Geophysical Monitoring System

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GMS IAN Configuration Guide

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PI27 Release

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ABSTRACT

This document is a guide to setting the system and processing configuration for the Geophysical Monitoring System (GMS) Interactive Analysis (IAN) application.

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1 INTRODUCTION

1.1 Description

GMS Interactive Analysis (IAN) provides components to access data from a legacy data processing system and display that data for analysis. The IAN application addressed in this guide is an early iteration including station information and waveform displays.

This document is a guide to setting the system and processing configuration for GMS IAN display parameters.

1.2 System Configuration Description

GMS consists of a set of services providing basic system resources, GMS system resources, and GMS processing services deployed on a Kubernetes cluster with the gmskube tool. On deployment, the gmskube utility loads default station metadata and processing configuration into the system and may load configuration overrides as specified by gmskube command line options.

Default GMS configuration files are included in every release of the application.

System configuration values are defined in Section 1.3.3 of this document.

1.3 Processing Configuration Description

The processing configuration contains several configuration objects. Each configuration object is contained in a separate folder within the processing config (i.e., the config/processing folder). Each configuration object is made up of various configuration options. Different configuration options can be contained in different files or the same files. Generally, the default configuration option(s) are contained in a single default.json file, and the override configuration options (those without a default constraint) are contained in an override.json file. The default processing configuration is included under /config/processing.

Each processing configuration option has a format which includes the following:

name - Each file contains a name (listed inside the file). The name describes the file; however, the name typically does not have an impact on the processing. The exception to this rule files which are reference by other configuration files; typically these are the global configuration files.

constraints – Each configuration option contains a list of one or more constraints. Most configuration objects require or allow a DEFAULT constraint. Other constraints are allowed depending on the type of configuration object (details below). Each constraint contains the following information:

- **constraintType** – Either DEFAULT or the cast type of the value given in the constraint. Currently, the only other values are STRING or NUMERIC_RANGE. When the constraint type is DEFAULT, the constraint type is the only information included in the constraint (i.e., there is no criterion, operator, or value). When the constraint type is STRING then a string or string array is listed in the value. When the constraint type is NUMERIC_RANGE then under value a numeric value is listed for both min and max.

- **criterion** – This is what is constrained. What can be used as a criterion depends on the configuration object type. Possible criterion might include: station, channelGroup, phaseType, etc. A full list of criterion used in configuration is included in Section 1.3.1.

- **operator** – The operator is used to specify if the value is a single value or list of values, and if the configuration option is for the listed values or for values not listed. The operator is further divided into two options:

    - **type** – EQ (equal) or IN (in list). EQ is used if the value contains a single value. IN is used if the value contains a list of values.

    - **negated** – True or False. False is used when the parameters will apply to the values list. True is used when the parameters will apply to the values not listed.

- **value** – This is the value or list of values the configuration option is being restrictively applied to.

- **priority** – Priority is used to distinguish between conflicting constraints. When resolving for configuration the number of matching criterion included is the first thing used to resolve configuration, however if two different configurations match the same number of criterion then priority can be used to resolved between the two. Typically priority only falls in the range 0-100.

parameters – This lists the parameter types and parameter values. The parameter types are specific to the configuration object.

1.3.1 Constraint Type

The following are possible combination of constraintType and criterion. In this document they will be referred to under criterion as follows:

criterion (Referred)	constraintType	criterion	type
DEFAULT	DEFAULT	—	—
amplitudeMeasurementType	STRING	amplitudeMeasurementType	Enumeration (AmplitudeMeasurementType)
beamType	STRING	beamType	Enumeration (BeamType)
channel	STRING	channel	Database Value (Channel)
channelBand	STRING	channelBand	Enumeration (ChannelBandType)
channelGroup	STRING	channelGroup	Database Value (ChannelGroup)
channelInstrument	STRING	channelInstrument	Enumeration (ChannelInstrumentType)
channelName	STRING	channelName	Database Value (Channel)
channelOrienation	STRING	channelOrienation	Enumeration (ChannelOrientationType)
distance	NUMERIC_RANGE	distance	Range Structure
name	STRING	name	See type listed.
phase	STRING	phase	Enumeration (PhaseType)
phaseType	STRING	phaseType	Enumeration (PhaseType)
predictor	STRING	predictor	Enumeration (Predictor)
station	STRING	station	Database Value (Station)

1.3.2 Operator

There are four possible combinations of operators between the type and negated. In this document, they will be referred to as follows:

operator (Referred)	operator		description
	type	negated	
EQ	EQ	False	Equal. Only one values allowed in the value field. Configuration only used when the value matches.
IN	IN	False	In List. Multiple values allowed in the value list. Configuration used when the any of the values in the list match. When the operator (referred) is IN it is also valid to use EQ with a single value or a list of one.
NOT EQ	EQ	True	Not Equal. Only one value allowed in the value field. Configuration used when the value does not match.
NOT IN	IN	True	Not In List. Configuration used when the value does not match any value in the list. When the operator (referred) is NOT IN it is also valid to use NOT EQ.
ANY	—	—	Used to indicate that any of the operators are valid.

