager federate to request that one or more entities either a) freeze (pause) their simulation or b) stop their simulation.	226
StopFreezeR	A Simulation Management (SIMAN) interaction, sent from a Simulation Manager federate to request that one or more entities either a) pause their simulation or b) stop their simulation. The Simulation Manager federate specifies the acknowledgement protocol to be used.	227
StructureObjectTransaction	An interaction sent to an environment manager to request the creation, modification, or deletion of instances of the StructureObject class.	227
SupplyStruct	Represents a single supply type and the quantity being offered or requested.	228

TransferControl	A Simulation Management (SIMAN) interaction, sent to initiate the transfer of control of an entity.	228
UniformGeomRecStruct	Record specifying Uniform geometry record	228
VariableDatumStruct	These fields shall specify the types of variable datum, their length, and their value.	229
VectoringNozzleSystemDataStruct	Operational data for describing the vectoring nozzle systems being simulated.	229
VelocityVectorStruct	The rate at which the position is changing over time.	229
WeaponFire	Communicates information associated with the firing or launch of a munition.	229
WorldLocationStruct	The location of an object in the world coordinate system, as specified in IEEE Std 1278.1-1995 section 1.3.2.	230

AccelerationVectorStruct STRUCTURE

The magnitude of the change in linear velocity over time.

Name	Type	Description
xAcceleration	AccelerationMeterPerSecondSquaredFloat32	Acceleration component along the X axis.
yAcceleration	AccelerationMeterPerSecondSquaredFloat32	Acceleration component along the Y axis.
zAcceleration	AccelerationMeterPerSecondSquaredFloat32	Acceleration component along the Z axis.

Named by Designator, SpatialFVStruct, SpatialRVStruct.

Acknowledge STRUCTURE

A Simulation Management (SIMAN) interaction designed to acknowledge receipt of a SIMAN PDU from a Simulation Manager federate and to inform the Simulation Manager federate whether the federate has implemented the request.

Name	Type	Description
originatingEntity	EntityIdentifierStruct	The DIS entity ID of the entity or application sending the interaction.
receivingEntity	EntityIdentifierStruct	The DIS entity ID of the entity or application which is the intended recipient of the interaction.
requestIdentifier	UnsignedInteger32	This field matches this response with the specific StartResume, StopFreeze, CreateEntity or RemoveEntity interaction sent by the simulation manager.
acknowledgeFlag	AcknowledgeFlagEnum16	The type of interaction being acknowledged.
responseFlag	ResponseFlagEnum16	The type of response made to the interaction by the recipient.

AcknowledgeR STRUCTURE

A Simulation Management (SIMAN) interaction designed to acknowledge receipt of a SIMAN PDU, with a specified acknowledgement protocol, from a Simulation Manager federate and to inform the Simulation Manager federate whether the federate has implemented the request.

Name	Type	Description
originatingEntity	EntityIdentifierStruct	The DIS entity ID of the entity or application sending the interaction.
receivingEntity	EntityIdentifierStruct	The DIS entity ID of the entity or application which is the intended recipient of the interaction.
requestIdentifier	UnsignedInteger32	This field matches this response with the specific StartResume, StopFreeze, CreateEntity or RemoveEntity interaction sent by the simulation manager.
acknowledgeFlag	AcknowledgeFlagEnum16	The type of interaction being acknowledged.

Name	Type	Description
responseFlag	ResponseFlagEnum16	The type of response made to the interaction by the recipient.

AcousticTransient STRUCTURE

Specifies the occurrence of a transient acoustic event such as torpedo tube floodings, hatch slams, and wrench drops.

Name	Type	Description
activityCode	UnsignedInteger16	Index into a data base of transient acoustic events
activityParameter	Integer16	The current state of the activity specified by the activity code
hostObjectIdentifier	string	The Object Instance ID of the object emitting the sound
relativePosition	RelativePositionStruct	The location of the sound relative to the hosts coordinate system

ActionRequest STRUCTURE

A Simulation Management (SIMAN) interaction sent from a Simulation Manager federate to one or more federates to request that they perform a specified action.

Name	Type	Description
originatingEntity	EntityIdentifierStruct	The DIS entity ID of the entity or application sending the interaction.
receivingEntity	EntityIdentifierStruct	The DIS entity ID of the entity or application which is the intended recipient(s) of the interaction.
requestIdentifier	UnsignedInteger32	The Request ID is a monotonically increasing integer identifier inserted by the Simulation Manager into all Simulation management interactions. It is used as a unique identifier to identify the latest in a series of competing requests and identifying acknowledgements.
actionRequestCode	ActionEnum32	The action that the recipient(s) are requested to perform.
fixedDatums	FixedDatumStruct LengthlessArray	Optional additional data items (types and values)
variableDatumSet	VariableDatumStruct Array	Optional additional data items (types and values). These data items are not of fixed length.

ActionRequestR STRUCTURE

A Simulation Management (SIMAN) interaction sent from a Simulation Manager federate to one or more federates to request that they perform a specified action. The Simulation Manager federate specifies the acknowledgement protocol to be used.

Name	Type	Description
originatingEntity	EntityIdentifierStruct	The DIS entity ID of the entity or application sending the interaction.
receivingEntity	EntityIdentifierStruct	The DIS entity ID of the entity or application which is the intended recipient(s) of the interaction.
requestIdentifier	UnsignedInteger32	The Request ID is a monotonically increasing integer identifier inserted by the Simulation Manager into all Simulation management interactions. It is used as a unique identifier to identify the latest in a series of competing requests and identifying acknowledgements.
actionRequestCode	ActionEnum32	The action that the recipient(s) are requested to perform.
fixedDatums	FixedDatumStruct LengthlessArray	Optional additional data items (types and values)
variableDatumSet	VariableDatumStruct Array	Optional additional data items (types and values). These data items are not of fixed length.
acknowledgement Protocol	Acknowledgement ProtocolEnum8	The acknowledgement protocol to be used for a transaction

ActionRequestToObject STRUCTURE

A Simulation Management (SIMAN) interaction sent from a Simulation Manager federate to one or more specific object instances to request that they perform a specified action.

Name	Type	Description
objectIdentifiers	RTIobjectIdArray	The list of objects that are the intended recipients of this interaction.
actionRequestCode	ActionEnum32	The action that the recipient(s) are intended to perform.

ActionRequestToObjectR STRUCTURE

A Simulation Management (SIMAN) interaction sent from a Simulation Manager federate to one or more specific object instances to request that they perform a specified action. The Simulation Manager federate specifies the acknowledgement protocol to be used.

Name	Type	Description
objectIdentifiers	RTIobjectIdArray	The list of objects that are the intended recipients of this interaction.
actionRequestCode	ActionEnum32	The action that the recipient(s) are intended to perform.
acknowledgement Protocol	Acknowledgement ProtocolEnum8	The acknowledgement protocol to be used for this transaction

ActionResponse STRUCTURE

A Simulation Management (SIMAN) interaction designed to acknowledge receipt of an ActionResponse interaction from a Simulation Manager federate and to inform the Simulation Manager federate whether the federate has implemented the request.

Name	Type	Description
originatingEntity	EntityIdentifierStruct	The DIS entity ID of the entity or application sending the interaction.
receivingEntity	EntityIdentifierStruct	The DIS entity ID of the entity or application which is the intended recipient of the interaction.
requestIdentifier	UnsignedInteger32	This field matches this response with the specific ActionRequest interaction sent by the simulation manager.
requestStatus	RequestStatusEnum32	The status of the request that the recipient has been asked to perform.
fixedDatums	FixedDatumStruct LengthlessArray	Additional, fixed length data items (types and values).
variableDatumSet	VariableDatumStruct Array	Additional, non fixed length, data items (types and values).

ActionResponseFromObject STRUCTURE

A Simulation Management (SIMAN) interaction designed to acknowledge receipt of an ActionResponseToObject interaction from a Simulation Manager federate and to inform the Simulation Manager federate whether the object has implemented the request.

Name	Type	Description
actionResult	ActionResultEnum32	The status of the request that the recipient has been asked to perform.

ActionResponseFromObjectR STRUCTURE

A Simulation Management (SIMAN) interaction designed to acknowledge receipt of an ActionResponseToObjectR interaction from a Simulation Manager federate and to inform the Simulation Manager federate whether the object has implemented the request.

Name	Type	Description
actionResult	ActionResultEnum32	The status of the request that the recipient has been asked to perform.

ActionResponseR STRUCTURE

A Simulation Management (SIMAN) interaction designed to acknowledge receipt of an ActionResponseR interaction from a Simulation Manager federate and to inform the Simulation Manager federate whether the federate has implemented the request.

Name	Type	Description
originatingEntity	EntityIdentifierStruct	The DIS entity ID of the entity or application sending the interaction.
receivingEntity	EntityIdentifierStruct	The DIS entity ID of the entity or application which is the intended recipient of the interaction.
requestIdentifier	UnsignedInteger32	This field matches this response with the specific ActionRequest interaction sent by the simulation manager.
requestStatus	RequestStatusEnum32	The status of the request that the recipient has been asked to perform.
fixedDatums	FixedDatumStruct LengthlessArray	Additional, fixed length data items (types and values).
variableDatumSet	VariableDatumStruct Array	Additional, non fixed length, data items (types and values).

AggregateMarkingStruct STRUCTURE

Unique marking associated with an aggregate.

Name	Type	Description
markingEncodingType	MarkingEncoding Enum8	The type of marking.
markingData	MarkingArray31	The marking itself.

Named by AggregateEntity.

AngularVelocityVectorStruct STRUCTURE

The rate at which the orientation is changing over time, in body coordinates.

Name	Type	Description
xAngularVelocity	AngularVelocityRadian PerSecondFloat32	Acceleration component about the X axis.
yAngularVelocity	AngularVelocityRadian PerSecondFloat32	Acceleration component about the Y axis.
zAngularVelocity	AngularVelocityRadian PerSecondFloat32	Acceleration component about the Z axis.

Named by Cone2GeomRecStruct, Ellipsoid2GeomRecStruct, GaussPuffGeomRecStruct, RectVol2GeomRecStruct, SpatialRPStruct, SpatialRVStruct, Sphere2GeomRecStruct.

ApplicationSpecificRadioSignal STRUCTURE

A radio signal that can be used for an application specific encoding scheme.

Name	Type	Description
hostRadioIndex	string	The object instance ID of the radio transmitting this signal.
dataRate	BitRateBitPerSecond UnsignedInteger32	The rate at which the data is being transmitted.
signalDataLength	BitsUnsignedInteger16	The length of the signal data.

Name	Type	Description
signalData	SignalDataLengthlessArray1Plus	The signal data.
tacticalDataLinkType	TacticalDataLinkTypeEnum16	The type of tactical data link used to transmitted this signal (if any).
tDLMessageCount	UnsignedInteger16	The number of tactical data link messages contained in this signal.
userProtocolID	UserProtocolEnum32	The ID of the user protocol in use.

ArealObjectTransaction STRUCTURE

An interaction for modifying instances of the ArealObject class.

Name	Type	Description
objectIdentifier	EntityIdentifierStruct	Identifies this EnvironmentObject instance (point, linear or areal)
referencedObjectIdentifier	string	Identifies the Synthetic Environment object instance to which this EnvironmentObject instance is associated
forceIdentifier	ForceIdentifierEnum8	Identifies the force that created or modified this EnvironmentObject instance
objectType	EnvironmentObjectTypeStruct	Identifies the type of this EnvironmentObject instance
requestingIdentifier	FederateIdentifierStruct	Identifies the simulation application sending the EnvironmentObjectTransaction interaction
receivingIdentifier	FederateIdentifierStruct	Identifies the simulation application receiving the EnvironmentObjectTransaction interaction
pointsData	WorldLocationStructLengthlessArray	Specifies the physical location (a collection of points) that defines the object
percentComplete	PercentUnsignedInteger32	Specifies the percent completion of the object
damagedAppearance	DamageStatusEnum32	Specifies the damaged appearance of the object
objectPreDistributed	bool	Specifies whether or not the object was created before the start of the exercise
deactivated	bool	Specifies whether or not the object has been deactivated (it has ceased to exist in the synthetic environment)
smoking	bool	Specifies whether or not the object is smoking (creating a smoke plume)
flaming	bool	Specifies whether or not the object is flaming

ArticulatedParameterStruct STRUCTURE

Structure to specify a movable or attached part of an entity. Based on the Articulation Parameter record as specified in IEEE 1278.1-1995 section 5.2.5. Note that usage of this datatype for the PhyscialEntity object class attribute Articulated-ParametersArray and MunitionDetonation interaction class parameter ArticulatedPartData shall be in accordance with IEEE 1278.1-1995 Annex A.

Name	Type	Description
articulatedParameterChange	Octet	Indicator of a change to the part. This field shall be set to zero for each exercise and sequentially incremented by one for each change in articulation parameters. In the case where all possible values are exhausted, the numbers shall be reused beginning at zero.
partAttachedTo	UnsignedInteger16	Identification of the articulated part to which this articulation parameter is attached. This field shall contain the value zero if the articulated part is attached directly to the entity.

Name	Type	Description
parameterValue	ParameterValueVariantStruct	Details of the parameter: whether it is an articulated or an attached part, and its type and value.

Named by ArticulatedParameterStructLengthlessArray.

ArticulatedPartsStruct STRUCTURE

Structure to represent the state of a movable part of an entity.

Name	Type	Description
classVal	ArticulatedPartsTypeEnum32	The type class uniquely identifies a particular articulated part on a given entity type. Guidance for uniquely assigning type classes to an entity's articulated parts is given in section 4.8 of the enumeration document (SISO-REF-010).
typeMetric	ArticulatedTypeMetricEnum32	The type metric uniquely identifies the transformation to be applied to the articulated part.
value	Float32	Value of the transformation to be applied to the articulated part.

Named by ParameterValueVariantStruct.

AttachedPartsStruct STRUCTURE

Structure to represent removable parts that may be attached to an entity.

Name	Type	Description
station	StationEnum32	Identification of the location (or station) to which the part is attached.
storeType	EntityTypeStruct	The entity type of the attached part.

Named by ParameterValueVariantStruct.

AttributeChangeRequest STRUCTURE

A Simulation Management (SIMAN) interaction, sent from a Simulation Manager federate to ask that a specified attribute be set to a specified value.

Name	Type	Description
objectIdentifiers	RTIobjectIdArray	The list of objects that are the intended recipients of this interaction.
attributeValueSet	AttributeValuePairStructArray1Plus	The set of attributes and their values, that the recipients are asked to update.

AttributeChangeRequestR STRUCTURE

A Simulation Management (SIMAN) interaction, sent from a Simulation Manager federate to ask that a specified attribute be set to a specified value. The Simulation Manager federate specifies the acknowledgement protocol to be used.

Name	Type	Description
objectIdentifiers	RTIobjectIdArray	The list of objects that are the intended recipients of this interaction.
attributeValueSet	AttributeValuePairStructArray1Plus	The set of attributes and their values, that the recipients are asked to update.
acknowledgementProtocol	AcknowledgementProtocolEnum8	The acknowledgement protocol to be used for a transaction

AttributeChangeResult STRUCTURE

A Simulation Management (SIMAN) interaction designed to acknowledge receipt of an AttributeChangeRequest interaction from a Simulation Manager federate, and to inform the Simulation Manager federate whether the attribute was set to the specified value or not.

Name	Type	Description
objectIdentifier	string	The ID of the object replying to the AttributeChangeRequest interaction.
attributeChangeResult	ResponseFlagEnum16	Indicates ability to comply.
attributeValueSet	AttributeValuePair StructArray1Plus	The set of attributes and their values that the recipient has been able to update.

AttributeChangeResultR STRUCTURE

A Simulation Management (SIMAN) interaction designed to acknowledge receipt of an AttributeChangeRequest interaction from a Simulation Manager federate, and to inform the Simulation Manager federate whether the attribute was set to the specified value or not. The Simulation Manager federate specifies the acknowledgement protocol to be used.

Name	Type	Description
objectIdentifier	string	The ID of the object replying to the AttributeChangeRequest interaction.
attributeChangeResult	ResponseFlagEnum16	Indicates ability to comply.
attributeValueSet	AttributeValuePair StructArray1Plus	The set of attributes and their values that the recipient has been able to update.
acknowledgement Protocol	Acknowledgement ProtocolEnum8	The acknowledgement protocol to be used for this transaction

AttributeValuePairStruct STRUCTURE

Pair of an AttributeHandle identifying an attribute and data for that attribute.

Name	Type	Description
attributeHandle	UnsignedInteger32	AttributeHandle identifying attribute.
numberOfBytesAValue	OctetArray	Value for the specified attribute.
paddingTo32	OctetPadding32Array	Brings the record length to a 32-bit boundary

Named by AttributeValuePairStructArray1Plus.

AudioDataTypeStruct STRUCTURE

Specifies an encoded audio radio signal.

Name	Type	Description
streamTag	UnsignedInteger64	Identifier for the audio stream. This must be globally unique.
encodingType	EncodingTypeEnum32	The type of encoding used for the audio data
sampleRate	BitRateBitPerSecond UnsignedInteger32	The number of samples per second in the audio data.
dataLength	BitsUnsignedInteger16	The length of the signal data.
sampleCount	UnsignedInteger32	The number of samples in this transmission.
data	SignalDataLengthless Array1Plus	The signal data.

Named by EncodedAudioRadioSignal.

BeamAntennaStruct STRUCTURE

Specifies the direction, pattern, and polarization of radiation from a radio transmitter's antenna.

Name	Type	Description
beamOrientation	OrientationStruct	The rotation that transforms the reference coordinate system into the beam coordinate system.
beamAzimuthBeamwidth	AngleRadianFloat32	The full width of the beam to the -3 dB power density points in the x-y plane of the beam coordinate system.
beamElevation Beamwidth	AngleRadianFloat32	The full width of the beam to the -3 dB power density points in the x-z plane of the beam coordinate system.
referenceSystem	ReferenceSystem Enum8	The reference coordinate system with respect to which beam direction is specified
ez	Float32	The magnitude of the Z-component (in beam coordinates) of the Electrical field at some arbitrary single point in the mainbeam and in the far field of the antenna.
ex	Float32	The magnitude of the X-component (in beam coordinates) of the Electrical field at some arbitrary single point in the mainbeam and in the far field of the antenna
beamPhaseAngle	Float32	The phase angle between Ez and Ex in radians.

Named by AntennaPatternVariantStruct.

BreachObjectTransaction STRUCTURE

An interaction sent to an environment manager to request the creation, modification, or deletion of instances of the BreachObject class.

Name	Type	Description
objectIdentifier	EntityIdentifierStruct	Identifies this EnvironmentObject instance (point, linear or areal)
referencedObject Identifier	string	Identifies the Synthetic Environment object instance to which this EnvironmentObject instance is associated
forceIdentifier	ForceIdentifierEnum8	Identifies the force that created or modified this EnvironmentObject instance
objectType	EnvironmentObject TypeStruct	Identifies the type of this EnvironmentObject instance
requestingIdentifier	FederateIdentifier Struct	Identifies the simulation application sending the EnvironmentObjectTransaction interaction
receivingIdentifier	FederateIdentifier Struct	Identifies the simulation application receiving the EnvironmentObjectTransaction interaction
segmentRecords	BreachStruct LengthlessArray	Specifies a breach linear object

BreachStruct STRUCTURE

Record specifying the characteristics of a breach linear object segment

Name	Type	Description
segmentParameters	LinearSegmentStruct	Specifies the breach linear object segment characteristics
padding	OctetArray4	Padding to 64 bits

Named by BreachStructLengthlessArray.

BreachableLinearObjectTransaction STRUCTURE

An interaction sent to an environment manager to request the creation, modification, or deletion of instances of the BreachableLinearObject class.

Name	Type	Description
objectIdentifier	EntityIdentifierStruct	Identifies this EnvironmentObject instance (point, linear or areal)

Name	Type	Description
referencedObject Identifier	string	Identifies the Synthetic Environment object instance to which this EnvironmentObject instance is associated
forceIdentifier	ForceIdentifierEnum8	Identifies the force that created or modified this EnvironmentObject instance
objectType	EnvironmentObject TypeStruct	Identifies the type of this EnvironmentObject instance
requestingIdentifier	FederateIdentifier Struct	Identifies the simulation application sending the EnvironmentObjectTransaction interaction
receivingIdentifier	FederateIdentifier Struct	Identifies the simulation application receiving the EnvironmentObjectTransaction interaction
segmentRecords	BreachableSegment StructLengthlessArray	Specifies a breachable linear object

BreachablePointObjectTransaction STRUCTURE

An interaction sent to an environment manager to request the creation, modification, or deletion of instances of the BreachablePointObject class.

Name	Type	Description
objectIdentifier	EntityIdentifierStruct	Identifies this EnvironmentObject instance (point, linear or areal)
referencedObject Identifier	string	Identifies the Synthetic Environment object instance to which this EnvironmentObject instance is associated
forceIdentifier	ForceIdentifierEnum8	Identifies the force that created or modified this EnvironmentObject instance
objectType	EnvironmentObject TypeStruct	Identifies the type of this EnvironmentObject instance
requestingIdentifier	FederateIdentifier Struct	Identifies the simulation application sending the EnvironmentObjectTransaction interaction
receivingIdentifier	FederateIdentifier Struct	Identifies the simulation application receiving the EnvironmentObjectTransaction interaction
location	WorldLocationStruct	Specifies the location of the object based on x, y and z coordinates
orientation	OrientationStruct	Specifies the angles of rotation around the coordinate axis between the object's attitude and the reference coordinate system axes ; these are calculated as the Tait-Bryan Euler angles, specifying the successive rotations needed to transform from the world coordinate system to the object coordinate system
percentComplete	PercentUnsigned Integer32	Specifies the percent completion of the object
damagedAppearance	DamageStatus Enum32	Specifies the damaged appearance of the object
objectPreDistributed	bool	Specifies whether or not the object was created before the start of the exercise
deactivated	bool	Specifies whether or not the object has been deactivated (it has ceased to exist in the synthetic environment)
smoking	bool	Specifies whether or not the object is smoking (creating a smoke plume)
flaming	bool	Specifies whether or not the object is flaming
breachedStatus	BreachedStatusEnum8	Specifies the breached appearance of the object

BreachableSegmentStruct STRUCTURE

Record specifying the characteristics of a breachable linear object segment

Name	Type	Description
segmentParameters	LinearSegmentStruct	Specifies the breachable linear object segment characteristics
breachLength	UnsignedInteger32	Specifies the breachable linear object segment as 8 portions of length = BreachLength
breachedState	BreachedStatusEnum8	Specifies the breached appearance of the breachable linear object segment
segmentBreached	BreachedStatusArray8	Specifies whether the segment portion beginning at the segment origin + (i*BreachLength) and extending BreachLength meters is breached or not
padding	OctetArray7	Padding to 64 bits

Named by BreachableSegmentStructLengthlessArray.

BurstPointObjectTransaction STRUCTURE

An interaction sent to an environment manager to request the creation, modification, or deletion of instances of the BurstPointObject class.

Name	Type	Description
objectIdentifier	EntityIdentifierStruct	Identifies this EnvironmentObject instance (point, linear or areal)
referencedObject Identifier	string	Identifies the Synthetic Environment object instance to which this EnvironmentObject instance is associated
forceIdentifier	ForceIdentifierEnum8	Identifies the force that created or modified this EnvironmentObject instance
objectType	EnvironmentObject TypeStruct	Identifies the type of this EnvironmentObject instance
requestingIdentifier	FederateIdentifier Struct	Identifies the simulation application sending the EnvironmentObjectTransaction interaction
receivingIdentifier	FederateIdentifier Struct	Identifies the simulation application receiving the EnvironmentObjectTransaction interaction
location	WorldLocationStruct	Specifies the location of the object based on x, y and z coordinates
orientation	OrientationStruct	Specifies the angles of rotation around the coordinate axis between the object's attitude and the reference coordinate system axes ; these are calculated as the Tait-Bryan Euler angles, specifying the successive rotations needed to transform from the world coordinate system to the object coordinate system
percentComplete	PercentUnsigned Integer32	Specifies the percent completion of the object
damagedAppearance	DamageStatus Enum32	Specifies the damaged appearance of the object
objectPreDistributed	bool	Specifies whether or not the object was created before the start of the exercise
deactivated	bool	Specifies whether or not the object has been deactivated (it has ceased to exist in the synthetic environment)
smoking	bool	Specifies whether or not the object is smoking (creating a smoke plume)
flaming	bool	Specifies whether or not the object is flaming
percentOpacity	PercentUnsigned Integer32	Specifies the opacity of the smoke
cylinderSize	UnsignedInteger32	Specifies the radius of the cylinder approximating an individual smoke burst ; for multiple bursts, the center bottom of each cylinder is calculated based on the model used to represent the multiple bursts

Name	Type	Description
cylinderHeight	UnsignedInteger32	Specifies the height of the cylinder approximating an individual smoke burst ; for multiple bursts, the center bottom of each cylinder is calculated based on the model used to represent the multiple bursts
numberOfBursts	UnsignedInteger32	Specifies the number of bursts in the instance of tactical smoke
chemicalContent	ChemicalContentEnum32	Specifies the chemical content of the smoke

COMBICStateRecStruct STRUCTURE

Record specifying COMBIC state record

Name	Type	Description
timeSinceCreation	UnsignedInteger32	Time since creation
munitionSource	EntityTypeStruct	Munition source
numberOfSources	Integer32	Number of sources
geometryIndex	UnsignedInteger16	Geometry index
sourceType	UnsignedInteger32	Source type
barrageRate	Float32	Barrage rate
barrageDuration	Float32	Barrage duration
barrageCrosswindLength	Float32	Barrage crosswind length
barrageDownwindLength	Float32	Barrage downwind length
detonationVelocity	VelocityVectorStruct	Detonation velocity
padding	OctetArray4	Padding field

Named by EnvironmentRecVariantStruct.

ClockTimeStruct STRUCTURE

Specification of the point in time of an occurrence. Based on the Clock Time record as specified in IEEE 1278.1-1995 section 5.2.8.

Name	Type	Description
hours	ClockTimeHourInteger32	The number of hours since 0000 hours, January 1, 1970 UTC.
timePastTheHour	TimestampUnsignedInteger32	The time past the hour indicated in the Hours field.

Named by ClockTimeStructLengthlessArray, StartResume, StartResumeR, StopFreeze, StopFreezeR.

Collision STRUCTURE

The act or instance of coming together with solid impact.

Name	Type	Description
collidingObjectIdentifier	string	The object instance ID of the object that the issuing object has collided with.
issuingObjectMass	MassKilogramFloat32	The mass of the issuing object.
issuingObjectVelocityVector	VelocityVectorStruct	The velocity vector of the issuing object at the moment of impact.
collisionType	CollisionTypeEnum8	The type of collision.
collisionLocation	RelativePositionStruct	The location of the collision relative to the object that the issuing object has collided with.

Name	Type	Description
eventIdentifier	EventIdentifierStruct	An ID assigned by the issuing object to associate related collision events.
issuingObject Identifier	string	The object instance ID of the object that has detected the collision and issued the collision interaction.

CollisionElastic STRUCTURE

The act or instance of coming together with solid impact in an elastic manner. An elastic collision allows a higher fidelity collision to be modeled, taking into account linear and rotational momentum transfer, variable elasticity, and momentum transfer that is dependent on surface orientation.

Name	Type	Description
collidingObject Identifier	string	The object instance ID of the object that the issuing object has collided with.
issuingObjectMass	MassKilogramFloat32	The mass of the issuing object.
issuingObjectVelocity Vector	VelocityVectorStruct	The velocity vector of the issuing object at the moment of impact.
collisionType	CollisionTypeEnum8	The type of collision.
collisionLocation	RelativePositionStruct	The location of the collision relative to the object that the issuing object has collided with.
eventIdentifier	EventIdentifierStruct	An ID assigned by the issuing object to associate related collision events.
issuingObject Identifier	string	The object instance ID of the object that has detected the collision and issued the collision interaction.
coefficientOf Restitution	Float32	The degree that energy is conserved in a collision.
intermediateResultXX	Float32	X-X Component of the positive semi-definite Collision Intermediate Result matrix.
intermediateResultXY	Float32	X-Y Component of the positive semi-definite Collision Intermediate Result matrix.
intermediateResultXZ	Float32	X-Z Component of the positive semi-definite Collision Intermediate Result matrix.
intermediateResultYY	Float32	Y-Y Component of the positive semi-definite Collision Intermediate Result matrix.
intermediateResultYZ	Float32	Y-Z Component of the positive semi-definite Collision Intermediate Result matrix.
intermediateResultZZ	Float32	Z-Z Component of the positive semi-definite Collision Intermediate Result matrix.
unitSurfaceNormal	EntityCoordinateVector Struct	The normal vector to the surface at the point of collision detection.

Comment STRUCTURE

A Simulation Management (SIMAN) interaction used to insert messages and information into a log stream and closely matches the structures used by the Data interaction class. This information is usually unsolicited in nature. The information contained within the Interaction should be used for commenting purposes only.

Name	Type	Description
originatingEntity	EntityIdentifierStruct	The DIS entity ID of the entity or application sending the interaction.
receivingEntity	EntityIdentifierStruct	The DIS entity ID of the entity or application which is the intended recipient(s) of the interaction.
variableDatumSet	VariableDatumStruct Array	The set of data items (types and values) associated with the interaction.

Cone1GeomRecStruct STRUCTURE

Record specifying Cone 1 geometry record

Name	Type	Description
vertexLocation	WorldLocationStruct	Vertex location X, Y, Z
orientation	OrientationStruct	Orientation, specified by Euler angles
height	Float32	Height
peakAngle	Float32	Peak angle
padding	OctetArray4	Padding field

Named by EnvironmentRecVariantStruct.

Cone2GeomRecStruct STRUCTURE

Record specifying Cone 2 geometry record

Name	Type	Description
vertexLocation	WorldLocationStruct	Vertex location X, Y, Z
orientation	OrientationStruct	Orientation, specified by Euler angles
velocity	VelocityVectorStruct	Velocity Vx, Vy, Vz
angularVelocity	AngularVelocityVector Struct	Angular velocity Vx, Vy, Vz
height	Float32	Height
heightRate	Float32	Variation of height
peakAngle	Float32	Peak angle
peakAngleRate	Float32	Variation of peak angle
padding	OctetArray4	Padding field

Named by EnvironmentRecVariantStruct.

ConstituentPartRelationshipStruct STRUCTURE

The relationship of the constituent part object to its host object. Based on the Relationship record as specified in IEEE 1278.1a-1998 section 5.2.56.

Name	Type	Description
nature	ConstituentPartNature Enum16	The nature or purpose for the joining of the constituent part object to the host object.
position	ConstituentPart PositionEnum16	The position of the constituent part object with respect to the host object.

Named by IsPartOfStruct.

CraterObjectTransaction STRUCTURE

An interaction sent to an environment manager to request the creation, modification, or deletion of instances of the CraterObject class.

Name	Type	Description
objectIdentifier	EntityIdentifierStruct	Identifies this EnvironmentObject instance (point, linear or areal)
referencedObject Identifier	string	Identifies the Synthetic Environment object instance to which this EnvironmentObject instance is associated
forceIdentifier	ForceIdentifierEnum8	Identifies the force that created or modified this EnvironmentObject instance
objectType	EnvironmentObject TypeStruct	Identifies the type of this EnvironmentObject instance

Name	Type	Description
requestingIdentifier	FederateIdentifier Struct	Identifies the simulation application sending the EnvironmentObjectTransaction interaction
receivingIdentifier	FederateIdentifier Struct	Identifies the simulation application receiving the EnvironmentObjectTransaction interaction
location	WorldLocationStruct	Specifies the location of the object based on x, y and z coordinates
orientation	OrientationStruct	Specifies the angles of rotation around the coordinate axis between the object's attitude and the reference coordinate system axes ; these are calculated as the Tait-Bryan Euler angles, specifying the successive rotations needed to transform from the world coordinate system to the object coordinate system
percentComplete	PercentUnsigned Integer32	Specifies the percent completion of the object
damagedAppearance	DamageStatus Enum32	Specifies the damaged appearance of the object
objectPreDistributed	bool	Specifies whether or not the object was created before the start of the exercise
deactivated	bool	Specifies whether or not the object has been deactivated (it has ceased to exist in the synthetic environment)
smoking	bool	Specifies whether or not the object is smoking (creating a smoke plume)
flaming	bool	Specifies whether or not the object is flaming
craterSize	UnsignedInteger32	Specifies the diameter of the crater, where the center of the crater is at the point object location

CreateEntity STRUCTURE

A Simulation Management (SIMAN) interaction, sent from a Simulation Manager to request that an application creates an entity. See DIS 4.5.5.4.1 and DIS 5.3.6 for details.

Name	Type	Description
originatingEntity	EntityIdentifierStruct	The DIS entity ID of the entity or application sending the interaction.
receivingEntity	EntityIdentifierStruct	The FederateIdentifier field identifies the federate that is responsible for creating the entity (if possible). The complete parameter defines the entity ID of the new entity (see also note [18]).
requestIdentifier	UnsignedInteger32	The Request ID is a monotonically increasing integer identifier inserted by the Simulation Manager into all Simulation management interactions. It is used as a unique identifier to identify the latest in a series of competing requests and identifying acknowledgements.

CreateEntityR STRUCTURE

A Simulation Management (SIMAN) interaction, sent from a Simulation Manager to request that an application creates an entity, using a specified acknowledgement service. See DIS 4.5.11.3.1 and DIS 5.3.12.1 for details.

