

OCEAN2020FOM_Environmental_v1.0

Version: 1.0

Last Update: 2019-10-10

Security Classification: Unclassified

Description:

OCEAN2020 HLA EVOLVED simulated trials FOM definition for Environmental Condition Modelling.
Evaluate environmental condition for Air, Land, Surface & Underwater.

Generated by the MAK FOM Editor

Date: Thu Oct 10 2019 15:39:50 GMT+0200 (W. Europe Daylight Time)

Module Data

OCEAN2020FOM_Environmental_v1.0

| | |
|--------------------------|---|
| Type: | FOM |
| Version: | 1.0 |
| Modification Date: | 2019-10-10 |
| Security Classification: | Unclassified |
| Release Restrictions: | European Defence Agency - OCEAN2020 Project Beneficiaries |
| Use Limitations: | European Defence Agency - OCEAN2020 Project Beneficiaries |
| Purpose: | OCEAN2020 HLA EVOLVED Environment FOM module revision 0.7 |
| Application Domain: | Maritime |
| Description: | OCEAN2020 HLA EVOLVED simulated trials FOM definition for Environmental Condition Modelling. Evaluate environmental condition for Air, Land, Surface & Underwater. |
| Use History: | --NONE-- |
| Other: | |

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HLAobjectRoot (Object)

Full Name: .HLAobjectRoot
Module: OCEAN2020FOM_Environmental_v1.0
Sharing:
Semantics:
Notes:

Added Attributes: This object adds no attributes

VS_Environment (Object)

Full Name: 0.VS_Environment
Module: OCEAN2020FOM_Environmental_v1.0
Sharing: Neither
Semantics: The environmental data are provided as a grid with NumRows rows and NumColumns columns. The coordinate of the North-Western corner of the grid (Top left in a Mercatore projection) are NWCornerLatitude and NWCornerLongitude. Accordingly the SW corner (bottom right in a Mercatore projection) has SECornerLatitude and SECornerLongitude as coordinate.
Notes:

Added Attributes:

NumRows

| | |
|-----------------------------|-----------------------------|
| dataType: UnsignedInteger32 | updateType: NA |
| ownership: NoTransfer | updateCondition: |
| sharing: Neither | transportation: HLAreliable |
| order: TimeStamp | |
| Dimensions: --none-- | |
| Semantics: | |

NumColumns

| | |
|-----------------------------|-----------------------------|
| dataType: UnsignedInteger32 | updateType: NA |
| ownership: NoTransfer | updateCondition: |
| sharing: Neither | transportation: HLAreliable |
| order: TimeStamp | |
| Dimensions: --none-- | |
| Semantics: | |

NWCornerLatitude

| | |
|-----------------------|-----------------------------|
| dataType: Float64 | updateType: NA |
| ownership: NoTransfer | updateCondition: |
| sharing: Neither | transportation: HLAreliable |
| order: TimeStamp | |
| Dimensions: --none-- | |
| Semantics: | |

NWCornerLongitude

| | |
|-----------------------|-----------------------------|
| dataType: Float64 | updateType: NA |
| ownership: NoTransfer | updateCondition: |
| sharing: Neither | transportation: HLAreliable |
| order: TimeStamp | |
| Dimensions: --none-- | |

Semantics:

SECornerLatitude

dataType: Float64
ownership: NoTransfer
sharing: Neither
order: TimeStamp
Dimensions: --none--
Semantics:

updateType: NA
updateCondition:
transportation: HLAreliable

SECornerLongitude

dataType: Float64
ownership: NoTransfer
sharing: Neither
order: TimeStamp
Dimensions: --none--
Semantics:

updateType: NA
updateCondition:
transportation: HLAreliable

AirColumn (Object)

Full Name: 0.1.AirColumn

Module: OCEAN2020FOM_Environmental_v1.0

Sharing: PublishSubscribe

Semantics:

Notes:

Added Attributes:

NumberOfLayers

dataType: Integer32
ownership: NoTransfer
sharing: PublishSubscribe
order: TimeStamp
Dimensions: --none--
Semantics:

updateType: NA
updateCondition:
transportation: HLAreliable

LowerLayer

dataType: Float64
ownership: NoTransfer
sharing: PublishSubscribe
order: TimeStamp
Dimensions: --none--
Semantics:

updateType: NA
updateCondition:
transportation: HLAreliable

HigherLayer

dataType: Float64
ownership: NoTransfer
sharing: PublishSubscribe
order: TimeStamp
Dimensions: --none--
Semantics:

updateType: NA
updateCondition:
transportation: HLAreliable

| | | |
|-----------------|--|---|
| Layers | dataType: VariableLengthFloat32Array ownership: NoTransfer sharing: PublishSubscribe order: TimeStamp Dimensions: --none-- Semantics: | updateType: NA updateCondition: transportation: HLAreliable |
| SunAzimuth | dataType: VariableLengthFloat64Array ownership: NoTransfer sharing: PublishSubscribe order: TimeStamp Dimensions: --none-- Semantics: | updateType: NA updateCondition: transportation: HLAreliable |
| SunElevation | dataType: VariableLengthFloat64Array ownership: NoTransfer sharing: PublishSubscribe order: TimeStamp Dimensions: --none-- Semantics: | updateType: NA updateCondition: transportation: HLAreliable |
| FogCloudDensity | dataType: VariableLengthFloat64Array ownership: NoTransfer sharing: PublishSubscribe order: TimeStamp Dimensions: --none-- Semantics: % of coverage [0-1] | updateType: NA updateCondition: transportation: HLAreliable |
| GustDirection | dataType: VariableLengthFloat64Array ownership: NoTransfer sharing: PublishSubscribe order: TimeStamp Dimensions: --none-- Semantics: degrees | updateType: NA updateCondition: transportation: HLAreliable |
| GustDuration | dataType: VariableLengthFloat64Array ownership: NoTransfer sharing: PublishSubscribe order: TimeStamp Dimensions: --none-- Semantics: s | updateType: NA updateCondition: transportation: HLAreliable |
| GustIntensity | dataType: VariableLengthFloat64Array ownership: NoTransfer sharing: PublishSubscribe order: TimeStamp | updateType: NA updateCondition: transportation: HLAreliable |