1.3.3 Data Types

Configuration is in JSON. There are three native data types that JSON represents (Boolean, Numeric, String). Other data types are derivates of those data types.

1.3.3.1 Boolean

Boolean values are either true or false. They are not represented as strings.

1.3.3.2 Brightness

Brightness indicates the transparency. Brightness values are formatted as strings with the format “brightness(x)” where x is a value between 0 and 1 giving the transparency %.

1.3.3.3 Color

Within the ui-analyst-settings configuration it is possible to configure the colors used in the IAN UI. When the Color data type is specified, it can be formatted in one of two ways. Either `"#xxxxxx"` where each x is a hexadecimal value (0-F) or `"rgba(x,x,x,y)"` where each x is an integer value between 0 and 255 and the y is a decimal value between 0 and 1.

1.3.3.4 Database Value

The term database value is a string value in which the value much match values bridged from the legacy database.

1.3.3.4.1 Channel

The Channel is the name of a Channel within a specific station.

1.3.3.4.2 Channel Group

The ChannelGroup is the name of a Channel Group within a specific station.

1.3.3.4.3 Schema

The Schema is the name of the database schema in which data is accessed.

1.3.3.4.4 Station

Station is the list of Stations which are in the legacy database.

1.3.3.4.5 StationGroup

Station Group is the list of Station Groups which are in the legacy database.

1.3.3.4.6 UserAccount

The User Account is the user name of the account for accessing data in the legacy database.

1.3.3.5 Date Time

Date Time is a string with an ISO-8601 format. The string is formatted as `"YYYY-MM-DDTHH:mm:ss.SSSZ"`. where YYYY is the year, MM is the month, DD is the Day, T is a fixed value for Time. HH is the hour in 24 hour time, mm is the minutes, ss.sss is the seconds and milliseconds, and Z is a fixed value for the zone designator to indicate zero offset from UTC.

1.3.3.6 Duration

The configuration uses ISO-8601 duration values formatted as a string. For example, a 1 second duration is represented as `"PT1S"`.

1.3.3.7 Enumeration

Enumeration values are string data types with limited values based upon the type of enumeration. When used within the processing configuration each enumeration value will have quotation marks surrounding the value; e.g `"DETECTION"`. The various available values for each enumeration type are listed below.

1.3.3.7.1 Amplitude Measurement Method

Valid values for AmplitudeMeasurementMethod are:

- MAX_PEAK_TO_THROUGH
- MAX_ZERO_TO_PEAK
- ROOT_MEAN_SQUARE

1.3.3.7.2 Amplitude Measurement Type

Valid values for AmplitudeMeasurementType are:

- AMPLITUDE_A5_OVER_2
- AMPLITUDE_ANL_OVER_2
- AMPLITUDE_ALR_OVER_2
- AMPLITUDE_A5_OVER_2_OR
- AMPLITUDE_ANP_OVER_2
- AMPLITUDE_FKSNR
- AMPLITUDE_LRM0
- AMPLITUDE_NOI_LRM0
- AMPLITUDE_RMSAMP
- AMPLITUDE_SBSNR

1.3.3.7.3 Analysis Mode

Valid values for AnalysisMode are:

- EVENT_REVIEW
- SCAN

1.3.3.7.4 Beam Summation

Valid values for the BeamSummation are:

- COHERENT
- INCOHERENT
- RMS

1.3.3.7.5 Beam Type

Valid value for BeamType are:

- AMPLITUDE
- CONTINUOUS_LOCATION
- DETECTION
- EVENT
- FK

1.3.3.7.6 Bender Uncertainty Type

Valid values for BenderUncertaintyType are:

- DISTANT_DEPENDENT
- SOURCE_DEPENDENT

1.3.3.7.7 Channel Band Type

Valid values for ChannelBandType are:

- UNKNOWN (-),
- ADMINISTRATIVE (A)
- BROADBAND (B)
- SAMPLE_RATE_250HZ_TO_LESS_1KHZ_CORNER_GREATER_EQUAL_10SEC (C)
- SAMPLE_RATE_250HZ_TO_LESS_1KHZ_CORNER_LESS_10SEC (D)
- EXTREMELY_SHORT_PERIOD (E)
- SAMPLE_RATE_1KHZ_TO_LESS_5KHZ_CORNER_GREATER_EQUAL_10SEC (F)
- SAMPLE_RATE_1KHZ_TO_LESS_5KHZ_CORNER_LESS_10SEC (G)
- HIGH_BROADBAND (H)
- LONG_PERIOD (L)
- MID_PERIOD (M)
- OPAQUE (O)
- PERIOD_ORDER_TENTH_TO_ONE_DAY (P)
- PERIOD_GREATER_TEN_DAYS (Q)
- EXTREMELY_LONG_PERIOD (R)
- SHORT_PERIOD (S)
- PERIOD_ORDER_ONE_TO_TEN_DAYS (T)
- ULTRA_LONG_PERIOD (U)
- VERY_LONG_PERIOD (V)