Name	Type	Description
originatingEntity	EntityIdentifierStruct	The DIS entity ID of the entity or application sending the interaction.
receivingEntity	EntityIdentifierStruct	The FederateIdentifier field identifies the federate that is responsible for creating the entity (if possible). The complete parameter defines the entity ID of the new entity (see also note [18]).

Name	Type	Description
requestIdentifier	UnsignedInteger32	The Request ID is a monotonically increasing integer identifier inserted by the Simulation Manager into all Simulation management interactions. It is used as a unique identifier to identify the latest in a series of competing requests and identifying acknowledgements.
acknowledgement Protocol	Acknowledgement ProtocolEnum8	The acknowledgement protocol to be used for a transaction

CreateObjectRequest STRUCTURE

A Simulation Management (SIMAN) interaction, sent from a Simulation Manager federate to another federate requesting that it create an object instance of a particular type.

Name	Type	Description
objectClass	UnsignedInteger32	The class of object to be created.
attributeValueSet	AttributeValuePair StructArray1Plus	The set of attributes, and associated values, to be used to initialize the object.
requestIdentifier	UnsignedInteger32	The Request ID is a monotonically increasing integer identifier inserted by the Simulation Manager into all Simulation management interactions. It is used as a unique identifier to identify the latest in a series of competing requests and identifying acknowledgements.

CreateObjectRequestR STRUCTURE

A Simulation Management (SIMAN) interaction, sent from a Simulation Manager federate to another federate requesting that it create an object instance of a particular type. The Simulation Manager federate specifies the acknowledgement protocol to be used.

Name	Type	Description
objectClass	UnsignedInteger32	The class of object to be created.
attributeValueSet	AttributeValuePair StructArray1Plus	The set of attributes, and associated values, to be used to initialize the object.
requestIdentifier	UnsignedInteger32	The Request ID is a monotonically increasing integer identifier inserted by the Simulation Manager into all Simulation management interactions. It is used as a unique identifier to identify the latest in a series of competing requests and identifying acknowledgements.
acknowledgement Protocol	Acknowledgement ProtocolEnum8	The acknowledgement protocol to be used for a transaction

CreateObjectResult STRUCTURE

A Simulation Management (SIMAN) interaction designed to acknowledge receipt of a CreateObjectRequest from a Simulation Manager federate and to inform the Simulation Manager federate whether the object creation was successful or not.

Name	Type	Description
createObjectResult	ResponseFlagEnum16	Indicates ability to comply.
requestIdentifier	UnsignedInteger32	This field matches this response with the specific CreateObject interaction sent by the simulation manager.

CreateObjectResultR STRUCTURE

A Simulation Management (SIMAN) interaction designed to acknowledge receipt of a CreateObjectRequest from a Simulation Manager federate and to inform the Simulation Manager federate whether the object creation was successful or not. The Simulation Manager federate specifies the acknowledgement protocol to be used.

Name	Type	Description
createObjectResult	ResponseFlagEnum16	Indicates ability to comply.
requestIdentifier	UnsignedInteger32	This field matches this response with the specific CreateObject interaction sent by the simulation manager.

Data STRUCTURE

A Simulation Management (SIMAN) interaction designed to acknowledge either a) a DataQuery interaction (in which case the Data interaction contains the results of the query) or b) a SetData interaction (in which case the Data interaction contains the data that the federate was able to set).

Name	Type	Description
originatingEntity	EntityIdentifierStruct	The DIS entity ID of the entity or application sending the interaction.
receivingEntity	EntityIdentifierStruct	The DIS entity ID of the entity or application which is the intended recipient of the interaction.
requestIdentifier	UnsignedInteger32	This field matches this response with the specific SetData or DataQuery interaction sent by the simulation manager.
fixedDatums	FixedDatumStruct LengthlessArray	The set of data items (types and values), of fixed length, that the recipient can return for this interaction.
variableDatumSet	VariableDatumStruct Array	The set of data items (types and values), of variable length, that the recipient can return for this interaction.

DataQuery STRUCTURE

A Simulation Management (SIMAN) interaction, sent from a Simulation Manager federate to request that a federate supply the current values of specified data.

Name	Type	Description
originatingEntity	EntityIdentifierStruct	The DIS entity ID of the entity or application sending the interaction.
receivingEntity	EntityIdentifierStruct	The DIS entity ID of the entity or application which is the intended recipient of the interaction.
requestIdentifier	UnsignedInteger32	The Request ID is a monotonically increasing integer identifier inserted by the Simulation Manager into all Simulation management interactions. It is used as a unique identifier to identify the latest in a series of competing requests and identifying acknowledgements.
timeInterval	UnsignedInteger32	The interval between regular updates of the requested data. If this field is zero then the recipient should only issue a single Data interaction in response to this interaction.
fixedDatumIdentifiers	DatumIdentifier LengthlessArray	The set of fixed length data items (types) that the recipient is requested to supply data for.
variableDatum Identifiers	DatumIdentifier LengthlessArray	The set of variable length data items (types) that the recipient is requested to supply data for.

DataQueryR STRUCTURE

A Simulation Management (SIMAN) interaction, sent from a Simulation Manager federate to request that a federate supply the current values of specified data. The Simulation Manager federate specifies the acknowledgement protocol to be used.

Name	Type	Description
originatingEntity	EntityIdentifierStruct	The DIS entity ID of the entity or application sending the interaction.
receivingEntity	EntityIdentifierStruct	The DIS entity ID of the entity or application which is the intended recipient of the interaction.

Name	Type	Description
requestIdentifier	UnsignedInteger32	The Request ID is a monotonically increasing integer identifier inserted by the Simulation Manager into all Simulation management interactions. It is used as a unique identifier to identify the latest in a series of competing requests and identifying acknowledgements.
timeInterval	UnsignedInteger32	The interval between regular updates of the requested data. If this field is zero then the recipient should only issue a single Data interaction in response to this interaction.
fixedDatumIdentifiers	DatumIdentifier LengthlessArray	The set of fixed length data items (types) that the recipient is requested to supply data for.
variableDatum Identifiers	DatumIdentifier LengthlessArray	The set of variable length data items (types) that the recipient is requested to supply data for.
acknowledgement Protocol	Acknowledgement ProtocolEnum8	The acknowledgement protocol to be used for a transaction

DataR STRUCTURE

A Simulation Management (SIMAN) interaction designed to acknowledge either a) a DataQueryR interaction (in which case the DataR interaction contains the results of the query) or b) a SetDataR interaction (in which case the DataR interaction contains the data that the federate was able to set).

Name	Type	Description
originatingEntity	EntityIdentifierStruct	The DIS entity ID of the entity or application sending the interaction.
receivingEntity	EntityIdentifierStruct	The DIS entity ID of the entity or application which is the intended recipient of the interaction.
requestIdentifier	UnsignedInteger32	This field matches this response with the specific SetData or DataQuery interaction sent by the simulation manager.
fixedDatums	FixedDatumStruct LengthlessArray	The set of data items (types and values), of fixed length, that the recipient can return for this interaction.
variableDatumSet	VariableDatumStruct Array	The set of data items (types and values), of variable length, that the recipient can return for this interaction.
acknowledgement Protocol	Acknowledgement ProtocolEnum8	The acknowledgement protocol to be used for a transaction

DatabaseIndexRadioSignal STRUCTURE

A radio signal that represents transmission of a pre-determined message by using a pre-defined database index.

Name	Type	Description
hostRadioIndex	string	The object instance ID of the radio transmitting this signal.
databaseIndex	UnsignedInteger32	The index into the federation specific database of stored signals.
duration	TimeMillisecond UnsignedInteger32	The duration of the stored signal to be replayed.
startOffset	TimeMillisecond UnsignedInteger32	The offset, from the start of the stored signal, that the signal is replayed from.
tacticalDataLinkType	TacticalDataLinkType Enum16	The type of tactical data link used to transmitted this signal (if any).
tDLMessageCount	UnsignedInteger16	The number of tactical data link messages contained in this signal.

DimensionRateStruct STRUCTURE

Record specifying length X, Y, Z rates

Name	Type	Description
xRate	VelocityMeterPerSecondFloat32	Variation of X axis length
yRate	VelocityMeterPerSecondFloat32	Variation of Y axis length
zRate	VelocityMeterPerSecondFloat32	Variation of Z axis length

Named by GaussPuffGeomRecStruct, RectVol2GeomRecStruct.

DimensionStruct STRUCTURE

Bounding box in X,Y,Z axis.

Name	Type	Description
xAxisLength	MeterFloat32	Length in meters along X axis.
yAxisLength	MeterFloat32	Length in meters along Y axis.
zAxisLength	MeterFloat32	Length in meters along Z axis.

Named by AggregateEntity, Ellipsoid1GeomRecStruct, Ellipsoid2GeomRecStruct, GaussPuffGeomRecStruct, RectVol1GeomRecStruct, RectVol2GeomRecStruct, RectVol3GeomRecStruct.

Ellipsoid1GeomRecStruct STRUCTURE

Record specifying Ellipsoid 1 geometry record

Name	Type	Description
centroidLocation	WorldLocationStruct	Centroid location X, Y, Z
sigmaValue	DimensionStruct	Sigma dimensions
orientation	OrientationStruct	Orientation, specified by Euler angles

Named by EnvironmentRecVariantStruct.

Ellipsoid2GeomRecStruct STRUCTURE

Record specifying Ellipsoid 2 geometry record

Name	Type	Description
centroidLocation	WorldLocationStruct	Centroid location X, Y, Z
sigmaValue	DimensionStruct	Sigma dimensions
sigmaRate	VelocityVectorStruct	Variation of sigma dimensions
orientation	OrientationStruct	Orientation, specified by Euler angles
velocity	VelocityVectorStruct	Velocity Vx, Vy, Vz
angularVelocity	AngularVelocityVectorStruct	Angular velocity Vx, Vy, Vz
padding	OctetArray4	Padding field

Named by EnvironmentRecVariantStruct.

EncodedAudioRadioSignal STRUCTURE

A radio signal used to transmit voice/audio data encoded according to a standard encoding scheme.

Name	Type	Description
audioData	AudioDataTypeStruct	The data associated with the encoded audio radio signal

EntityCoordinateVectorStruct STRUCTURE

Vector in the entity coordinate system. Based on the Entity Coordinate Vector record as specified in IEEE 1278.1-1995 section 5.2.33a.

Name	Type	Description
xComponent	MeterFloat32	Component along the X axis
yComponent	MeterFloat32	Component along the Y axis
zComponent	MeterFloat32	Component along the Z axis

Named by CollisionElastic.

EntityIdentifierStruct STRUCTURE

Unique, exercise-wide identification of the entity, or a symbolic group address referencing multiple entities or a simulation application. Based on the Entity Identifier record as specified in IEEE 1278.1-1995 section 5.2.14.

Name	Type	Description
federateIdentifier	FederateIdentifier Struct	Simulation application (federate) identifier.
entityNumber	UnsignedInteger16	Each entity in a given simulation application shall be given an entity identifier number unique to all other entities in that application. This identifier number is valid for the duration of the exercise; however, entity identifier numbers may be reused when all possible numbers have been exhausted. No entity shall have an entity identifier number of NO_ENTITY (0), ALL_ENTITIES (0xFFFF), or RQST_ASSIGN_ID (0xFFFE). The entity identifier number need not be registered or retained for future exercises. An entity identifier number equal to zero with valid site and application identification shall address a simulation application. An entity identifier number equal to ALL_ENTITIES shall mean all entities within the specified site and application. An entity identifier number equal to RQST_ASSIGN_ID allows the receiver of the CreateEntity interaction to define the entity identifier number of the new entity. The new entity will specify its entity identifier number in the Acknowledge interaction.

Named by netn.GeoLocationReferenceVariant, netn.GeoReferenceVariant, Acknowledge, AcknowledgeR, ActionRequest, ActionRequestR, ActionResponse, ActionResponseR, ArealObjectTransaction, BaseEntity, BreachObjectTransaction, BreachableLinearObjectTransaction, BreachablePointObjectTransaction, BurstPointObjectTransaction, Comment, CraterObjectTransaction, CreateEntity, CreateEntityR, Data, DataQuery, DataQueryR, DataR, EmbeddedSystem, EnvironmentObject, EnvironmentObjectTransaction, EnvironmentProcess, EventReport, ExhaustSmokeObjectTransaction, GriddedData, IsPartOfStruct, LinearObjectTransaction, Minefield, MinefieldLaneMarkerObjectTransaction, MinefieldObjectTransaction, OtherArealObjectTransaction, OtherLinearObjectTransaction, OtherPointObjectTransaction, PointObjectTransaction, RecordQueryR, RecordR, RemoveEntity, RemoveEntityR, RibbonBridgeObjectTransaction, SetData, SetDataR, SetRecordR, StartResume, StartResumeR, StopFreeze, StopFreezeR, StructureObjectTransaction, TransferControl.

EntityTypeStruct STRUCTURE

Type of entity. Based on the Entity Type record as specified in IEEE 1278.1-1995 section 5.2.16.

Name	Type	Description
entityKind	Octet	Kind of entity.
domain	Octet	Domain in which the entity operates.
countryCode	UnsignedInteger16	Country to which the design of the entity is attributed.
category	Octet	Main category that describes the entity.
subcategory	Octet	Subcategory to which an entity belongs based on the Category field.
specific	Octet	Specific information about an entity based on the Subcategory field.
extra	Octet	Extra information required to describe a particular entity.

Named by netn.AisEquipmentItem, netn.CreateMinefield, netn.CreateObstacle, netn.EquipmentItem, netn.FireAtEntityWM, netn.FireAtLocationWM, netn.Holding, netn.InWeaponRangeReport, netn.Installation, netn.NETNSupplyStruct, netn.ResourceStatusNumberStruct, netn.SensorReport, netn.SpottedEquipment, netn.Unit, AttachedPartsStruct, BaseEntity, COMBICStateRecStruct, EntityTypeStruct LengthlessArray, FlareStateRecStruct, Minefield, MinefieldData, MinefieldQuery, MunitionDetonation, PhysicalEntity, SilentAggregateStruct, SilentEntityStruct, SupplyStruct, WeaponFire.

EnvironmentObjectTransaction STRUCTURE

A base interaction for modifying instances of point, linear and areal environment object classes.

Name	Type	Description
objectIdentifier	EntityIdentifierStruct	Identifies this EnvironmentObject instance (point, linear or areal)
referencedObject Identifier	string	Identifies the Synthetic Environment object instance to which this EnvironmentObject instance is associated
forceIdentifier	ForceIdentifierEnum8	Identifies the force that created or modified this EnvironmentObject instance
objectType	EnvironmentObject TypeStruct	Identifies the type of this EnvironmentObject instance
requestingIdentifier	FederateIdentifier Struct	Identifies the simulation application sending the EnvironmentObjectTransaction interaction
receivingIdentifier	FederateIdentifier Struct	Identifies the simulation application receiving the EnvironmentObjectTransaction interaction

EnvironmentObjectTypeStruct STRUCTURE

Record specifying the domain, the kind and the specific identification of the environment object

Name	Type	Description
domain	Octet	Specifies the domain in which the object exists
kind	Octet	Identifies the kind of object
category	Octet	Specifies the main category that describes the object
subcategory	Octet	Specifies a particular subcategory to which an object belongs based on the Category field

Named by netn.SEFacility, ArealObjectTransaction, BreachObjectTransaction, BreachableLinearObjectTransaction, BreachablePointObjectTransaction, BurstPointObjectTransaction, CraterObjectTransaction, EnvironmentObject, EnvironmentObjectTransaction, ExhaustSmokeObjectTransaction, LinearObjectTransaction, MinefieldLaneMarkerObjectTransaction, MinefieldObjectTransaction, OtherArealObjectTransaction, OtherLinearObjectTransaction, OtherPointObjectTransaction, PointObjectTransaction, RibbonBridgeObjectTransaction, StructureObjectTransaction.

EnvironmentRecStruct STRUCTURE

Record specifying an environment (geometry or state) record

Name	Type	Description
index	UnsignedInteger32	Identifies the sequentially numbered record index
dataVariant	EnvironmentRec VariantStruct	Specifies geometry and state record alternatives

Named by EnvironmentRecStructArray.

EnvironmentTypeStruct STRUCTURE

Record specifying the kind of environment, the domain and any extra information necessary for describing the environmental entity

Name	Type	Description
entityKind	Octet	Identifies the kind of entity

Name	Type	Description
domain	Octet	Specifies a single primary domain in which the environmental condition exists
classVal	UnsignedInteger16	Identifies the type of environmental entity
category	Octet	Specifies the main category that describes the environmental entity
subcategory	Octet	Specifies a particular subcategory to which an environmental entity belongs based on the Category field
specific	Octet	Identifies specific information about an environmental entity based on the Subcategory field
extra	Octet	Specifies extra information required to describe a particular environmental entity

Named by EnvironmentProcess, GriddedData.

EventIdentifierStruct STRUCTURE

Identification of an event. Based on the Event Identifier record as specified in IEEE 1278.1-1995 section 5.2.18.

Name	Type	Description
eventCount	UnsignedInteger16	The event number. Uniquely assigned by the simulation application (federate) that initiates the sequence of events. It shall be set to one for each exercise and incremented by one for each event. In the case where all possible values are exhausted, the numbers may be reused beginning again at one.
issuingObject Identifier	string	Identification of the object issuing the event.

Named by ActiveSonarBeam, Collision, CollisionElastic, EmitterBeam, EmitterSystem, IFF, MunitionDetonation, UnderwaterAcoustics Emission, WeaponFire.

EventReport STRUCTURE

A Simulation Management (SIMAN) interaction designed to allow a federate to alert a Simulation Manager federate that a particular event has occurred.

Name	Type	Description
originatingEntity	EntityIdentifierStruct	The DIS entity ID of the entity or application sending the interaction.
receivingEntity	EntityIdentifierStruct	The DIS entity ID of the entity or application which is the intended recipient(s) of the interaction.
eventType	EventTypeEnum32	The type of event being reported.
fixedDatums	FixedDatumStruct LengthlessArray	The set of fixed size data items (types and values) associated with this event.
variableDatumSet	VariableDatumStruct Array	The set of variable size data items (types and values) associated with this event.

ExhaustSmokeObjectTransaction STRUCTURE

An interaction sent to an environment manager to request the creation, modification, or deletion of instances of the ExhaustSmokeObject class.

Name	Type	Description
objectIdentifier	EntityIdentifierStruct	Identifies this EnvironmentObject instance (point, linear or areal)
referencedObject Identifier	string	Identifies the Synthetic Environment object instance to which this EnvironmentObject instance is associated

Name	Type	Description
forceIdentifier	ForceIdentifierEnum8	Identifies the force that created or modified this EnvironmentObject instance
objectType	EnvironmentObject TypeStruct	Identifies the type of this EnvironmentObject instance
requestingIdentifier	FederateIdentifier Struct	Identifies the simulation application sending the EnvironmentObjectTransaction interaction
receivingIdentifier	FederateIdentifier Struct	Identifies the simulation application receiving the EnvironmentObjectTransaction interaction
segmentRecords	ExhaustSmokeStruct LengthlessArray	Specifies an exhaust smoke linear object

ExhaustSmokeStruct STRUCTURE

Record specifying the characteristics of a linear object smoke segment

Name	Type	Description
segmentParameters	LinearSegmentStruct	Specifies the linear object smoke segment characteristics
percentOpacity	PercentUnsigned Integer32	Specifies the opacity of the linear object smoke segment
attached	bool	Specifies whether the linear object smoke segment is attached to the vehicle
chemicalContent	ChemicalContent Enum32	Specifies the chemical content of the linear object smoke segment

Named by ExhaustSmokeStructLengthlessArray.

FederateIdentifierStruct STRUCTURE

Unique identification of the simulation application (federate) in an exercise, or a symbolic group address referencing multiple simulation applications. Based on the Simulation Address record as specified in IEEE 1278.1-1995 section 5.2.14.1.

Name	Type	Description
siteID	UnsignedInteger16	Each site shall be assigned a unique site identification. No individual site shall be assigned an identification number containing NO_SITE (0) or ALL_SITES (0xFFFF). An identification number equal to ALL_SITES (0xFFFF) shall mean all sites; this may be used to initialize or start all sites. The mechanism by which Site Identification numbers are assigned is part of federation agreements.
applicationID	UnsignedInteger16	Each simulation application (federate) at a site shall be assigned an identification number unique within that site. No simulation application shall be assigned an identification number containing NO_APPLIC (0) or ALL_APPLIC (0xFFFF). An application identification number equal to ALL_APPLIC (0xFFFF) shall mean all applications; this may be used to start all applications within a site. One or more simulation applications may reside in a single host computer. The mechanism by which application identification numbers are assigned is part of federation agreements.

Named by ArealObjectTransaction, BreachObjectTransaction, BreachableLinearObjectTransaction, BreachablePointObjectTransaction, BurstPointObjectTransaction, CraterObjectTransaction, EntityIdentifierStruct, EnvironmentObjectTransaction, ExhaustSmokeObjectTransaction, LinearObjectTransaction, MinefieldLaneMarkerObjectTransaction, MinefieldObjectTransaction, OtherArealObjectTransaction, OtherLinearObjectTransaction, OtherPointObjectTransaction, PointObjectTransaction, RibbonBridgeObjectTransaction, StructureObjectTransaction.

FixedDatumStruct STRUCTURE

Identifier and value for a fixed datum.

Name	Type	Description
fixedDatumIdentifier	DatumIdentifierEnum32	The identifier for this fixed datum.
fixedDatumValue	UnsignedInteger32	The value for this fixed datum.

Named by FixedDatumStructLengthlessArray.

FlareStateRecStruct STRUCTURE

Record specifying Flare state record

Name	Type	Description
timeSinceCreation	UnsignedInteger32	Time since creation
source	EntityTypeStruct	Source
numberIntensity	Integer32	Number intensity
numberOfSources	Integer32	Number of sources
geometryIndex	UnsignedInteger16	Geometry index
padding	OctetArray2	Padding field

Named by EnvironmentRecVariantStruct.

FundamentalParameterDataStruct STRUCTURE

Fundamental Parameter Data record.

Name	Type	Description
erp	PowerRatioDecibelMilliwattFloat32	The average peak radiated power of the emission.
frequency	FrequencyHertzFloat32	The center frequency of the emission.
pgRF	InterrogationsPerSecondFloat32	When applied to originators, this field shall specify the number of interrogations per second emitted. This field shall be set to zero when applied to a responder (i.e. transponder) systems.
pulseWidth	TimeMicrosecondFloat32	The duration of the fundamental pulse of which the interrogation or reply is composed.
burstLength	Integer32	The number of emissions generated in a single burst. This field shall contain zero for continuously emitting systems and shall contain the value 1 for responders.
applicableModes	IffApplicableModesEnum8	Specifies the modes to which the fundamental parameter data applies.
padding	OctetArray3	Padding to 32 bits

Named by FundamentalParameterDataStructLengthlessArray.

GaussPlumeGeomRecStruct STRUCTURE

Record specifying Gaussian Plume geometry record

Name	Type	Description
sourceLocation	WorldLocationStruct	Source location X, Y, Z
orientation	OrientationStruct	Orientation, specified by Euler angles
plumeDimension	PlumeDimensionStruct	Plume dimensions
plumeDimensionRate	PlumeDimensionRateStruct	Variation of plume dimensions
leadingEdge	Float32	Leading edge
leadingEdgeVelocity	VelocityVectorStruct	Leading edge velocity
padding	OctetArray4	Padding field

Named by EnvironmentRecVariantStruct.

GaussPuffGeomRecStruct STRUCTURE

Record specifying Gaussian Puff geometry record

Name	Type	Description
puffLocation	WorldLocationStruct	Puff location X, Y, Z
originationLocation	WorldLocationStruct	Origination location X, Y, Z
sigmaValue	DimensionStruct	Sigma dimensions
sigmaRate	DimensionRateStruct	Variation of sigma dimensions
orientation	OrientationStruct	Orientation, specified by Euler angles
velocity	VelocityVectorStruct	Velocity Vx, Vy, Vz
angularVelocity	AngularVelocityVector Struct	Angular velocity Vx, Vy, Vz
centroidHeight	Float32	Centroid height

Named by EnvironmentRecVariantStruct.

GridAxisStruct STRUCTURE

Record specifying grid Xi axis data

Name	Type	Description
initialValue	Float64	Specifies the coordinate of the origin (or initial value) for the Xi axis
finalValue	Float64	Specifies the coordinate of the endpoint (or final value) for the Xi axis
totalNumberOfPoints	UnsignedInteger16	Specifies the total number of grid points along the Xi domain axis
interleafFactor	Octet	Specifies the integer valued interleaf factor along a domain (grid) Xi axis ; a value of one shall indicate no sub-sampling (interleaving), while integer values greater than one shall indicate the sampling frequency along an axis
numberOfPoints	UnsignedInteger16	Specifies the number of grid locations along the Xi axis
initialIndex	UnsignedInteger16	Specifies the index of the initial grid point along the Xi domain axis
axisTypeAAlternatives	GridAxisTypeVariant Struct	Specifies axis data alternatives

Named by GridAxisStructLengthlessArray.

GridDataStruct STRUCTURE

Record specifying grid data representation

Name	Type	Description
sampleType	EnvironmentData SampleTypeEnum16	Specifies the environmental data sample
dataRepresentation AAlternatives	GridData RepresentationVariant Struct	Specifies grid data representation alternatives

Named by GridDataStructLengthlessArray.

GridValueType0Struct STRUCTURE

Record specifying type 0 data representation

Name	Type	Description
numberOfBytesAValues	OctetArray1Plus	Specifies the number of bytes
paddingTo32	OctetPadding32Array	Brings the record length to a 32-bit boundary

Named by GridDataRepresentationVariantStruct.

GridValueType1Struct STRUCTURE

Record specifying type 1 data representation

Name	Type	Description
scale	Float32	Specifies the constant scale factor used to scale the environmental state variable data values
offset	Float32	Specifies the constant offset used to scale the environmental state variable data values
numberOfValuesAValues	Integer16Array1Plus	Specifies the number of environmental state variable data values
paddingTo32	OctetPadding32Array	Brings the record length to a 32-bit boundary

Named by GridDataRepresentationVariantStruct.

GridValueType2Struct STRUCTURE

Record specifying type 2 data representation

Name	Type	Description
numberOfValuesAValues	Float32Array1Plus	Specifies the number of environmental state variable data values

Named by GridDataRepresentationVariantStruct.

IrregularGridAxisStruct STRUCTURE

Record specifying irregular (variable spacing) axis data

Name	Type	Description
coordinateScale	Float64	Specifies the value that linearly scales the coordinates of the grid locations for the Xi axis
coordinateOffset	Float64	Specifies the constant offset value that shall be applied to the grid locations for the Xi axis
numberOfGridLocations AGridLocations	Unsigned Integer16Array1Plus	Specifies the coordinate values for the Ni grid locations along the irregular (variable spacing) Xi axis
paddingTo64	OctetPadding64Array	Brings the record length to a 64-bit boundary

Named by GridAxisTypeVariantStruct.

IsPartOfStruct STRUCTURE

Defines the spatial relationship between two objects.

Name	Type	Description
hostEntityIdentifier	EntityIdentifierStruct	The identifier of the entity of which the object is a constituent part.
hostRTIObject Identifier	string	The RTI instance identifier of the object of which this object is a constituent part.
relationship	ConstituentPart RelationshipStruct	The relationship of the constituent part object to its host object.
namedLocation	NamedLocationStruct	The discrete positional relationship of the constituent part object with respect to its host object.

Named by BaseEntity.

JTIDSTransmitterStruct STRUCTURE

Contains JTIDS specific information about the JTIDS transmitter system.

Name	Type	Description
timeSlotAllocationLevel	TimeSlotAllocationLevelEnum8	TSA level of fidelity.
transmittingTerminalPrimaryMode	JTIDSPrimaryModeEnum8	The primary mode of a JTIDS system.
transmittingTerminalSecondaryMode	JTIDSSecondaryModeEnum8	The JTIDS secondary mode of operation.
synchronizationState	JTIDSSynchronizationStateEnum8	The state of synchronization that the JTIDS system has achieved.
networkSynchronizationID	UnsignedInteger32	TSA Levels 0-2: may be set to 0 (wildcard) or the unique 32-bit value of a simulated net. TSA Levels 3 and 4: set to the unique 32-bit value of a simulated net. Only an NTR can generate a Network Synchronization ID; all other participants use the ID obtained from the NTR to which they are synchronized.

Named by SpreadSpectrumVariantStruct.

Line1GeomRecStruct STRUCTURE

Record specifying Line 1 geometry record

Name	Type	Description
startPointLocation	WorldLocationStruct	Start point location
endPointLocation	WorldLocationStruct	End point location

Named by EnvironmentRecVariantStruct.

Line2GeomRecStruct STRUCTURE

Record specifying Line 2 geometry record

Name	Type	Description
startPointLocation	WorldLocationStruct	Start point location
endPointLocation	WorldLocationStruct	End point location
startPointVelocity	VelocityVectorStruct	Start point velocity
endPointVelocity	VelocityVectorStruct	End point velocity

Named by EnvironmentRecVariantStruct.

LinearObjectTransaction STRUCTURE

An interaction for modifying instances of the LinearObject class.

Name	Type	Description
objectIdentifier	EntityIdentifierStruct	Identifies this EnvironmentObject instance (point, linear or areal)
referencedObjectIdentifier	string	Identifies the Synthetic Environment object instance to which this EnvironmentObject instance is associated
forceIdentifier	ForceIdentifierEnum8	Identifies the force that created or modified this EnvironmentObject instance
objectType	EnvironmentObjectTypeStruct	Identifies the type of this EnvironmentObject instance

Name	Type	Description
requestingIdentifier	FederateIdentifier Struct	Identifies the simulation application sending the EnvironmentObjectTransaction interaction
receivingIdentifier	FederateIdentifier Struct	Identifies the simulation application receiving the EnvironmentObjectTransaction interaction

LinearSegmentStruct STRUCTURE

Specifies linear object segment characteristics.

Name	Type	Description
segmentNumber	UnsignedInteger32	Identifies the individual segment.
percentComplete	PercentUnsigned Integer32	Specifies the percent completion of the segment.
location	WorldLocationStruct	Specifies the location of the segment.
orientation	OrientationStruct	Specifies the orientation of the segment.
length	UnsignedInteger16	Specifies the length of the segment, in meters, extending in the positive X direction.
width	UnsignedInteger16	Specifies the total width of the segment, in meters; one-half of the width shall extend in the positive Y direction, and one-half of the width shall extend in the negative Y direction.
height	UnsignedInteger16	Specifies the height of the segment, in meters, above ground.
depth	UnsignedInteger16	Specifies the depth of the segment, in meters, below ground level.
damagedState	DamageStatus Enum32	Specifies the damaged appearance of the segment.
deactivated	bool	Specifies whether or not the segment has been deactivated (it has ceased to exist in the synthetic environment).
flaming	bool	Specifies whether or not the segment is aflame.
objectPreDistributed	bool	Specifies whether or not the segment was created before the start of the exercise.
smoking	bool	Specifies whether or not the segment is smoking (creating a smoke plume).

Named by BreachStruct, BreachableSegmentStruct, ExhaustSmokeStruct, MinefieldLaneMarkerStruct.

Link11BTransmitterStruct STRUCTURE

Contains specific information about the Link 11B transmitter system.

Name	Type	Description
reportingUnit	ParticipatingUnit SourceNumber	Reporting Unit (RU) number.
fidelityLevel	Link1111BFidelityLevel Enum8	Fidelity level of the Link 11B simulation.
linkState	Link11BLinkState Enum8	The state the Link 11B terminal is currently in.
modeOfOperation	Link11BModeOf OperationEnum16	Link 11B terminal operation mode.

Named by SpreadSpectrumVariantStruct.

Link11TransmitterStruct STRUCTURE

Contains specific information about the Link 11 transmitter system.

Name	Type	Description
participatingUnit	ParticipatingUnit SourceNumber	Participating Unit (PU) number.
fidelityLevel	Link1111BFidelityLevel Enum8	Fidelity Level of the Link 11 simulation.
terminalMode	Link11TerminalMode Enum8	Mode of the Link 11 terminal.
modeOfOperation	Link11ModeOf OperationEnum16	Link 11 terminal operation mode.
netCycleTime	TimeSecondUnsigned Integer16	The time in seconds required for the NCS to complete a polling sequence of all PUs. Not applicable to non-NCS PUs.

Named by SpreadSpectrumVariantStruct.

MarkingStruct STRUCTURE

Character set used in the marking and the string of characters to be interpreted for display.

Name	Type	Description
markingEncodingType	MarkingEncoding Enum8	Character set representation.
markingData	MarkingArray11	11 element character string

Named by PhysicalEntity.

MineFusingStruct STRUCTURE

Record specifying the type of primary fuse, the type of the secondary fuse and the anti-handling device status of a mine

Name	Type	Description
primary	MinefieldFusing Enum32	Specifies the type of the primary fuse of a mine
secondary	MinefieldFusing Enum32	Specifies the type of the secondary fuse of a mine
antiHandlingDevice	bool	Specifies the anti-handling device status of a mine
padding	OctetArray3	Padding to 32 bits

Named by MineFusingStructLengthlessArray.

MinefieldLaneMarkerObjectTransaction STRUCTURE

An interaction sent to an environment manager to request the creation, modification, or deletion of instances of the MinefieldLaneMarkerObject class.