Dimensions: --none--

Semantics: m/s

RainfallRate

dataType: VariableLengthFloat64Array

ownership: NoTransfer

sharing: PublishSubscribe

order: TimeStamp

Dimensions: --none--

Semantics: mm/min

updateType: NA

updateCondition:

transportation: HLAreliable

RelativeHumidity

dataType: VariableLengthFloat64Array

ownership: NoTransfer

sharing: PublishSubscribe

order: TimeStamp

Dimensions: --none--

Semantics: %

updateType: NA

updateCondition:

transportation: HLAreliable

SnowfallRate

dataType: VariableLengthFloat64Array

ownership: NoTransfer

sharing: PublishSubscribe

order: TimeStamp

Dimensions: --none--

Semantics: mm/min

updateType: NA

updateCondition:

transportation: HLAreliable

SolarRadiation

dataType: VariableLengthFloat64Array

ownership: NoTransfer

sharing: PublishSubscribe

order: TimeStamp

Dimensions: --none--

Semantics:

updateType: NA

updateCondition:

transportation: HLAreliable

SustainedWindDirection

dataType: VariableLengthFloat64Array

ownership: NoTransfer

sharing: PublishSubscribe

order: TimeStamp

Dimensions: --none--

Semantics:

updateType: NA

updateCondition:

transportation: HLAreliable

SustainedWindIntensity

dataType: VariableLengthFloat64Array

ownership: NoTransfer

sharing: PublishSubscribe

order: TimeStamp

Dimensions: --none--

Semantics:

updateType: NA

updateCondition:

transportation: HLAreliable

Temperature

dataType: VariableLengthFloat64Array

updateType: NA

| | |
|---------------------------|-----------------------------|
| ownership: NoTransfer | updateCondition: |
| sharing: PublishSubscribe | transportation: HLAreliable |
| order: TimeStamp | |
| Dimensions: --none-- | |
| Semantics: deg C | |

| | |
|--------------------------------------|-----------------------------|
| WindShear | |
| dataType: VariableLengthFloat64Array | updateType: NA |
| ownership: NoTransfer | updateCondition: |
| sharing: PublishSubscribe | transportation: HLAreliable |
| order: TimeStamp | |
| Dimensions: --none-- | |
| Semantics: m/s/s | |

| | |
|--------------------------------------|-----------------------------|
| Pressure | |
| dataType: VariableLengthFloat64Array | updateType: NA |
| ownership: NoTransfer | updateCondition: |
| sharing: PublishSubscribe | transportation: HLAreliable |
| order: TimeStamp | |
| Dimensions: --none-- | |
| Semantics: Pa | |

Bathymetry (Object)

Full Name: 0.1.Bathymetry
Module: OCEAN2020FOM_Environmental_v1.0
Sharing: PublishSubscribe
Semantics:
Notes:

| | |
|--------------------------------------|-----------------------------|
| Added Attributes: | |
| DepthValues | |
| dataType: VariableLengthFloat64Array | updateType: NA |
| ownership: NoTransfer | updateCondition: |
| sharing: PublishSubscribe | transportation: HLAreliable |
| order: TimeStamp | |
| Dimensions: --none-- | |
| Semantics: | |

Land (Object)

Full Name: 0.1.Land
Module: OCEAN2020FOM_Environmental_v1.0
Sharing: PublishSubscribe
Semantics:
Notes:

Added Attributes:
 LandRegionId

| | |
|--------------------------------------|-----------------------------|
| dataType: VariableLengthFloat32Array | updateType: NA |
| ownership: NoTransfer | updateCondition: |
| sharing: PublishSubscribe | transportation: HLAreliable |
| order: TimeStamp | |
| Dimensions: --none-- | |
| Semantics: | |

| | |
|--------------------------------------|-----------------------------|
| TerrainType | |
| dataType: VariableLengthFloat32Array | updateType: NA |
| ownership: NoTransfer | updateCondition: |
| sharing: PublishSubscribe | transportation: HLAreliable |
| order: TimeStamp | |
| Dimensions: --none-- | |
| Semantics: | |

| | |
|--------------------------------------|-----------------------------|
| SnowAccumulation | |
| dataType: VariableLengthFloat32Array | updateType: NA |
| ownership: NoTransfer | updateCondition: |
| sharing: PublishSubscribe | transportation: HLAreliable |
| order: TimeStamp | |
| Dimensions: --none-- | |
| Semantics: | |

| | |
|--------------------------------------|-----------------------------|
| IceAccretion | |
| dataType: VariableLengthFloat32Array | updateType: NA |
| ownership: NoTransfer | updateCondition: |
| sharing: PublishSubscribe | transportation: HLAreliable |
| order: TimeStamp | |
| Dimensions: --none-- | |
| Semantics: | |