1.3.3.7.8 Channel Instrument Type

Valid values for ChannelInstrumentType are:

- UNKNOWN (-)
- TILT_METER (A)
- CREEP_METER (B)
- CALIBRATION_INPUT (C)
- PRESSURE (D)
- ELECTRONIC_TEST_POINT (E)
- MAGNETOMETER (F)
- GRAVIMETER (G)
- HIGH_GAIN_SEISMOMETER (H)
- HUMIDITY (I)
- ROTATIONAL_SENSOR (J)
- TEMPERATURE (K)
- LOW_GAIN_SEISMOMETER (L)
- MASS_POSITION_SEISMOMETER (M)
- ACCELEROMETER (N)
- WATER_CURRENT (O)
- GEOPHONE (P)
- ELECTRIC_POTENTIAL (Q)
- RAINFALL (R)
- LINEAR_STRAIN (S)
- TIDE (T)
- BOLOMETER (U)
- VOLUMETRIC_STRAIN (V)
- WIND (W)
- DERIVED (X)
- NON_SPECIFIC_INSTRUMENT (Y)
- SYNTHESIZED_BEAM (Z)

1.3.3.7.9 Channel Orientation Type

Valid values ChannelOrientationType are:

- UNKNOWN (-)
- CABINET_SOURCE_1 (1)
- CABINET_SOURCE_2 (2)
- CABINET_SOURCE_3 (3)
- CABINET_SOURCE_4 (4)
- CALIBRATION_A (A)
- CALIBRATION_B (B)
- CALIBRATION_C (C)
- CALIBRATION_D (D)
- COHERENT_BEAM
- DOWN_HOLE (D)
- EAST_WEST (E)
- FK_BEAM (F)
- HYDROPHONE (H)
- INCOHERENT_BEAM (I)
- INSIDE (I)
- NORTH_SOUTH (N)
- OPTIONAL_U (U)
- OPTIONAL_V (V)
- OPTIONAL_W (W)
- ORIGIN_BEAM (O)
- ORTHOGONAL_1 (1)
- ORTHOGONAL_2 (2)
- ORTHOGONAL_3 (3)
- OUTSIDE (O)
- RADIAL (R)
- TRANSVERSE (T)
- TRIAXIAL_A (A)
- TRIAXIAL_B (B)
- TRIAXIAL_C (C)
- UNDERGROUND (U)
- VERTICAL (Z)
- WIND_DIRECTION (D)
- WIND_SPEED (S)

1.3.3.7.10 Color Map

Valid values for ColorMap are:

- turbo
- viridis
- inferno
- magma
- plasma
- cividis
- cool
- warm
- cubehelixdefault
- jet

1.3.3.7.11 Correction Type

Valid values for CorrectionType are:

- BASEMODEL_PREDICTION
- BULK_STATIC_STATION_CORRECTION
- ELEVATION_CORRECTION
- ELLIPTICITY_CORRECTION
- SOURCE_DEPENDENT_CORRECTION

1.3.3.7.12 Depth Restraint Reason

Valid values for DepthRestraintReason are:

- FIXED_AT_DEPTH_FOUND_USING_DEPTH_PHASE_MEAUSREMENTS
- FIXED_AT_STANDARD_DEPTH_FOR_ECM
- FIXED_AT_SURFACE
- OTHER

1.3.3.7.13 Earth Model

Valid values for EarthModel are:

- AK135
- IASPEI
- pdu202009Du.geotess
- salsa3dv2.1

1.3.3.7.14 Ellipticity Correction Type

Valid values for EllipticityCorrectionType are:

- DZIEWONSKI_GILBERT

1.3.3.7.15 Feature Prediction Type

Valid values for FeaturePredictionType are:

- ARRIVAL_TIME
- SLOWNESS
- RECEIVER_TO_SOURCE_AZIMUTH
- SOURCE_TO_RECEIVER_AZIMUTH

1.3.3.7.16 Filter Pass Band Type

Valid values for FilterPassBandType are:

- LOW_PASS
- HIGH_PASS
- BAND_PASS
- BAND_STOP

1.3.3.7.17 Filter Type

Valid values for FilterType are:

- CASCADE
- LINEAR
- AUTOREGRESSIVE
- PHASE_MATCH

1.3.3.7.18 Filter Definition Usage

Valid values for FilterDefinitionUsage are:

- DETECTION
- FK
- ONSET
- AMPLITUDE

Lower case versions can also be used and “Detect” can be used instead of “DETECTION”.