Name	Type	Description
objectIdentifier	EntityIdentifierStruct	Identifies this EnvironmentObject instance (point, linear or areal)
referencedObject Identifier	string	Identifies the Synthetic Environment object instance to which this EnvironmentObject instance is associated
forceIdentifier	ForceIdentifierEnum8	Identifies the force that created or modified this EnvironmentObject instance
objectType	EnvironmentObject TypeStruct	Identifies the type of this EnvironmentObject instance
requestingIdentifier	FederateIdentifier Struct	Identifies the simulation application sending the EnvironmentObjectTransaction interaction
receivingIdentifier	FederateIdentifier Struct	Identifies the simulation application receiving the EnvironmentObjectTransaction interaction
segmentRecords	MinefieldLaneMarker StructLengthlessArray	Specifies a minefield lane marker linear object

MinefieldLaneMarkerStruct STRUCTURE

Record specifying a minefield lane marker segment

Name	Type	Description
segmentParameters	LinearSegmentStruct	Specifies the minefield lane marker segment characteristics
visibleSideLocation	VisibleSideLocation Enum32	Specifies the visible side(s) of the minefield lane marker segment

Named by MinefieldLaneMarkerStructLengthlessArray.

MinefieldObjectTransaction STRUCTURE

An interaction sent to an environment manager to request the creation, modification, or deletion of instances of the MinefieldObject class.

Name	Type	Description
objectIdentifier	EntityIdentifierStruct	Identifies this EnvironmentObject instance (point, linear or areal)
referencedObject Identifier	string	Identifies the Synthetic Environment object instance to which this EnvironmentObject instance is associated
forceIdentifier	ForceIdentifierEnum8	Identifies the force that created or modified this EnvironmentObject instance
objectType	EnvironmentObject TypeStruct	Identifies the type of this EnvironmentObject instance
requestingIdentifier	FederateIdentifier Struct	Identifies the simulation application sending the EnvironmentObjectTransaction interaction
receivingIdentifier	FederateIdentifier Struct	Identifies the simulation application receiving the EnvironmentObjectTransaction interaction
pointsData	WorldLocationStruct LengthlessArray	Specifies the physical location (a collection of points) that defines the object
percentComplete	PercentUnsigned Integer32	Specifies the percent completion of the object
damagedAppearance	DamageStatus Enum32	Specifies the damaged appearance of the object
objectPreDistributed	bool	Specifies whether or not the object was created before the start of the exercise
deactivated	bool	Specifies whether or not the object has been deactivated (it has ceased to exist in the synthetic environment)
smoking	bool	Specifies whether or not the object is smoking (creating a smoke plume)
flaming	bool	Specifies whether or not the object is flaming
breachedStatus	BreachedStatusEnum8	Specifies the breached appearance of the minefield object
mineCount	UnsignedInteger32	Specifies the number of mines in the minefield

MinefieldQuery STRUCTURE

Provides the means by which a federate shall query a minefield simulation for information on the individual mines within the minefield operating in QRP mode.

Name	Type	Description
minefieldIdentifier	string	Identifies the minefield to which this query is addressed
perimeterPoints	PerimeterPointStruct LengthlessArray	Specifies the location of each perimeter point in the requested area relative to the minefield location
queryFusing	bool	Specifies whether or not fusing is requested
queryMineOrientation	bool	Specifies whether or not orientation is requested

Name	Type	Description
queryGroundBurial DepthOffset	bool	Specifies whether or not ground burial depth offset is requested
queryMineEmplacement Age	bool	Specifies whether or not emplacement age is requested
queryPaintScheme	bool	Specifies whether or not paint scheme is requested
queryReflectance	bool	Specifies whether or not reflectance is requested
queryScalarDetection Coefficient	bool	Specifies whether or not scalar detection coefficient is requested
querySnowBurialDepth Offset	bool	Specifies whether or not snow burial depth offset is requested
queryThermalContrast	bool	Specifies whether or not thermal contrast is requested
queryTripDetonation Wire	bool	Specifies whether or not trip detonation wire is requested
queryWaterBurialDepth Offset	bool	Specifies whether or not water burial depth offset is requested
requestingEntity Identifier	string	Identifies the entity that requests the information from the minefield simulation
requestIdentifier	UnsignedInteger8	Identifies the minefield query request
requestedMineType	EntityTypeStruct	Identifies the type of mine being queried by the requesting federate
sensorTypes	MinefieldSensorType LengthlessArray	Specifies the types of sensors requesting the data

MinefieldResponseNACK STRUCTURE

A response to a MinefieldQuery providing information on individual mines within a minefield.

Name	Type	Description
minefieldIdentifier	string	Identifies the minefield to which this query is addressed
missingRecordNumbers	MissingRecord NumbersLengthless Array1Plus	Specifies the record numbers that were not received in a sequence of minefield records
requestIdentifier	UnsignedInteger8	Identifies the minefield query request
requestingEntity Identifier	string	Identifies the entity that requested the information from the minefield simulation

MunitionDetonation STRUCTURE

Communicates information associated with the impact or detonation of a munition

Name	Type	Description
articulatedPartData	ArticulatedParameter StructLengthlessArray	The set of articulated parts affected by the detonation (including where on the articulated part the detonation has affected).
detonationLocation	WorldLocationStruct	The location, in world coordinates, at which the munition detonated.
detonationResultCode	DetonationResultCode Enum8	The type of detonation (including no detonation).
eventIdentifier	EventIdentifierStruct	An ID, generated by the issuing federate, used to associate related fire and detonation events.
firingObject Identifier	string	The object instance ID of the entity that fired the munition.
finalVelocityVector	VelocityVectorStruct	The velocity vector of the munition at the moment of the detonation.
fuseType	FuseTypeEnum16	The type of fuse on the munition.

Name	Type	Description
munitionObject Identifier	string	The Object instance ID of the fired munition, if an object instance is registered.
munitionType	EntityTypeStruct	The type of munition that is detonating.
quantityFired	UnsignedInteger16	The number of rounds fired in the burst.
rateOfFire	UnsignedInteger16	The rate of fire in rounds per minute when quantity > 1. Zero otherwise.
relativeDetonation Location	RelativePositionStruct	The location of the detonation in coordinates relative to the target entity (if any).
targetObject Identifier	string	The object instance ID of the entity that the munition has detonated on (if any).
warheadType	WarheadTypeEnum16	The type of warhead on the munition.

NamedLocationStruct STRUCTURE

The discrete positional relationship of the constituent part object with respect to its host object. Based on the specifications in IEEE 1278.1a-1998 of the IsPartOf PDU 'Location of Part' (paragraph 5.3.9.4e) and 'Named Location' (paragraph 5.3.9.4f) fields.

Name	Type	Description
stationNumber	Integer16	The number of the particular station at which the constituent part is attached.
stationName	StationNameLocation VariantStruct	The name of the station where the constituent part is located.

Named by IsPartOfStruct.

OrientationStruct STRUCTURE

The orientation of an object in the world coordinate system, as specified in IEEE Std 1278.1-1995 section 1.3.2.

Name	Type	Description
psi	AngleRadianFloat32	Rotation about the Z axis.
theta	AngleRadianFloat32	Rotation about the Y axis.
phi	AngleRadianFloat32	Rotation about the X axis.

Named by netn.SpottedEntity, BeamAntennaStruct, BreachablePointObjectTransaction, BurstPointObjectTransaction, Cone1GeomRecStruct, Cone2GeomRecStruct, CraterObjectTransaction, Ellipsoid1GeomRecStruct, Ellipsoid2GeomRecStruct, GaussPlumeGeomRecStruct, GaussPuffGeomRecStruct, GriddedData, LinearSegmentStruct, Minefield, OrientationStructLengthlessArray, OtherPointObjectTransaction, PointObject, PointObjectTransaction, RectVol1GeomRecStruct, RectVol2GeomRecStruct, RectVol3GeomRecStruct, RibbonBridgeObjectTransaction, SpatialFPStruct, SpatialFVStruct, SpatialRPStruct, SpatialRVStruct, SpatialStaticStruct, StructureObjectTransaction.

OtherArealObjectTransaction STRUCTURE

An interaction sent to an environment manager to request the creation, modification, or deletion of instances of the OtherArealObject class.

Name	Type	Description
objectIdentifier	EntityIdentifierStruct	Identifies this EnvironmentObject instance (point, linear or areal)
referencedObject Identifier	string	Identifies the Synthetic Environment object instance to which this EnvironmentObject instance is associated
forceIdentifier	ForceIdentifierEnum8	Identifies the force that created or modified this EnvironmentObject instance
objectType	EnvironmentObject TypeStruct	Identifies the type of this EnvironmentObject instance
requestingIdentifier	FederateIdentifier Struct	Identifies the simulation application sending the EnvironmentObjectTransaction interaction

Name	Type	Description
receivingIdentifier	FederateIdentifier Struct	Identifies the simulation application receiving the EnvironmentObjectTransaction interaction
pointsData	WorldLocationStruct LengthlessArray	Specifies the physical location (a collection of points) that defines the object
percentComplete	PercentUnsigned Integer32	Specifies the percent completion of the object
damagedAppearance	DamageStatus Enum32	Specifies the damaged appearance of the object
objectPreDistributed	bool	Specifies whether or not the object was created before the start of the exercise
deactivated	bool	Specifies whether or not the object has been deactivated (it has ceased to exist in the synthetic environment)
smoking	bool	Specifies whether or not the object is smoking (creating a smoke plume)
flaming	bool	Specifies whether or not the object is flaming

OtherLinearObjectTransaction STRUCTURE

An interaction sent to an environment manager to request the creation, modification, or deletion of instances of the OtherLinearObject class.

Name	Type	Description
objectIdentifier	EntityIdentifierStruct	Identifies this EnvironmentObject instance (point, linear or areal)
referencedObject Identifier	string	Identifies the Synthetic Environment object instance to which this EnvironmentObject instance is associated
forceIdentifier	ForceIdentifierEnum8	Identifies the force that created or modified this EnvironmentObject instance
objectType	EnvironmentObject TypeStruct	Identifies the type of this EnvironmentObject instance
requestingIdentifier	FederateIdentifier Struct	Identifies the simulation application sending the EnvironmentObjectTransaction interaction
receivingIdentifier	FederateIdentifier Struct	Identifies the simulation application receiving the EnvironmentObjectTransaction interaction

OtherPointObjectTransaction STRUCTURE

An interaction sent to an environment manager to request the creation, modification, or deletion of instances of the OtherPointObject class.

Name	Type	Description
objectIdentifier	EntityIdentifierStruct	Identifies this EnvironmentObject instance (point, linear or areal)
referencedObject Identifier	string	Identifies the Synthetic Environment object instance to which this EnvironmentObject instance is associated
forceIdentifier	ForceIdentifierEnum8	Identifies the force that created or modified this EnvironmentObject instance
objectType	EnvironmentObject TypeStruct	Identifies the type of this EnvironmentObject instance
requestingIdentifier	FederateIdentifier Struct	Identifies the simulation application sending the EnvironmentObjectTransaction interaction
receivingIdentifier	FederateIdentifier Struct	Identifies the simulation application receiving the EnvironmentObjectTransaction interaction
location	WorldLocationStruct	Specifies the location of the object based on x, y and z coordinates

Name	Type	Description
orientation	OrientationStruct	Specifies the angles of rotation around the coordinate axis between the object's attitude and the reference coordinate system axes ; these are calculated as the Tait-Bryan Euler angles, specifying the successive rotations needed to transform from the world coordinate system to the object coordinate system
percentComplete	PercentUnsignedInteger32	Specifies the percent completion of the object
damagedAppearance	DamageStatusEnum32	Specifies the damaged appearance of the object
objectPreDistributed	bool	Specifies whether or not the object was created before the start of the exercise
deactivated	bool	Specifies whether or not the object has been deactivated (it has ceased to exist in the synthetic environment)
smoking	bool	Specifies whether or not the object is smoking (creating a smoke plume)
flaming	bool	Specifies whether or not the object is flaming

PerimeterPointStruct STRUCTURE

Record specifying the location of a perimeter point

Name	Type	Description
x	MeterFloat32	Specifies the X coordinate
y	MeterFloat32	Specifies the Y coordinate

Named by PerimeterPointStructLengthlessArray.

PlumeDimensionRateStruct STRUCTURE

Record specifying plume dimension rates

Name	Type	Description
lengthRate	VelocityMeterPerSecondFloat32	Variation of plume length
widthRate	VelocityMeterPerSecondFloat32	Variation of plume width
heightRate	VelocityMeterPerSecondFloat32	Variation of plume height

Named by GaussPlumeGeomRecStruct.

PlumeDimensionStruct STRUCTURE

Record specifying plume dimensions

Name	Type	Description
length	MeterFloat32	Plume length
width	MeterFloat32	Plume width
height	MeterFloat32	Plume height

Named by GaussPlumeGeomRecStruct.

Point2GeomRecStruct STRUCTURE

Record specifying Point 2 geometry record

Name	Type	Description
location	WorldLocationStruct	Location X, Y, Z
velocity	VelocityVectorStruct	Velocity Vx, Vy, Vz
padding	OctetArray4	Padding field

Named by EnvironmentRecVariantStruct.

PointObjectTransaction STRUCTURE

An interaction for modifying instances of the PointObject class.

Name	Type	Description
objectIdentifier	EntityIdentifierStruct	Identifies this EnvironmentObject instance (point, linear or areal)
referencedObject Identifier	string	Identifies the Synthetic Environment object instance to which this EnvironmentObject instance is associated
forceIdentifier	ForceIdentifierEnum8	Identifies the force that created or modified this EnvironmentObject instance
objectType	EnvironmentObject TypeStruct	Identifies the type of this EnvironmentObject instance
requestingIdentifier	FederateIdentifier Struct	Identifies the simulation application sending the EnvironmentObjectTransaction interaction
receivingIdentifier	FederateIdentifier Struct	Identifies the simulation application receiving the EnvironmentObjectTransaction interaction
location	WorldLocationStruct	Specifies the location of the object based on x, y and z coordinates
orientation	OrientationStruct	Specifies the angles of rotation around the coordinate axis between the object's attitude and the reference coordinate system axes ; these are calculated as the Tait-Bryan Euler angles, specifying the successive rotations needed to transform from the world coordinate system to the object coordinate system
percentComplete	PercentUnsigned Integer32	Specifies the percent completion of the object
damagedAppearance	DamageStatus Enum32	Specifies the damaged appearance of the object
objectPreDistributed	bool	Specifies whether or not the object was created before the start of the exercise
deactivated	bool	Specifies whether or not the object has been deactivated (it has ceased to exist in the synthetic environment)
smoking	bool	Specifies whether or not the object is smoking (creating a smoke plume)
flaming	bool	Specifies whether or not the object is flaming

PropulsionSystemDataStruct STRUCTURE

Information describing a propulsion system in terms of power settings and current RPM.

Name	Type	Description
powerSetting	Float32	The power setting of the propulsion system, after any response lags have been incorporated.
engineRPM	RevolutionsPerMinute Float32	The current engine speed.

Named by PropulsionSystemDataStructLengthlessArray.

RadioSignal STRUCTURE

The wireless transmission and reception of audio or digital data by means of electromagnetic waves.

RadioTypeStruct STRUCTURE

Specifies the type of a radio.

Name	Type	Description
entityKind	Octet	The kind of the entity described in this struct.
domain	Octet	The domain in which the radio entity operates.
countryCode	UnsignedInteger16	The country to which the design of the radio entity is attributed.
category	Octet	The main category that describes the radio entity.
nomenclatureVersion	NomenclatureVersionEnum8	The specific modification or individual unit type for a series and/or family of equipment.
nomenclature	NomenclatureEnum16	The nomenclature for a particular communications device.

Named by RadioTransmitter.

RawBinaryRadioSignal STRUCTURE

A radio signal used to transmit raw binary data.

Name	Type	Description
hostRadioIndex	string	The object instance ID of the radio transmitting this signal.
dataRate	BitRateBitPerSecondUnsignedInteger32	The rate at which the data is being transmitted.
signalDataLength	BitsUnsignedInteger16	The length of the signal data.
signalData	SignalDataLengthlessArray1Plus	The signal data.
tacticalDataLinkType	TacticalDataLinkTypeEnum16	The type of tactical data link used to transmitted this signal (if any).
tDLMessageCount	UnsignedInteger16	The number of tactical data link messages contained in this signal.

RecordQueryR STRUCTURE

A Simulation Management (SIMAN) interaction designed to allow a Simulation Manager federate to request data, in record format, from another federate.

Name	Type	Description
originatingEntity	EntityIdentifierStruct	The DIS entity ID of the entity or application sending the interaction.
receivingEntity	EntityIdentifierStruct	The DIS entity ID of the entity or application which is the intended recipient(s) of the interaction.
requestIdentifier	UnsignedInteger32	The Request ID is a monotonically increasing integer identifier inserted by the Simulation Manager into all Simulation management interactions. It is used as a unique identifier to identify the latest in a series of competing requests and identifying acknowledgements.
timeInterval	UnsignedInteger32	The interval between regular updates of the requested data. If this field is zero then the recipient should only issue a single RecordR interaction in response to this interaction.
eventType	EventTypeEnum32	Specifies the type of event that the receiving entity or application should use to trigger the issue of a RecordR interaction in response to this query. If this is zero, then

Name	Type	Description
		reporting shall be periodic based upon the value of the TimeInterval parameter.
acknowledgement Protocol	AcknowledgementProtocolEnum8	The acknowledgement protocol to be used for the transaction
recordIdentifiers	DatumIdentifierLengthlessArray	Identifies the records for which information is requested

RecordR STRUCTURE

A Simulation Management (SIMAN) interaction designed to acknowledge receipt of a RecordQueryR or SetRecordR interaction from a Simulation Manager federate and to inform the Simulation Manager federate whether the federate has implemented the request.

Name	Type	Description
originatingEntity	EntityIdentifierStruct	The DIS entity ID of the entity or application sending the interaction.
receivingEntity	EntityIdentifierStruct	The DIS entity ID of the entity or application which is the intended recipient of the interaction.
requestIdentifier	UnsignedInteger32	This field matches this response with the specific RecordQueryR or SetRecordR interaction sent by the simulation manager.
eventType	EventTypeEnum32	The type of event that caused the RecordR interaction to be issued.
acknowledgement Protocol	AcknowledgementProtocolEnum8	The acknowledgement protocol to be used for the transaction
responseSerialNumber	UnsignedInteger32	Used to identify the serial number of the RecordR interaction when more than one interaction is used to report record values.
recordSetData	RecordSetStructArray1Plus	The set of records containing the information requested

RecordSetStruct STRUCTURE

A set of records and record details.

Name	Type	Description
recordSetIdentifier	DatumIdentifierEnum32	This field shall specify the data structure used to convey the parameter values of the record for each record.
recordSetSerialNumber	UnsignedInteger32	This field shall specify the serial number of the first record in the array.
numberOfRecords ARecordValues	RecordStructArray	This field contains the records of the format specified by the Record ID field.

Named by RecordSetStructArray1Plus.

RecordStruct STRUCTURE

Record data.

Name	Type	Description
numberOfBits	UnsignedInteger32	Number of bits of data.
numberOfBytesARecord Data	OctetArray	Data.
paddingTo32	OctetPadding32Array	Brings the record length to a 32-bit boundary

Named by RecordStructArray.

RectVol1GeomRecStruct STRUCTURE

Record specifying Rectangular Volume 1 geometry record

Name	Type	Description
cornerLocation	WorldLocationStruct	Corner location X, Y, Z
dimensions	DimensionStruct	Dimensions
orientation	OrientationStruct	Orientation, specified by Euler angles

Named by EnvironmentRecVariantStruct.

RectVol2GeomRecStruct STRUCTURE

Record specifying Rectangular Volume 2 geometry record

Name	Type	Description
cornerLocation	WorldLocationStruct	Corner location X, Y, Z
dimensions	DimensionStruct	Dimensions
dimensionsRate	DimensionRateStruct	Variation of dimensions
orientation	OrientationStruct	Orientation, specified by Euler angles
velocity	VelocityVectorStruct	Velocity Vx, Vy, Vz
angularVelocity	AngularVelocityVectorStruct	Angular velocity Vx, Vy, Vz
padding	OctetArray4	Padding field

Named by EnvironmentRecVariantStruct.

RectVol3GeomRecStruct STRUCTURE

Record specifying Rectangular Volume 3 geometry record

Name	Type	Description
centerLocation	WorldLocationStruct	Center location X, Y, Z
dimensions	DimensionStruct	Dimensions
orientation	OrientationStruct	Orientation, specified by Euler angles

Named by EnvironmentRecVariantStruct.

RelativePositionStruct STRUCTURE

Relative position in right-handed Cartesian coordinates.

Name	Type	Description
bodyXDistance	MeterFloat32	The distance from the reference location along the X axis.
bodyYDistance	MeterFloat32	The distance from the reference location along the Y axis.
bodyZDistance	MeterFloat32	The distance from the reference location along the Z axis.

Named by netn.EntityStruct, AcousticTransient, Collision, CollisionElastic, Designator, EmbeddedSystem, MunitionDetonation, StationNameLocationVariantStruct.

RelativeRangeBearingStruct STRUCTURE

Relative position in polar coordinates.

Name	Type	Description
range	LengthMeterFloat32	The range from the reference location.
bearing	AngleRadianFloat32	The bearing from the reference location.

Named by StationNameLocationVariantStruct.

RemoveEntity STRUCTURE

A Simulation Management (SIMAN) interaction, sent from a Simulation Manager to request that a specified entity be removed from the simulation.

Name	Type	Description
originatingEntity	EntityIdentifierStruct	The DIS entity ID of the entity or application sending the interaction.
receivingEntity	EntityIdentifierStruct	The DIS entity ID of the entity or application which is the intended recipient(s) of the interaction.
requestIdentifier	UnsignedInteger32	The Request ID is a monotonically increasing integer identifier inserted by the Simulation Manager into all Simulation management interactions. It is used as a unique identifier to identify the latest in a series of competing requests and identifying acknowledgements.

RemoveEntityR STRUCTURE

A Simulation Management (SIMAN) interaction, sent from a Simulation Manager to request that a specified entity be removed from the simulation.

Name	Type	Description
originatingEntity	EntityIdentifierStruct	The DIS entity ID of the entity or application sending the interaction.
receivingEntity	EntityIdentifierStruct	The DIS entity ID of the entity or application which is the intended recipient(s) of the interaction.
requestIdentifier	UnsignedInteger32	The Request ID is a monotonically increasing integer identifier inserted by the Simulation Manager into all Simulation management interactions. It is used as a unique identifier to identify the latest in a series of competing requests and identifying acknowledgements.
acknowledgementProtocol	AcknowledgementProtocolEnum8	The acknowledgement protocol to be used for a transaction

RemoveObjectRequest STRUCTURE

A Simulation Management (SIMAN) interaction, sent from a Simulation Manager to request that one or more specified objects be removed from the simulation.

Name	Type	Description
objectIdentifiers	RTIobjectIdArray	The IDs of the objects to be removed.
requestIdentifier	UnsignedInteger32	The Request ID is a monotonically increasing integer identifier inserted by the Simulation Manager into all Simulation management interactions. It is used as a unique identifier to identify the latest in a series of competing requests and identifying acknowledgements.

RemoveObjectRequestR STRUCTURE

A Simulation Management (SIMAN) interaction, sent from a Simulation Manager to request that one or more specified objects be removed from the simulation.

Name	Type	Description
objectIdentifiers	RTIobjectIdArray	The IDs of the objects to be removed.
requestIdentifier	UnsignedInteger32	The Request ID is a monotonically increasing integer identifier inserted by the Simulation Manager into all Simulation management interactions. It is used as a unique identifier to identify the latest in a series of competing requests and identifying acknowledgements.

Name	Type	Description
acknowledgementProtocol	AcknowledgementProtocolEnum8	The acknowledgement protocol to be used for a transaction

RemoveObjectResult STRUCTURE

A Simulation Management (SIMAN) interaction designed to acknowledge receipt of a RemoveObjectRequest interaction, and to inform the Simulation Manager federate whether the removal was successful or not.

Name	Type	Description
removeObjectResult	ResponseFlagEnum16	Indicates ability to comply.
requestIdentifier	UnsignedInteger32	This field matches this response with the specific RemoveObject interaction sent by the simulation manager.

RemoveObjectResultR STRUCTURE

A Simulation Management (SIMAN) interaction designed to acknowledge receipt of a RemoveObjectRequestR interaction, and to inform the Simulation Manager federate whether the removal was successful or not.

Name	Type	Description
removeObjectResult	ResponseFlagEnum16	Indicates ability to comply.
requestIdentifier	UnsignedInteger32	This field matches this response with the specific RemoveObject interaction sent by the simulation manager.

RepairComplete STRUCTURE

Notifies the requesting entity that the requested repair has been completed.

Name	Type	Description
receivingObject	string	Object requesting repairs
repairingObject	string	Object that is able to perform the requested repair
repairType	RepairTypeEnum16	Type of repair performed

RepairResponse STRUCTURE

Acknowledges the notification of the completion of a repair.

Name	Type	Description
receivingObject	string	Object requesting repairs
repairingObject	string	Object that is able to perform the requested repair
repairResultCode	RepairResultEnum8	Result of repair

ResupplyCancel STRUCTURE

Communicates the canceling of a service function by either the receiving or the supplying entity.

Name	Type	Description
receivingObject	string	Object that is receiving supplies
supplyingObject	string	Object that has offered supplies

ResupplyOffer STRUCTURE

Communicates the offer of supplies from a supplying entity to a receiving entity.

Name	Type	Description
receivingObject	string	Object that the supplies are being offered to.
supplyingObject	string	Object that is offering the supplies

Name	Type	Description
suppliesData	SupplyStruct LengthlessArray	List of supplies that are offered.

ResupplyReceived STRUCTURE

Acknowledge the receipt of supplies.

Name	Type	Description
receivingObject	string	Object that is receiving the supplies
supplyingObject	string	Object that is providing the supplies.
suppliesData	SupplyStruct LengthlessArray	List of supplies taken by receiving object.

RibbonBridgeObjectTransaction STRUCTURE

An interaction sent to an environment manager to request the creation, modification, or deletion of instances of the RibbonBridgeObject class.

Name	Type	Description
objectIdentifier	EntityIdentifierStruct	Identifies this EnvironmentObject instance (point, linear or areal)
referencedObject Identifier	string	Identifies the Synthetic Environment object instance to which this EnvironmentObject instance is associated
forceIdentifier	ForceIdentifierEnum8	Identifies the force that created or modified this EnvironmentObject instance
objectType	EnvironmentObject TypeStruct	Identifies the type of this EnvironmentObject instance
requestingIdentifier	FederateIdentifier Struct	Identifies the simulation application sending the EnvironmentObjectTransaction interaction
receivingIdentifier	FederateIdentifier Struct	Identifies the simulation application receiving the EnvironmentObjectTransaction interaction
location	WorldLocationStruct	Specifies the location of the object based on x, y and z coordinates
orientation	OrientationStruct	Specifies the angles of rotation around the coordinate axis between the object's attitude and the reference coordinate system axes ; these are calculated as the Tait-Bryan Euler angles, specifying the successive rotations needed to transform from the world coordinate system to the object coordinate system
percentComplete	PercentUnsigned Integer32	Specifies the percent completion of the object
damagedAppearance	DamageStatus Enum32	Specifies the damaged appearance of the object
objectPreDistributed	bool	Specifies whether or not the object was created before the start of the exercise
deactivated	bool	Specifies whether or not the object has been deactivated (it has ceased to exist in the synthetic environment)
smoking	bool	Specifies whether or not the object is smoking (creating a smoke plume)
flaming	bool	Specifies whether or not the object is flaming
numberOfSegments	UnsignedInteger32	Specifies the number of segments composing the ribbon bridge

SINCGARSModulationStruct STRUCTURE

Modulation parameters for SINCGARS radio system

Name	Type	Description
fHNetID	Integer16	Frequency hopping network identifier.
hopSetID	Integer16	Identification for the set of frequencies used when creating a hopping pattern.
lockoutSetID	Integer16	Identification for the set of frequencies that are excluded from the hopping pattern.
transmissionSecurityKey	Integer16	Identifies the transmission security key that is used when generating the hopping pattern.
fHSynchronizationTimeOffset	TimeSecondInteger32	The offset to exercise time in seconds for the clock in the radio.

Named by SpreadSpectrumVariantStruct.

ServiceRequest STRUCTURE

A request for logistics support. The requesting entity issues the interaction to the supplying entity asking for repair or specific supplies.

Name	Type	Description
requestingObject	string	Object requesting service
servicingObject	string	Object that is able to provide the requested service
serviceType	ServiceTypeEnum8	Type of requested service
suppliesData	SupplyStruct LengthlessArray	For a service of resupply, the list of supplies to be exchanged. If the service requested is not resupply, then this parameter shall be omitted.

SetData STRUCTURE

A Simulation Management (SIMAN) interaction, sent from a Simulation Manager federate to request that a federate sets the values of specified data to specified values.

Name	Type	Description
originatingEntity	EntityIdentifierStruct	The DIS entity ID of the entity or application sending the interaction.
receivingEntity	EntityIdentifierStruct	The DIS entity ID of the entity or application which is the intended recipient of the interaction.
requestIdentifier	UnsignedInteger32	The Request ID is a monotonically increasing integer identifier inserted by the Simulation Manager into all Simulation management interactions. It is used as a unique identifier to identify the latest in a series of competing requests and identifying acknowledgements.
fixedDatums	FixedDatumStruct LengthlessArray	The set of fixed length data items (types and values) that the recipient is requested to set.
variableDatumSet	VariableDatumStruct Array	The set of variables length data items (types and values) that the recipient is requested to set.

SetDataR STRUCTURE

A Simulation Management (SIMAN) interaction, sent from a Simulation Manager federate to request that a federate sets the values of specified data to specified values. The Simulation Manager federate specifies the acknowledgement protocol to be used.

Name	Type	Description
originatingEntity	EntityIdentifierStruct	The DIS entity ID of the entity or application sending the interaction.
receivingEntity	EntityIdentifierStruct	The DIS entity ID of the entity or application which is the intended recipient of the interaction.
requestIdentifier	UnsignedInteger32	The Request ID is a monotonically increasing integer identifier inserted by the Simulation Manager into all Simulation management interactions. It is used as a unique identifier to identify the latest in a series of competing requests and identifying acknowledgements.
fixedDatums	FixedDatumStruct LengthlessArray	The set of fixed length data items (types and values) that the recipient is requested to set.
variableDatumSet	VariableDatumStruct Array	The set of variables length data items (types and values) that the recipient is requested to set.
acknowledgement Protocol	Acknowledgement ProtocolEnum8	The acknowledgement protocol to be used for a transaction

SetRecordR STRUCTURE

A Simulation Management (SIMAN) interaction, sent from a Simulation Manager federate to request that a federate sets the values of specified data to specified values (provided in record format).

Name	Type	Description
originatingEntity	EntityIdentifierStruct	The DIS entity ID of the entity or application sending the interaction.
receivingEntity	EntityIdentifierStruct	The DIS entity ID of the entity or application which is the intended recipient(s) of the interaction.
requestIdentifier	UnsignedInteger32	The Request ID is a monotonically increasing integer identifier inserted by the Simulation Manager into all Simulation management interactions. It is used as a unique identifier to identify the latest in a series of competing requests and identifying acknowledgements.
acknowledgement Protocol	Acknowledgement ProtocolEnum8	The acknowledgement protocol to be used for a transaction
recordSetData	RecordSetStruct Array1Plus	Specifies the information, in record format, to be set by the receiving entity.

ShaftDataStruct STRUCTURE

Rotation state of a ship's propulsion shaft

Name	Type	Description
currentShaftRate	RevolutionsPerMinute Integer16	The current shaft speed. A positive shaft speed indicates that the shaft is rotating in a clockwise direction (when viewed from the stern to bow), and a negative shaft speed indicates an anti-clockwise direction.
orderedShaftRate	RevolutionsPerMinute Integer16	The ordered shaft speed. If the ordered shaft speed is different from the current shaft speed then the shaft will accelerate or decelerate at the shaft rate of change. A positive shaft speed indicates that the shaft is rotating in a clockwise direction (when viewed from the stern to bow), and a negative shaft speed indicates an anti-clockwise direction.
shaftRateOfChange	SpeedChangeRate RPMPerSecond Integer16	The absolute value of the shaft's rotational acceleration. The shaft will change its rotational speed at this rate if the current shaft speed differs from the ordered shaft rate.

Named by ShaftDataStructLengthlessArray1Plus.

SilentAggregateStruct STRUCTURE

These fields contain information about subaggregates not registered in the federation.

Name	Type	Description
aggregateType	EntityTypeStruct	This field shall specify the aggregates common to this system list.
numberOfAggregatesOfThisType	UnsignedInteger16	This field shall specify the number of aggregates that have the type specified in AggregateType field.

Named by SilentAggregateStructLengthlessArray.

SilentEntityStruct STRUCTURE

These fields contain information about entities not registered in the federation.

Name	Type	Description
numberOfEntitiesOfThisType	UnsignedInteger16	This field shall specify the number of entities that have the type specified in the field EntityType.
numberOfAppearanceRecords	UnsignedInteger16	This field shall specify the number of Entity Appearance records that follow. This number shall be between zero and the number of entities of this type. Simulation applications representing the aggregate that do not model entity appearances shall set this field to zero. Simulation applications representing the aggregate that model entity appearances shall set this field to the number of entity appearances that deviate from the default appearance. Other simulations can safely assume that any entity appearances not specified are default appearances.
entityType	EntityTypeStruct	This field shall specify the entity types common to the entities in this system list.
entityAppearance	UnsignedInteger32LengthlessArray	This field shall specify the entity appearances of entities in the aggregate that deviate from the default. The length of the array is defined in the NumberOfAppearanceRecords field.