MosaicSeabed (Object)

Full Name: 0.1.MosaicSeabed
Module: OCEAN2020FOM_Environmental_v1.0
Sharing: PublishSubscribe
Semantics: The entire Mosaic of the area to scan (mosaic[column][row])
Notes:

Added Attributes:

| | |
|---|--|
| BT_Clutter | |
| dataType: MosaicCellVariableArray_Float32 | updateType: Static |
| ownership: NoTransfer | updateCondition: during initialization |
| sharing: PublishSubscribe | transportation: HLAreliable |
| order: TimeStamp | |
| Dimensions: --none-- | |
| Semantics: Array of BT_Clutter values. | |

| | |
|---|--|
| BT_Clutter_Var | |
| dataType: MosaicCellVariableArray_Float32 | updateType: Static |
| ownership: NoTransfer | updateCondition: during initialization |

sharing: PublishSubscribe transportation: HLAreliable
order: TimeStamp
Dimensions: --none--
Semantics: Array of BT_Clutter_Var values.

BT_Posidonia

dataType: MosaicCellVariableArray_Float32 updateType: Static
ownership: NoTransfer updateCondition: during initialization
sharing: PublishSubscribe transportation: HLAreliable
order: TimeStamp
Dimensions: --none--
Semantics: Array of BT_Posidonia values.

BT_Posidonia_Var

dataType: MosaicCellVariableArray_Float32 updateType: Static
ownership: NoTransfer updateCondition: during initialization
sharing: PublishSubscribe transportation: HLAreliable
order: TimeStamp
Dimensions: --none--
Semantics: Array of BT_Posidonia_Var values.

BT_PosidoniaRipples

dataType: MosaicCellVariableArray_Float32 updateType: Static
ownership: NoTransfer updateCondition: during initialization
sharing: PublishSubscribe transportation: HLAreliable
order: TimeStamp
Dimensions: --none--
Semantics: Array of BT_PosidoniaRipples values.

BT_PosidoniaRipples_Var

dataType: MosaicCellVariableArray_Float32 updateType: Static
ownership: NoTransfer updateCondition: during initialization
sharing: PublishSubscribe transportation: HLAreliable
order: TimeStamp
Dimensions: --none--
Semantics: Array of BT_PosidoniaRipples_Var values.

BT_Ripples

dataType: MosaicCellVariableArray_Float32 updateType: Static
ownership: NoTransfer updateCondition: during initialization
sharing: PublishSubscribe transportation: HLAreliable
order: TimeStamp
Dimensions: --none--
Semantics: Array of BT_Ripples values.

BT_Ripples_Var

dataType: MosaicCellVariableArray_Float32 updateType: Static
ownership: NoTransfer updateCondition: during initialization
sharing: PublishSubscribe transportation: HLAreliable
order: TimeStamp
Dimensions: --none--
Semantics: Array of BT_Ripples_Var values.

BT_SMO

dataType: MosaicCellVariableArray_Float32 updateType: Static
ownership: NoTransfer updateCondition: during initialization
sharing: PublishSubscribe transportation: HLAreliable
order: TimeStamp
Dimensions: --none--
Semantics: Array of BT_SMO values.

BT_SMO_Var

dataType: MosaicCellVariableArray_Float32 updateType: Static
ownership: NoTransfer updateCondition: during initialization
sharing: PublishSubscribe transportation: HLAreliable
order: TimeStamp
Dimensions: --none--
Semantics: Array of BT_SMO_Var values.

BT_Ripple_Angl

dataType: MosaicCellVariableArray_Float32 updateType: Static
ownership: NoTransfer updateCondition: during initialization
sharing: PublishSubscribe transportation: HLAreliable
order: TimeStamp
Dimensions: --none--
Semantics: Array of BT_Ripple_Angl values.

BT_Ripple_Angl_Var

dataType: MosaicCellVariableArray_Float32 updateType: Static
ownership: NoTransfer updateCondition: during initialization
sharing: PublishSubscribe transportation: HLAreliable
order: TimeStamp
Dimensions: --none--
Semantics: Array of BT_Ripple_Angl_Var values.

Clusters

dataType: MosaicCellVariableArray_Float32 updateType: Static
ownership: NoTransfer updateCondition: during initialization
sharing: PublishSubscribe transportation: HLAreliable
order: TimeStamp
Dimensions: --none--
Semantics: Array of Clusters values.

DPCA

dataType: MosaicCellVariableArray_Float32 updateType: Static
ownership: NoTransfer updateCondition: during initialization
sharing: PublishSubscribe transportation: HLAreliable
order: TimeStamp
Dimensions: --none--
Semantics: Array of DPCA values.

Lacunarity

dataType: MosaicCellVariableArray_Float32 updateType: Static
ownership: NoTransfer updateCondition: during initialization
sharing: PublishSubscribe transportation: HLAreliable
order: TimeStamp

Dimensions: --none--
Semantics: Array of Lacunarity values.

Py_b0

dataType: MosaicCellVariableArray_Float32 updateType: Static
ownership: NoTransfer updateCondition: during initialization
sharing: PublishSubscribe transportation: HLAreliable
order: TimeStamp
Dimensions: --none--
Semantics: Array of Py_b0 values.