1.3.3.7.19 FK Uncertainty Option

The valid values for FKUncertaintyOption are:

- EMPIRICAL
- EXPONENTIAL_SIGNAL_COHERENCE
- OBSERVED_SIGNAL_COHERENCE
- PERFECT_SIGNAL_COHERENCE

1.3.3.7.20 Interpolator Type

Valid values for InterpolatorType are:

- LINEAR
- NATURAL_NEIGHBOR

1.3.3.7.21 Liner Filter Type

Valid values for LinearFilterType are:

- FIR_HAMMING
- IIR_BUTTERWORTH
- LINEAR_OTHER

1.3.3.7.22 Phase Type

Valid values for PhaseType are:

- H
- IPx
- Is
- It
- Iw
- Ix
- L
- Lg
- LQ
- LR
- N
- nNL
- NP
- nP
- NP_1
- P
- P3KP
- P3KPbc
- P3KPdf
- P3KPdf_B
- P4KP
- P4KPbc
- P4KPdf
- P4KPdf_B
- P5KP
- P5KPbc
- P5KPbc_B
- P5KPdf
- P5KPdf_B
- P5KPdf_C

- P7KP
- P7KPbc
- P7KPbc_B
- P7KPbc_C
- P7KPdf
- P7KPdf_B
- P7KPdf_C
- P7KPdf_D
- Pb
- PcP
- PcS
- Pdiff
- Pg
- PKhKP
- PKiKP
- PKKP
- PKKPab
- PKKPbc
- PKKPdf
- PKKS
- PKKSab
- PKKSbc
- PKKSdf
- PKP
- PKP2
- PKP2ab
- PKP2bc
- PKP2df
- PKP3
- PKP3ab
- PKP3bc
- PKP3df
- PKP3df_B
- PKPab
- PKPbc
- PKPdf
- PKPPKP
- PKS
- PKSab
- PKSbc
- PKSdf
- PmP

- Pn
- PnPn
- pP
- PP
- PP_1
- PP_B
- pPdiff
- pPKiKP
- pPKP
- pPKPab
- pPKPbc
- pPKPdf
- PPP
- PPP_B
- PPS
- PPS_B
- pS
- PS
- PS_1
- pSdiff
- pSKS
- pSKSac
- pSKSdf
- Px
- Rg
- S
- Sb
- ScP
- ScS
- Sdiff
- Sg
- SKiKP
- SKKP
- SKKPab
- SKKPbc
- SKKPdf
- SKKS
- SKKSac
- SKKSac_B
- SKKSdf
- SKP
- SKPab

- SKPbc
- SKPdf
- SKS
- SKS2
- SKS2ac
- SKS2df
- SKSac
- SKSdf
- SKSSKS
- Sn
- SnSn
- sP
- SP
- SP_1
- sPdiff
- sPKiKP
- sPKP
- sPKPab
- sPKPbc
- sPKPdf
- sS
- SS
- SS_B
- sSdiff
- sSKS
- sSKSac
- sSKSdf
- SSS
- SSS_B
- Sx
- T
- Tx
- Tx

1.3.3.7.23 Predictor

Valid values for Predictor are:

- bender
- lookup2d
- rstt

1.3.3.7.24 Processing Operation

Vaid values for ProcessingOperation are:

- AMPLITUDE_MEASUREMENT_BEAM
- DISPLAY_FILTER
- EVENT_BEAM
- FK_BEAM
- FK_SPECTRA
- ROTATION
- SIGNAL_DETECTION_BEAM
- SPECTROGRAM
- VIRTUAL_BEAM

1.3.3.7.25 Qc Segment Category

Valid values for QcSegmentCategory:

- ANALYST_DEFINED
- DATA_AUTHENTICATION
- LONG_TERM
- STATION_SOH
- UNPROCESSED
- WAVEFORM

1.3.3.7.26 Qc Segment Type

Valid values for QcSegmentType:

- AGGREGATE
- CALIBRATION
- FLAT
- GAP
- NOISY
- SENSOR_PROBLEM
- SPIKE
- STATION_PROBLEM
- STATION_SECURITY
- TIMING

1.3.3.7.27 Restraint Type

Valid values for RestraintType are:

- UNRESTRAINED
- FIXED

1.3.3.7.28 RSTT TT Uncertainty Type

Valid values for RSTTTTUncertaintyType are:

- DISTANCE_DEPENDENT
- PATH_DEPENDENT

1.3.3.7.29 Scaling Factor Type

Valid values for ScalingFactorType are:

- CONFIDENCE
- COVERAGE
- K_WEIGHTED

1.3.3.7.30 Sampling Type

The valid values for SamplingType are:

- NEAREST_SAMPLE
- INTERPOLATED

1.3.3.7.31 Sampling Scale Type

The valid values for SamplingScaleType are:

- LINEAR
- LOG

1.3.3.7.32 Slbm Uncertainty Type

Valid value for slbmUncertaintyType are:

(SLBM_PATH_DEPENDENT | SLBM_DISTANCE_DEPENDENT | SLBM_HIERARCHICAL_PATH_DEPENDENT | SLBM_HIERARCHICAL_DISTANCE_DEPENDENT

1.3.3.7.33 Stage Mode

Valid values for StageMode are:

- INTERACTIVE
- AUTOMATIC

1.3.3.7.34 Taper Function

Valid values for the TaperFunction are:

- BLACKMAN
- COSINE
- HAMMING
- HANNING
- PARZEN
- WELCH

1.3.3.7.35 Time Units

Valid values for TimeUnits are:

- MILLIS
- SECONDS

1.3.3.7.36 User Interface Mode

Valid values for UserInterfaceMode are:

- IAN

1.3.3.7.37 Waveform Mode

Valid values for WaveformMode are:

- individual
- overlay

1.3.3.8 File Path

Path and file name

1.3.3.9 Integer

Integers are numeric values limited to whole numbers. Unless otherwise specified integers must be greater than or equal to 0.

1.3.3.10 Java Object

Name of the JAVA Object. Used only within System Configuration.

1.3.3.11 Keyboard Shortcut

Keyboard Shortcut is a string that represents a keyboard shortcut. Keyboard shortcut can be either a single character (i.e. `"e"`) or one or more modifiers plus a single character (i.e. `"alt+e"` or `"shift+alt+e"`). Valid modifiers are:

- alt
- backspace
- ctrl
- cmd
- del
- down
- esc
- left
- minus
- meta
- mod
- plus
- return
- right
- shift
- space
- up
- win

1.3.3.12 Layout

Layout is a UI Layout value that defines how the analyst workspace is laid out. It defines which tabs are open and where each tab is located. The layout is formatted as a string but is not human readable. A new layout can be saved to GMS and then read out of the database and input into the configuration.

1.3.3.13 Named Value

Named Values are string values in which the same value is used in multiple different places throughout the configuration. They can be configured to be any string but must be consistent through-out the configuration. Special characters are not allowed in Named Value strings.

1.3.3.13.1 Activity

Named Value (Activity) is the list of activities defined as part of the workflow. The list of activities is defined in the name of the activities structure within the workflow-manager.stage-definition configuration.

1.3.3.13.2 Filter

Named Value (Filter) will refer to a Filter name; this can be either of a cascade filter or linear filter.

1.3.3.13.2.1 Cascade Filter

Named Value (CascadeFilter) will refer to the name of a cascade filter. The set of cascade filter names is defined by the name constraint of the global.filter-cascade configuration.

1.3.3.13.2.2 Linear Filter

Named Value (LinearFilter) will refer to the name of a linear filter. The set of linear filter names is defined by the name constraint of the global.filter-description configuration.

1.3.3.13.3 Filter List

The name of the filter lists which are available on the Filter Display are configurable. Each Filter List is defined in its own global.filter-list configuration. The configuration for global.filter-list-configuration must have the filter list named value listed under the name selector and name parameter. Typically, the filter list named value will also be the name of the file. Additionally, the filter list named value must also be listed in the global.filter-list-definition which then references the global.filter-list configuration.

1.3.3.13.4 Shortcut Category

Shortcut Categories are categories that appear on the Shortcut menu display. The Shortcut Category datatype is used as part of the Shortcut Structure which is used as part of the ui.analyst-settings configuration. Any string used as will create a new category. Each shortcut will be listed under the categories for which they exist.

1.3.3.13.5 Stage

Named Value (Stage) is the list of stages defined as part of the workflow. The list of stages is defined by the list of name contains defined in work-manager.stage-definition.

1.3.3.13.6 Theme

The named value for Theme is defined as the name of a uiTheme structure within the ui.analyst-settings configuration. One of the Theme named values is given in the currentTheme of the preferences in the user-preference configuration.

1.3.3.13.7 Workspace Layout

The named value for WorkspaceLayout is defined and used only within the user-preferences file. Each workspace is given a name which is defined under the name parameter of one of the workspaceLayouts structure. The defaultAnalystLayoutName identifies one of these workspace layout named values.

1.3.3.14 Numeric

Numeric values are integer or decimal values. Unless otherwise stated they can be positive or negative. They are not represented as strings. For example: -1.1. Most numeric values will specify the units as well. When the units are specified it dictates the allowable range as shown below.

1.3.3.14.1 deg

Numeric values which are degrees (deg) must be greater than or equal to 0 and less than or equal to 360.

1.3.3.14.2 hz

Numeric values which are hertz (hz) must be greater than or equal to 0.

1.3.3.14.3 km

Numeric value which are kilometers (km) must be greater than or equal to 0.

1.3.3.14.4 km/sec

Numeric values which are kilometers per second (km/sec) must be greater than 0.

1.3.3.14.5 %

Numeric values which are percent (%) must be greater than or equal to 0 and less than or equal to 1.

1.3.3.14.6 sec

Numeric values which are in seconds (sec) must be greater than 0.