Named by SilentEntityStructLengthlessArray.

SpatialFPStruct STRUCTURE

Spatial structure for Dead Reckoning Algorithm FPW (2) and FPB (6).

Name	Type	Description
worldLocation	WorldLocationStruct	Location of the object.
isFrozen	bool	Whether the object is frozen or not.
orientation	OrientationStruct	The angles of rotation around the coordinate axes between the object's attitude and the reference coordinate system axes (calculated as the Tait-Bryan Euler angles specifying the successive rotations needed to transform from the world coordinate system to the entity coordinate system).
velocityVector	VelocityVectorStruct	The rate at which an object's position is changing over time.

Named by SpatialVariantStruct.

SpatialFVStruct STRUCTURE

Spatial structure for Dead Reckoning Algorithm FVW (5) and RVB (9).

Name	Type	Description
worldLocation	WorldLocationStruct	Location of the object.
isFrozen	bool	Whether the object is frozen or not.

Name	Type	Description
orientation	OrientationStruct	The angles of rotation around the coordinate axes between the object's attitude and the reference coordinate system axes (calculated as the Tait-Bryan Euler angles specifying the successive rotations needed to transform from the world coordinate system to the entity coordinate system).
velocityVector	VelocityVectorStruct	The rate at which an object's position is changing over time.
accelerationVector	AccelerationVector Struct	The magnitude of the change in linear velocity of an object over time.

Named by SpatialVariantStruct.

SpatialRPStruct STRUCTURE

Spatial structure for Dead Reckoning Algorithm RPW (3) and RPB (7).

Name	Type	Description
worldLocation	WorldLocationStruct	Location of the object.
isFrozen	bool	Whether the object is frozen or not.
orientation	OrientationStruct	The angles of rotation around the coordinate axes between the object's attitude and the reference coordinate system axes (calculated as the Tait-Bryan Euler angles specifying the successive rotations needed to transform from the world coordinate system to the entity coordinate system).
velocityVector	VelocityVectorStruct	The rate at which an object's position is changing over time.
angularVelocity	AngularVelocityVector Struct	The rate at which an object's orientation is changing over time.

Named by SpatialVariantStruct.

SpatialRVStruct STRUCTURE

Spatial structure for Dead Reckoning Algorithm RVW (4) and RVB (8).

Name	Type	Description
worldLocation	WorldLocationStruct	Location of the object.
isFrozen	bool	Whether the object is frozen or not.
orientation	OrientationStruct	The angles of rotation around the coordinate axes between the object's attitude and the reference coordinate system axes (calculated as the Tait-Bryan Euler angles specifying the successive rotations needed to transform from the world coordinate system to the entity coordinate system).
velocityVector	VelocityVectorStruct	The rate at which an object's position is changing over time.
accelerationVector	AccelerationVector Struct	The magnitude of the change in linear velocity of an object over time.
angularVelocity	AngularVelocityVector Struct	The rate at which an object's orientation is changing over time.

Named by SpatialVariantStruct.

SpatialStaticStruct STRUCTURE

Spatial structure for Dead Reckoning Algorithm Static (1).

Name	Type	Description
worldLocation	WorldLocationStruct	Location of the object.
isFrozen	bool	Whether the object is frozen or not.
orientation	OrientationStruct	The angles of rotation around the coordinate axes between the object's attitude and the reference coordinate system axes

Name	Type	Description
		(calculated as the Tait-Bryan Euler angles specifying the successive rotations needed to transform from the world coordinate system to the entity coordinate system).

Named by SpatialVariantStruct.

Sphere1GeomRecStruct STRUCTURE

Record specifying Bounding Sphere & Sphere 1 geometry record

Name	Type	Description
centroidLocation	WorldLocationStruct	Centroid location X, Y, Z
radius	Float32	Radius
padding	OctetArray4	Padding field

Named by EnvironmentRecVariantStruct.

Sphere2GeomRecStruct STRUCTURE

Record specifying Sphere 2 geometry record

Name	Type	Description
centroidLocation	WorldLocationStruct	Centroid location X, Y, Z
radius	Float32	Radius
radiusRate	Float32	Variation of radius
velocity	VelocityVectorStruct	Velocity Vx, Vy, Vz
angularVelocity	AngularVelocityVector Struct	Angular velocity Vx, Vy, Vz

Named by EnvironmentRecVariantStruct.

SphericalHarmonicAntennaStruct STRUCTURE

Specifies the direction and radiation pattern from a radio transmitter's antenna.

Name	Type	Description
order	UnsignedInteger32	The highest order of the expansion in spherical harmonics, counting from zero.
coefficients	CoefficientsLengthless Array1Plus	Represents the power distribution from the antenna as the coefficients of a spherical harmonic expansion to the order given in the Order field. The length of the array is N^2+2N+1 (N being the Order).
referenceSystem	ReferenceSystem Enum8	This field shall specify the reference coordinate system with respect to which beam direction is specified.
padding	OctetArray3	Padding to 32 bits

Named by AntennaPatternVariantStruct.

StartResume STRUCTURE

A Simulation Management (SIMAN) interaction, sent from a Simulation Manager federate to either a) start simulating one or more entities or b) resume simulation of one or more entities after a pause.

Name	Type	Description
originatingEntity	EntityIdentifierStruct	The DIS entity ID of the entity or application sending the interaction.
receivingEntity	EntityIdentifierStruct	The DIS entity ID of the entity or application which is the intended recipient(s) of the interaction.

Name	Type	Description
realWorldTime	ClockTimeStruct	The real world time (GMT) that the entity or entities should start/resume at.
requestIdentifier	UnsignedInteger32	The Request ID is a monotonically increasing integer identifier inserted by the Simulation Manager into all Simulation management interactions. It is used as a unique identifier to identify the latest in a series of competing requests and identifying acknowledgements.
simulationTime	ClockTimeStruct	The simulation time that the entity or entities should use when they start/resume.

StartResumeR STRUCTURE

A Simulation Management (SIMAN) interaction, sent from a Simulation Manager federate to either a) start simulating one or more entities or b) resume simulation of one or more entities after a pause. The Simulation Manager federate specifies the acknowledgement protocol to be used.

Name	Type	Description
originatingEntity	EntityIdentifierStruct	The DIS entity ID of the entity or application sending the interaction.
receivingEntity	EntityIdentifierStruct	The DIS entity ID of the entity or application which is the intended recipient(s) of the interaction.
realWorldTime	ClockTimeStruct	The real world time (GMT) that the entity or entities should start/resume at.
requestIdentifier	UnsignedInteger32	The Request ID is a monotonically increasing integer identifier inserted by the Simulation Manager into all Simulation management interactions. It is used as a unique identifier to identify the latest in a series of competing requests and identifying acknowledgements.
simulationTime	ClockTimeStruct	The simulation time that the entity or entities should use when they start/resume.
acknowledgementProtocol	AcknowledgementProtocolEnum8	The acknowledgement protocol to be used for a transaction

StopFreeze STRUCTURE

A Simulation Management (SIMAN) interaction, sent from a Simulation Manager federate to request that one or more entities either a) freeze (pause) their simulation or b) stop their simulation.

Name	Type	Description
originatingEntity	EntityIdentifierStruct	The DIS entity ID of the entity or application sending the interaction.
receivingEntity	EntityIdentifierStruct	The DIS entity ID of the entity or application which is the intended recipient(s) of the interaction.
requestIdentifier	UnsignedInteger32	The Request ID is a monotonically increasing integer identifier inserted by the Simulation Manager into all Simulation management interactions. It is used as a unique identifier to identify the latest in a series of competing requests and identifying acknowledgements.
realWorldTime	ClockTimeStruct	The real world time (GMT) that the entity or entities should stop/freeze at.
reason	StopFreezeReasonEnum8	The reason for the stop or freeze.
reflectValues	bool	Whether the entity or entities being stopped/frozen should continue to reflect values when stopped/frozen.

Name	Type	Description
runInternalSimulationClock	bool	Whether the entity or entities being stopped/frozen should continue to run their internal simulation clock when stopped/frozen.
updateAttributes	bool	Whether the entity or entities being stopped/frozen should continue to update attributes when stopped/frozen.

StopFreezeR STRUCTURE

A Simulation Management (SIMAN) interaction, sent from a Simulation Manager federate to request that one or more entities either a) pause their simulation or b) stop their simulation. The Simulation Manager federate specifies the acknowledgement protocol to be used.

Name	Type	Description
originatingEntity	EntityIdentifierStruct	The DIS entity ID of the entity or application sending the interaction.
receivingEntity	EntityIdentifierStruct	The DIS entity ID of the entity or application which is the intended recipient(s) of the interaction.
requestIdentifier	UnsignedInteger32	The Request ID is a monotonically increasing integer identifier inserted by the Simulation Manager into all Simulation management interactions. It is used as a unique identifier to identify the latest in a series of competing requests and identifying acknowledgements.
realWorldTime	ClockTimeStruct	The real world time (GMT) that the entity or entities should stop/freeze at.
reason	StopFreezeReasonEnum8	The reason for the stop or freeze.
reflectValues	bool	Whether the entity or entities being stopped/frozen should continue to reflect values when stopped/frozen.
runInternalSimulationClock	bool	Whether the entity or entities being stopped/frozen should continue to run their internal simulation clock when stopped/frozen.
updateAttributes	bool	Whether the entity or entities being stopped/frozen should continue to update attributes when stopped/frozen.
acknowledgementProtocol	AcknowledgementProtocolEnum8	The acknowledgement protocol to be used for a transaction

StructureObjectTransaction STRUCTURE

An interaction sent to an environment manager to request the creation, modification, or deletion of instances of the StructureObject class.

Name	Type	Description
objectIdentifier	EntityIdentifierStruct	Identifies this EnvironmentObject instance (point, linear or areal)
referencedObjectIdentifier	string	Identifies the Synthetic Environment object instance to which this EnvironmentObject instance is associated
forceIdentifier	ForceIdentifierEnum8	Identifies the force that created or modified this EnvironmentObject instance
objectType	EnvironmentObjectTypeStruct	Identifies the type of this EnvironmentObject instance
requestingIdentifier	FederateIdentifierStruct	Identifies the simulation application sending the EnvironmentObjectTransaction interaction
receivingIdentifier	FederateIdentifierStruct	Identifies the simulation application receiving the EnvironmentObjectTransaction interaction
location	WorldLocationStruct	Specifies the location of the object based on x, y and z coordinates

Name	Type	Description
orientation	OrientationStruct	Specifies the angles of rotation around the coordinate axis between the object's attitude and the reference coordinate system axes ; these are calculated as the Tait-Bryan Euler angles, specifying the successive rotations needed to transform from the world coordinate system to the object coordinate system
percentComplete	PercentUnsigned Integer32	Specifies the percent completion of the object
damagedAppearance	DamageStatus Enum32	Specifies the damaged appearance of the object
objectPreDistributed	bool	Specifies whether or not the object was created before the start of the exercise
deactivated	bool	Specifies whether or not the object has been deactivated (it has ceased to exist in the synthetic environment)
smoking	bool	Specifies whether or not the object is smoking (creating a smoke plume)
flaming	bool	Specifies whether or not the object is flaming

SupplyStruct STRUCTURE

Represents a single supply type and the quantity being offered or requested.

Name	Type	Description
supplyType	EntityTypeStruct	The type of supply being offered or requested.
quantity	Float32	The number of units of the supply type. The unit measure depends on the supply type and shall use the SI units of measurement used for such supplies.

Named by SupplyStructLengthlessArray.

TransferControl STRUCTURE

A Simulation Management (SIMAN) interaction, sent to initiate the transfer of control of an entity.

Name	Type	Description
originatingEntity	EntityIdentifierStruct	The DIS entity ID of the entity or application sending the interaction.
receivingEntity	EntityIdentifierStruct	The DIS entity ID of the entity or application which is the intended recipient(s) of the interaction.
requestIdentifier	UnsignedInteger32	The Request ID is a monotonically increasing integer identifier inserted by the Simulation Manager into all Simulation management interactions. It is used as a unique identifier to identify the latest in a series of competing requests and identifying acknowledgements.
transferType	TransferTypeEnum8	The type of transfer to be performed.
transferEntity	string	The ID of the object to be transferred.
recordSetData	RecordSetStruct Array1Plus	Specifies the information, in record format, to be set by the receiving entity.

UniformGeomRecStruct STRUCTURE

Record specifying Uniform geometry record

Name	Type	Description
padding	OctetArray8	Padding field

Named by EnvironmentRecVariantStruct.

VariableDatumStruct STRUCTURE

These fields shall specify the types of variable datum, their length, and their value.

Name	Type	Description
datumID	DatumIdentifierEnum32	The fixed datum id represented by a 32-bit enumeration
datumLength	UnsignedInteger32	This field shall specify the length of the variable datum in bits.
datumValue	UnsignedInteger64Array1Plus	Value of the variable datum defined by the Variable Datum ID and Variable Datum length. This field shall be padded at the end to make the length a multiple of 64-bits.

Named by VariableDatumStructArray, VariableDatumStructLengthlessArray.

VectoringNozzleSystemDataStruct STRUCTURE

Operational data for describing the vectoring nozzle systems being simulated.

Name	Type	Description
horizontalDeflectionAngle	AngleDegreeFloat32	The nozzle deflection angle in the horizontal body axis of the entity.
verticalDeflectionAngle	AngleDegreeFloat32	The nozzle deflection angle in the vertical body axis of the entity.

Named by VectoringNozzleSystemDataStructLengthlessArray.

VelocityVectorStruct STRUCTURE

The rate at which the position is changing over time.

Name	Type	Description
xVelocity	VelocityMeterPerSecondFloat32	Velocity component along the X axis.
yVelocity	VelocityMeterPerSecondFloat32	Velocity component along the Y axis.
zVelocity	VelocityMeterPerSecondFloat32	Velocity component along the Z axis.

Named by netn.CBRNRelease, COMBICStateRecStruct, Collision, CollisionElastic, Cone2GeomRecStruct, Ellipsoid2GeomRecStruct, GaussPlumeGeomRecStruct, GaussPuffGeomRecStruct, Line2GeomRecStruct, MunitionDetonation, Point2GeomRecStruct, RectVol2GeomRecStruct, SpatialFPStruct, SpatialFVStruct, SpatialRPStruct, SpatialRVStruct, Sphere2GeomRecStruct, WeaponFire.

WeaponFire STRUCTURE

Communicates information associated with the firing or launch of a munition.

Name	Type	Description
eventIdentifier	EventIdentifierStruct	An ID, generated by the issuing federate, used to associate related fire and detonation events.
fireControlSolutionRange	LengthMeterFloat32	The range used in the fire control solution. Zero if the range is unknown or inapplicable.
fireMissionIndex	UnsignedInteger32	A unique index to identify the fire mission (used to associate weapon fire interactions in a single fire mission).
firingLocation	WorldLocationStruct	The location, in world coordinates, from which the munition was launched.
firingObjectIdentifier	string	The object instance ID of the entity firing the munition.
fuseType	FuseTypeEnum16	The type of fuse on the munition.
initialVelocityVector	VelocityVectorStruct	The velocity vector of the munition when fired.

Name	Type	Description
munitionObject Identifier	string	The object instance ID of the fired munition, if an object instance is registered.
munitionType	EntityTypeStruct	The type of munition being fired.
quantityFired	UnsignedInteger16	The number of rounds fired in the burst.
rateOfFire	UnsignedInteger16	The rate of fire in rounds per minute when quantity > 1. Zero otherwise.
targetObject Identifier	string	The object instance ID of the intended target (if any).
warheadType	WarheadTypeEnum16	The type of warhead fitted to the munition being fired.

WorldLocationStruct STRUCTURE

The location of an object in the world coordinate system, as specified in IEEE Std 1278.1-1995 section 1.3.2.

Name	Type	Description
x	MeterFloat64	Distance from the origin along the X axis.
y	MeterFloat64	Distance from the origin along the Y axis.
z	MeterFloat64	Distance from the origin along the Z axis.

Named by netn.AddPassage, netn.AppointmentStruct, netn.ArrayOfWorldLocationStruct, netn.CBRNAlarmStruct, netn.CBRNRelease, netn.CommunicationNode, netn.EstablishCheckPoint, netn.FireAtLocation, netn.FireAtLocationWM, netn.GeocentricPolygon, netn.MagicMove, netn.MoveIntoFormation, netn.MoveToLocation, netn.PointVariantStruct, netn.PositionStatusReport, netn.SpottedEntity, BreachablePointObjectTransaction, BurstPointObjectTransaction, Cone1GeomRecStruct, Cone2GeomRecStruct, CraterObjectTransaction, Designator, Ellipsoid1GeomRecStruct, Ellipsoid2GeomRecStruct, EnvironmentRecVariantStruct, GaussPlumeGeomRecStruct, GaussPuffGeomRecStruct, Line1GeomRecStruct, Line2GeomRecStruct, LinearSegmentStruct, Minefield, MunitionDetonation, OtherPointObjectTransaction, Point2GeomRecStruct, PointObject, PointObjectTransaction, RadioTransmitter, RectVol1GeomRecStruct, RectVol2GeomRecStruct, RectVol3GeomRecStruct, RibbonBridgeObjectTransaction, SpatialFPStruct, SpatialFVStruct, SpatialRPStruct, SpatialRVStruct, SpatialStaticStruct, Sphere1GeomRecStruct, Sphere2GeomRecStruct, StructureObjectTransaction, WeaponFire, WorldLocationStructLengthlessArray.

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AcknowledgeFlagEnum16 ENUMERATION

Acknowledgment flags

Held as u16.

createEntity	1
removeEntity	2
startResume	3
stopFreeze	4
transferOwnership	5

Named by Acknowledge, AcknowledgeR.

AcknowledgementProtocolEnum8 ENUMERATION

Required reliability service

Held as u8.

acknowledged	0
unacknowledged	1

Named by ActionRequestR, ActionRequestToObjectR, AttributeChangeRequestR, AttributeChangeResultR, CreateEntityR, CreateObjectRequestR, DataQueryR, DataR, RecordQueryR, RecordR, RemoveEntityR, RemoveObjectRequestR, SetDataR, SetRecordR, StartResumeR, StopFreezeR.

ActionEnum32 ENUMERATION

Action ID

Held as u32.

other	0
localStorageOfTheRequestedInformation	1
informSimulationManagerOfRanOutOfAmmunitionEvent	2
informSimulationManagerOfKilledInActionEvent	3
informSimulationManagerOfDamageEvent	4
informSimulationManagerOfMobilityDisabledEvent	5
informSimulationManagerOfFireDisabledEvent	6
informSimulationManagerOfRanOutOfFuelEvent	7
recallCheckpointData	8
recallInitialParameters	9
initiateTetherLead	10
initiateTetherFollow	11
untether	12
initiateServiceStationResupply	13
initiateTailgateResupply	14
initiateHitchLead	15
initiateHitchFollow	16
unhitch	17
mount	18
dismount	19
startDailyReadinessCheck	20
stopDailyReadinessCheck	21
dataQuery	22

statusRequest	23
sendObjectStateData	24
reconstitute	25
lockSiteConfiguration	26
unlockSiteConfiguration	27
updateSiteConfiguration	28
querySiteConfiguration	29
tetheringInformation	30
mountIntent	31
acceptSubscription	33
unsubscribe	34
teleportEntity	35
changeAggregateState	36
requestStartPDU	37
wakeupGetReadyForInitialization	38
initializeInternalParameters	39
sendPlanData	40
synchronizeInternalClocks	41
run	42
saveInternalParameters	43
simulateMalfunction	44
joinExercise	45
resignExercise	46
timeAdvance	47
taccsfLosRequestType1	100
taccsfLosRequestType2	101

Named by ActionRequest, ActionRequestR, ActionRequestToObject, ActionRequestToObjectR.

ActionResultEnum32 ENUMERATION

Request status

Held as u32.

other	0
pending	1
executing	2
partiallyComplete	3
complete	4
requestRejected	5
retransmitRequestNow	6
retransmitRequestLater	7
invalidTimeParameters	8
simulationTimeExceeded	9
requestDone	10
taccsfLosReplyType1	100
taccsfLosReplyType2	101
joinExerciseRequestRejected	201

Named by ActionResponseFromObject, ActionResponseFromObjectR.

ActiveSonarEnum16 ENUMERATION

Acoustic system name

Held as u16.

other	0
anBqq5	1
anSsq62	2
anSqs23	3
anSqs26	4
anSqs53	5
alfs	6
lfa	7
anAqs901	8
anAqs902	9

Named by ActiveSonar.

ActiveSonarFunctionCodeEnum8 ENUMERATION

The current function being performed by the sonar

Held as u8.

other	0
platformSearchDetectTrack	1
navigation	2
mineHunting	3
weaponSearchDetectTrackDetect	4

Named by ActiveSonar.

ActiveSonarScanPatternEnum16 ENUMERATION

Acoustic scan pattern

Held as u16.

scanPatternNotUsed	0
conical	1
helical	2
raster	3
sectorSearch	4
continuousSearch	5

Named by ActiveSonarBeam.

AggregateStateEnum8 ENUMERATION

Aggregate state

Held as u8.

other	0
aggregated	1
disaggregated	2
fullyDisaggregated	3
pseudoDisaggregated	4
partiallyDisaggregated	5

Named by AggregateEntity.

AmplitudeAngleModulationTypeEnum16 ENUMERATION

Detailed modulation types for Amplitude and Angle Modulation

Held as u16.

other	0
amplitudeAndAngle	1

Named by RFModulationTypeVariantStruct.

AmplitudeModulationTypeEnum16 ENUMERATION

Detailed modulation types for Amplitude Modulation

Held as u16.

other	0
audioFrequencyShiftKeying	1
amplitudeModulation	2
continuousWaveModulation	3
doubleSideband	4
independentSideband	5
ssbLowerSideband	6
ssbFullCarrier	7
ssbReducedCarrier	8
ssbUpperSideband	9
vestigialSideband	10

Named by RFModulationTypeVariantStruct.

AngleModulationTypeEnum16 ENUMERATION

Detailed modulation types for Angle Modulation

Held as u16.

other	0
frequencyModulation	1
frequencyShiftKeying	2
phaseModulation	3

Named by RFModulationTypeVariantStruct.

AntennaPatternTypeEnum32 ENUMERATION

The radiation pattern from an antenna.

Held as u32.

omniDirectional	0
beam	1
sphericalHarmonic	2

ArticulatedPartsTypeEnum32 ENUMERATION

Articulated part type class

Held as u32.

other	0
rudder	1024
leftFlap	1056
rightFlap	1088
leftAileron	1120
rightAileron	1152
helicopterMainRotor	1184
helicopterTailRotor	1216
otherAircraftControlSurfaces	1248
propellerNumber1	1280
propellerNumber2	1312
propellerNumber3	1344
propellerNumber4	1376
leftStabilatorStabilator Number1	1408
rightStabilatorStabilator Number2	1440
leftRuddervatorRuddervator Number1	1472
rightRuddervator RuddervatorNumber2	1504
leftLeadingEdgeFlapSlat	1536
rightLeadingEdgeFlapSlat	1568
periscope	2048
genericAntenna	2080
snorkel	2112
otherExtendableParts	2144
landingGear	3072
tailHook	3104
speedBrake	3136
leftWeaponBayDoors	3168
rightWeaponBayDoors	3200
tankOrAPChatch	3232
wingsweep	3264
bridgeLauncher	3296
bridgeSection1	3328
bridgeSection2	3360
bridgeSection3	3392
primaryBlade1	3424
primaryBlade2	3456
primaryBoom	3488
primaryLauncherArm	3520
otherFixedPositionParts	3552
landingGearNose	3584
landingGearLeftMain	3616
landingGearRightMain	3648
leftSideSecondaryWeapon BayDoors	3680
rightSideSecondaryWeapon BayDoors	3712
primaryTurretNumber1	4096
primaryTurretNumber2	4128
primaryTurretNumber3	4160
primaryTurretNumber4	4192
primaryTurretNumber5	4224
primaryTurretNumber6	4256
primaryTurretNumber7	4288
primaryTurretNumber8	4320
primaryTurretNumber9	4352
primaryTurretNumber10	4384
primaryGunNumber1	4416
primaryGunNumber2	4448
primaryGunNumber3	4480
primaryGunNumber4	4512
primaryGunNumber5	4544
primaryGunNumber6	4576
primaryGunNumber7	4608
primaryGunNumber8	4640
primaryGunNumber9	4672
primaryGunNumber10	4704
primaryLauncher1	4736
primaryLauncher2	4768
primaryLauncher3	4800
primaryLauncher4	4832
primaryLauncher5	4864
primaryLauncher6	4896
primaryLauncher7	4928
primaryLauncher8	4960
primaryLauncher9	4992
primaryLauncher10	5024
primaryDefenseSystems1	5056
primaryDefenseSystems2	5088
primaryDefenseSystems3	5120
primaryDefenseSystems4	5152
primaryDefenseSystems5	5184
primaryDefenseSystems6	5216
primaryDefenseSystems7	5248
primaryDefenseSystems8	5280
primaryDefenseSystems9	5312
primaryDefenseSystems10	5344
primaryRadar1	5376
primaryRadar2	5408
primaryRadar3	5440
primaryRadar4	5472
primaryRadar5	5504
primaryRadar6	5536
primaryRadar7	5568
primaryRadar8	5600
primaryRadar9	5632
primaryRadar10	5664
secondaryTurretNumber1	5696
secondaryTurretNumber2	5728
secondaryTurretNumber3	5760
secondaryTurretNumber4	5792
secondaryTurretNumber5	5824
secondaryTurretNumber6	5856
secondaryTurretNumber7	5888
secondaryTurretNumber8	5920
secondaryTurretNumber9	5952
secondaryTurretNumber10	5984
secondaryGunNumber1	6016
secondaryGunNumber2	6048
secondaryGunNumber3	6080
secondaryGunNumber4	6112
secondaryGunNumber5	6144
secondaryGunNumber6	6176
secondaryGunNumber7	6208
secondaryGunNumber8	6240
secondaryGunNumber9	6272
secondaryGunNumber10	6304

secondaryLauncher1	6336
secondaryLauncher2	6368
secondaryLauncher3	6400
secondaryLauncher4	6432
secondaryLauncher5	6464
secondaryLauncher6	6496
secondaryLauncher7	6528
secondaryLauncher8	6560
secondaryLauncher9	6592
secondaryLauncher10	6624
secondaryDefenseSystems1	6656
secondaryDefenseSystems2	6688
secondaryDefenseSystems3	6720
secondaryDefenseSystems4	6752
secondaryDefenseSystems5	6784
secondaryDefenseSystems6	6816
secondaryDefenseSystems7	6848
secondaryDefenseSystems8	6880
secondaryDefenseSystems9	6912
secondaryDefense Systems10	6944
secondaryRadar1	6976
secondaryRadar2	7008
secondaryRadar3	7040
secondaryRadar4	7072
secondaryRadar5	7104
secondaryRadar6	7136
secondaryRadar7	7168
secondaryRadar8	7200
secondaryRadar9	7232
secondaryRadar10	7264
deckElevator1	7296
deckElevator2	7328
catapult1	7360
catapult2	7392
jetBlastDeflector1	7424
jetBlastDeflector2	7456
arrestorWires1	7488
arrestorWires2	7520
arrestorWires3	7552
wingOrRotorFold	7584
fuselageFold	7616
cargoDoor	7648
cargoRamp	7680
airToAirRefuelingBoom	7712

Named by ArticulatedPartsStruct.

ArticulatedTypeMetricEnum32 ENUMERATION

Articulated part type metric

Held as u32.

position	1
positionRate	2
extension	3
extensionRate	4
x	5
xRate	6
y	7
yRate	8
z	9
zRate	10
azimuth	11
azimuthRate	12
elevation	13
elevationRate	14
rotation	15
rotationRate	16

Named by ArticulatedPartsStruct.

BeamFunctionCodeEnum8 ENUMERATION

Beam function

Held as u8.

other	0
search	1
heightFinder	2
acquisition	3
tracking	4
acquisitionAndTracking	5
commandGuidance	6
illumination	7
rangeOnlyRadar	8
missileBeacon	9
missileFuze	10
activeRadarMissileSeeker	11
jammer	12
iff	13
navigationalOrWeather	14
meteorological	15
dataTransmission	16
navigationalDirectionalBeacon	17
timeSharedSearch	20
timeSharedAcquisition	21
timeSharedTrack	22
timeSharedCommand Guidance	23
timeSharedIllumination	24
timeSharedJamming	25

Named by EmitterBeam.

BreachedStatusEnum8 ENUMERATION

Breached appearance

Held as u8.

noBreaching	0
slightBreaching	1
moderateBreaching	2
cleared	3

Named by BreachablePointObject, BreachablePointObjectTransaction, BreachableSegmentStruct, BreachedStatusArray8, MinefieldObject, MinefieldObjectTransaction.

CamouflageEnum32 ENUMERATION

Camouflage type

Held as u32.

uniformPaintScheme	0
desertCamouflage	1
winterCamouflage	2
forestCamouflage	3
genericCamouflage	4

Named by PhysicalEntity.

ChemicalContentEnum32 ENUMERATION

Smoke chemical content

Held as u32.

other	0	whitePhosphorous	2
hydrochloric	1	redPhosphorous	3

Named by BurstPointObject, BurstPointObjectTransaction, ExhaustSmokeStruct.

CollisionTypeEnum8 ENUMERATION

Collision type

Held as u8.

inelastic	0
elastic	1

Named by Collision, CollisionElastic.

CombinationModulationTypeEnum16 ENUMERATION

Detailed modulation types for Combination Modulation

Held as u16.

other	0
amplitudeAnglePulse	1

Named by RFModulationTypeVariantStruct.

ComplianceStateEnum32 ENUMERATION

Life form compliance

Held as u32.

other	0
detained	1
surrender	2
usingFists	3
verbalAbuse1	4
verbalAbuse2	5
verbalAbuse3	6
passiveResistance1	7
passiveResistance2	8
passiveResistance3	9
nonLethalWeapon1	10
nonLethalWeapon2	11
nonLethalWeapon3	12
nonLethalWeapon4	13
nonLethalWeapon5	14
nonLethalWeapon6	15

Named by Lifeform.

ConstituentPartNatureEnum16 ENUMERATION

Relationship nature

Held as u16.

other	0
hostFireableMunition	1
munitionCarriedAsCargo	2
fuelCarriedAsCargo	3
gunmountAttachedToHost	4
computerGeneratedForcesCarriedAsCargo	5
vehicleCarriedAsCargo	6
emitterMountedOnHost	7
mobileCommandAndControlEntityCarriedAboardHost	8
entityStationedWithRespectToHost	9
teamMemberInFormationWith	10

Named by ConstituentPartRelationshipStruct.

ConstituentPartPositionEnum16 ENUMERATION

Relationship position

Held as u16.

other	0
onTopOf	1
inside	2

Named by ConstituentPartRelationshipStruct.

ConstituentPartStationNameEnum16 ENUMERATION

Station name

Held as u16.

other	0
aircraftWingstation	1
shipsForwardGunmountStarboard	2
shipsForwardGunmountPort	3
shipsForwardGunmountCenterline	4
shipsAftGunmountStarboard	5
shipsAftGunmountPort	6
shipsAftGunmountCenterline	7
forwardTorpedoTube	8
aftTorpedoTube	9
bombBay	10
cargoBay	11
truckBed	12
trailerBed	13
wellDeck	14
onStationRangeBearing	15
onStationXYZ	16

CryptographicModeEnum32 ENUMERATION

Represents the encryption mode of a cryptographic system.

Held as u32.

basebandEncryption	0
diphaseEncryption	1

Named by RadioTransmitter.

CryptographicSystemTypeEnum16 ENUMERATION

Identifies the type of cryptographic equipment

Held as u16.

other	0
ky28	1
ky58	2
narrowSpectrumSecureVoiceNsve	3
wideSpectrumSecureVoiceWsve	4
sincgarsIcom	5
ky75	6
ky100	7
ky57	8
kyv5	9
link11KG40aPNtds	10
link11BKG40aS	11
link11KG40ar	12

Named by RadioTransmitter.

DamageStatusEnum32 ENUMERATION

Damaged appearance

Held as u32.

noDamage	0	slightDamage	1	moderateDamage	2

destroyed	3

Named by netn.SEFacility, netn.SensorStruct, ArealObject, ArealObjectTransaction, BreachablePointObjectTransaction, BurstPointObjectTransaction, CraterObjectTransaction, LinearSegmentStruct, MinefieldObjectTransaction, OtherArealObjectTransaction, OtherPointObjectTransaction, PhysicalEntity, PointObject, PointObjectTransaction, RibbonBridgeObjectTransaction, StructureObjectTransaction.