Py_b1

dataType: MosaicCellVariableArray_Float32 updateType: Static
ownership: NoTransfer updateCondition: during initialization
sharing: PublishSubscribe transportation: HLAreliable
order: TimeStamp
Dimensions: --none--
Semantics: Array of Py_b1 values.

Py_b2

dataType: MosaicCellVariableArray_Float32 updateType: Static
ownership: NoTransfer updateCondition: during initialization
sharing: PublishSubscribe transportation: HLAreliable
order: TimeStamp
Dimensions: --none--
Semantics: Array of Py_b2 values.

Ripple

dataType: MosaicCellVariableArray_Float32 updateType: Static
ownership: NoTransfer updateCondition: during initialization
sharing: PublishSubscribe transportation: HLAreliable
order: TimeStamp
Dimensions: --none--
Semantics: Array of Ripple values.

RRM_E

dataType: MosaicCellVariableArray_Float32 updateType: Static
ownership: NoTransfer updateCondition: during initialization
sharing: PublishSubscribe transportation: HLAreliable
order: TimeStamp
Dimensions: --none--
Semantics: Array of RRM_E values.

RRM_var

dataType: MosaicCellVariableArray_Float32 updateType: Static
ownership: NoTransfer updateCondition: during initialization
sharing: PublishSubscribe transportation: HLAreliable
order: TimeStamp
Dimensions: --none--
Semantics: Array of RRM_var values.

SurveyStatus

dataType: MosaicCellVariableArray_Float32 updateType: Static

ownership: NoTransfer
sharing: PublishSubscribe
order: TimeStamp
Dimensions: --none--
Semantics: Array of SurveyStatus values.

updateCondition: during initialization
transportation: HLAreliable

WaterColumn (Object)

Full Name: 0.1.WaterColumn
Module: OCEAN2020FOM_Environmental_v1.0
Sharing: PublishSubscribe
Semantics:
Notes:

NOTE:Not STANAG4684 compliant

Added Attributes:

NumberOfLayers

dataType: Integer32
ownership: NoTransfer
sharing: PublishSubscribe
order: TimeStamp
Dimensions: --none--
Semantics:

updateType: NA
updateCondition:
transportation: HLAreliable

WaterDepth

dataType: VariableLengthFloat32Array
ownership: NoTransfer
sharing: PublishSubscribe
order: TimeStamp
Dimensions: --none--
Semantics:

updateType: NA
updateCondition:
transportation: HLAreliable

ShallowerLayer

dataType: Integer32
ownership: NoTransfer
sharing: PublishSubscribe
order: TimeStamp
Dimensions: --none--
Semantics:

updateType: NA
updateCondition:
transportation: HLAreliable

DeeperLayer

dataType: Integer32
ownership: NoTransfer
sharing: PublishSubscribe
order: TimeStamp
Dimensions: --none--
Semantics:

updateType: NA
updateCondition:
transportation: HLAreliable

Current_intensity

dataType: VariableLengthFloat64Array
ownership: NoTransfer
sharing: PublishSubscribe

updateType: NA
updateCondition:
transportation: HLAreliable

order: TimeStamp
Dimensions: --none--
Semantics:

Current_direction
dataType: VariableLengthFloat64Array updateType: NA
ownership: NoTransfer updateCondition:
sharing: PublishSubscribe transportation: HLAreliable
order: TimeStamp
Dimensions: --none--
Semantics:

Salinity
dataType: VariableLengthFloat64Array updateType: NA
ownership: NoTransfer updateCondition:
sharing: PublishSubscribe transportation: HLAreliable
order: TimeStamp
Dimensions: --none--
Semantics: Salinity [PSU, Practical Salinity Units].

Temperature
dataType: VariableLengthFloat64Array updateType: NA
ownership: NoTransfer updateCondition:
sharing: PublishSubscribe transportation: HLAreliable
order: TimeStamp
Dimensions: --none--
Semantics: Temperature [Celsius].

Transparency
dataType: VariableLengthFloat64Array updateType: NA
ownership: NoTransfer updateCondition:
sharing: PublishSubscribe transportation: HLAreliable
order: TimeStamp
Dimensions: --none--
Semantics:

WaterSurface (Object)

Full Name: 0.1.WaterSurface
Module: OCEAN2020FOM_Environmental_v1.0
Sharing: PublishSubscribe
Semantics:
Notes:

Added Attributes:
BreakingWaveZone
dataType: VariableLengthFloat32Array updateType: NA
ownership: NoTransfer updateCondition:
sharing: PublishSubscribe transportation: HLAreliable
order: TimeStamp
Dimensions: --none--

Semantics:

Wave_frequency

dataType: VariableLengthFloat32Array

ownership: NoTransfer

sharing: PublishSubscribe

order: TimeStamp

Dimensions: --none--

Semantics:

updateType: NA

updateCondition:

transportation: HLAreliable

Wave_height

dataType: VariableLengthFloat32Array

ownership: NoTransfer

sharing: PublishSubscribe

order: TimeStamp

Dimensions: --none--

Semantics:

updateType: NA

updateCondition:

transportation: HLAreliable

Wave_direction

dataType: VariableLengthFloat32Array

ownership: NoTransfer

sharing: PublishSubscribe

order: TimeStamp

Dimensions: --none--

Semantics:

updateType: NA

updateCondition:

transportation: HLAreliable

HLAinteractionRoot (Interaction)

Full Name: .HLAinteractionRoot

Module: OCEAN2020FOM_Environmental_v1.0

Sharing: Neither

Semantics:

Notes:

Added Parameters: This object adds no parameters

Basic Data Types

RPRunsignedInteger16BE

size: 16
interpretation: Integer in the range $[0, 2^{16}-1]$
endian: Big
encoding: 16-bit unsigned integer.