1.3.3.14.7 sec/deg

Numeric values which are in seconds per degree (sec/deg) must be greater than or equal to 0.

1.3.3.14.8 sec/km

Numeric value which are in seconds per kilometer (sec/km) must be greater than or equal to 0.

1.3.3.15 Path

Path is a string giving the path within a file storage structure.

1.3.3.16 Plugin

Plugin are additions to GMS which utilize the GMS API to provide functionality such as feature prediction.

1.3.3.16.1 Correction Model

Currently the valid value for the CorrectionModel Plug-in are:

- dziewonskiGilbertLookupTable

1.3.3.16.2 Dziewonski Gilbert

Currently the valid values for Dziewonski Gilbert plugin are:

- dziewonski-gilbert

1.3.3.16.3 Ellipticity Corrector

Currently the valid values for EllipticityCorrector plugin are:

- dziewonskiGilbertEllipticityCorrector

1.3.3.16.4 Event Relocator

Currently the valid values for Event Relocator plugin are:

- LocOo3dEventRelocator

1.3.3.16.5 Feature Predictor

Currently the valid values for Feature Predictor plugin are:

- bicubicSplineFeaturePredictor

1.3.3.16.6 FK

Currently valid values for FK plugin are:

- caponFkSpectraPlugin

1.3.3.16.7 Medium Velocity Earth Model

Currently the valid values for the MediumVelocityEarthModel plugin are:

- ak135GlobalMediumVelocity

1.3.3.16.8 Travel Time

Currently the valid values for TravelTime plug-in are:

- ak135TravelTimeLookupTable
- iaspeiTravelTimeLookupTable

1.3.3.17 Reference

The reference datatype will be a reference to another configuration. The configuration type specified will be noted with a $ref={referenced config}. Then the criterion and value of the referenced data will be included.

The Reference Structure is defined as follows:

Reference Structure		
parameter	**type**	**description**
criterion	String	Criterion (also known as selector) used to reference another configuration. Criterion should match one of the selectors in the referenced configuration or be `"DEFAULT"`.
value	String	Value that the criterion needs to be when referencing another selector. When criterion `"DEFAULT"` is then value is also `"DEFAULT"`.

1.3.3.18 Service

Name of a service. Used only within the system configuration.

1.3.3.19 String

String values are enclosed in quotes (`" "`). String values are unconstrained unless otherwise stated.

1.3.3.20 Structure

A structure is a set of other parameters. Each structure starts and ends with braces (`{ }`) and has one or more other parameters defined underneath it. Each structure will be defined later in the document. Typically, each structure will be defined by the name of the parameter in which the structure is used. However, in some cases the same structure is used by multiple parameters in which case it will be defined by a specific name (eg. Shortcut structure).

1.3.3.20.1 Entity Reference

An Entity Reference is a structure which lists the name of an entity. Because they are used in multiple places in the document that are listed here.

1.3.3.20.1.1 Activity

Entity Reference (Activity) Structure parameters		
parameter	**type**	**description**
name	Named Value (Activity)	Name of the workflow activity.

1.3.3.20.1.2 Stage

Entity Reference (Stage) Structure parameters			
	parameter	**type**	**description**
	name	Named Value (Stage)	Name of the workflow stage.

1.3.3.20.1.3 StationGroup

Entity Reference (StationGroup) Structure parameters			
	parameter	**type**	**description**
	name	Database Value (StationGroup)	Name of a Station Group.

1.3.3.21 URL

URL used in system configuration.

1.3.4 Data Type Modifiers

1.3.4.1 Array

An array is a list of any other data type. Each array will include the data type of the Array (i.e. Enumeration Array). Each array will start and end with brackets (`[]`). Elements within the array are separated by a comma.

1.3.4.2 Optional

Optional is a modifier used to indicate that the parameter is not required. When not used neither the parameter name nor value will be included. Note that within certain structures all parameters are optional (e.g. the colors structure in the ui.analyst-settings); in this case a not may be made at the top of the structure instead of including the Optional text in each Data Type.

2 GMS SYSTEM CONFIGURATION

2.1.1 GMS System Configuration Properties

GMS includes a system framework based on etcd to distribute system-level parameters such as network hosts and ports, usernames, and timeouts. Unlike processing configuration strings within the system configuration do not contain quotes around them.