DatumIdentifierEnum32 ENUMERATION

Datum ID

Held as u32.

highFidelityHAVEQUICKRadio	3000
blankingSectorAttributeRecord	3500
angleDeceptionAttributeRecord	3501
falseTargetsAttributeRecord	3502
dEPrecisionAimpointRecord	4000
dEAreaAimpointRecord	4001
directedEnergyDamageDescriptionRecord	4500
cryptoControl	5000
mode5STransponderLocation	5001
mode5STransponderLocationError	5002
squitterAirbornePositionReport	5003
squitterAirborneVelocityReport	5004
squitterSurfacePositionReport	5005
squitterIdentificationReport	5006
gicb	5007
squitterEventDrivenReport	5008
antennaLocation	5009
basicInteractive	5010
interactiveMode4Reply	5011
interactiveMode5Reply	5012
interactiveBasicMode5	5013
interactiveBasicModeS	5014
iOEffect	5500
iOCommunicationsNode	5501
entityIdentification	10000
entityType	11000
concatenated	11100
entityTypeKind	11110
entityTypeDomain	11120
entityTypeCountry	11130
entityTypeCategory	11140
entityTypeSubcategory	11150
entityTypeSpecific	11160
entityTypeExtra	11170
forceId	11200
description	11300
alternativeEntityType	12000
alternativeEntityTypeKind	12110
alternativeEntityTypeDomain	12120
alternativeEntityTypeCountry	12130
alternativeEntityTypeCategory	12140
alternativeEntityTypeSubcategory	12150
alternativeEntityTypeSpecific	12160
alternativeEntityTypeExtra	12170
alternativeEntityTypeDescription	12300
entityMarking	13000
entityMarkingCharacters	13100
crewId	13200
taskOrganization	14000
regimentName	14200
battalionName	14300
companyName	14400
platoonName	14500
squadName	14520
teamName	14540
bumperNumber	14600
vehicleNumber	14700
unitNumber	14800
disIdentity	15000
disSiteId	15100
disHostId	15200
disEntityId	15300
mountIntent	15400
tetherUnthetherCommandId	15500
teleportEntityDataRecord	15510
disAggregateId	15600
ownershipStatus	15800
loads	20000
crewMembers	21000
crewMemberId	21100
health	21200
jobAssignment	21300
fuel	23000
fuelQuantityLiters	23100
fuelQuantityGallons	23105
ammunition	24000
ammunitionQuantity120mmHeat	24001
ammunitionQuantity120mmSabot	24002
ammunitionQuantity127mmM8	24003
ammunitionQuantity127mmM20	24004
ammunitionQuantity762mmM62	24005
ammunitionQuantityM250Ukl8a1	24006
ammunitionQuantityM250Ukl8a3	24007
ammunitionQuantity762mmM80	24008
ammunitionQuantity127mm	24009
ammunitionQuantity762mm	24010
minesQuantity	24060
minesType	24100
minesKind	24110
minesDomain	24120
minesCountry	24130
minesCategory	24140
minesSubcategory	24150
minesExtra	24160
minesDescription	24300
cargo	25000
vehicleMass	26000
supplyQuantity	27000
armament	28000
status	30000
activateEntity	30010
subscriptionState	30100
roundTripTimeDelay	30300
tadilJMessageCountLabel0	30400
tadilJMessageCountLabel1	30401
tadilJMessageCountLabel2	30402
tadilJMessageCountLabel3	30403
tadilJMessageCountLabel4	30404
tadilJMessageCountLabel5	30405
tadilJMessageCountLabel6	30406
tadilJMessageCountLabel7	30407
tadilJMessageCountLabel8	30408
tadilJMessageCountLabel9	30409
tadilJMessageCountLabel10	30410
tadilJMessageCountLabel11	30411
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tadilJMessageCountLabel15	30415
tadilJMessageCountLabel16	30416
tadilJMessageCountLabel17	30417
tadilJMessageCountLabel18	30418
tadilJMessageCountLabel19	30419
tadilJMessageCountLabel20	30420
tadilJMessageCountLabel21	30421
tadilJMessageCountLabel22	30422
tadilJMessageCountLabel23	30423
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tadilJMessageCountLabel25	30425
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tadilJMessageCountLabel27	30427
tadilJMessageCountLabel28	30428
tadilJMessageCountLabel29	30429
tadilJMessageCountLabel30	30430
tadilJMessageCountLabel31	30431
position	31000
routeWaypointType	31010
milGrid10	31100
geocentricCoordinates	31200
geocentricCoordinateX	31210
geocentricCoordinateY	31220
geocentricCoordinateZ	31230
latitude	31300
longitude	31400
lineOfSight	31500
lineOfSightX	31510
lineOfSightY	31520
lineOfSightZ	31530
altitude	31600
destinationLatitude	31700
destinationLongitude	31800
destinationAltitude	31900
orientation	32000
hullHeadingAngle	32100
hullPitchAngle	32200
rollAngle	32300
rollAngleX	32500
rollAngleY	32600
rollAngleZ	32700
appearance	33000
ambientLighting	33100
lights	33101
paintScheme	33200
smoke	33300
trailingEffects	33400
flaming	33500
marking	33600
minePlowsAttached	33710
mineRollersAttached	33720
tankTurretAzimuth	33730
failuresAndMalfunctions	34000
age	34100
kilometers	34110
damage	35000
cause	35050
mobilityKill	35100
firePowerKill	35200
personnelCasualties	35300
velocity	36000
xVelocity	36100
yVelocity	36200
zVelocity	36300
speed	36400
acceleration	37000
xAcceleration	37100
yAcceleration	37200
zAcceleration	37300
engineStatus	38100
primaryTargetLine	39000
exercise	40000
exerciseState	40010
restartRefresh	40015
afatdsFileName	40020
terrainDatabase	41000
missions	42000
missionId	42100
missionType	42200
missionRequestTimeStamp	42300
exerciseDescription	43000
name	43100
entities	43200
version	43300
guiseMode	43410
simulationApplicationActiveStatus	43420
simulationApplicationRoleRecord	43430
simulationApplicationState	43440
visualOutputMode	44000
simulationManagerRole	44100
simulationManagerSiteId	44110
simulationManagerApplicationId	44120
simulationManagerEntityId	44130
simulationManagerActiveStatus	44140
afterActiveReviewRole	44200
afterActiveReviewSiteId	44210
afterActiveApplicationId	44220
afterActiveReviewEntityId	44230
afterActiveReviewActiveStatus	44240
exerciseLoggerRole	44300
exerciseLoggerSiteId	44310
exerciseLoggerApplicationId	44320
exerciseEntityId	44330
exerciseLoggerActiveStatus	44340
syntheticEnvironmentManagerRole	44400
syntheticEnvironmentManagerSiteId	44410
syntheticEnvironmentManagerApplicationId	44420
syntheticEnvironmentManagerEntityId	44430
syntheticEnvironmentManagerActiveStatus	44440
simnetDisTranslatorRole	44500
simnetDisTranslatorSiteId	44510
simnetDisTranslatorApplicationId	44520
simnetDisTranslatorEntityId	44530
simnetDisTranslatorActiveStatus	44540
applicationRate	45000
applicationTime	45005
applicationTimestep	45010
feedbackTime	45020
simulationRate	45030
simulationTime	45040
simulationTimestep	45050
timeInterval	45060
timeLatency	45070
timeScheme	45080
exerciseElapsedTime	46000
elapsedTime	46010
environment	50000
weather	51000
weatherCondition	51010
thermalCondition	51100
thermalVisibilityFloatingPoint32	51110
thermalVisibilityUnsignedInteger32	51111
time	52000
timeString	52001
timeOfDayDiscrete	52100
timeOfDayContinuous	52200
timeMode	52300
timeScene	52305
currentHour	52310
currentMinute	52320

currentSecond	52330
azimuth	52340
maximumElevation	52350
timeZone	52360
timeRate	52370
simulationTime2	52380
timeSunriseEnabled	52400
sunriseHour	52410
sunriseMinute	52420
sunriseSecond	52430
sunriseAzimuth	52440
timeSunsetEnabled	52500
sunsetHour	52510
sunsetHour2	52511
sunsetMinute	52520
sunsetSecond	52530
date	52600
dateEuropean	52601
dateUs	52602
month	52610
day	52620
year	52630
clouds	53000
cloudLayerEnable	53050
cloudLayerSelection	53060
cloudVisibility	53100
baseAltitudeMeters	53200
baseAltitudeFeet	53250
ceilingMeters	53300
ceilingFeet	53350
characteristics	53400
concentrationLength	53410
transmittance	53420
radiance	53430
precipitation	54000
rain	54100
fog	55000
visibilityMeters	55100
visibilityMetersUnsignedInteger32	55101
visibilityMiles	55105
fogDensity	55200
base	55300
viewLayerFromAbove	55401
transitionRange	55410
bottomMeters	55420
bottomFeet	55425
fogCeilingMeters	55430
fogCeilingFeet	55435
heavenlyBodies	56000
sun	56100
sunVisible	56105
sunPosition	56110
sunPositionElevationDegrees	56111
sunPositionAzimuth	56120
sunPositionAzimuthDegrees	56121
sunPositionElevation	56130
sunPositionIntensity	56140
moon	56200
moonVisible	56205
moonPosition	56210
moonPositionAzimuth	56220
moonPositionAzimuthDegrees	56221
moonPositionElevation	56230
moonPositionElevationDegrees	56231
moonPositionIntensity	56240
horizon	56310
horizonAzimuth	56320
horizonElevation	56330
horizonHeading	56340
horizonIntensity	56350
humidity	57200
visibility	57300
winds	57400
speed2	57410
windSpeedKnots	57411
windDirection	57420
windDirectionDegrees	57421
rainsoak	57500
tideSpeed	57610
tideSpeedKnots	57611
tideDirection	57620
tideDirectionDegrees	57621
haze	58000
hazeVisibilityMeters	58100
hazeVisibilityMiles	58105
hazeDensity	58200
hazeCeilingMeters	58430
hazeCeilingFeet	58435
contaminantsAndObscurants	59000
contaminantObscurantType	59100
persistence	59110
chemicalDosage	59115
chemicalAirConcentration	59120
chemicalGroundDeposition	59125
chemicalMaximumGroundDeposition	59130
chemicalDosageThreshold	59135
biologicalDosage	59140
biologicalAirConcentration	59145
biologicalDosageThreshold	59150
biologicalBinnedParticleCount	59155
radiologicalDosage	59160
communications	60000
channelType	61100
channelType2	61101
channelIdentification	61200
alphaIdentification	61300
radioIdentification	61400
landLineIdentification	61500
intercomIdentification	61600
groupNetworkChannelNumber	61700
radioCommunicationsStatus	62100
stationaryRadioTransmittersDefaultTime	62200
movingRadioTransmittersDefaultTime	62300
stationaryRadioSignalsDefaultTime	62400
movingRadioSignalDefaultTime	62500
radioInitializationTransecSecurityKey	63101
radioInitializationInternalNoiseLevel	63102
radioInitializationSquelchThreshold	63103
radioInitializationAntennaLocation	63104
radioInitializationAntennaPatternType	63105
radioInitializationAntennaPatternLength	63106
radioInitializationBeamDefinition	63107
radioInitializationTransmitHeartbeatTime	63108
radioInitializationTransmitDistanceThreshold	63109
radioChannelInitializationLockoutId	63110
radioChannelInitializationHopsetId	63111
radioChannelInitializationPresetFrequency	63112
radioChannelInitializationFrequencySyncTime	63113
radioChannelInitializationComsecKey	63114
radioChannelInitializationAlpha	63115
algorithmParameters	70000
deadReckoningAlgorithmDra	71000
draLocationThreshold	71100
draOrientationThreshold	71200
draTimeThreshold	71300
simulationManagementParameters	72000
checkpointInterval	72100
transmitterTimeThreshold	72600
receiverTimeThreshold	72700
interoperabilityMode	73000

simnetDataCollection	74000
eventId	75000
sourceSiteId	75100
sourceHostId	75200
articulatedParts	90000
articulatedPartsPartId	90050
articulatedPartsIndex	90070
articulatedPartsPosition	90100
articulatedPartsPositionRate	90200
articulatedPartsExtension	90300
articulatedPartsExtensionRate	90400
articulatedPartsX	90500
articulatedPartsXRate	90600
articulatedPartsY	90700
articulatedPartsYRate	90800
articulatedPartsZ	90900
articulatedPartsZRate	91000
articulatedPartsAzimuth	91100
articulatedPartsAzimuthRate	91200
articulatedPartsElevation	91300
articulatedPartsElevationRate	91400
articulatedPartsRotation	91500
articulatedPartsRotationRate	91600
draAngularXVelocity	100001
draAngularYVelocity	100002
draAngularZVelocity	100003
appearanceTrailingEffects	100004
appearanceHatch	100005
appearanceCharacterSet	100008
capabilityAmmunitionSupplier	100010
capabilityMiscellaneousSupplier	100011
capabilityRepairProvider	100012
articulationParameter	100014
articulationParameterType	100047
articulationParameterValue	100048
timeOfDayScene	100058
latitudeNorthLocationOfWeatherCell	100061
longitudeEastLocationOfWeatherCell	100063
tacticalDriverStatus	100068
sonarSystemStatus	100100
accomplishedAccept	100160
upperLatitude	100161
latitudeSouthLocationOfWeatherCell	100162
westernLongitude	100163
longitudeWestLocationOfWeatherCell	100164
cDROMNumberDiskIDForTerrain	100165
dTEDDiskID	100166
altitude1	100167
tacticalSystemStatus	100169
jtidsStatus	100170
tadilJStatus	100171
dsddStatus	100172
weaponSystemStatus	100200
subsystemStatus	100205
numberOfInterceptorsFired	100206
numberOfInterceptorDetonations	100207
numberOfMessageBuffersDropped	100208
satelliteSensorBackgroundYearDay	100213
satelliteSensorBackgroundHourMinute	100214
scriptNumber	100218
entityTrackUpdateData	100300
localForceTraining	100400
entityTrackIdentityData	100500
entityForTrackEvent	100510
iffFriendFoeStatus	100520
engagementData	100600
targetLatitude	100610
targetLongitude	100620
areaOfInterestGroundImpactCircleCenter Latitude	100631
areaOfInterestGroundImpactCircleCenter Longitude	100632
areaOfInterestGroundImpactCircleRadius	100633
areaOfInterestType	100634
targetAggregateId	100640
gicIdentificationNumber	100650
estimatedTimeOfFlightToTbmImpact	100660
estimatedInterceptTime	100661
estimatedTimeOfFlightToNextWaypoint	100662
entityTrackEquipmentData	100700
emissionEwData	100800
appearanceData	100900
commandOrderData	101000
environmentalData	101100
significantEventData	101200
operatorActionData	101300
adaEngagementMode	101310
adaShootingStatus	101320
adaMode	101321
adaRadarStatus	101330
shootCommand	101340
adaWeaponStatus	101350
adaFiringDisciple	101360
orderStatus	101370
timeSynchronization	101400
tomahawkData	101500
numberOfDetonations	102100
numberOfIntercepts	102200
obtControlMt201	200201
sensorDataMt202	200202
environmentalDataMt203	200203
ownshipDataMt204	200204
acousticContactDataMt205	200205
sonobuoyDataMt207	200207
sonobuoyContactDataMt210	200210
heloControlMt211	200211
esmControlData	200213
esmContactDataMt214	200214
esmEmitterDataMt215	200215
weaponDefinitionDataMt217	200216
weaponPresetDataMt217	200217
obtControlMt301	200301
sensorDataMt302	200302
environmentalDataMt303m	200303
ownshipDataMt304	200304
acousticContactDataMt305	200305
sonobuoyDataMt307	200307
sonobuoyContactDataMt310	200310
heloScenarioEquipmentStatus	200311
esmControlDataMt313	200313
esmContactDataMt314	200314
esmEmitterDataMt315	200315
weaponDefinitionDataMt316	200316
weaponPresetDataMt317	200317
pairingAssociationEMT56	200400
pointerEMT57	200401
reportingResponsibilityEMT58	200402
trackNumberEMT59	200403
idForLink11ReportingEMT60	200404
remoteTrackEMT62	200405
link11ErrorRateEMT63	200406
trackQualityEMT64	200407
gridlockEMT65	200408
killEMT66	200409
trackIdChangeResolutionEMT68	200410
weaponsStatusEMT69	200411
link11OperatorEMT70	200412
forceTrainingTransmitEMT71	200413
forceTrainingReceiveEMT72	200414
interceptorAmplificationEMT75	200415

consumablesEMT78	200416
link11LocalTrackQualityEMT95	200417
dlrpEMT19	200418
forceOrderEMT52	200419
wilcoCantcoEMT53	200420
emcBearingEMT54	200421
changeTrackEligibilityEMT55	200422
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systemReferencePoint	200424
puAmplification	200425
setDrift	200426
beginInitializationMt1	200427
statusAndControlMt3	200428
scintillationChangeMt39	200429
link11IdControlMt61	200430
puGuardList	200431
windsAloftMt14	200432
surfaceWindsMt15	200433
seaStateMt17	200434
magneticVariationMt37	200435
trackEligibilityMt29	200436
trainingTrackNotification	200437
tacanDataMt32	200501
interceptorAmplificationMt75	200502
tacanAssignmentMt76	200503
autopilotStatusMt77	200504
consumablesMt78	200505
downlinkMt79	200506
tinReportMt80	200507
specialPointControlMt81	200508
controlDiscretesMt82	200509
requestTargetDiscretesMt83	200510
targetDiscretesMt84	200511
replyDiscretesMt85	200512
commandManeuversMt86	200513
targetDataMt87	200514
targetPointerMt88	200515
interceptDataMt89	200516
decrementMissileInventoryMt90	200517
link4aAlertMt91	200518
strikeControlMt92	200519
speedChangeMt25	200521
courseChangeMt26	200522
altitudeChangeMt27	200523
aclsAnSpn46Status	200524
aclsAircraftReport	200525
sps67RadarOperatorFunctions	200600
sps55RadarOperatorFunctions	200601
spq9aRadarOperatorFunctions	200602
sps49RadarOperatorFunctions	200603
mk23RadarOperatorFunctions	200604
sps48RadarOperatorFunctions	200605
sps40RadarOperatorFunctions	200606
mk95RadarOperatorFunctions	200607
killNoKill	200608
cMTPc	200609
cMC4AirGlobalData	200610
cMC4GlobalData	200611
linksimCommentPdu	200612
nSSTOwnshipControl	200613
other	240000
massOfTheVehicle	240001
forceId2	240002
entityTypeKind1	240003
entityTypeDomain1	240004
entityTypeCountry1	240005
entityTypeCategory1	240006
entityTypeSubCategory	240007
entityTypeSpecific1	240008
entityTypeExtra1	240009
alternativeEntityTypeKind1	240010
alternativeEntityTypeDomain1	240011
alternativeEntityTypeCountry1	240012
alternativeEntityTypeCategory1	240013
alternativeEntityTypeSubCategory	240014
alternativeEntityTypeSpecific1	240015
alternativeEntityTypeExtra1	240016
entityLocationX	240017
entityLocationY	240018
entityLocationZ	240019
entityLinearVelocityX	240020
entityLinearVelocityY	240021
entityLinearVelocityZ	240022
entityOrientationPsi	240023
entityOrientationTheta	240024
entityOrientationPhi	240025
deadReckoningAlgorithm	240026
deadReckoningLinearAccelerationX	240027
deadReckoningLinearAccelerationY	240028
deadReckoningLinearAccelerationZ	240029
deadReckoningAngularVelocityX	240030
deadReckoningAngularVelocityY	240031
deadReckoningAngularVelocityZ	240032
entityAppearance	240033
entityMarkingCharacterSet	240034
entityMarking11Bytes	240035
capability	240036
numberArticulationParameters	240037
articulationParameterId	240038
articulationParameterType2	240039
articulationParameterValue2	240040
typeOfStores	240041
quantityOfStores	240042
fuelQuantity	240043
radarSystemStatus	240044
radioCommunicationSystemStatus	240045
defaultTimeForRadioTransmissionForStationary Transmitters	240046
defaultTimeForRadioTransmissionForMoving Transmitters	240047
bodyPartDamagedRatio	240048
nameOfTheTerrainDatabaseFile	240049
nameOfLocalFile	240050
aimpointBearing	240051
aimpointElevation	240052
aimpointRange	240053
airSpeed	240054
altitude2	240055
applicationStatus	240056
autoIff	240057
beaconDelay	240058
bingoFuelSetting	240059
cloudBottom	240060
cloudTop	240061
direction	240062
endAction	240063
frequency	240064
freeze	240065
heading	240066
identification	240067
initialPointData	240068
latitude2	240069
lights2	240070
linear	240071
longitude2	240072
lowAltitude	240073
mfdFormats	240074
nctr	240075
numberProjectiles	240076
operationCode	240077

pitch	240078
profiles	240079
quantity	240080
radarModes	240081
radarSearchVolume	240082
roll	240083
rotation	240084
scaleFactorX	240085
scaleFactorY	240086
shields	240087
steerpoint	240088
spare1	240089
spare2	240090
team	240091
text	240092
timeOfDay	240093
trailFlag	240094
trailSize	240095
typeOfProjectile	240096
typeOfTarget	240097
typeOfThreat	240098
uhfFrequency	240099
utmAltitude	240100
utmLatitude	240101
utmLongitude	240102
vhfFrequency	240103
visibilityRange	240104
voidAaaHit	240105
voidCollision	240106
voidEarthHit	240107
voidFriendly	240108
voidGunHit	240109
voidRocketHit	240110
voidSamHit	240111
weaponData	240112
weaponType	240113
weather2	240114
windDirection1	240115
windSpeed	240116
wingStation	240117
yaw	240118
memoryOffset	240119
memoryData	240120
vasi	240121
beacon	240122
strobe	240123
culture	240124
approach	240125
runwayEnd	240126
obstruction	240127
runwayEdge	240128
rampTaxiway	240129
laserBombCode	240130
rackType	240131
hud	240132
roleFileName	240133
pilotName	240134
pilotDesignation	240135
modelType	240136
disType	240137
classVal	240138
channel	240139
entityType2	240140
alternativeEntityType2	240141
entityLocation	240142
entityLinearVelocity	240143
entityOrientation	240144
deadReckoning	240145
failureSymptom	240146
maxFuel	240147
refuelingBoomConnect	240148
altitudeAgl	240149
calibratedAirspeed	240150
tacanChannel	240151
tacanBand	240152
tacanMode	240153
munition	500001
engineFuel	500002
storageFuel	500003
notUsed	500004
expendable	500005
totalRecordSets	500006
launchedMunition	500007
association	500008
sensor	500009
munitionReload	500010
engineFuelReload	500011
storageFuelReload	500012
expendableReload	500013

Named by DatumIdentifierLengthlessArray, FixedDatumStruct, RecordSetStruct, VariableDatumStruct.

DeadReckoningAlgorithmEnum8 ENUMERATION

Dead-reckoning algorithm

Held as u8.

other	0
staticVal	1
drmFpw	2
drmRpw	3
drmRvw	4
drmFvw	5
drmFpb	6
drmRpb	7
drmRvb	8
drmFvb	9

Named by Designator.

DesignatorCodeEnum16 ENUMERATION

Designator code

Held as u16.

other	0

Named by Designator.

DesignatorCodeNameEnum16 ENUMERATION

Designator code name

Held as u16.

other	0

Named by Designator.

DetonationResultCodeEnum8 ENUMERATION

Detonation result

Held as u8.

other	0
entityImpact	1
entityProximateDetonation	2
groundImpact	3
groundProximateDetonation	4
detonation	5
none	6
heHitSmall	7
heHitMedium	8
heHitLarge	9
armorPiercingHit	10
dirtBlastSmall	11
dirtBlastMedium	12
dirtBlastLarge	13
waterBlastSmall	14
waterBlastMedium	15
waterBlastLarge	16
airHit	17
buildingHitSmall	18
buildingHitMedium	19
buildingHitLarge	20
mineClearingLineCharge	21
environmentObjectImpact	22
environmentObjectProximateDetonation	23
waterImpact	24
airBurst	25
killWithFragmentType1	26
killWithFragmentType2	27
killWithFragmentType3	28
killWithFragmentType1AfterFlyOutFailure	29
killWithFragmentType2AfterFlyOutFailure	30
missDueToFlyOutFailure	31
missDueToEndGameFailure	32
missDueToFlyOutAndEndGameFailure	33

Named by MunitionDetonation.

EmitterFunctionEnum8 ENUMERATION

Emitter system function

Held as u8.

other	0
multiFunction	1
earlyWarningSurveillance	2
heightFinding	3
fireControl	4
acquisitionDetection	5
tracking	6
guidanceIllumination	7
firingPointLaunchPointLocation	8
ranging	9
radarAltimeter	10
imaging	11
motionDetection	12
navigation	13
weatherMeterological	14
instrumentation	15
identificationClassification IncludingIff	16
aaaAntiAircraftArtilleryFire Control	17
airSearchBomb	18
airIntercept	19
altimeter	20
airMapping	21
airTrafficControl	22
beacon	23
battlefieldSurveillance	24
groundControlApproach	25
groundControlIntercept	26
coastalSurveillance	27
decoyMimic	28
dataTransmission	29
earthSurveillance	30
gunLayBeacon	31
groundMapping	32
harborSurveillance	33
iffIdentifyFriendOrFoe	34
ilsInstrumentLandingSystem	35
ionosphericSound	36
interrogator	37
barrageJamming	38
clickJamming	39
deceptiveJamming	40
frequencySweptJamming	41
jamming	42
noiseJamming	43
pulsedJamming	44
repeaterJamming	45
spotNoiseJamming	46
missileAcquisition	47
missileDownlink	48
meteorological	49
space	50
surfaceSearch	51
shellTracking	52
television	56
unknown	57
videoRemoting	58
experimentalOrTraining	59
missileGuidance	60
missileHoming	61
missileTracking	62
jammingNoise	64
jammingDeception	65
decoy	66
navigationDistanceMeasuring Equipment	71
terrainFollowing	72
weatherAvoidance	73
proximityFuse	74
instrumentationDeprecated	75
radiosonde	76
sonobuoy	77
bathythermalSensor	78
towedCounterMeasure	79
weaponNonLethal	96
weaponLethal	97

Named by EmitterSystem.

EmitterTypeEnum16 ENUMERATION

Emitter name

Held as u16.

emitter1l250	5
emitter1rl138	10
emitter1226DeccaMil	45
emitter9b1348	46
emitter3km6	47
emitter9kr400	48
emitter9gr400	80
emitter9gr600	90
emitter9lv200Ta	135
emitter9lv200Tv	180
emitter9lv200tt	181
a310z	225
a325a	270
a346z	315
a353b	360
a372a	405
a372b	450
a372c	495
a377a	540
a377b	585
a380z	630
a381z	675
a398z	720
a403z	765
a409a	810
a418a	855
a419z	900
a429z	945
a432z	990
a434z	1035
a401a	1080
aa12Seeker	1095
ad4a	1096
ades	1097
agave	1100
agrion15	1125
aiMk23	1170
aidaIi	1215
aim120a	1216
albatrosMk2	1260
wgu16B	1270
boxSpring	1280
boxSpringB	1282
anaSps502	1305
anritsuElectricAr30a	1350
antilopeV	1395
anAdm160	1398
anAle50	1400
anAlq76	1410
anAlq99	1440
anAlq100	1485
anAlq101	1530
anAlq119	1575
anAlq122	1585
anAlq126a	1620
anAlq128	1621
anAlq126b	1622
anAlq131	1626
anAlq135cD	1628
anAlq144aV3	1630
anAlq153	1632
anAlq155	1634
anAlq161A	1636
anAlq162	1638
anAlq164	1639
anAlq165	1640
anAlq167	1642
anAlq172V1	1643
anAlq172V2	1644
anAlq172V3	1645
anAlq176	1646
anAlq178	1647
anAlq184	1648
anAlq184V9	1649
anAlq188	1650
anAlq214	1651
anAlr56	1652
anAlq221	1653
anAlr69	1654
anAlq211V	1655
anAlt16a	1656
anAlt28	1658
anAlt32a	1660
anApd10	1665
anApg50	1700
anApg53	1710
anApg59	1755
anApg63ab	1800
anApg63c	1805
anApg63V2	1807
anApg63V3	1809
anApg65	1845
anApg66	1870
anApg67	1880
anApg68	1890
anApg70	1935
anApg73	1945
anApg77	1960
anApg78	1970
anApg79	1971
anApg80	1972
anApg81	1974
anApg502	1980
anApn1	2025
anApn22	2070
anApn59	2115
anApn69	2160
anApn81	2205
anApn117	2250
anApn118	2295
anApn130	2340
anApn131	2385
anApn133	2430
anApn134	2475
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ricePad	25965
riceScreen	26010
deccarm1070a	26011
rm370bt	26015
rockwellCollinsFMR200x	26020
rolandBn	26055
rolandMg	26100
rolandTa	26145
rolandTt	26190
roundBall	26235
roundHouse	26280
roundHouseB	26325
rs0250	26327
rt0250	26330
rtn1a	26350
rumSling	26360
rv2	26370
rv3	26415
rv5	26460
rv10	26505
rv15m	26506
rv17	26550
rv18	26595
rv21	26596
rv377	26610
rvUm	26640
rxn260	26660
s1810cd	26670
salamandre	26673
s1850m	26675
sa2Guideline	26685
sa3Goa	26730
sa8GeckoDt	26775
sa12TelarIll	26795
saN7GadflyTi	26820
saN11Cads1Un	26865
saccadeMH	26900
saltPotAB	26910
sap14	26920
sap518	26925
sap518m	26926
saturneIi	26955
scanCan	27000
scanFix	27045
scanOdd	27090
scanThree	27135
scanterCsr	27140
scorads	27141
scoreboard	27150
scoupPlate	27180
scr584	27190
seaArcher2	27225
seaHunter4Mg	27270
seaHunter4Ta	27315
seaHunter4Tt	27360
seaGull	27405
seaNet	27450
seaSparrow	27451
seaSpray	27495
seaTiger	27540
seaTigerM	27550
searchwater	27570
searchwater2000	27575
seleniaOrion7	27585
seleniaType912	27630
selenniaRan12LX	27675
selenniaRtn10x	27720
seliniaArp1645	27765
sg	27800
sgr10200	27810
sgr10302	27855
sgr104	27870
sheetBend	27900
sheetCurve	27945
shipGlobe	27990
shipWheel	28035
sgr114	28080
shoreWalkA	28125
shortHorn	28170
shotDome	28215
sideGlobeJn	28260
sideNet	28280
sideWalkA	28305
signaalDa02	28350
signaalDa05	28395
signaalDa08	28440
signaalLw08	28485
signaalLwor	28530
signaalM45	28575
signaalMw08	28620
signaalSmart	28665
signaalSting	28710
signaalStir	28755
signaalWm202	28800
signaalWm25	28845
signaalWm27	28890
signaalWm28	28935
signaalZw01	28980
signaalZw06	29025
skiPole	29070
skinHead	29115
skipSpin	29160
skyguardB	29180
skyguardTa	29185
skyguardTt	29190
skymaster	29200
skyWatch	29205
skyRanger	29210
skyshadow	29215
skyshieldTa	29220
sl	29250
slAlq234	29270
slapShotE	29295
slimNet	29340
slotBackA	29385
slotBackIll	29400
slotBackB	29430
slotBackIV	29431
slotBackBTopaz	29432
slotBackVI	29435
slotRest	29440
sma3Rm	29475
sma3Rm20	29520
sma3rm20aSmg	29565
smaBps704	29610
smaSpin749V2	29655
smaSpn703	29700
smaSpn751	29745
smaSpos748	29790
smaSpq2	29835
smaSpq2d	29880
smaSpq701	29925
smaSps702Upx	29970
smaSt2OtomatIiMh	30015
sr47a	30016
sma718Beacon	30060
smartL	30070
smogLamp	30075
snapShot	30080
snoopDrift	30105
snoopHalf	30140
snoopHead	30150
snoopPair	30195
snoopPlate	30240
snoopPing	30255
snoopSlab	30285
snoopTray	30330
snoopTray1	30375
snoopTray2	30420
snoopWatch	30465
snowDrift	30470
spb7	30475
so1	30510
so12	30520
soACommunist	30555
so69	30580
sockEye	30600
som64	30645
sorbsiya	30660
spadaTt	30670
sparrowAIMRim7Ill	30690
sperryrascar	30691
sperryM3	30700
spg53f	30735
spg70RTN10x	30780
spg74RTN20x	30825
spg75RTN30x	30870
spg76RTN30x	30915
spinScanA	30960
spinScanB	31005
spinTrough	31050
splashDrop	31095
spn2	31096
spn4	31097
spn30	31100
spn35a	31140
spn41	31185
spn42	31230
spn43a	31275
spn43b	31320
spn44	31365
spn46	31410
spn703	31455
spn728V1	31500
spn748	31545
spn750	31590
spo8	31592
spongeCake	31635
spoonRest	31680

spoonRestA	31681
spoonRestB	31682
spoonRestD	31684
spq712Ran12lx	31725
sps6c	31770
sps10f	31815
sps12	31860
sps58	31905
sps64	31950
sps161	31960
sps768RANEl	31995
sps774RAN10s	32040
spy790	32085
squareHead	32130
squarePair	32175
squareSlot	32220
squareTie	32265
squashDome	32310
squatEye	32330
squintEye	32355
sr47bG	32375
srn6	32400
srn15	32445
srn745	32490
sro1	32535
sro2	32580
ssC2bSamletMg	32625
ssN2aBCssc	32670
ssN2aBCssc2a3a2Mh	32715
ssN2cSeeker	32760
ssN2cDStyx	32805
ssN2cDStyxCDMh	32850
ssN3SscSsC18Bn	32895
ssN3bSepalAl	32940
ssN3bSepalMh	32985
ssN9Siren	33030
ssN9SirenAl	33075
ssN9SirenMh	33120
ssN12SandboxAl	33165
ssN12SandboxMh	33210
ssN19Shipwreck	33255
ssN19ShipwreckAl	33300
ssN19ShipwreckMh	33345
ssN21Al	33390
ssN22Sunburn	33435
ssN22SunburnMh	33480
ssN27SizzlerMH	33485
stoneCake	33525
str41	33570
straightFlushTa	33590
straightFlushTt	33595
straightFlushIll	33600
strikeOut	33615
strutCurve	33660
strutPair	33705
strutPair1	33750
strutPair2	33795
sunVisor	33840
superfledermaus	33860
supersearcher	33870
swiftRod1	33885
swiftRod2	33930
t1166	33975
t1171	34020
t1202	34040
t6004	34065
t6031	34110
t8067	34155
t8068	34200
t8124	34245
t8408	34290
t8911	34335
t8937	34380
t8944	34425
t8987	34470
tacanSurf	34505
tallKing	34515
tallMike	34560
tallPath	34605
teamWork	34625
t1135	34626
tancanSurf	34627
thaadGbr	34640
thd225	34650
thd1940	34670
thd1955Palmier	34680
thd5500	34695
thinPath	34740
thinSkin	34785
thompsonCsfTa10	34795
thompsonCsfTh D1040Neptune	34830
thompsonCsfCalypso	34875
thompsonCsfCastor	34920
thompsonCsfCastorIi	34965
thompsonCsfDrbc32a	35010
thompsonCsfDrbj11DE	35055
thompsonCsfDrbv15a	35100
thompsonCsfDrbv15c	35145
thompsonCsfDrbv22d	35190
thompsonCsfDrbv23b	35235
thompsonCsfDrua33	35280
thompsonCsfMarsDrbv21a	35325
thompsonCsfSeaTiger	35370
thompsonCsfTriton	35415
thompsonCsfVegaWith Drbc32e	35460
trs2105	35480
ht223	35485
trs2100	35490
tieRods	35505
tinShield	35550
tinTrap	35570
tirsponder	35580
toadStool1	35595
toadStool2	35640
toadStool3	35685
toadStool4	35730
toadStool5	35775
tokenB	35785
tombStone	35800
tonson	35810
topBow	35820
topDome	35865
topKnot	35910
topMesh	35955
topPair	36000
topPlate	36045
topPlateB	36046
topSail	36090
type208	36120
topSteer	36135
topTrough	36180
scrumHalfTa	36220
torScrumHalfTt	36225
scrumHalfMg	36230
trackDish	36270
torsoM	36315
tqn2	36320
trapDoor	36360
trisponde	36380
tritonG	36390
trs3033	36405
trs3405	36420
trs3410	36425
trs3415	36430
trsN	36450
tse5000	36495
tsr333	36540
tubBrick	36563
tubeArm	36585
twinEyes	36630
twinPill	36675
twinScan	36720
twinScanRo	36765
twoSpot	36810
type222	36843
type226	36846
type262	36855
type275	36900
type293	36945
type341	36946
type343SunVisorB	36990
type347b	37035
type347G	37038
type352	37040
type354	37045
type363	37048
type404aCh	37050
type405	37052
type753	37075
type756	37080
type903	37125
type909Ti	37170
type909Tt	37215
type910	37260
type931Ch	37265
type965	37305
type967	37350
type968	37395
type974	37440
type975	37485
type978	37530
type981	37534
type992	37575
type993	37620
type994	37665
type10061	37710
type10062	37755
type1022	37800
ukMk10	37845
ups220c	37850
upx110	37890
upx27	37935
urn20	37980
urn25	38025
volexIiiIv	38045
w1028	38060
w8818	38070
w8838	38115
w8852	38120
wallRust	38150
was74s	38160
waspHead	38205
watchdog	38210
watchGuard	38250
watchman	38260
westernElectricMk10	38295
westinghouseADR4lrsr	38320

westinghouseElectric Spg50	38340
westinghouseElectricW120	38385
westinghouseSps29c	38430
westinghouseSps37	38475
wetEye	38520
wetEye2	38525
wetEyeMod	38565
wgu41B	38570
wgu44B	38572
whiff	38610
whiffBrick	38655
whiffFire	38700
whiteHouse	38715
wildCard	38745
witchEight	38790
witchFive	38835
wm2xSeries	38880
wm2xSeriesCas	38925
wsr74c	38950
wsr74s	38955
wxr700c	38960
woodGage	38970
yardRake	39015
yewLoop	39060
ylc4	39073
yoYo	39105
zooPark1	39125
zd12	39131
zw06	39150
anAlq136V1	39200
anAlq136V2	39201
anAlq136V3	39202
anAlq136V4	39203
anAlq136V5	39204
anAlq162V2	39210
anAlq162V3	39211
anAlq162V4	39212
zhukM	45300

Named by EmitterSystem.