RPRunsignedInteger32BE

size: 32
interpretation: Integer in the range $[0, 2^{32}-1]$
endian: Big
encoding: 32-bit unsigned integer.

RPRunsignedInteger64BE

size: 64
interpretation: Integer in the range $[0, 2^{64}-1]$
endian: Big
encoding: 64-bit unsigned integer.

RPRunsignedInteger8BE

size: 8
interpretation: Integer in the range $[0, 2^8-1]$
endian: Big
encoding: 8-bit unsigned integer.

Array Data Types

AirDataArray

dataType: AirDataType
cardinality: Dynamic
encoding: HLAVariableArray
semantics:

AntennaPatternVariantStructLengthlessArray

dataType: AntennaPatternVariantStruct
cardinality: Dynamic
encoding: RPRlengthlessArray
semantics: Represents an antenna's radiation pattern, its orientation in space, and the polarization of the radiation.

ArticulatedParameterStructLengthlessArray

dataType: ArticulatedParameterStruct
cardinality: Dynamic
encoding: RPRlengthlessArray
semantics: Dynamic array of ArticulatedParameterStruct elements, may also contain no elements. The array is encoded without array length, containing only the elements.

AttributeValuePairStructArray1Plus

dataType: AttributeValuePairStruct
cardinality: [1..2147483647]
encoding: HLAVariableArray
semantics: Array of AttributeValuePairStruct.

BreachableSegmentStructLengthlessArray

dataType: BreachableSegmentStruct
cardinality: Dynamic
encoding: RPRlengthlessArray
semantics: Specifies a breachable linear object (a collection of segments)

BreachedStatusArray8

dataType: BreachedStatusEnum8
cardinality: 8
encoding: HLAfixedArray
semantics: Specifies the breached appearance for each individual segment portion of length = BreachLength

BreachStructLengthlessArray

dataType: BreachStruct
cardinality: Dynamic
encoding: RPRlengthlessArray
semantics: Specifies a breach linear object (a collection of segments)

ClockTimeStructLengthlessArray

dataType: ClockTimeStruct
cardinality: Dynamic
encoding: RPRlengthlessArray
semantics: Dynamic array of ClockTimeStruct elements, may also contain no elements. The array is encoded without array length, containing only the elements.

CoefficientsLengthlessArray1Plus

dataType: Float32
cardinality: [1..2147483647]
encoding: RPRlengthlessArray
semantics: 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.

DatumIdentifierLengthlessArray

dataType: DatumIdentifierEnum32
cardinality: Dynamic
encoding: RPRlengthlessArray
semantics: Array of DatumIdentifierEnum32.

DepthMeterFloat32LengthlessArray

dataType: DepthMeterFloat32
cardinality: Dynamic
encoding: RPRlengthlessArray
semantics: Specifies ground - snow - water burial depth offset for each mine in a collection of mines

EntityTypeStructLengthlessArray

dataType: EntityTypeStruct
cardinality: Dynamic
encoding: RPRlengthlessArray
semantics: Dynamic array of EntityTypeStruct elements, may also contain no elements. The array is encoded without array length, containing only the elements.

EnvironmentRecStructArray

dataType: EnvironmentRecStruct
cardinality: Dynamic
encoding: HLVariableArray
semantics: Specifies environment records as a collection of geometry and state records

ExhaustSmokeStructLengthlessArray

dataType: ExhaustSmokeStruct
cardinality: Dynamic
encoding: RPRlengthlessArray
semantics: Specifies an exhaust smoke linear object (a collection of smoke segments)

FixedDatumStructLengthlessArray

dataType: FixedDatumStruct
cardinality: Dynamic
encoding: RPRlengthlessArray
semantics: Array of FixedDatumStructs.

Float32Array1Plus

dataType: Float32
cardinality: [1..2147483647]
encoding: HLVariableArray
semantics: Generic dynamic array of Float32 elements, containing at least one element.

FundamentalParameterDataStructLengthlessArray

dataType: FundamentalParameterDataStruct
cardinality: Dynamic
encoding: RPRLengthlessArray
semantics: Array of Fundamental Parameter Data records.

GridAxisStructLengthlessArray

dataType: GridAxisStruct
cardinality: Dynamic
encoding: RPRLengthlessArray
semantics: Specifies detailed information for a collection of grid axes

GridDataStructLengthlessArray

dataType: GridDataStruct
cardinality: Dynamic
encoding: RPRLengthlessArray
semantics: Specifies detailed information for a collection of grid data representations

Integer16Array1Plus

dataType: Integer16
cardinality: [1..2147483647]
encoding: HLAVariableArray
semantics: Generic dynamic array of Integer16 elements, containing at least one element.

LandDataArray

dataType: LandDataType
cardinality: Dynamic
encoding: HLAVariableArray
semantics:

MarkingArray11

dataType: Octet
cardinality: 11
encoding: HLAfixedArray
semantics: String of characters represented by an 11 element character string.

MarkingArray31

dataType: Octet
cardinality: 31
encoding: HLAfixedArray
semantics: String of characters represented by a 31 element character string.