System parameters are used by five services:

- OSD Services (including postgres and cassandra database parameters)
- Kafka Service
- Processing Configuration Service
- Interactive Analysis Config Service
- Processing Services

System parameters are stored in the GMS release:

/config/system/gms-system-configuration.properties

# Values Common to All GMS Controls		
port	Integer	Port number
idle-timeout	Duration	Idle-timeout duration
min-threads	Integer	Minimum number of threads allocated
max-threads	Integer	Maximum number of threads allocated

# Default DB Connection Info		
sql_url	URL	URL to connect to the PostgreSQL database
sql_user	Database Value (UserAccount)	Username to connect to the PostgreSQL database
sql_elev_user	Database Value (UserAccount)	Username to connect to the PostgreSQL database
c3p0_connection_pool_size	Integer	Number for the connection pool size

# Default backoff retry policy		
retry_max_attempts	Integer	Maximum retry attempts
retry_min_backoff	Integer	Minimum backoff retry attempts
retry_max_backoff	Integer	Maximum backoff retry attempts
retry_backoff_units	Enumeration (TimeUnits)	Units of the backoff retry

# Default Retry for processing Config		
processing-retry-initial-delay	Integer	Retry of the initial delay processing
processing-retry-max-delay	Integer	Retry of maximum delay processing
processing-retry-delay-units	Enumeration (TimeUnits)	Units of the delay processing
processing-retry-max-attempts	Integer	Maximum number of retry attempts processing

# Values common to all GMS Services		
experimental-enabled	Boolean	
osd.host	Service	OSD repository service name
osd.c3p0_connection_pool_size	Integer	Number for the connection pool size
preloader.c3p0_connection_pool_size	Integer	Positive Integer for the connection pool size

# Global ignite properties		
ignite-failure-detection-timeout	Integer	Number for the timeout of the basic network operations
ignite-instance-name	Service	Text string of the ignite instance name
ignite-kubernetes-ipfinder	Boolean	Boolean value defaulted to true

# Global kafka properties for producers/consumers		
kafka-bootstrap-servers	String (Server)	Different bootstrap servers (separated by commas)
kafka-key-serializer	Java Object	Provides the full qualified Java object name used to write the key part of the kafka message into a provided kafka topic
kafka-value-serializer	Java Object	Provides the full qualified Java object name used to write the value part of the kafka message into a provided kafka topic
kafka-key-deserializer	Java Object	Provides the full qualified Java object name used to read the key part of the kafka message from a provided kafka topic
kafka-value-deserializer	Java Object)	Provides the full qualified Java object name used to read the value part of the kafka message from a provided kafka topic

# Session timeout for consumers (default to 10s measured in ms)		
kafka-consumer-session-timeout	Integer	Kafka consumer session time in milliseconds

# Heartbeat interval measured milliseconds		
kafka-consumer-heartbeat-interval	Integer	Kafka consumer heartbeat interval time in milliseconds
reactor-kafka-key-serializer	Java Object	Reactor kafka key serializer path
reactor-kafka-value-serializer	Java Object	Reactor kafka value serializer

# Reactor shared settings		
reactor-backpressure-buffer	Integer	

# Reactor kafka shared settings		
reactor-kafka-request-timeout	Integer	Max amount of time the client will wait

# Reactor kafka consumer settings		
reactor-kafka-consumer-session-timeout	Integer	Reactor kafka consumer session time in milliseconds
reactor-kafka-consumer-max-poll-interval	Integer	Reactor kafka consumer max poll interval time in milliseconds
reactor-kafka-consumer-max-poll-records	Integer	Reactor kafka consumer max number of poll records
reactor-kafka-auto-commit	Boolean	
reactor-kafka-auto-commit-interval	Integer	Reactor kafka auto-commit interval
reactor-kafka-consumer-heartbeat-interval	Integer	Reactor kafka consumer heartbeat interval time in milliseconds

# Reactor kafka sender settings		
reactor-kafka-sender-acks	String	Reactor kafka sender acks
reactor-kafka-sender-delivery-timeout	Integer	Reactor kafka sender delivery timeout time in milliseconds

# Kafka properties		
verification-attempts	Integer	Number of verification attempts
streams-close-timeout-ms	Integer	Time in milliseconds
connection-retry-count	Integer	Connection retry counts
retry-backoff-ms	Integer	Time in milliseconds for retry backoff

# Config for Configuration Consumers		
config-cache-expiration	Duration	Configuration cache expiration duration
config-cache-max-entries	Integer	

# Config for mapping DB Accounts to URLs		
soccpro_jdbc_url	URL	URL to connect to the soccpro database
al1_jdbc_url	URL	URL to connect to the AL1 database
al2_jdbc_url	URL	URL to connect to the AL2 database

# Config for HTTP Service Client Retry Policies		
service-client-send-retry-initial-delay	Integer	Retry of the initial delay for service client send
service-client-send-retry-max-delay	Integer	Retry of the maximum delay for service client send
service-client-send-retry-delay-units	Enumeration (TimeUnits)	Sets the units of the service client send retry
service-client-send-retry-max-attempts	Integer	Retry of the maximum attempts for service client send
service-client-upgrade-retry-initial-delay	Integer	Retry of the initial delay for service client upgrade
service-client-upgrade-retry-max-delay	Integer	Retry of the maximum delay for service client upgrade
service-client-upgrade-retry-delay-units	Enumeration (TimeUnits)	Units of the service client upgrade retry
service-client-upgrade-retry-max-attempts	Integer	Retry of the maximum attempts for service client upgrade