EncodingTypeEnum32 ENUMERATION

Radio signal encoding type

Held as u32.

encoding8BitMuLaw	1
cvsdPerMilStd188113	2
adpcmPerCcittG721	3
encoding16BitLinearPcm	4
encoding8BitLinearPcm	5
vqVectorQuantization	6
unavailableForUse	7
gSMFullRateEtsi0610	8
gSMHalfRateEtsi0620	9
speexNarrowBand	10
encoding16BitLinear PCM2SComplementLittle Endian	100
unavailableForUse2	255

Named by AudioDataTypeStruct.

EnvironmentDataCoordinateSystemEnum16 ENUMERATION

Environment data coordinate system

Held as u16.

rightHandedCartesianLocalTopographicProjectionEastNorthUp	0
leftHandedCartesianLocalTopographicProjectionEastNorthDown	1
latitudeLongitudeHeight	2
latitudeLongitudeDepth	3

Named by GriddedData.

EnvironmentDataRepresentationEnum16 ENUMERATION

Environment data representation type

Held as u16.

environmentDataType0	0
environmentDataType1	1
environmentDataType2	2

EnvironmentDataSampleTypeEnum16 ENUMERATION

Environment data sample type

Held as u16.

environmentDataSampleTypeUnknown	0

Named by GridDataStruct.

EnvironmentGridAxisTypeEnum8 ENUMERATION

Grid axis type

Held as u8.

regularGridAxisType	0
irregularGridAxisType	1

EnvironmentGridTypeEnum8 ENUMERATION

Environment data grid type

Held as u8.

constantGrid	0
updatedGrid	1

Named by GriddedData.

EnvironmentModelTypeEnum8 ENUMERATION

Environment process model type

Held as u8.

environmentModelUnknown	0

Named by EnvironmentProcess.

EnvironmentRecordTypeEnum32 ENUMERATION

Environment record type

Held as u32.

cOMBICStateRecordType	256	rectangularVolRecord1Type	5242880
flareStateRecordType	259	rectangularVolRecord3Type	83886080
boundingSphereRecordType	65536	pointRecord2Type	167772160
uniformGeometryRecordType	327680	lineRecord2Type	201326592
pointRecord1Type	655360	sphereRecord2Type	218103808
lineRecord1Type	786432	ellipsoidRecord2Type	268435456
sphereRecord1Type	851968	coneRecord2Type	805306368
ellipsoidRecord1Type	1048576	rectangularVolRecord2Type	1342177280
coneRecord1Type	3145728	gaussianPlumeRecordType	1610612736

gaussianPuffRecordType	1879048192

EventTypeEnum32 ENUMERATION

Event type

Held as u32.

other	0
ranOutOfAmmunition	2
killedInAction	3
damage	4
mobilityDisabled	5
fireDisabled	6
ranOutOfFuel	7
entityInitialization	8
requestForIndirectFireOrCASMission	9
indirectFireOrCASMission	10
minefieldEntry	11
minefieldDetonation	12
vehicleMasterPowerOn	13
vehicleMasterPowerOff	14
aggregateStateChangeRequested	15
preventCollisionDetonation	16
ownershipReport	17

Named by EventReport, RecordQueryR, RecordR.

ForceIdentifierEnum8 ENUMERATION

Force ID

Held as u8.

other	0
friendly	1
opposing	2
neutral	3
friendly2	4
opposing2	5
neutral2	6
friendly3	7
opposing3	8
neutral3	9
friendly4	10
opposing4	11
neutral4	12
friendly5	13
opposing5	14
neutral5	15
friendly6	16
opposing6	17
neutral6	18
friendly7	19
opposing7	20
neutral7	21
friendly8	22
opposing8	23
neutral8	24
friendly9	25
opposing9	26
neutral9	27
friendly10	28
opposing10	29
neutral10	30

Named by netn.SEFacility, AggregateEntity, ArealObjectTransaction, BreachObjectTransaction, BreachableLinearObjectTransaction, BreachablePointObjectTransaction, BurstPointObjectTransaction, CraterObjectTransaction, EnvironmentObject, EnvironmentObjectTransaction, ExhaustSmokeObjectTransaction, LinearObjectTransaction, Minefield, MinefieldLaneMarkerObjectTransaction, MinefieldObjectTransaction, OtherArealObjectTransaction, OtherLinearObjectTransaction, OtherPointObjectTransaction, PhysicalEntity, PointObjectTransaction, RibbonBridgeObjectTransaction, StructureObjectTransaction.

FormationEnum32 ENUMERATION

Formation

Held as u32.

other	0
assembly	1
vee	2
wedge	3
line	4
column	5

Named by netn.MoveIntoFormation, AggregateEntity.

FuseTypeEnum16 ENUMERATION

Fuse (detonator)

Held as u16.

other	0
intelligentInfluence	10
sensor	20
selfDestruct	30
ultraQuick	40
body	50
deepIntrusion	60
multifunction	100
pointDetonationPd	200
baseDetonationBd	300
contact	1000
contactInstantImpact	1100
contactDelayed	1200
contact10msDelay	1201
contact20msDelay	1202
contact50msDelay	1205
contact60msDelay	1206
contact100msDelay	1210
contact125msDelay	1212
contact250msDelay	1225
contactElectronicObliqueContact	1300
contactGraze	1400
contactCrush	1500
contactHydrostatic	1600
contactMechanical	1700
contactChemical	1800
contactPiezoelectric	1900
contactPointInitiating	1910
contactPointInitiatingBaseDetonating	1920
contactBaseDetonating	1930
contactBallisticCapAndBase	1940
contactBase	1950
contactNose	1960
contactFittedInStandoffProbe	1970
contactNonAligned	1980
timed	2000
timedProgrammable	2100
timedBurnout	2200
timedPyrotechnic	2300
timedElectronic	2400
timedBaseDelay	2500
timedReinforcedNoseImpactDelay	2600
timedShortDelayImpact	2700
timed10msDelay	2701
timed20msDelay	2702
timed50msDelay	2705
timed60msDelay	2706
timed100msDelay	2710
timed125msDelay	2712
timed250msDelay	2725
timedNoseMountedVariableDelay	2800
timedLongDelaySide	2900
timedSelectableDelay	2910
timedImpact	2920
timedSequence	2930
proximity	3000
proximityActiveLaser	3100
proximityMagneticMagpolarity	3200
proximityActiveDopplerRadar	3300
proximityRadioFrequencyRF	3400
proximityProgrammable	3500
proximityProgrammablePrefragmented	3600
proximityInfrared	3700
command	4000
commandElectronicRemotelySet	4100
altitude	5000
altitudeRadioAltimeter	5100
altitudeAirBurst	5200
depth	6000
acoustic	7000
pressure	8000
pressureDelay	8010
inert	8100
dummy	8110
practice	8120
plugRepresenting	8130
training	8150
pyrotechnic	9000
pyrotechnicDelay	9010
electroOptical	9100
electroMechanical	9110
electroMechanicalNose	9120
strikerless	9200
strikerlessNoseImpact	9210
strikerlessCompressionIgnition	9220
compressionIgnition	9300
compressionIgnitionStrikerlessNoseImpact	9310
percussion	9400
percussionInstantaneous	9410
electronic	9500
electronicInternallyMounted	9510
electronicRangeSetting	9520
electronicProgrammed	9530
mechanical	9600
mechanicalNose	9610
mechanicalTail	9620

Named by MunitionDetonation, WeaponFire.

HatchStateEnum32 ENUMERATION

Hatch state

Held as u32.

notApplicable	0
primaryHatchIsClosed	1
primaryHatchIsPopped	2
primaryHatchIsPoppedAndPersonIsVisibleUnderHatch	3
primaryHatchIsOpen	4
primaryHatchIsOpenAndPersonIsVisible	5

Named by Platform.

IffAlternateMode4Enum8 ENUMERATION

IFF alternate mode 4

Held as u8.

other	0
valid	1
invalid	2
noResponse	3
unableToVerify	4

Named by NatoIFF.

IffApplicableModesEnum8 ENUMERATION

IFF applicable modes

Held as u8.

other	0
allModes	1

Named by FundamentalParameterDataStruct.

IffOperationalParameter1Enum8 ENUMERATION

IFF operational parameter 1

Held as u8.

other	0

Named by IFF.

IffOperationalParameter2Enum8 ENUMERATION

IFF operational parameter 2

Held as u8.

other	0

Named by IFF.

IffSystemModeEnum8 ENUMERATION

IFF system mode

Held as u8.

noStatement	0	lowOrLowSensitivity	5
off	1		
standby	2		
normal	3		
emergency	4		

Named by IFF.

IffSystemNameEnum16 ENUMERATION

IFF system name

Held as u16.

other	0
markX	1
markXII	2
atcrbs	3
soviet	4
modeS	5
markXXiiAtcrbs	6
markXXiiAtcrbsModeS	7
ari5954	8
ari5983	9
genericRRB	10
genericMarkXIIA	11
genericMode5	12
genericMarkXIIACombinedInterrogatorTransponderCit	13
genericMarkXIICombinedInterrogatorTransponderCit	14
genericTCASIACASITransceiver	15
genericTCASIIACASIITransceiver	16
genericMarkXA	17
genericMarkXSif	18

Named by IFF.

IffSystemTypeEnum16 ENUMERATION

IFF system type

Held as u16.

other	0
markTransponder	1
markInterrogator	2
sovietTransponder	3
sovietInterrogator	4
rRBTransponder	5
markXIIAInterrogator	6
mode5Interrogator	7
modeSInterrogator	8
markXIIATransponder	9
mode5Transponder	10
modeSTransponder	11
markXIIACombinedInterrogatorTransponderCit	12
markXIICombinedInterrogatorTransponderCit	13
tcasACASTransceiver	14

Named by IFF.

JTIDSPrimaryModeEnum8 ENUMERATION

The primary mode of a JTIDS system [UID 173].

Held as u8.

ntr	1
jTIDSUnitParticipant	2

Named by JTIDSTransmitterStruct.

JTIDSSecondaryModeEnum8 ENUMERATION

The JTIDS secondary mode of operation [UID 174].

Held as u8.

none	0	netPositionReference	1

primaryNavigationController	2
secondaryNavigationController	3

Named by JTIDSTransmitterStruct.

JTIDSSynchronizationStateEnum8 ENUMERATION

Describes the state of synchronization that the JTIDS system has achieved [UID 175].

Held as u8.

noStatement	0
initialNetEntry	1
coarseSynchronization	2
fineSynchronization	3

Named by JTIDSTransmitterStruct.

Link1111BEncryptionFlagEnum8 ENUMERATION

Link 11/11B Encryption Flag [UID 735].

Held as u8.

noEncryptionUsed	0
encryptionUsed	1

Link1111BFidelityLevelEnum8 ENUMERATION

Link 11/11B Fidelity Level [UID 467].

Held as u8.

fidelityLevel0	0
fidelityLevel1	1
fidelityLevel2	2

Named by Link11BTransmitterStruct, Link11TransmitterStruct.

Link11BDataSignalingRateEnum8 ENUMERATION

Link 11B Data Signaling Rate [UID 740].

Held as u8.

noStatement	0
n1200Bps	3
n2400Bps	4
n600Bps	5

Link11BLinkStateEnum8 ENUMERATION

Link 11B Link State [UID 737].

Held as u8.

noStatement	0
inactive	1
ready	2
active	3
operational	4

Named by Link11BTransmitterStruct.

Link11BMessageSubTypeEnum8 ENUMERATION

Link 11B Message Sub Type [UID 739].

Held as u8.

noStatement	0	standbySignal	2
transmissionFrame	1		

Link11BModeOfOperationEnum16 ENUMERATION

Link 11B Mode of Operation [UID 738].

Held as u16.

noStatement	0
fullTransmissionOfData	1
limitedTransmissionOfData	2
receiveOnly	3

Named by Link11BTransmitterStruct.

Link11BModulationStandardEnum8 ENUMERATION

Link 11B Modulation Standard [UID 741].

Held as u8.

noStatement	0
ccittv23	1

Link11DataSignalingRateEnum8 ENUMERATION

Link 11 Data Signaling Rate [UID 732].

Held as u8.

noStatement	0
n1364Bps	1
n2250Bps	2

Link11MessageSubTypeEnum8 ENUMERATION

Link 11 Message Sub Type [UID 730].

Held as u8.

noStatement	0
interrogation	1
dataStart	2
data	3
dataStop	4

Link11ModeOfOperationEnum16 ENUMERATION

Link 11 Mode of Operation [UID 470].

Held as u16.

noStatement	0
netSync	1
netTest	2
rollCall	3
shortBroadcast	4
broadcast	5

Named by Link11TransmitterStruct.

Link11SignalWaveformEnum8 ENUMERATION

Link 11 Signal Waveform [UID 734].

Held as u8.

noStatementCLEWFormat	0
conventionalLinkElevenWaveformClew	1
singleToneLinkElevenWaveformSlew	2

Link11TerminalModeEnum8 ENUMERATION

Link 11 Terminal Mode [UID 468].

Held as u8.

noStatement	0
networkControlStation	1
picket	2

Named by Link11TransmitterStruct.

Link16VersionEnum8 ENUMERATION

Link 16 version [UID 800].

Held as u8.

noStatement	0
milStd6016c	1
milStd6016d	2
milStd6016e	3
milStd6016f	4
milStd6016fc1	5
sTANAG5516Ed3	103
sTANAG5516Ed4	104
sTANAG5516Ed5	105
sTANAG5516Ed6	106
sTANAG5516Ed8	108

Named by link16.JTIDSLETRadioSignal, link16.JTIDSMessageRadioSignal, link16.JTIDSVoiceCVSDRadioSignal, link16.JTIDSVoiceLPC10RadioSignal, link16.JTIDSVoiceLPC12RadioSignal, link16.Link16RadioSignal, link16.RTTABRadioSignal, link16.RTTReplyRadioSignal, link16.VMFRadioSignal.

MajorRFModulationTypeEnum16 ENUMERATION

Major classification of the modulation type.

Held as u16.

other	0
amplitude	1
amplitudeAndAngle	2
angle	3
combination	4
pulse	5
unmodulated	6
carrierPhaseShiftModulationCpsm	7

MarkingEncodingEnum8 ENUMERATION

Marking character set

Held as u8.

other	0
ascii	1
armyMarkingCCTT	2
digitChevron	3

Named by AggregateMarkingStruct, MarkingStruct.

MinefieldFusingEnum32 ENUMERATION

Minefield fuse type

Held as u32.

noFuse	0	tiltRod	4
other	1	command	5
pressure	2	tripWire	6
magnetic	3		

Named by MineFusingStruct.

MinefieldLaneEnum8 ENUMERATION

Minefield lane status

Held as u8.

minefieldHasActiveLane	0
minefieldHasAnInactiveLane	1

Named by Minefield.

MinefieldPaintSchemeEnum32 ENUMERATION

Minefield paint scheme

Held as u32.

other	0
standard	1
camouflageDesert	2
camouflageJungle	3
camouflageSnow	4
camouflageGravel	5
camouflagePavement	6
camouflageSand	7
naturalWood	8
clear	9
red	10
blue	11
green	12
olive	13
white	14
tan	15
black	16
yellow	17
brown	18

Named by MinefieldPaintSchemeLengthlessArray.

MinefieldProtocolEnum8 ENUMERATION

Minefield communication protocol mode

Held as u8.

heartbeatMode	0
qRPMode	1

Named by Minefield.

MinefieldSensorTypeEnum32 ENUMERATION

Minefield sensor type

Held as u32.

other	0
unaidedEyeActivelySearching	4096
unaidedEyeNotActivelySearching	4097
binoculars	4098
imageIntensifier	4099
hMMWVOccupantActivelySearching	4100
hMMWVOccupantNotActivelySearching	4101
truckOccupantActivelySearching	4102
truckOccupantNotActivelySearching	4103
trackedVehicleOccupantClosedHatchActivelySearching	4104
trackedVehicleOccupantClosedHatchNotActivelySearching	4105
trackedVehicleOccupantOpenHatchActivelySearching	4106
trackedVehicleOccupantOpenHatchNotActivelySearching	4107
flirGeneric35	8192

flirGeneric812	8193
flirAstamidsI	8194
flirAstamidsIi	8195
flirGstamids35	8196
flirGstamids812	8197
flirHstamids35	8198
flirHstamids812	8199
flirCobra35	8200
flirCobra812	8201
radarGeneric	12288
radarGenericGpr	12289
radarGstamidsI	12290
radarGstamidsIi	12291
radarHstamidsI	12292
radarHstamidsIi	12293
magneticGeneric	16384
magneticAnpss11	16385
magneticAnpss12	16386
magneticGstamids	16389
laserGeneric	20480
laserAstamids	20481
sonarGeneric	24576
physicalGenericProbe	28672
physicalProbeMetalContent	28673
physicalProbeNoMetalContent	28674
multispectralGeneric	32768

Named by MinefieldSensorTypeLengthlessArray.

MinefieldStatusEnum8 ENUMERATION

Minefield status

Held as u8.

active	0
inactive	1

Named by Minefield.

MinefieldTypeEnum8 ENUMERATION

Minefield type

Held as u8.

mixedAntiPersonnelAntiTank	0
pureAntiPersonnel	1
pureAntiTank	2

Named by Minefield.

NomenclatureEnum16 ENUMERATION

The nomenclature for a specific radio system.

Held as u16.

other	0
anArn118	1
anArn139	2
genericGroundFixedTransmitter	3
genericGroundMobileTransmitter	4

Named by RadioTypeStruct.

NomenclatureVersionEnum8 ENUMERATION

The naming convention applied to the radio system by the manufacturer/controlling agency.

Held as u8.

other	0
jointElectronicsType DesignationSystemJetdsNonSpecificSeries	1
manufacturerDesignation	2
nationalDesignation	3
jETDSARCSet1	11
jETDSARCSet2	12
jETDSARCSet3	13
jETDSARCSet4	14
jETDSBRCSet1	15
jETDSBRCSet2	16
jETDSBRCSet3	17
jETDSBRCSet4	18
jETDSCRCSet1	19
jETDSCRCSet2	20
jETDSCRCSet3	21
jETDSCRCSet4	22
jETDSDRCSet1	23
jETDSDRCSet2	24
jETDSDRCSet3	25
jETDSDRCSet4	26
jETDSFRCSet1	27
jETDSFRCSet2	28
jETDSFRCSet3	29
jETDSFRCSet4	30
jETDSGRCSet1	31
jETDSGRCSet2	32
jETDSGRCSet3	33
jETDSGRCSet4	34
jETDSKRCSet1	35
jETDSKRCSet2	36
jETDSKRCSet3	37
jETDSKRCSet4	38
jETDSMRCSet1	39
jETDSMRCSet2	40
jETDSMRCSet3	41
jETDSMRCSet4	42
jETDSPRCSet1	43
jETDSPRCSet2	44
jETDSPRCSet3	45
jETDSPRCSet4	46
jETDSSRCSet1	47
jETDSSRCSet2	48
jETDSSRCSet3	49
jETDSSRCSet4	50
jETDSTRCSet1	51
jETDSTRCSet2	52
jETDSTRCSet3	53
jETDSTRCSet4	54
jETDSVRCSet1	55
jETDSVRCSet2	56
jETDSVRCSet3	57
jETDSVRCSet4	58
jETDSWRCSet1	59
jETDSWRCSet2	60
jETDSWRCSet3	61
jETDSWRCSet4	62
jETDSZRCSet1	63
jETDSZRCSet2	64
jETDSZRCSet3	65
jETDSZRCSet4	66

Named by RadioTypeStruct.

OpacityCodeEnum32 ENUMERATION

Density of environmentals

Held as u32.

clear	0
hazy	1
dense	2
veryDense	3
opaque	4

Named by EnvironmentalEntity.

ParameterTypeEnum32 ENUMERATION

Parameter type

Held as u32.

articulatedPart	0
attachedPart	1
separation	2
entityType	3
entityAssociation	4

PropulsionPlantEnum8 ENUMERATION

Propulsion plant configuration

Held as u8.

other	0
dieselElectric	1
diesel	2
battery	3
turbineReduction	4
steam	6
gasTurbine	7

Named by PropulsionNoise.

PulseModulationTypeEnum16 ENUMERATION

Detailed modulation types for Pulse Modulation

Held as u16.

other	0
pulse	1
xBandTACANPulse	2
yBandTACANPulse	3

Named by RFModulationTypeVariantStruct.

RFModulationSystemTypeEnum16 ENUMERATION

The radio system type associated with this transmitter.

Held as u16.

other	0
generic	1
hq	2
hqii	3
hqiia	4
sincgars	5
ccttSincgars	6
eplrsEnhancedPosition LocationReportingSystem	7
jtidsMids	8
link11	9
link11B	10
lBandSATCOM	11
enhancedSINCGARS73	12
navigationAid	13

Named by RadioTransmitter.

RadioInputSourceEnum8 ENUMERATION

Radio input source

Held as u8.

other	0
pilot	1
copilot	2
firstOfficer	3
driver	4
loader	5
gunner	6
commander	7
digitalDataDevice	8
intercom	9
audioJammer	10
dataJammer	11
gPSJammer	12
gPSMeaconer	13

Named by RadioTransmitter.

ReceiverOperationalStatusEnum16 ENUMERATION

The operational state of a radio receiver.

Held as u16.

off	0
onButNotReceiving	1
onAndReceiving	2

Named by RadioReceiver.

ReferenceSystemEnum8 ENUMERATION

The reference coordinate system used

Held as u8.

worldCoordinates	1
entityCoordinates	2

Named by BeamAntennaStruct, SphericalHarmonicAntennaStruct.

RepairResultEnum8 ENUMERATION

Result of repair

Held as u8.

other	0
repairEnded	1
invalidRepair	2
repairInterrupted	3
serviceCanceledByTheSupplier	4

Named by RepairResponse.

RepairTypeEnum16 ENUMERATION

System repaired

Held as u16.

noRepairsPerformed	0
allRequestedRepairsPerformed	1
motorOrEngine	10
starter	20
alternator	30
generator	40
battery	50
engineCoolantLeak	60
fuelFilter	70
transmissionOilLeak	80
engineOilLeak	90
pumps	100
filters	110
transmission	120

brakes	130
suspensionSystem	140
oilFilter	150
hull	1000
airframe	1010
truckBody	1020
tankBody	1030
trailerBody	1040
turret	1050
propeller	1500
environmentalFilters	1520
wheels	1540
tire	1550
track	1560
gunElevationDrive	2000
gunStabilizationSystem	2010
gunnersPrimarySightGps	2020
commandersExtensionToTheGPS	2030
loadingMechanism	2040
gunnersAuxiliarySight	2050
gunnersControlPanel	2060
gunnersControlAssemblyHandleHandles	2070
commandersControlHandlesAssembly	2090
commandersWeaponStation	2100
commandersIndependentThermalViewerCitv	2110
generalWeapons	2120
fuelTransferPump	4000
fuelLines	4010
gauges	4020
generalFuelSystem	4030
electronicWarfareSystems	4500
detectionSystems	4600
electronicWarfareRadioFrequency	4610
electronicWarfareMicrowave	4620
electronicWarfareInfrared	4630
electronicWarfareLaser	4640
rangeFinders	4700
rangeOnlyRadar	4710
laserRangeFinder	4720
electronicSystems	4800
electronicSystemsRadioFrequency	4810
electronicSystemsMicrowave	4820
electronicSystemsInfrared	4830
electronicSystemsLaser	4840
radios	5000
communicationSystems	5010
intercoms	5100
encoders	5200
encryptionDevices	5250
decoders	5300
decryptionDevices	5350
computers	5500
navigationAndControlSystems	6000
fireControlSystems	6500
airSupply	8000
lifeSupportFilters	8010
lifeSupportWaterSupply	8020
refrigerationSystem	8030
chemicalBiologicalAndRadiologicalProtection	8040
waterWashDownSystems	8050
decontaminationSystems	8060
hydraulicSystemWaterSupply	9000
coolingSystem	9010
winches	9020
catapults	9030
cranes	9040
launchers	9050
lifeBoats	10000
landingCraft	10010
ejectionSeats	10020

Named by netn.ArrayOfRepairTypeEnum, RepairComplete.

RequestStatusEnum32 ENUMERATION

Request status

Held as u32.

other	0
pending	1
executing	2
partiallyComplete	3
complete	4
requestRejected	5
retransmitRequestNow	6
retransmitRequestLater	7
invalidTimeParameters	8
simulationTimeExceeded	9
requestDone	10
taccsfLosReplyType1	100
taccsfLosReplyType2	101
joinExerciseRequestRejected	201

Named by ActionResponse, ActionResponseR.

ResponseFlagEnum16 ENUMERATION

Response flag

Held as u16.

other	0
ableToComply	1
unableToComply	2
pendingOperatorAction	3

Named by Acknowledge, AcknowledgeR, AttributeChangeResult, AttributeChangeResultR, CreateObjectResult, CreateObjectResultR, RemoveObjectResult, RemoveObjectResultR.

SISOSTD002VersionEnum8 ENUMERATION

SISO-STD-002 version [UID 736].

Held as u8.

sisoStd0022006	0
sisoStd0022021	1

Named by link16.JTIDSLETRadioSignal, link16.JTIDSMessageRadioSignal, link16.JTIDSVoiceCVSDRadioSignal, link16.JTIDSVoiceLPC10RadioSignal, link16.JTIDSVoiceLPC12RadioSignal, link16.Link16RadioSignal, link16.RTTABRadioSignal, link16.RTTReplyRadioSignal, link16.VMFRadioSignal.

ServiceTypeEnum8 ENUMERATION

Service type

Held as u8.

other	0
resupply	1
repair	2

Named by ServiceRequest.

SpreadSpectrumEnum16 ENUMERATION

The type of spread spectrum characteristics employed by a transmitter.

Held as u16.

none	0	link11SpectrumType	3
sINCGARSFrequencyHop	1	link11BSpectrumType	4
jtidsMidsSpectrumType	2		

StanceCodeEnum32 ENUMERATION

Life form state

Held as u32.

notApplicable	0
uprightStandingStill	1
uprightWalking	2
uprightRunning	3
kneeling	4
prone	5
crawling	6
swimming	7
parachuting	8
jumping	9
sitting	10
squatting	11
crouching	12
wading	13
surrender	14
detained	15

Named by Lifeform.