MineDielectricDifferenceLengthlessArray

dataType: MineDielectricDifference
cardinality: Dynamic
encoding: RPRLengthlessArray
semantics: Specifies local dielectric difference between the mine and the surrounding soil (reflectance) for each mine in a collection of mines

MinefieldLaneMarkerStructLengthlessArray

dataType: MinefieldLaneMarkerStruct
cardinality: Dynamic
encoding: RPRLengthlessArray

semantics: Specifies a minefield lane marker (a collection of segments)

MinefieldPaintSchemeLengthlessArray

dataType: MinefieldPaintSchemeEnum32

cardinality: Dynamic

encoding: RPRlengthlessArray

semantics: Specifies the camouflage scheme/color for each mine in a collection of mines

MinefieldSensorTypeLengthlessArray

dataType: MinefieldSensorTypeEnum32

cardinality: Dynamic

encoding: RPRlengthlessArray

semantics: Specifies a collection of minefield sensor types

MineFusingStructLengthlessArray

dataType: MineFusingStruct

cardinality: Dynamic

encoding: RPRlengthlessArray

semantics: Specifies the type of primary fuse, the type of the secondary fuse and the anti-handling device status for a collection of mines

MineIdentifierLengthlessArray

dataType: MineIdentifier

cardinality: Dynamic

encoding: RPRlengthlessArray

semantics: Identifies the mine entity identifier for each mine in a collection of mines

MissingRecordNumbersLengthlessArray1Plus

dataType: UnsignedInteger8

cardinality: [1..2147483647]

encoding: RPRlengthlessArray

semantics: Specifies missing record numbers as a collection

MosaicCellVariableArray_Float32

dataType: Float32

cardinality: Dynamic

encoding: HLAvariableArray

semantics: A set of Mosaic cells for Float 32 value.

MosaicCellVariableArray_Float64

dataType: Float64

cardinality: Dynamic

encoding: HLAvariableArray

semantics: A set of Mosaic cells for Float 64 value.

OctetArray

dataType: Octet

cardinality: Dynamic

encoding: HLAvariableArray

semantics: Generic dynamic array of Octet elements, may also contain no elements.

OctetArray1Plus

dataType: Octet
cardinality: [1..2147483647]
encoding: HLAVariableArray
semantics: Generic dynamic array of Octet elements, containing at least one element.

OctetArray2

dataType: Octet
cardinality: 2
encoding: HLAfixedArray
semantics: Generic array of two Octet elements.

OctetArray3

dataType: Octet
cardinality: 3
encoding: HLAfixedArray
semantics: Generic array of three Octet elements.

OctetArray4

dataType: Octet
cardinality: 4
encoding: HLAfixedArray
semantics: Generic array of four Octet elements.

OctetArray7

dataType: Octet
cardinality: 7
encoding: HLAfixedArray
semantics: Generic array of seven Octet elements.

OctetArray8

dataType: Octet
cardinality: 8
encoding: HLAfixedArray
semantics: Generic array of eight Octet elements.

OctetPadding32Array

dataType: Octet
cardinality: Dynamic
encoding: RPRpaddingTo32Array
semantics: 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.

OctetPadding64Array

dataType: Octet
cardinality: Dynamic
encoding: RPRpaddingTo64Array
semantics: 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.

OrientationStructLengthlessArray

dataType: OrientationStruct
cardinality: Dynamic

encoding: RPRlengthlessArray
semantics: Dynamic array of OrientationStruct elements, may also contain no elements. The array is encoded without array length, containing only the elements.

PerimeterPointStructLengthlessArray

dataType: PerimeterPointStruct
cardinality: Dynamic
encoding: RPRlengthlessArray
semantics: Specifies the location of perimeter points (collection)

PropulsionSystemDataStructLengthlessArray

dataType: PropulsionSystemDataStruct
cardinality: Dynamic
encoding: RPRlengthlessArray
semantics: A set of Propulsion System Data descriptions.

RecordSetStructArray1Plus

dataType: RecordSetStruct
cardinality: [1..2147483647]
encoding: HLAvariableArray
semantics: Array of RecordSetStruct

RecordStructArray

dataType: RecordStruct
cardinality: Dynamic
encoding: HLAvariableArray
semantics: Array of RecordStruct

RPRUserDefinedTag

dataType: HLAASCIIchar
cardinality: [8..2147483647]
encoding: RPRnullTerminatedArray
semantics: 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.

RTIObjectId

dataType: HLAASCIIchar
cardinality: Dynamic
encoding: RPRnullTerminatedArray
semantics: An RTI object instance identification string.

RTIObjectIdArray

dataType: RTIObjectId
cardinality: Dynamic
encoding: HLAvariableArray
semantics: Set of ID's of registered object instances.

SeabeddataArray_old

dataType: SeabedDataType_old
cardinality: Dynamic
encoding: HLAVariableArray
semantics:

ShaftDataStructLengthlessArray1Plus

dataType: ShaftDataStruct
cardinality: [1..2147483647]
encoding: RPRlengthlessArray
semantics: Array of propulsion shaft states, one per shaft

SignalDataLengthlessArray1Plus

dataType: Octet
cardinality: [1..2147483647]
encoding: RPRlengthlessArray
semantics: The audio or digital data conveyed in a radio transmission.

SilentAggregateStructLengthlessArray

dataType: SilentAggregateStruct
cardinality: Dynamic
encoding: RPRlengthlessArray
semantics: Set of silent aggregates (aggregates not registered in the federation).

SilentEntityStructLengthlessArray

dataType: SilentEntityStruct
cardinality: Dynamic
encoding: RPRlengthlessArray
semantics: A set of silent entities (entities not registered in the federation).

SupplyStructLengthlessArray

dataType: SupplyStruct
cardinality: Dynamic
encoding: RPRlengthlessArray
semantics: A list of supply types and the number of each being offered or requested.

TemperatureDegreeCelsiusFloat32LengthlessArray

dataType: TemperatureDegreeCelsiusFloat32
cardinality: Dynamic
encoding: RPRlengthlessArray
semantics: Specifies thermal contrast for each mine in a collection of mines

UnderwaterCellStructVariableArray

dataType: UnderwaterCellStruct
cardinality: Dynamic
encoding: HLAVariableArray
semantics: A set of underwater cells.

UnsignedInteger16Array1Plus

dataType: UnsignedInteger16
cardinality: [1..2147483647]

encoding: HLAVariableArray
semantics: Generic dynamic array of UnsignedInteger16 elements, containing at least one element.

UnsignedInteger32LengthlessArray

dataType: UnsignedInteger32
cardinality: Dynamic
encoding: RPRLengthlessArray
semantics: Generic dynamic array of UnsignedInteger32 elements, may also contain no elements. The array is encoded without array length, containing only the elements.

UnsignedInteger64Array1Plus

dataType: UnsignedInteger64
cardinality: [1..2147483647]
encoding: HLAVariableArray
semantics: Generic dynamic array of UnsignedInteger64 elements, containing at least one element.

UnsignedInteger8LengthlessArray

dataType: UnsignedInteger8
cardinality: Dynamic
encoding: RPRLengthlessArray
semantics: Generic dynamic array of UnsignedInteger8 elements, may also contain no elements. The array is encoded without array length, containing only the elements.

VariableDatumStructArray

dataType: VariableDatumStruct
cardinality: Dynamic
encoding: HLAVariableArray
semantics: Array of VariableDatumStruct

VariableDatumStructLengthlessArray

dataType: VariableDatumStruct
cardinality: Dynamic
encoding: RPRLengthlessArray
semantics: Set of additional data associated with an aggregate.

VariableLengthFloat32Array

dataType: Float32
cardinality: Dynamic
encoding: HLAVariableArray
semantics:

VariableLengthFloat64Array

dataType: Float64
cardinality: Dynamic
encoding: HLAVariableArray
semantics:

VectoringNozzleSystemDataStructLengthlessArray

dataType: VectoringNozzleSystemDataStruct
cardinality: Dynamic
encoding: RPRLengthlessArray
semantics: A set of Vectoring Nozzle System Data description.

WorldLocationStructLengthlessArray

dataType: WorldLocationStruct

cardinality: Dynamic

encoding: RPRlengthlessArray

semantics: Dynamic array of WorldLocationStruct elements, may also contain no elements. The array is encoded without array length, containing only the elements.

Simple Data Types

AccelerationMeterPerSecondSquaredFloat32

representation: HLAfloat32BE
units: meter per second squared ($\text{m}/(\text{s}^2)$)
resolution: NA
accuracy: NA
semantics: 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.

AngleDegreeFloat32

representation: HLAfloat32BE
units: degree (deg)
resolution: NA
accuracy: NA
semantics: Angle, based on unit degree (of arc), unit symbol $^{\circ}$.

AngleRadianFloat32

representation: HLAfloat32BE
units: radian (rad)
resolution: NA
accuracy: NA
semantics: Angle, based on SI derived unit radian, unit symbol rad.

AngularVelocityRadianPerSecondFloat32

representation: HLAfloat32BE
units: radian per second (rad/s)
resolution: NA
accuracy: perfect
semantics: 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.

BitRateBitPerSecondUnsignedInteger32

representation: RPUndsignedInteger32BE
units: bit/second
resolution: 1
accuracy: perfect
semantics: Rate of transmission, in bits per second.

BitsUnsignedInteger16

representation: RPUndsignedInteger16BE
units: bit
resolution: 1
accuracy: perfect
semantics: Transmission size, in number of bits.

ClockTimeHourInteger32

representation: HLAinteger32BE
units: hour
resolution: 1
accuracy: perfect
semantics: Time past on the clock in full hours since a specified point in time.

DepthMeterFloat32

representation: HLAFloat32BE
units: meter (m)
resolution: NA
accuracy: NA
semantics: Depth, based on SI base unit meter, unit symbol m.

Float32

representation: HLAFloat32BE
units: NA
resolution: NA
accuracy: NA
semantics: Single-precision floating point number.

Float64

representation: HLAFloat64BE
units: NA
resolution: NA
accuracy: NA
semantics: Double-precision floating point number.

FrequencyHertzFloat32

representation: HLAFloat32BE
units: hertz (Hz)
resolution: NA
accuracy: NA
semantics: Frequency, based on SI derived unit hertz, unit symbol Hz.

FrequencyHertzUnsignedInteger64

representation: RPUntsignedInteger64BE
units: hertz (Hz)
resolution: NA
accuracy: NA
semantics: Frequency of a radio transmission, in hertz.

Integer16

representation: HLAinteger16BE
units: NA
resolution: 1
accuracy: perfect
semantics: Integer in the range $[-2^{15}, 2^{15}-1]$.

Integer32

representation: HLAinteger32BE
units: NA
resolution: 1
accuracy: perfect
semantics: Integer in the range $[-2^{31}, 2^{31}-1]$.