StationEnum32 ENUMERATION

Attached part station

Held as u32.

nothingEmpty	0	fuselageStation40	551	fuselageStation80	591
fuselageStation1	512	fuselageStation41	552	fuselageStation81	592
fuselageStation2	513	fuselageStation42	553	fuselageStation82	593
fuselageStation3	514	fuselageStation43	554	fuselageStation83	594
fuselageStation4	515	fuselageStation44	555	fuselageStation84	595
fuselageStation5	516	fuselageStation45	556	fuselageStation85	596
fuselageStation6	517	fuselageStation46	557	fuselageStation86	597
fuselageStation7	518	fuselageStation47	558	fuselageStation87	598
fuselageStation8	519	fuselageStation48	559	fuselageStation88	599
fuselageStation9	520	fuselageStation49	560	fuselageStation89	600
fuselageStation10	521	fuselageStation50	561	fuselageStation90	601
fuselageStation11	522	fuselageStation51	562	fuselageStation91	602
fuselageStation12	523	fuselageStation52	563	fuselageStation92	603
fuselageStation13	524	fuselageStation53	564	fuselageStation93	604
fuselageStation14	525	fuselageStation54	565	fuselageStation94	605
fuselageStation15	526	fuselageStation55	566	fuselageStation95	606
fuselageStation16	527	fuselageStation56	567	fuselageStation96	607
fuselageStation17	528	fuselageStation57	568	fuselageStation97	608
fuselageStation18	529	fuselageStation58	569	fuselageStation98	609
fuselageStation19	530	fuselageStation59	570	fuselageStation99	610
fuselageStation20	531	fuselageStation60	571	fuselageStation100	611
fuselageStation21	532	fuselageStation61	572	fuselageStation101	612
fuselageStation22	533	fuselageStation62	573	fuselageStation102	613
fuselageStation23	534	fuselageStation63	574	fuselageStation103	614
fuselageStation24	535	fuselageStation64	575	fuselageStation104	615
fuselageStation25	536	fuselageStation65	576	fuselageStation105	616
fuselageStation26	537	fuselageStation66	577	fuselageStation106	617
fuselageStation27	538	fuselageStation67	578	fuselageStation107	618
fuselageStation28	539	fuselageStation68	579	fuselageStation108	619
fuselageStation29	540	fuselageStation69	580	fuselageStation109	620
fuselageStation30	541	fuselageStation70	581	fuselageStation110	621
fuselageStation31	542	fuselageStation71	582	fuselageStation111	622
fuselageStation32	543	fuselageStation72	583	fuselageStation112	623
fuselageStation33	544	fuselageStation73	584	fuselageStation113	624
fuselageStation34	545	fuselageStation74	585	fuselageStation114	625
fuselageStation35	546	fuselageStation75	586	fuselageStation115	626
fuselageStation36	547	fuselageStation76	587	fuselageStation116	627
fuselageStation37	548	fuselageStation77	588	fuselageStation117	628
fuselageStation38	549	fuselageStation78	589	fuselageStation118	629
fuselageStation39	550	fuselageStation79	590	fuselageStation119	630

fuselageStation120	631	leftWingStation62	701	rightWingStation4	771
fuselageStation121	632	leftWingStation63	702	rightWingStation5	772
fuselageStation122	633	leftWingStation64	703	rightWingStation6	773
fuselageStation123	634	leftWingStation65	704	rightWingStation7	774
fuselageStation124	635	leftWingStation66	705	rightWingStation8	775
fuselageStation125	636	leftWingStation67	706	rightWingStation9	776
fuselageStation126	637	leftWingStation68	707	rightWingStation10	777
fuselageStation127	638	leftWingStation69	708	rightWingStation11	778
fuselageStation128	639	leftWingStation70	709	rightWingStation12	779
leftWingStation1	640	leftWingStation71	710	rightWingStation13	780
leftWingStation2	641	leftWingStation72	711	rightWingStation14	781
leftWingStation3	642	leftWingStation73	712	rightWingStation15	782
leftWingStation4	643	leftWingStation74	713	rightWingStation16	783
leftWingStation5	644	leftWingStation75	714	rightWingStation17	784
leftWingStation6	645	leftWingStation76	715	rightWingStation18	785
leftWingStation7	646	leftWingStation77	716	rightWingStation19	786
leftWingStation8	647	leftWingStation78	717	rightWingStation20	787
leftWingStation9	648	leftWingStation79	718	rightWingStation21	788
leftWingStation10	649	leftWingStation80	719	rightWingStation22	789
leftWingStation11	650	leftWingStation81	720	rightWingStation23	790
leftWingStation12	651	leftWingStation82	721	rightWingStation24	791
leftWingStation13	652	leftWingStation83	722	rightWingStation25	792
leftWingStation14	653	leftWingStation84	723	rightWingStation26	793
leftWingStation15	654	leftWingStation85	724	rightWingStation27	794
leftWingStation16	655	leftWingStation86	725	rightWingStation28	795
leftWingStation17	656	leftWingStation87	726	rightWingStation29	796
leftWingStation18	657	leftWingStation88	727	rightWingStation30	797
leftWingStation19	658	leftWingStation89	728	rightWingStation31	798
leftWingStation20	659	leftWingStation90	729	rightWingStation32	799
leftWingStation21	660	leftWingStation91	730	rightWingStation33	800
leftWingStation22	661	leftWingStation92	731	rightWingStation34	801
leftWingStation23	662	leftWingStation93	732	rightWingStation35	802
leftWingStation24	663	leftWingStation94	733	rightWingStation36	803
leftWingStation25	664	leftWingStation95	734	rightWingStation37	804
leftWingStation26	665	leftWingStation96	735	rightWingStation38	805
leftWingStation27	666	leftWingStation97	736	rightWingStation39	806
leftWingStation28	667	leftWingStation98	737	rightWingStation40	807
leftWingStation29	668	leftWingStation99	738	rightWingStation41	808
leftWingStation30	669	leftWingStation100	739	rightWingStation42	809
leftWingStation31	670	leftWingStation101	740	rightWingStation43	810
leftWingStation32	671	leftWingStation102	741	rightWingStation44	811
leftWingStation33	672	leftWingStation103	742	rightWingStation45	812
leftWingStation34	673	leftWingStation104	743	rightWingStation46	813
leftWingStation35	674	leftWingStation105	744	rightWingStation47	814
leftWingStation36	675	leftWingStation106	745	rightWingStation48	815
leftWingStation37	676	leftWingStation107	746	rightWingStation49	816
leftWingStation38	677	leftWingStation108	747	rightWingStation50	817
leftWingStation39	678	leftWingStation109	748	rightWingStation51	818
leftWingStation40	679	leftWingStation110	749	rightWingStation52	819
leftWingStation41	680	leftWingStation111	750	rightWingStation53	820
leftWingStation42	681	leftWingStation112	751	rightWingStation54	821
leftWingStation43	682	leftWingStation113	752	rightWingStation55	822
leftWingStation44	683	leftWingStation114	753	rightWingStation56	823
leftWingStation45	684	leftWingStation115	754	rightWingStation57	824
leftWingStation46	685	leftWingStation116	755	rightWingStation58	825
leftWingStation47	686	leftWingStation117	756	rightWingStation59	826
leftWingStation48	687	leftWingStation118	757	rightWingStation60	827
leftWingStation49	688	leftWingStation119	758	rightWingStation61	828
leftWingStation50	689	leftWingStation120	759	rightWingStation62	829
leftWingStation51	690	leftWingStation121	760	rightWingStation63	830
leftWingStation52	691	leftWingStation122	761	rightWingStation64	831
leftWingStation53	692	leftWingStation123	762	rightWingStation65	832
leftWingStation54	693	leftWingStation124	763	rightWingStation66	833
leftWingStation55	694	leftWingStation125	764	rightWingStation67	834
leftWingStation56	695	leftWingStation126	765	rightWingStation68	835
leftWingStation57	696	leftWingStation127	766	rightWingStation69	836
leftWingStation58	697	leftWingStation128	767	rightWingStation70	837
leftWingStation59	698	rightWingStation1	768	rightWingStation71	838
leftWingStation60	699	rightWingStation2	769	rightWingStation72	839
leftWingStation61	700	rightWingStation3	770	rightWingStation73	840

rightWingStation74	841
rightWingStation75	842
rightWingStation76	843
rightWingStation77	844
rightWingStation78	845
rightWingStation79	846
rightWingStation80	847
rightWingStation81	848
rightWingStation82	849
rightWingStation83	850
rightWingStation84	851
rightWingStation85	852
rightWingStation86	853
rightWingStation87	854
rightWingStation88	855
rightWingStation89	856
rightWingStation90	857
rightWingStation91	858
rightWingStation92	859
rightWingStation93	860
rightWingStation94	861
rightWingStation95	862
rightWingStation96	863
rightWingStation97	864
rightWingStation98	865
rightWingStation99	866
rightWingStation100	867
rightWingStation101	868
rightWingStation102	869
rightWingStation103	870
rightWingStation104	871
rightWingStation105	872
rightWingStation106	873
rightWingStation107	874
rightWingStation108	875
rightWingStation109	876
rightWingStation110	877
rightWingStation111	878
rightWingStation112	879
rightWingStation113	880
rightWingStation114	881
rightWingStation115	882
rightWingStation116	883
rightWingStation117	884
rightWingStation118	885
rightWingStation119	886
rightWingStation120	887
rightWingStation121	888
rightWingStation122	889
rightWingStation123	890
rightWingStation124	891
rightWingStation125	892
rightWingStation126	893
rightWingStation127	894
rightWingStation128	895
m16a42Rifle	896
m249Saw	897
m60MachineGun	898
m203GrenadeLauncher	899
m136At4	900
m47Dragon	901
aawsMJavelin	902
m18a1ClaymoreMine	903
mk19GrenadeLauncher	904
m2MachineGun	905
otherAttachedParts	906

Named by AttachedPartsStruct.

StopFreezeReasonEnum8 ENUMERATION

Reason to stop

Held as u8.

other	0
recess	1
termination	2
systemFailure	3
securityViolation	4
entityReconstitution	5
stopForReset	6
stopForRestart	7
abortTrainingResumeTacOps	8

Named by StopFreeze, StopFreezeR.

TacticalDataLinkTypeEnum16 ENUMERATION

The type of tactical data link used to transmit a signal

Held as u16.

other	0
padil	1
nATOLink1	2
atdl1	3
link11BTadilb	4
situationalAwarenessDataLinkSadl	5
link16LegacyFormatJtidsTadilJ	6
link16LegacyFormatJtidsFdlTadilJ	7
link11ATadila	8
ijms	9
link4ATadilc	10
link4C	11
tibs	12
atl	13
constantSource	14
abbreviatedCommandAndControl	15
milstar	16
aths	17
othgold	18
tacelint	19
weaponsDataLinkAww13	20
abbreviatedCommandAndControl1	21
enhancedPositionLocationReportingSystemEplrs	22
positionLocationReportingSystemPlrs	23
sincgars	24
haveQuickI	25
haveQuickII	26
haveQuickIIASaturn	27
intraFlightDataLink1	28
intraFlightDataLink2	29
improvedDataModemIdm	30
airForceApplicationProgramDevelopmentAfapd	31
cooperativeEngagementCapabilityCec	32
forwardAreaAirDefenseFaadDataLinkFdl	33
groundBasedDataLinkGbdl	34
intraVehicularInfoSystemIvis	35
marineTacticalSystemMts	36
tacticalFireDirectionSystemTacfire	37
integratedBroadcastServiceIbs	38
airborneInformationTransferAbit	39
advancedTacticalAirborneReconnaissanceSystemAtarsDataLink	40
battleGroupPassiveHorizonExtensionSystemBgphesDataLink	41
commonHighBandwidthDataLinkChbdl	42
guardrailInteroperableDataLinkIdl	43
guardrailCommonSensorSystemOneCss1DataLink	44
guardrailCommonSensorSystemTwoCss2DataLink	45
guardrailCSS2MultiRoleDataLinkMrdl	46

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Named by link16.JTIDSLETRadioSignal, link16.JTIDSMessageRadioSignal, link16.JTIDSVoiceCVSDRadioSignal, link16.JTIDSVoiceLPC10RadioSignal, link16.JTIDSVoiceLPC12RadioSignal, link16.Link16RadioSignal, link16.RTTABRadioSignal, link16.RTTReplyRadioSignal, link16.TDLBinaryRadioSignal, link16.VMFRadioSignal, ApplicationSpecificRadioSignal, DatabaseIndexRadioSignal, RawBinaryRadioSignal.

TimeSlotAllocationLevelEnum8 ENUMERATION

Time Slot Allocation (TSA) level of fidelity. See SISO-STD-002 for detailed descriptions and requirements [UID 172].

Held as u8.

lowFidelityLevel0	0
lowFidelityLevel1	1
mediumFidelityLevel2	2
mediumFidelityLevel3	3
highFidelityLevel4	4

Named by JTIDSTransmitterStruct.

TrailingEffectsCodeEnum32 ENUMERATION

Size of trailing effect

Held as u32.

noTrail	0
smallTrail	1
mediumTrail	2
largeTrail	3

Named by PhysicalEntity.

TransferTypeEnum8 ENUMERATION

Transfer type

Held as u8.

other	0
entityPush	1
entityPull	2
entitySwap	3
environmentalProcessPush	4
environmentalProcessPull	5
notUsed	6
cancelTransfer	7
manualPullTransferEntity	8
manualPullTransfer EnvironmentalProcess	9
removeEntity	10

Named by TransferControl.

TransmitterOperationalStatusEnum8 ENUMERATION

The current operational state of a radio transmitter.

Held as u8.

off	0
onButNotTransmitting	1
onAndTransmitting	2

Named by netn.AisEquipmentItem, netn.SetTransmitterStatus, RadioTransmitter.

UnmodulatedTypeEnum16 ENUMERATION

Detailed modulation types for an unmodulated carrier

Held as u16.

other	0
continuousWaveEmission	1

Named by RFModulationTypeVariantStruct.

UserProtocolEnum32 ENUMERATION

The ID of the user protocol used to transmit a radio signal.

Held as u32.

ccsil	1
a2atdSincgarsErf	5
a2atdCac2	6
battleCommand	20
aFIWCIADSTrackReport	30
aFIWCIADSCommC2Message	31
aFIWCIADSGroundControlInterceptorGci Command	32
aFIWCVoiceTextMessage	35
modSAFTextRadio	177
ccttSincgarsErfLockout	200
ccttSincgarsErfHopset	201
ccttSincgarsOtar	202
ccttSincgarsData	203
modSAFFwaForwardAirController	546
modSAFThreatAdaC3	832
f16MtcAfapd	1000
f16MtcIdl	1100
automaticIdentificationSystemAis	1371
modSAFArtilleryFireControl	4570
agts	5361
gc3	6000
wncpData	6010
spokenTextMessage	6020
longbowIdmMessage	6661
comancheIdmMessage	6662
longbowAirborneTacfireMessage	6663
longbowGroundTacfireMessage	6664
longbowAFAPDMessage	6665
longbowErfMessage	6666

Named by ApplicationSpecificRadioSignal.

VisibleSideLocationEnum32 ENUMERATION

Minefield lane marker visible side

Held as u32.

leftSideVisible	0
rightSideVisible	1
bothSideVisible	2

Named by MinefieldLaneMarkerStruct.

WarheadTypeEnum16 ENUMERATION

Warhead

Held as u16.

other	0
cargoVariableSubmunitions	10
fuelAirExplosive	20
glassBeads	30
warhead1um	31
warhead5um	32
warhead10um	33
highExplosive	1000
hePlastic	1100
heIncendiary	1200
heFragmentation	1300
heAntitank	1400
heBomblets	1500
heShapedCharge	1600
heContinuousRod	1610
heTungstenBall	1615
heBlastFragmentation	1620
heSteerableDartswithHE	1625
heDarts	1630
heFlechettes	1635
heDirectedFragmentation	1640
heSemiArmorPiercing	1645
heShapedCharge Fragmentation	1650
heSemiArmorPiercing Fragmentation	1655
heHollowCharge	1660
heDoubleHollowCharge	1665
heGeneralPurpose	1670
heBlastPenetrator	1675
heRodPenetrator	1680
heAntipersonnel	1685
smoke	2000
illumination	3000
practice	4000
kinetic	5000
mines	6000
nuclear	7000
nuclearIMT	7010
chemicalGeneral	8000
chemicalBlisterAgent	8100
hdMustard	8110
thickenedHDMustard	8115
dustyHDMustard	8120
chemicalBloodAgent	8200
acHcn	8210
ckCnci	8215
cgPhosgene	8220
chemicalNerveAgent	8300
vx	8310
thickenedVX	8315
dustyVX	8320
gaTabun	8325
thickenedGATabun	8330
dustyGATabun	8335
gbSarin	8340
thickenedGBSarin	8345
dustyGBSarin	8350
gdSoman	8355
thickenedGDSoman	8360
dustyGDSoman	8365
gf	8370
thickenedGF	8375
dustyGF	8380
biological	9000
biologicalVirus	9100
biologicalBacteria	9200
biologicalRickettsia	9300
biologicalGenetically ModifiedMicroOrganisms	9400
biologicalToxin	9500

Named by MunitionDetonation, WeaponFire.

WeaponStateEnum32 ENUMERATION

Weapon position

Held as u32.

noWeapon	0
stowed	1
deployed	2
firingPosition	3

Named by Lifeform.

Variant records

AntennaPatternVariantStruct	Specifies the radiation pattern from the antenna, its orientation in space, and the polarization of the radiation.	278
EnvironmentRecVariantStruct	Record specifying either a geometry or a state record	278
GridAxisTypeVariantStruct	Record specifying either regular (fixed spacing) or irregular (variable spacing) axis data	279
GridDataRepresentationVariantStruct	Record specifying either type 0 or type 1 or type 2 data representation	279
ParameterValueVariantStruct	Variant record specifying the type of articulation parameter (articulated or attached part), and its type and value.	279
RFModulationTypeVariantStruct	Specifies the major modulation type as well as certain detailed information specific to the type.	279
SpatialVariantStruct	Variant Record for a single spatial attribute.	280
SpreadSpectrumVariantStruct	Identifies the actual spread spectrum technique in use.	280
StationNameLocationVariantStruct	The station name at which the constituent part is located. In case of 'On Station', the alternative specifies its location relative to the host object.	280

AntennaPatternVariantStruct VARIANT

Specifies the radiation pattern from the antenna, its orientation in space, and the polarization of the radiation.

Type	Description
BeamAntennaStruct	Specifies the direction, pattern, and polarization of radiation from a radio transmitter's antenna, represented with respect to a beam coordinate system.
SphericalHarmonicAntennaStruct	Specifies the direction and radiation pattern from a radio transmitter's antenna, represented with respect to the world coordinate system or entity coordinate system.

Named by AntennaPatternVariantStructLengthlessArray.

EnvironmentRecVariantStruct VARIANT

Record specifying either a geometry or a state record

Type	Description
WorldLocationStruct	Specifies Point 1 geometry record alternative
Point2GeomRecStruct	Specifies Point 2 geometry record alternative
Line1GeomRecStruct	Specifies Line 1 geometry record alternative
Line2GeomRecStruct	Specifies Line 2 geometry record alternative
Sphere1GeomRecStruct	Specifies Bounding Sphere geometry record alternative
Sphere1GeomRecStruct	Specifies Sphere 1 geometry record alternative
Sphere2GeomRecStruct	Specifies Sphere 2 geometry record alternative
Ellipsoid1GeomRecStruct	Specifies Ellipsoid 1 geometry record alternative
Ellipsoid2GeomRecStruct	Specifies Ellipsoid 2 geometry record alternative
Cone1GeomRecStruct	Specifies Cone 1 geometry record alternative
Cone2GeomRecStruct	Specifies Cone 2 geometry record alternative
RectVol1GeomRecStruct	Specifies Rectangular Volume 1 geometry record alternative
RectVol2GeomRecStruct	Specifies Rectangular Volume 2 geometry record alternative
GaussPlumeGeomRecStruct	Specifies Gaussian Plume geometry record alternative

Type	Description
GaussPuffGeomRecStruct	Specifies Gaussian Puff geometry record alternative
UniformGeomRecStruct	Specifies Uniform geometry record alternative
COMBICStateRecStruct	Specifies COMBIC state record alternative
FlareStateRecStruct	Specifies Flare state record alternative
RectVol3GeomRecStruct	Specifies Rectangular Volume 3 geometry record alternative

Named by EnvironmentRecStruct.

GridAxisTypeVariantStruct VARIANT

Record specifying either regular (fixed spacing) or irregular (variable spacing) axis data

Type	Description
IrregularGridAxisStruct	Specifies irregular (variable spacing) axis data alternative

Named by GridAxisStruct.

GridDataRepresentationVariantStruct VARIANT

Record specifying either type 0 or type 1 or type 2 data representation

Type	Description
GridValueType0Struct	Specifies type 0 data representation alternative
GridValueType1Struct	Specifies type 1 data representation alternative
GridValueType2Struct	Specifies type 2 data representation alternative

Named by GridDataStruct.

ParameterValueVariantStruct VARIANT

Variant record specifying the type of articulation parameter (articulated or attached part), and its type and value.

Type	Description
ArticulatedPartsStruct	Alternative for an articulated part.
AttachedPartsStruct	Alternative for an attached part.

Named by ArticulatedParameterStruct.

RFModulationTypeVariantStruct VARIANT

Specifies the major modulation type as well as certain detailed information specific to the type.

Type	Description
AmplitudeModulationTypeEnum16	Detailed modulation type for the amplitude major modulation type.
AmplitudeAngleModulationTypeEnum16	Detailed modulation type for the amplitude and angle major modulation type.
AngleModulationTypeEnum16	Detailed modulation type for the angle major modulation type.
CombinationModulationTypeEnum16	Detailed modulation type for the combination major modulation type.
PulseModulationTypeEnum16	Detailed modulation type for the pulse major modulation type.
UnmodulatedTypeEnum16	Detailed modulation type for the unmodulated major modulation type.

Named by RadioTransmitter.

SpatialVariantStruct VARIANT

Variant Record for a single spatial attribute.

Type	Description
SpatialStaticStruct	Variant for representing a static object.
SpatialFPStruct	Variant for representing an object with a constant velocity (or low acceleration) linear motion in world coordinates.
SpatialRPStruct	Variant for representing an object with a constant velocity (or low acceleration) linear motion, including rotation information, in world coordinates.
SpatialRVStruct	Variant for representing an object with high speed or maneuvering at any speed, including rotation information, in world coordinates.
SpatialFVStruct	Variant for representing an object with high speed or maneuvering at any speed in world coordinates.
SpatialFPStruct	Variant for representing an object with a constant velocity (or low acceleration) linear motion in body axis coordinates.
SpatialRPStruct	Variant for representing an object with a constant velocity (or low acceleration) linear motion, including rotation information, in body axis coordinates.
SpatialRVStruct	Variant for representing an object with high speed or maneuvering at any speed, including rotation information, in body axis coordinates.
SpatialFVStruct	Variant for representing an object with high speed or maneuvering at any speed in body axis coordinates.

Named by BaseEntity.

SpreadSpectrumVariantStruct VARIANT

Identifies the actual spread spectrum technique in use.

Type	Description
SINCGARSModulationStruct	Modulation parameters for SINCGARS radio system.
JTIDSTransmitterStruct	Modulation parameters for Link 16 radio system according to SISO-STD-002.
Link11TransmitterStruct	Modulation parameters for Link 11 radio system according to SISO-STD-005.
Link11BTransmitterStruct	Modulation parameters for Link 11B radio system according to SISO-STD-005.

Named by RadioTransmitter.

StationNameLocationVariantStruct VARIANT

The station name at which the constituent part is located. In case of 'On Station', the alternative specifies its location relative to the host object.

Type	Description
RelativePositionStruct	The location of the constituent part object relative to the host object entity coordinate system.
RelativeRangeBearingStruct	The location of the constituent part object relative to the host object in polar coordinates.

Named by NamedLocationStruct.

Arrays

AntennaPatternVariantStructLengthlessArray	Represents an antenna's radiation pattern, its orientation in space, and the polarization of the radiation.	282
ArticulatedParameterStructLengthlessArray	Dynamic array of ArticulatedParameterStruct elements, may also contain no elements. The array is encoded without array length, containing only the elements.	282
AttributeValuePairStructArray1Plus	Array of AttributeValuePairStruct.	282
BreachStructLengthlessArray	Specifies a breach linear object (a collection of segments)	282
BreachableSegmentStructLengthlessArray	Specifies a breachable linear object (a collection of segments)	282

BreachedStatusArray8	Specifies the breached appearance for each individual segment portion of length = BreachLength	283
ClockTimeStructLengthlessArray	Dynamic array of ClockTimeStruct elements, may also contain no elements. The array is encoded without array length, containing only the elements.	283
CoefficientsLengthlessArray1Plus	Represents the power distribution from the antenna as the coefficients of a spherical harmonic expansion. The highest order of the expansion can be determined by the number of coefficients in the array.	283
DatumIdentifierLengthlessArray	Array of DatumIdentifierEnum32.	283
DepthMeterFloat32LengthlessArray	Specifies ground - snow - water burial depth offset for each mine in a collection of mines	283
EntityTypeStructLengthlessArray	Dynamic array of EntityTypeStruct elements, may also contain no elements. The array is encoded without array length, containing only the elements.	283
EnvironmentRecStructArray	Specifies environment records as a collection of geometry and state records	283
ExhaustSmokeStructLengthlessArray	Specifies an exhaust smoke linear object (a collection of smoke segments)	284
FixedDatumStructLengthlessArray	Array of FixedDatumStructs.	284
Float32Array1Plus	Generic dynamic array of Float32 elements, containing at least one element.	284
FundamentalParameterDataStructLengthlessArray	Array of Fundamental Parameter Data records.	284
GridAxisStructLengthlessArray	Specifies detailed information for a collection of grid axes	284
GridDataStructLengthlessArray	Specifies detailed information for a collection of grid data representations	284
Integer16Array1Plus	Generic dynamic array of Integer16 elements, containing at least one element.	284
MarkingArray11	String of characters represented by an 11 element character string.	284
MarkingArray31	String of characters represented by a 31 element character string.	285
MineDielectricDifferenceLengthlessArray	Specifies local dielectric difference between the mine and the surrounding soil (reflectance) for each mine in a collection of mines	285
MineFusingStructLengthlessArray	Specifies the type of primary fuse, the type of the secondary fuse and the anti-handling device status for a collection of mines	285
MineIdentifierLengthlessArray	Identifies the mine entity identifier for each mine in a collection of mines	285
MinefieldLaneMarkerStructLengthlessArray	Specifies a minefield lane marker (a collection of segments)	285
MinefieldPaintSchemeLengthlessArray	Specifies the camouflage scheme/color for each mine in a collection of mines	285
MinefieldSensorTypeLengthlessArray	Specifies a collection of minefield sensor types	285
MissingRecordNumbersLengthlessArray1Plus	Specifies missing record numbers as a collection	285
OctetArray	Generic dynamic array of Octet elements, may also contain no elements.	286
OctetArray1Plus	Generic dynamic array of Octet elements, containing at least one element.	286
OctetArray2	Generic array of two Octet elements.	286
OctetArray3	Generic array of three Octet elements.	286
OctetArray4	Generic array of four Octet elements.	286
OctetArray7	Generic array of seven Octet elements.	286
OctetArray8	Generic array of eight Octet elements.	286
OctetPadding32Array	Generic dynamic array of meaningless Octet elements, to align the subsequent data structure to the next 32 bit octet boundary value (OBV). The array is encoded without array length, containing zero to three elements.	286
OctetPadding64Array	Generic dynamic array of meaningless Octet elements, to align the subsequent data structure to the next 64 bit octet boundary value (OBV). The array is encoded without array length, containing zero to seven elements.	287
OrientationStructLengthlessArray	Dynamic array of OrientationStruct elements, may also contain no elements. The array is encoded without array length, containing only the elements.	287
PerimeterPointStructLengthlessArray	Specifies the location of perimeter points (collection)	287
PropulsionSystemDataStructLengthlessArray	A set of Propulsion System Data descriptions.	287
RPRUserDefinedTag	The array shall be at least 8 bytes (octets) in size, which shall contain the time according to the DIS time stamp field format (IEEE 1278.1-1995 section 5.2.31) converted into hexadecimal American Standard Code for Information Interchange (ASCII) character representation (0-9 and A-F), with leading zeros included. The ordering of the characters shall be in accordance with section 5.1.1 of IEEE 1278.1-1995, that is most significant octet first, with the most significant bits first (i.e. the character for bits 4-7 precedes the character for bits 0-3). This encoding is equivalent to the result of the 'C'-statement 'sprintf(UserTag, '%08X',	287

	DIStimestamp),' where 'DIStimestamp' is represented in native format. More user-supplied information may be included, starting from the 9th character, as specified in the federation agreements.	
RTIobjectIdArray	Set of ID's of registered object instances.	287
RecordSetStructArray1Plus	Array of RecordSetStruct	287
RecordStructArray	Array of RecordStruct	288
ShaftDataStructLengthlessArray1Plus	Array of propulsion shaft states, one per shaft	288
SignalDataLengthlessArray1Plus	The audio or digital data conveyed in a radio transmission.	288
SilentAggregateStructLengthlessArray	Set of silent aggregates (aggregates not registered in the federation).	288
SilentEntityStructLengthlessArray	A set of silent entities (entities not registered in the federation).	288
SupplyStructLengthlessArray	A list of supply types and the number of each being offered or requested.	288
TemperatureDegreeCelsiusFloat32LengthlessArray	Specifies thermal contrast for each mine in a collection of mines	288
UnsignedInteger16Array1Plus	Generic dynamic array of UnsignedInteger16 elements, containing at least one element.	288
UnsignedInteger32LengthlessArray	Generic dynamic array of UnsignedInteger32 elements, may also contain no elements. The array is encoded without array length, containing only the elements.	289
UnsignedInteger64Array1Plus	Generic dynamic array of UnsignedInteger64 elements, containing at least one element.	289
UnsignedInteger8LengthlessArray	Generic dynamic array of UnsignedInteger8 elements, may also contain no elements. The array is encoded without array length, containing only the elements.	289
VariableDatumStructArray	Array of VariableDatumStruct	289
VariableDatumStructLengthlessArray	Set of additional data associated with an aggregate.	289
VectoringNozzleSystemDataStructLengthlessArray	A set of Vectoring Nozzle System Data description.	289
WorldLocationStructLengthlessArray	Dynamic array of WorldLocationStruct elements, may also contain no elements. The array is encoded without array length, containing only the elements.	289

AntennaPatternVariantStructLengthlessArray SEQUENCE

Represents an antenna's radiation pattern, its orientation in space, and the polarization of the radiation.

```
sequence<AntennaPatternVariantStruct> AntennaPatternVariantStructLengthlessArray;
```

Named by RadioTransmitter.

ArticulatedParameterStructLengthlessArray SEQUENCE

Dynamic array of ArticulatedParameterStruct elements, may also contain no elements. The array is encoded without array length, containing only the elements.

```
sequence<ArticulatedParameterStruct> ArticulatedParameterStructLengthlessArray;
```

Named by MunitionDetonation, PhysicalEntity.

AttributeValuePairStructArray1Plus SEQUENCE

Array of AttributeValuePairStruct.

```
sequence<AttributeValuePairStruct> AttributeValuePairStructArray1Plus;
```

Named by AttributeChangeRequest, AttributeChangeRequestR, AttributeChangeResult, AttributeChangeResultR, CreateObjectRequest, CreateObjectRequestR.

BreachStructLengthlessArray SEQUENCE

Specifies a breach linear object (a collection of segments)

```
sequence<BreachStruct> BreachStructLengthlessArray;
```

Named by BreachObject, BreachObjectTransaction.

BreachableSegmentStructLengthlessArray SEQUENCE

Specifies a breachable linear object (a collection of segments)

```
sequence<BreachableSegmentStruct> BreachableSegmentStructLengthlessArray;
```

Named by BreachableLinearObject, BreachableLinearObjectTransaction.

BreachedStatusArray8 SEQUENCE

Specifies the breached appearance for each individual segment portion of length = BreachLength

```
sequence<BreachedStatusEnum8, 8> BreachedStatusArray8;
```

Named by BreachableSegmentStruct.

ClockTimeStructLengthlessArray SEQUENCE

Dynamic array of ClockTimeStruct elements, may also contain no elements. The array is encoded without array length, containing only the elements.

```
sequence<ClockTimeStruct> ClockTimeStructLengthlessArray;
```

Named by MinefieldData.

CoefficientsLengthlessArray1Plus SEQUENCE

Represents the power distribution from the antenna as the coefficients of a spherical harmonic expansion. The highest order of the expansion can be determined by the number of coefficients in the array.

```
sequence<Float32> CoefficientsLengthlessArray1Plus;
```

Named by SphericalHarmonicAntennaStruct.

DatumIdentifierLengthlessArray SEQUENCE

Array of DatumIdentifierEnum32.

```
sequence<DatumIdentifierEnum32> DatumIdentifierLengthlessArray;
```

Named by DataQuery, DataQueryR, RecordQueryR.

DepthMeterFloat32LengthlessArray SEQUENCE

Specifies ground - snow - water burial depth offset for each mine in a collection of mines

```
sequence<DepthMeterFloat32> DepthMeterFloat32LengthlessArray;
```

Named by MinefieldData.

EntityTypeStructLengthlessArray SEQUENCE

Dynamic array of EntityTypeStruct elements, may also contain no elements. The array is encoded without array length, containing only the elements.

```
sequence<EntityTypeStruct> EntityTypeStructLengthlessArray;
```

Named by Minefield.

EnvironmentRecStructArray SEQUENCE

Specifies environment records as a collection of geometry and state records

```
sequence<EnvironmentRecStruct> EnvironmentRecStructArray;
```

Named by EnvironmentProcess.

ExhaustSmokeStructLengthlessArray SEQUENCE

Specifies an exhaust smoke linear object (a collection of smoke segments)

```
sequence<ExhaustSmokeStruct> ExhaustSmokeStructLengthlessArray;
```

Named by ExhaustSmokeObject, ExhaustSmokeObjectTransaction.

FixedDatumStructLengthlessArray SEQUENCE

Array of FixedDatumStructs.

```
sequence<FixedDatumStruct> FixedDatumStructLengthlessArray;
```

Named by ActionRequest, ActionRequestR, ActionResponse, ActionResponseR, Data, DataR, EventReport, SetData, SetDataR.

Float32Array1Plus SEQUENCE

Generic dynamic array of Float32 elements, containing at least one element.

```
sequence<Float32> Float32Array1Plus;
```

Named by GridValueType2Struct.

FundamentalParameterDataStructLengthlessArray SEQUENCE

Array of Fundamental Parameter Data records.

```
sequence<FundamentalParameterDataStruct> FundamentalParameterDataStructLengthlessArray;
```

Named by IFF.

GridAxisStructLengthlessArray SEQUENCE

Specifies detailed information for a collection of grid axes

```
sequence<GridAxisStruct> GridAxisStructLengthlessArray;
```

Named by GriddedData.

GridDataStructLengthlessArray SEQUENCE

Specifies detailed information for a collection of grid data representations

```
sequence<GridDataStruct> GridDataStructLengthlessArray;
```

Named by GriddedData.

Integer16Array1Plus SEQUENCE

Generic dynamic array of Integer16 elements, containing at least one element.

```
sequence<Integer16> Integer16Array1Plus;
```

Named by GridValueType1Struct.

MarkingArray11 SEQUENCE

String of characters represented by an 11 element character string.

```
sequence<Octet, 11> MarkingArray11;
```

Named by MarkingStruct.

MarkingArray31 SEQUENCE

String of characters represented by a 31 element character string.

```
sequence<Octet, 31> MarkingArray31;
```

Named by AggregateMarkingStruct.

MineDielectricDifferenceLengthlessArray SEQUENCE

Specifies local dielectric difference between the mine and the surrounding soil (reflectance) for each mine in a collection of mines

```
sequence<MineDielectricDifference> MineDielectricDifferenceLengthlessArray;
```

Named by MinefieldData.