InterrogationsPerSecondFloat32

representation: HLAFloat32BE

units: interrogations/second
resolution: NA
accuracy: perfect
semantics: Number of interrogations per second.

LengthMeterFloat32

representation: HLAfloat32BE
units: meter (m)
resolution: NA
accuracy: NA
semantics: Length, based on SI base unit meter, unit symbol m.

MassKilogramFloat32

representation: HLAfloat32BE
units: kilogram (kg)
resolution: NA
accuracy: NA
semantics: Mass, based on SI base unit kilogram, unit symbol kg.

MeterFloat32

representation: HLAfloat32BE
units: meter (m)
resolution: NA
accuracy: perfect
semantics: Datatype based on SI base unit meter, unit symbol m.

MeterFloat64

representation: HLAfloat64BE
units: meter (m)
resolution: NA
accuracy: perfect
semantics: Datatype based on SI base unit meter, unit symbol m.

MineDielectricDifference

representation: HLAfloat32BE
units: NA
resolution: NA
accuracy: NA
semantics: Local dielectric difference between the mine and the surrounding soil (reflectance)

MineIdentifier

representation: RPRunsignedInteger16BE
units: NA
resolution: 1
accuracy: NA
semantics: Specifies a mine entity identifier

Octet

representation: HLAoctet
units: NA
resolution: 1
accuracy: perfect

semantics: Uninterpreted 8-bit value.

PercentFloat32

representation: HLAfloat32BE
units: percent (%)
resolution: NA
accuracy: NA
semantics: Percentage

PercentUnsignedInteger32

representation: RPRunsignedInteger32BE
units: percent (%)
resolution: 1
accuracy: perfect
semantics: Percentage

PowerRatioDecibelMilliwattFloat32

representation: HLAfloat32BE
units: decibel milliwatt (dBm)
resolution: NA
accuracy: perfect
semantics: Power ratio in decibels (dB) of a measured power referenced to 1 milliwatt (mW).

PowerWattFloat32

representation: HLAfloat32BE
units: watt (W)
resolution: NA
accuracy: perfect
semantics: The unit of power is the watt (W), which is equal to one joule per second.

RevolutionsPerMinuteFloat32

representation: HLAfloat32BE
units: RPM
resolution: NA
accuracy: perfect
semantics: Rotation speed expressed in revolutions per minute.

RevolutionsPerMinuteInteger16

representation: HLAinteger16BE
units: revolutions per minute (RPM)
resolution: 1
accuracy: NA
semantics: Frequency of rotation, expressed in revolutions per minute.

SpeedChangeRateRPMPerSecondInteger16

representation: HLAinteger16BE
units: RPM/s
resolution: 1
accuracy: perfect
semantics: Angular acceleration

TemperatureDegreeCelsiusFloat32

representation: HLAfloat32BE
units: degree Celsius (C)
resolution: NA
accuracy: NA
semantics: Temperature, based on SI derived unit degree Celsius, unit symbol °C.

TimeMicrosecondFloat32

representation: HLAfloat32BE
units: microsecond
resolution: NA
accuracy: NA
semantics: Time, based on SI base unit second, expressed in microsecond, unit symbol $\frac{1}{4}$ s .

TimeMillisecondUnsignedInteger32

representation: RPRunsignedInteger32BE
units: millisecond (ms)
resolution: NA
accuracy: NA
semantics: Time, based on SI base unit second, expressed in millisecond, unit symbol ms.

TimeSecondInteger32

representation: HLAinteger32BE
units: second (s)
resolution: 1
accuracy: perfect
semantics: Time, based on SI base unit second, unit symbol s.

TimestampUnsignedInteger32

representation: RPRunsignedInteger32BE
units: $3600/(2^{31})$ second
resolution: 1
accuracy: perfect
semantics: 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.

TransponderModeCAAltitude100-FootInteger16

representation: HLAinteger16BE
units: 100-foot increment
resolution: 1
accuracy: perfect
semantics: Actual Mode C altitude in the range 0-126,000 feet in 100-foot increments.

UnsignedInteger16

representation: RPRunsignedInteger16BE
units: NA
resolution: 1
accuracy: perfect
semantics: Integer in the range $[0, 2^{16}-1]$.

UnsignedInteger32

representation: RPRunsignedInteger32BE

units: NA
resolution: 1
accuracy: perfect
semantics: Integer in the range $[0, 2^{32}-1]$.

UnsignedInteger64

representation: RPRunsignedInteger64BE
units: NA
resolution: 1
accuracy: perfect
semantics: Integer in the range $[0, 2^{64}-1]$.

UnsignedInteger8

representation: RPRunsignedInteger8BE
units: NA
resolution: 1
accuracy: perfect
semantics: Integer in the range $[0, 2^8-1]$.

VelocityDecimeterPerSecondInteger16

representation: RPRunsignedInteger16BE
units: decimeter per second (dm/s)
resolution: 1
accuracy: perfect
semantics: Velocity/Speed measured in decimeter per second.

VelocityMeterPerSecondFloat32

representation: HLAfloat32BE
units: meter per second (m/s)
resolution: NA
accuracy: perfect
semantics: Speed/Velocity in meter per second.

WavelengthMicronFloat32

representation: HLAfloat32BE
units: micron
resolution: NA
accuracy: perfect
semantics: Wavelength expressed in micrometer.