MineFusingStructLengthlessArray SEQUENCE

Specifies the type of primary fuse, the type of the secondary fuse and the anti-handling device status for a collection of mines

```
sequence<MineFusingStruct> MineFusingStructLengthlessArray;
```

Named by MinefieldData.

MineIdentifierLengthlessArray SEQUENCE

Identifies the mine entity identifier for each mine in a collection of mines

```
sequence<MineIdentifier> MineIdentifierLengthlessArray;
```

Named by MinefieldData.

MinefieldLaneMarkerStructLengthlessArray SEQUENCE

Specifies a minefield lane marker (a collection of segments)

```
sequence<MinefieldLaneMarkerStruct> MinefieldLaneMarkerStructLengthlessArray;
```

Named by MinefieldLaneMarkerObject, MinefieldLaneMarkerObjectTransaction.

MinefieldPaintSchemeLengthlessArray SEQUENCE

Specifies the camouflage scheme/color for each mine in a collection of mines

```
sequence<MinefieldPaintSchemeEnum32> MinefieldPaintSchemeLengthlessArray;
```

Named by MinefieldData.

MinefieldSensorTypeLengthlessArray SEQUENCE

Specifies a collection of minefield sensor types

```
sequence<MinefieldSensorTypeEnum32> MinefieldSensorTypeLengthlessArray;
```

Named by MinefieldData, MinefieldQuery.

MissingRecordNumbersLengthlessArray1Plus SEQUENCE

Specifies missing record numbers as a collection

```
sequence<UnsignedInteger8> MissingRecordNumbersLengthlessArray1Plus;
```

Named by MinefieldResponseNACK.

OctetArray SEQUENCE

Generic dynamic array of Octet elements, may also contain no elements.

```
sequence<Octet> OctetArray;
```

Named by AttributeValuePairStruct, RecordStruct.

OctetArray1Plus SEQUENCE

Generic dynamic array of Octet elements, containing at least one element.

```
sequence<Octet> OctetArray1Plus;
```

Named by GridValueType0Struct.

OctetArray2 SEQUENCE

Generic array of two Octet elements.

```
sequence<Octet, 2> OctetArray2;
```

Named by FlareStateRecStruct.

OctetArray3 SEQUENCE

Generic array of three Octet elements.

```
sequence<Octet, 3> OctetArray3;
```

Named by FundamentalParameterDataStruct, MineFusingStruct, SphericalHarmonicAntennaStruct.

OctetArray4 SEQUENCE

Generic array of four Octet elements.

```
sequence<Octet, 4> OctetArray4;
```

Named by BreachStruct, COMBICStateRecStruct, Cone1GeomRecStruct, Cone2GeomRecStruct, Ellipsoid2GeomRecStruct, GaussPlumeGeomRecStruct, Point2GeomRecStruct, RectVol2GeomRecStruct, Sphere1GeomRecStruct.

OctetArray7 SEQUENCE

Generic array of seven Octet elements.

```
sequence<Octet, 7> OctetArray7;
```

Named by BreachableSegmentStruct.

OctetArray8 SEQUENCE

Generic array of eight Octet elements.

```
sequence<Octet, 8> OctetArray8;
```

Named by UniformGeomRecStruct.

OctetPadding32Array SEQUENCE

Generic dynamic array of meaningless Octet elements, to align the subsequent data structure to the next 32 bit octet boundary value (OBV). The array is encoded without array length, containing zero to three elements.

```
sequence<Octet> OctetPadding32Array;
```

Named by AttributeValuePairStruct, GridValueType0Struct, GridValueType1Struct, RecordStruct.

OctetPadding64Array SEQUENCE

Generic dynamic array of meaningless Octet elements, to align the subsequent data structure to the next 64 bit octet boundary value (OBV). The array is encoded without array length, containing zero to seven elements.

```
sequence<Octet> OctetPadding64Array;
```

Named by IrregularGridAxisStruct.

OrientationStructLengthlessArray SEQUENCE

Dynamic array of OrientationStruct elements, may also contain no elements. The array is encoded without array length, containing only the elements.

```
sequence<OrientationStruct> OrientationStructLengthlessArray;
```

Named by MinefieldData.

PerimeterPointStructLengthlessArray SEQUENCE

Specifies the location of perimeter points (collection)

```
sequence<PerimeterPointStruct> PerimeterPointStructLengthlessArray;
```

Named by Minefield, MinefieldQuery.

PropulsionSystemDataStructLengthlessArray SEQUENCE

A set of Propulsion System Data descriptions.

```
sequence<PropulsionSystemDataStruct> PropulsionSystemDataStructLengthlessArray;
```

Named by PhysicalEntity.

RPRUserDefinedTag SEQUENCE

The array shall be at least 8 bytes (octets) in size, which shall contain the time according to the DIS time stamp field format (IEEE 1278.1-1995 section 5.2.31) converted into hexadecimal American Standard Code for Information Interchange (ASCII) character representation (0-9 and A-F), with leading zeros included. The ordering of the characters shall be in accordance with section 5.1.1 of IEEE 1278.1-1995, that is most significant octet first, with the most significant bits first (i.e. the character for bits 4-7 precedes the character for bits 0-3). This encoding is equivalent to the result of the 'C'-statement 'sprintf(UserTag, '%08X', DIStimestamp),' where 'DIStimestamp' is represented in native format. More user-supplied information may be included, starting from the 9th character, as specified in the federation agreements.

```
sequence<u8> RPRUserDefinedTag;
```

RTIobjectIdArray SEQUENCE

Set of ID's of registered object instances.

```
sequence<string> RTIobjectIdArray;
```

Named by ActionRequestToObject, ActionRequestToObjectR, AggregateEntity, AttributeChangeRequest, AttributeChangeRequestR, JammerBeam, RadarBeam, RemoveObjectRequest, RemoveObjectRequestR.

RecordSetStructArray1Plus SEQUENCE

Array of RecordSetStruct

```
sequence<RecordSetStruct> RecordSetStructArray1Plus;
```

Named by RecordR, SetRecordR, TransferControl.

RecordStructArray SEQUENCE

Array of RecordStruct

```
sequence<RecordStruct> RecordStructArray;
```

Named by RecordSetStruct.

ShaftDataStructLengthlessArray1Plus SEQUENCE

Array of propulsion shaft states, one per shaft

```
sequence<ShaftDataStruct> ShaftDataStructLengthlessArray1Plus;
```

Named by PropulsionNoise.

SignalDataLengthlessArray1Plus SEQUENCE

The audio or digital data conveyed in a radio transmission.

```
sequence<Octet> SignalDataLengthlessArray1Plus;
```

Named by link16.JTIDSLETRadioSignal, link16.JTIDSMessageRadioSignal, link16.JTIDSVoiceCVSDRadioSignal, link16.JTIDSVoiceLPC10RadioSignal, link16.JTIDSVoiceLPC12RadioSignal, link16.Link16RadioSignal, link16.RTTABRadioSignal, link16.RTTReplyRadioSignal, link16.TDLBinaryRadioSignal, link16.VMFRadioSignal, ApplicationSpecificRadioSignal, AudioDataTypeStruct, RawBinaryRadioSignal.

SilentAggregateStructLengthlessArray SEQUENCE

Set of silent aggregates (aggregates not registered in the federation).

```
sequence<SilentAggregateStruct> SilentAggregateStructLengthlessArray;
```

Named by AggregateEntity.

SilentEntityStructLengthlessArray SEQUENCE

A set of silent entities (entities not registered in the federation).

```
sequence<SilentEntityStruct> SilentEntityStructLengthlessArray;
```

Named by AggregateEntity.

SupplyStructLengthlessArray SEQUENCE

A list of supply types and the number of each being offered or requested.

```
sequence<SupplyStruct> SupplyStructLengthlessArray;
```

Named by ResupplyOffer, ResupplyReceived, ServiceRequest.

TemperatureDegreeCelsiusFloat32LengthlessArray SEQUENCE

Specifies thermal contrast for each mine in a collection of mines

```
sequence<TemperatureDegreeCelsiusFloat32> TemperatureDegreeCelsiusFloat32LengthlessArray;
```

Named by MinefieldData.

UnsignedInteger16Array1Plus SEQUENCE

Generic dynamic array of UnsignedInteger16 elements, containing at least one element.

```
sequence<UnsignedInteger16> UnsignedInteger16Array1Plus;
```

Named by IrregularGridAxisStruct.

UnsignedInteger32LengthlessArray SEQUENCE

Generic dynamic array of UnsignedInteger32 elements, may also contain no elements. The array is encoded without array length, containing only the elements.

```
sequence<UnsignedInteger32> UnsignedInteger32LengthlessArray;
```

Named by SilentEntityStruct.

UnsignedInteger64Array1Plus SEQUENCE

Generic dynamic array of UnsignedInteger64 elements, containing at least one element.

```
sequence<UnsignedInteger64> UnsignedInteger64Array1Plus;
```

Named by VariableDatumStruct.

UnsignedInteger8LengthlessArray SEQUENCE

Generic dynamic array of UnsignedInteger8 elements, may also contain no elements. The array is encoded without array length, containing only the elements.

```
sequence<UnsignedInteger8> UnsignedInteger8LengthlessArray;
```

Named by MinefieldData.

VariableDatumStructArray SEQUENCE

Array of VariableDatumStruct

```
sequence<VariableDatumStruct> VariableDatumStructArray;
```

Named by ActionRequest, ActionRequestR, ActionResponse, ActionResponseR, Comment, Data, DataR, EventReport, SetData, SetDataR.

VariableDatumStructLengthlessArray SEQUENCE

Set of additional data associated with an aggregate.

```
sequence<VariableDatumStruct> VariableDatumStructLengthlessArray;
```

Named by AggregateEntity.

VectoringNozzleSystemDataStructLengthlessArray SEQUENCE

A set of Vectoring Nozzle System Data description.

```
sequence<VectoringNozzleSystemDataStruct> VectoringNozzleSystemDataStructLengthlessArray;
```

Named by PhysicalEntity.

WorldLocationStructLengthlessArray SEQUENCE

Dynamic array of WorldLocationStruct elements, may also contain no elements. The array is encoded without array length, containing only the elements.

```
sequence<WorldLocationStruct> WorldLocationStructLengthlessArray;
```

Named by ArealObject, ArealObjectTransaction, MinefieldData, MinefieldObjectTransaction, OtherArealObjectTransaction.

Quantities

AccelerationMeterPerSecondSquaredFloat32	Linear acceleration vector composed of SI base units. Based on the Linear Acceleration Vector record as specified in IEEE 1278.1-1995 section 5.2.33b.	290
AngleDegreeFloat32	Angle, based on unit degree (of arc), unit symbol °.	290
AngleRadianFloat32	Angle, based on SI derived unit radian, unit symbol rad.	290

AngularVelocityRadianPerSecondFloat32	Angular velocity vector composed of SI base units. Based on the Angular Velocity Vector record as specified in IEEE 1278.1-1995 section 5.2.2.	290
DepthMeterFloat32	Depth, based on SI base unit meter, unit symbol m.	290
FrequencyHertzFloat32	Frequency, based on SI derived unit hertz, unit symbol Hz.	291
FrequencyHertzUnsignedInteger64	Frequency of a radio transmission, in hertz.	291
InterrogationsPerSecondFloat32	Number of interrogations per second.	291
LengthMeterFloat32	Length, based on SI base unit meter, unit symbol m.	291
MassKilogramFloat32	Mass, based on SI base unit kilogram, unit symbol kg.	291
MeterFloat32	Datatype based on SI base unit meter, unit symbol m.	291
MeterFloat64	Datatype based on SI base unit meter, unit symbol m.	291
RevolutionsPerMinuteFloat32	Rotation speed expressed in revolutions per minute.	291
RevolutionsPerMinuteInteger16	Frequency of rotation, expressed in revolutions per minute.	292
TemperatureDegreeCelsiusFloat32	Temperature, based on SI derived unit degree Celsius, unit symbol °C.	292
TimeMicrosecondFloat32	Time, based on SI base unit second, expressed in microsecond, unit symbol µs.	292
TimeMillisecondUnsignedInteger32	Time, based on SI base unit second, expressed in millisecond, unit symbol ms.	292
TimeSecondInteger32	Time, based on SI base unit second, unit symbol s.	292
TimeSecondUnsignedInteger16	Time, based on SI base unit second, unit symbol s.	292
VelocityDecimeterPerSecondInteger16	Velocity/Speed measured in decimeter per second.	292
VelocityMeterPerSecondFloat32	Speed/Velocity in meter per second.	292
WavelengthMicronFloat32	Wavelength expressed in micrometer.	293

AccelerationMeterPerSecondSquaredFloat32 QUANTITY

Linear acceleration vector composed of SI base units. Based on the Linear Acceleration Vector record as specified in IEEE 1278.1-1995 section 5.2.33b.

```
quantity<f32, m/s²> AccelerationMeterPerSecondSquaredFloat32;
```

Named by AccelerationVectorStruct.

AngleDegreeFloat32 QUANTITY

Angle, based on unit degree (of arc), unit symbol °.

```
quantity<f32, °> AngleDegreeFloat32;
```

Named by VectoringNozzleSystemDataStruct.

AngleRadianFloat32 QUANTITY

Angle, based on SI derived unit radian, unit symbol rad.

```
quantity<f32, rad> AngleRadianFloat32;
```

Named by netn.MagicMove, netn.Move, netn.MoveIntoFormation, netn.PositionStatusReport, netn.TurnToHeading, netn.TurnToOrientation, netn.UnderAttackStatusReport, ActiveSonarBeam, BeamAntennaStruct, EmitterBeam, IFF, OrientationStruct, RelativeRangeBearingStruct.

AngularVelocityRadianPerSecondFloat32 QUANTITY

Angular velocity vector composed of SI base units. Based on the Angular Velocity Vector record as specified in IEEE 1278.1-1995 section 5.2.2.

```
quantity<f32, rad/s> AngularVelocityRadianPerSecondFloat32;
```

Named by AngularVelocityVectorStruct.

DepthMeterFloat32 QUANTITY

Depth, based on SI base unit meter, unit symbol m.

```
quantity<f32, m> DepthMeterFloat32;
```

Named by DepthMeterFloat32LengthlessArray.

FrequencyHertzFloat32 QUANTITY

Frequency, based on SI derived unit hertz, unit symbol Hz.

```
quantity<f32, hz> FrequencyHertzFloat32;
```

Named by EmitterBeam, FundamentalParameterDataStruct, RadioTransmitter.

FrequencyHertzUnsignedInteger64 QUANTITY

Frequency of a radio transmission, in hertz.

```
quantity<u64, hz> FrequencyHertzUnsignedInteger64;
```

Named by RadioTransmitter.

InterrogationsPerSecondFloat32 QUANTITY

Number of interrogations per second.

```
quantity<f32, hz> InterrogationsPerSecondFloat32;
```

Named by FundamentalParameterDataStruct.

LengthMeterFloat32 QUANTITY

Length, based on SI base unit meter, unit symbol m.

```
quantity<f32, m> LengthMeterFloat32;
```

Named by netn.AisMessage19, netn.AisMessage21, netn.AisMessage24, netn.AisMessage5, netn.AisStaticAndVoyageData, netn.ArrayOfSigmas6, RelativeRangeBearingStruct, WeaponFire.

MassKilogramFloat32 QUANTITY

Mass, based on SI base unit kilogram, unit symbol kg.

```
quantity<f32, kg> MassKilogramFloat32;
```

Named by netn.AgentMassStruct, netn.CBRNRelease, Collision, CollisionElastic.

MeterFloat32 QUANTITY

Datatype based on SI base unit meter, unit symbol m.

```
quantity<f32, m> MeterFloat32;
```

Named by netn.FollowEntity, netn.FormationStruct, netn.GeodeticCircle, netn.IceStruct, netn.LandSurfaceCondition, netn.LayerStruct, netn.MoveIntoFormation, netn.NetworkDeviceGenericTransmitterCharacteristicsStruct, netn.PhysicalGenericNetworkStruct, netn.SnowStruct, netn.TroposphereLayerCondition, netn.WaterSurface, netn.WaterSurfaceCondition, netn.WaveStruct, netn.Weather, netn.WeatherCondition, DimensionStruct, EntityCoordinateVectorStruct, PerimeterPointStruct, PlumeDimensionStruct, RelativePositionStruct.

MeterFloat64 QUANTITY

Datatype based on SI base unit meter, unit symbol m.

```
quantity<f64, m> MeterFloat64;
```

Named by WorldLocationStruct.

RevolutionsPerMinuteFloat32 QUANTITY

Rotation speed expressed in revolutions per minute.

```
quantity<f32, rpm> RevolutionsPerMinuteFloat32;
```

Named by PropulsionSystemDataStruct.

RevolutionsPerMinuteInteger16 QUANTITY

Frequency of rotation, expressed in revolutions per minute.

```
quantity<i16, rpm> RevolutionsPerMinuteInteger16;
```

Named by ShaftDataStruct.

TemperatureDegreeCelsiusFloat32 QUANTITY

Temperature, based on SI derived unit degree Celsius, unit symbol °C.

```
quantity<f32, °C> TemperatureDegreeCelsiusFloat32;
```

Named by netn.LandSurfaceCondition, netn.ReleaseDynamicsStruct, netn.SubsurfaceLayer, netn.SubsurfaceLayerCondition, netn.TroposphereLayerCondition, netn.WaterSurfaceCondition, netn.Weather, netn.WeatherCondition, TemperatureDegreeCelsius Float32LengthlessArray.

TimeMicrosecondFloat32 QUANTITY

Time, based on SI base unit second, expressed in microsecond, unit symbol µs.

```
quantity<f32, µs> TimeMicrosecondFloat32;
```

Named by EmitterBeam, FundamentalParameterDataStruct.

TimeMillisecondUnsignedInteger32 QUANTITY

Time, based on SI base unit second, expressed in millisecond, unit symbol ms.

```
quantity<u32, ms> TimeMillisecondUnsignedInteger32;
```

Named by netn.ConnectionReceiverStruct, netn.IncomingConnectionStruct, netn.LinkStatusStruct, netn.PhysicalGenericNetworkStruct, DatabaseIndexRadioSignal.

TimeSecondInteger32 QUANTITY

Time, based on SI base unit second, unit symbol s.

```
quantity<i32, s> TimeSecondInteger32;
```

Named by netn.ATP45HazardArea, netn.CBRNDetector, netn.CBRNRelease, netn.CBRNSensor, netn.CheckPoint, netn.Decontamina-tionStation, netn.TreatmentStruct, netn.WaveStruct, SINCGARSModulationStruct.

TimeSecondUnsignedInteger16 QUANTITY

Time, based on SI base unit second, unit symbol s.

```
quantity<u16, s> TimeSecondUnsignedInteger16;
```

Named by Link11TransmitterStruct.

VelocityDecimeterPerSecondInteger16 QUANTITY

Velocity/Speed measured in decimeter per second.

```
quantity<u16, dm/s> VelocityDecimeterPerSecondInteger16;
```

Named by PhysicalEntity.

VelocityMeterPerSecondFloat32 QUANTITY

Speed/Velocity in meter per second.

```
quantity<f32, m/s> VelocityMeterPerSecondFloat32;
```

Named by netn.AisMessage1, netn.AisMessage18, netn.AisMessage19, netn.AisMessage2, netn.AisMessage27, netn.AisMessage3, netn.AisMessage9, netn.AisNavigationData, netn.CurrentStruct, netn.DispositionStruct, netn.PositionStatusReport, netn.SetOrderedSpeed, netn.SpottedEntity, netn.WindStruct, DimensionRateStruct, PlumeDimensionRateStruct, VelocityVectorStruct.

WavelengthMicronFloat32 QUANTITY

Wavelength expressed in micrometer.

```
quantity<f32, µm> WavelengthMicronFloat32;
```

Named by Designator.

Aliases

BitRateBitPerSecondUnsignedInteger32	Rate of transmission, in bits per second.	293
BitsUnsignedInteger16	Transmission size, in number of bits.	293
ClockTimeHourInteger32	Time past on the clock in full hours since a specified point in time.	293
Float32	Single-precision floating point number.	294
Float64	Double-precision floating point number.	294
Integer16	Integer in the range [-2^15, 2^15-1].	294
Integer32	Integer in the range [-2^31, 2^31-1].	294
MineDielectricDifference	Local dielectric difference between the mine and the surrounding soil (reflectance)	294
MineIdentifier	Specifies a mine entity identifier	294
Octet	Uninterpreted 8-bit value.	294
ParticipatingUnitSourceNumber	PU number. Valid range [1,76] octal ([1,62] decimal).	295
PercentFloat32	Percentage	295
PercentUnsignedInteger32	Percentage	295
PowerRatioDecibelMilliwattFloat32	Power ratio in decibels (dB) of a measured power referenced to 1 milliwatt (mW).	295
PowerWattFloat32	The unit of power is the watt (W), which is equal to one joule per second.	295
SpeedChangeRateRPMPerSecondInteger16	Angular acceleration	295
TimestampUnsignedInteger32	The time past the hour, scaled so that value 0 represents the start of the hour and value 2^31 - 1 represents one time unit before the start of the next hour, thereby resulting in each time unit representing exactly 3600/(2^31) s, which is approximately 1.67638063 microsecond.	295
TransponderModeCAltitude100FootInteger16	Actual Mode C altitude in the range 0-126,000 feet in 100-foot increments.	296
UnsignedInteger16	Integer in the range [0, 2^16-1].	296
UnsignedInteger32	Integer in the range [0, 2^32-1].	296
UnsignedInteger64	Integer in the range [0, 2^64-1].	296
UnsignedInteger8	Integer in the range [0, 2^8-1].	296

BitRateBitPerSecondUnsignedInteger32 ALIAS

Rate of transmission, in bits per second.

```
alias BitRateBitPerSecondUnsignedInteger32 u32;
```

Named by link16.JTIDSLETRadioSignal, link16.JTIDSMessageRadioSignal, link16.JTIDSVoiceCVSDRadioSignal, link16.JTIDSVoiceLPC10RadioSignal, link16.JTIDSVoiceLPC12RadioSignal, link16.Link16RadioSignal, link16.RTTABRadioSignal, link16.RTTReplyRadioSignal, link16.TDLBinaryRadioSignal, link16.VMFRadioSignal, ApplicationSpecificRadioSignal, AudioDataTypeStruct, RawBinaryRadioSignal.

BitsUnsignedInteger16 ALIAS

Transmission size, in number of bits.

```
alias BitsUnsignedInteger16 u16;
```

Named by link16.JTIDSLETRadioSignal, link16.JTIDSMessageRadioSignal, link16.JTIDSVoiceCVSDRadioSignal, link16.JTIDSVoiceLPC10RadioSignal, link16.JTIDSVoiceLPC12RadioSignal, link16.Link16RadioSignal, link16.RTTABRadioSignal, link16.RTTReplyRadioSignal, link16.TDLBinaryRadioSignal, link16.VMFRadioSignal, ApplicationSpecificRadioSignal, AudioDataTypeStruct, RawBinaryRadioSignal.

ClockTimeHourInteger32 ALIAS

Time past on the clock in full hours since a specified point in time.

```
alias ClockTimeHourInteger32 i32;
```

Named by ClockTimeStruct.

Float32 ALIAS

Single-precision floating point number.

```
alias Float32 f32;
```

Named by netn.FireAtEntityWM, netn.FireAtLocationWM, ArticulatedPartsStruct, BeamAntennaStruct, COMBICStateRecStruct, CoefficientsLengthlessArray1Plus, CollisionElastic, Cone1GeomRecStruct, Cone2GeomRecStruct, Float32Array1Plus, GaussPlumeGeomRecStruct, GaussPuffGeomRecStruct, GridValueType1Struct, PropulsionSystemDataStruct, Sphere1GeomRecStruct, Sphere2GeomRecStruct, SupplyStruct.

Float64 ALIAS

Double-precision floating point number.

```
alias Float64 f64;
```

Named by GridAxisStruct, IrregularGridAxisStruct.

Integer16 ALIAS

Integer in the range [-2^15, 2^15-1].

```
alias Integer16 i16;
```

Named by netn.ConnectionReceiverStruct, netn.FireAtEntityWM, netn.FireAtLocationWM, netn.IncomingConnectionStruct, AcousticTransient, ActiveSonarBeam, AdditionalPassiveActivities, AggregateEntity, Integer16Array1Plus, NamedLocationStruct, PhysicalEntity, SINCGARSModulationStruct.

Integer32 ALIAS

Integer in the range [-2^31, 2^31-1].

```
alias Integer32 i32;
```

Named by netn.MineCountVariantStruct, netn.PhysicalGenericNetworkStruct, COMBICStateRecStruct, FlareStateRecStruct, FundamentalParameterDataStruct.

MineDielectricDifference ALIAS

Local dielectric difference between the mine and the surrounding soil (reflectance)

```
alias MineDielectricDifference f32;
```

Named by MineDielectricDifferenceLengthlessArray.

MineIdentifier ALIAS

Specifies a mine entity identifier

```
alias MineIdentifier u16;
```

Named by MineIdentifierLengthlessArray.

Octet ALIAS

Uninterpreted 8-bit value.

```
alias Octet u8;
```

Named by link16.OctetArray10, link16.OctetArray6, link16.OctetLengthlessArray29Plus, ActiveSonar, ActiveSonarBeam, ArticulatedParameterStruct, EmitterBeam, EmitterSystem, EntityTypeStruct, EnvironmentObjectTypeStruct, EnvironmentTypeStruct, GridAxisStruct,

GriddedData, MarkingArray11, MarkingArray31, OctetArray, OctetArray1Plus, OctetArray2, OctetArray3, OctetArray4, OctetArray7, OctetArray8, OctetPadding32Array, OctetPadding64Array, RRB, RadioTypeStruct, SignalDataLengthlessArray1Plus.

ParticipatingUnitSourceNumber ALIAS

PU number. Valid range [1,76] octal ([1,62] decimal).

```
alias ParticipatingUnitSourceNumber u8;
```

Named by Link11BTransmitterStruct, Link11TransmitterStruct.

PercentFloat32 ALIAS

Percentage

```
alias PercentFloat32 f32;
```

Named by netn.CloudStruct, netn.IceStruct, netn.MineCountVariantStruct, netn.ProbabilityHazardContourStruct, netn.ProtectionEffectivenessStruct, netn.TreatmentStruct, EmitterBeam, IFF.

PercentUnsignedInteger32 ALIAS

Percentage

```
alias PercentUnsignedInteger32 u32;
```

Named by netn.ElectronicSignatureStruct, netn.HUMINTSignatureStruct, netn.VisualSignatureStruct, ArealObject, ArealObjectTransaction, BreachablePointObjectTransaction, BurstPointObject, BurstPointObjectTransaction, CraterObjectTransaction, ExhaustSmokeStruct, LinearSegmentStruct, MinefieldObjectTransaction, OtherArealObjectTransaction, OtherPointObjectTransaction, PointObject, PointObjectTransaction, RibbonBridgeObjectTransaction, StructureObjectTransaction.

PowerRatioDecibelMilliwattFloat32 ALIAS

Power ratio in decibels (dB) of a measured power referenced to 1 milliwatt (mW).

```
alias PowerRatioDecibelMilliwattFloat32 f32;
```

Named by EmitterBeam, FundamentalParameterDataStruct, RadioReceiver, RadioTransmitter.

PowerWattFloat32 ALIAS

The unit of power is the watt (W), which is equal to one joule per second.

```
alias PowerWattFloat32 f32;
```

Named by Designator.

SpeedChangeRateRPMPerSecondInteger16 ALIAS

Angular acceleration

```
alias SpeedChangeRateRPMPerSecondInteger16 i16;
```

Named by ShaftDataStruct.

TimestampUnsignedInteger32 ALIAS

The time past the hour, scaled so that value 0 represents the start of the hour and value 2^31 - 1 represents one time unit before the start of the next hour, thereby resulting in each time unit representing exactly 3600/(2^31) s, which is approximately 1.67638063 microsecond.

```
alias TimestampUnsignedInteger32 u32;
```

Named by ClockTimeStruct.

TransponderModeCAltitude100FootInteger16 ALIAS

Actual Mode C altitude in the range 0-126,000 feet in 100-foot increments.

```
alias TransponderModeCAltitude100FootInteger16 i16;
```

Named by NatoIFFTransponder.

UnsignedInteger16 ALIAS

Integer in the range [0, 2^16-1].

```
alias UnsignedInteger16 u16;
```

Named by link16.JTIDSLETRadioSignal, link16.JTIDSMessageRadioSignal, link16.JTIDSVoiceCVSDRadioSignal, link16.JTIDSVoiceLPC10RadioSignal, link16.JTIDSVoiceLPC12RadioSignal, link16.Link16RadioSignal, link16.RTTABRadioSignal, link16.RTTReplyRadioSignal, link16.TDLBinaryRadioSignal, link16.VMFRadioSignal, AcousticTransient, AdditionalPassiveActivities, ApplicationSpecificRadioSignal, ArticulatedParameterStruct, COMBICStateRecStruct, DatabaseIndexRadioSignal, EmitterBeam, EntityIdentifierStruct, EntityTypeStruct, EnvironmentTypeStruct, EventIdentifierStruct, FederateIdentifierStruct, FlareStateRecStruct, GridAxisStruct, LinearSegmentStruct, MunitionDetonation, NatoIFF, NatoIFFTransponder, PropulsionNoise, RadioReceiver, RadioTransmitter, RadioTypeStruct, RawBinaryRadioSignal, SilentAggregateStruct, SilentEntityStruct, UnsignedInteger16Array1Plus, WeaponFire.

UnsignedInteger32 ALIAS

Integer in the range [0, 2^32-1].

```
alias UnsignedInteger32 u32;
```

Named by link16.NTPTimestampStruct, Acknowledge, AcknowledgeR, ActionRequest, ActionRequestR, ActionResponse, ActionResponseR, AggregateEntity, AttributeValuePairStruct, AudioDataTypeStruct, BreachableSegmentStruct, BurstPointObject, BurstPointObjectTransaction, COMBICStateRecStruct, CraterObject, CraterObjectTransaction, CreateEntity, CreateEntityR, CreateObjectRequest, CreateObjectRequestR, CreateObjectResult, CreateObjectResultR, Data, DataQuery, DataQueryR, DataR, DatabaseIndexRadioSignal, EnvironmentRecStruct, FixedDatumStruct, FlareStateRecStruct, GriddedData, JTIDSTransmitterStruct, JammerBeam, LinearSegmentStruct, MinefieldObject, MinefieldObjectTransaction, RecordQueryR, RecordR, RecordSetStruct, RecordStruct, RemoveEntity, RemoveEntityR, RemoveObjectRequest, RemoveObjectRequestR, RemoveObjectResult, RemoveObjectResultR, RibbonBridgeObject, RibbonBridgeObjectTransaction, SetData, SetDataR, SetRecordR, SphericalHarmonicAntennaStruct, StartResume, StartResumeR, StopFreeze, StopFreezeR, TransferControl, UnsignedInteger32LengthlessArray, VariableDatumStruct, WeaponFire.

UnsignedInteger64 ALIAS

Integer in the range [0, 2^64-1].

```
alias UnsignedInteger64 u64;
```

Named by AudioDataTypeStruct, GriddedData, RadioTransmitter, UnsignedInteger64Array1Plus.

UnsignedInteger8 ALIAS

Integer in the range [0, 2^8-1].

```
alias UnsignedInteger8 u8;
```

Named by MinefieldQuery, MinefieldResponseNACK, MissingRecordNumbersLengthlessArray1Plus, UnsignedInteger8LengthlessArray.

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MaybeDamageStatusEnum32 OPTIONAL

```
optional<DamageStatusEnum32> MaybeDamageStatusEnum32;
```

MaybeEntityTypeStruct OPTIONAL

```
optional<EntityTypeStruct> MaybeEntityTypeStruct;
```

MaybeEnvironmentObjectTypeStruct OPTIONAL

```
optional<EnvironmentObjectTypeStruct> MaybeEnvironmentObjectTypeStruct;
```

MaybeForceIdentifierEnum8 OPTIONAL

```
optional<ForceIdentifierEnum8> MaybeForceIdentifierEnum8;
```

MaybeLengthMeterFloat32 OPTIONAL

```
optional<LengthMeterFloat32> MaybeLengthMeterFloat32;
```

MaybeMeterFloat32 OPTIONAL

```
optional<MeterFloat32> MaybeMeterFloat32;
```

MaybeTemperatureDegreeCelsiusFloat32 OPTIONAL

```
optional<TemperatureDegreeCelsiusFloat32> MaybeTemperatureDegreeCelsiusFloat32;
```

MaybeTransmitterOperationalStatusEnum8 OPTIONAL

```
optional<TransmitterOperationalStatusEnum8> MaybeTransmitterOperationalStatusEnum8;
```

MaybeVelocityMeterPerSecondFloat32 OPTIONAL

```
optional<VelocityMeterPerSecondFloat32> MaybeVelocityMeterPerSecondFloat32;
```

MaybeWorldLocationStruct OPTIONAL

```
optional<WorldLocationStruct> MaybeWorldLocationStruct;
```

Built-in types

The types the language provides. Every one is written the same way on the wire wherever it appears.

Type	Meaning
`bool`	classic boolean
`f32`	32 bit floating point number
`f64`	64 bit floating point number
`i16`	16 bit signed integer
`i32`	32 bit signed integer
`i64`	64 bit signed integer
`string`	unbounded string
`u16`	16 bit unsigned integer
`u32`	32 bit unsigned integer
`u64`	64 bit unsigned integer
`u8`	8 bit unsigned integer

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