# Config for Signal Enhancement Configuration Client Retry Policies		
sec-client-max-retry-attempts	Integer	
sec-client-min-backoff-duration	Duration	

# Config Loader		
config-loader.host	Service	Config loader service
config-loader.port	Integer	Config loader port
config-loader.statusEndpoint	Path	URL to connect to the PostgreSQL database

# File Store		
file-store.configLoaderStatusCheckRetryIntervalMillis	Integer	File store

Config for waveform QC Control

#Config for beam control

# Config for event-location-control-service		
event-location-control.host	Service	Event location service

# Config for signal-detection-association-control-service		
signal-detection-association-control.processing-configuration-root	Path	Location of configuration-base

# Config for ui processing configuration service		
ui-processing-configuration-service.processing-configuration-root	Path	Default address of processing configuration for UI processing configuration service

# Config for Event Magnitude Control		
event-magnitude-control.processing-configuration-root	Path	Default address of processing configuration for Event Magnitude Control

# Config for Amplitude Control		
amplitude-control.processing-configuration-root	Path	Default address of processing configuration for Amplitude Control

# Config for filter control		
filter-control.processing-configuration-root	Path	Default address of filter control processing configuration service
filter-control.max-threads	Integer	Maximum number of filter control threads that will be allocated

# Config for fk control		
fk-control.processing-configuration-root	Path	Default address of fk control processing configuration service

# Config for signal-detector-control		
signal-detector-control.processing-configuration-root	Path	Default address of signal detector control processing configuration service
client-timeout	Duration	Client timeout duration

# Config for Processing Configuration Service		
processing-cfg.processing-configuration-root	Path	Location of the configuration-base
processing-cfg.host	Service	Processing configuration service
processing-cfg.sql_url	URL	Default address of processing configuration sequel service
processing-cfg.sql_user	Database Value (UserAccount)	SQL user for processing the configuration
processing-cfg.c3p0_connection_pool_size	Integer	Positive integer of processing the configuration c3p0 connection pool size

# Config for User Manager		
user-manager.host	Service	User manger service
user-manager.sql_url	URL	Default address of user manager sequel service
user-manager.sql_user	Database Value (UserAccount)	User manager sequel user
user-manager.c3p0_connection_pool_size	Integer	Positive integer of the user manager c3p0 connection pool size
user-manager.schema	Database Value (Schema)	User manager schema

# Config for signal detection bridge		
signal-detection.host	Service	Signal detection service
signal-detection.retry-initial-delay	Integer	Initial retry counts
signal-detection.retry-delay-units	Enumeration (TimeUnits)	Sets the units of the signal detection retry delay
signal-detection.retry-max-attempts	Integer	Max retry attempts
signal-detection.retry-max-delay	Integer	Max delays before timeout

#Config for signal enhancement configuration service		
signal-enhancement-configuration.host	Service	
signal-enhancement-configuration.retry-initial-delay	Integer	
signal-enhancement-configuration.retry-delay-units	Enumeration (TimeUnits)	
signal-enhancement-configuration.retry-max-attempts	Integer	
signal-enhancement-configuration.retry-max-delay	Integer	

# Config for Processing Station		
station-definition.host	Service	Station definition service
station-definition.retry-initial-delay	Integer	Initial retry counts
station-definition.retry-delay-units	Enumeration (TimeUnits)	Units of the signal detection retry delay
station-definition.retry-max-attempts	Integer	Max retry attempts
station-definition.retry-max-delay	Integer	Max delays before timeout

# Config for Processing Waveforms		
waveform-manager.host	Service	Waveform manger service
waveform-manager.retry-initial-delay	Integer	Initial retry counts
waveform-manager.retry-delay-units	Enumeration (TimeUnits)	Units of the signal detection retry delay
waveform-manager.retry-max-attempts	Integer	Max retry attempts
waveform-manager.retry-max-delay	Integer	Max delays before timeout

# Config for Processing QcMasks in Waveform		
qc-mask.jdbc_url	URL	

# Config for Processing Events		
event-manager.host	Service	Event manager service
event-manager.retry-initial-delay	Integer	Initial retry counts
event-manager.retry-delay-units	Enumeration (TimeUnits)	Units of the signal detection retry delay
event-manager.retry-max-attempts	Integer	Max retry attempts
event-manager.retry-max-delay	Integer	Max delays before timeout

# Config for Processing Workflow		
workflow-manager.kafka-bootstrap-servers	String	Different kafka bootstrap servers (separated by commas)
workflow-manager.host	Service	Workflow manger service
workflow-manager.retry-initial-delay	Integer	Initial retry counts
workflow-manager.retry-delay-units	Enumeration (TimeUnits)	Units of the signal detection retry delay
workflow-manager.retry-max-attempts	Integer	Max retry attempts

# Config for Bridge Simulator individual account configs		
bridged-data-source-simulator.seed.jdbc_url	URL	Default address of bridged data source simulator seed service
bridged-data-source-simulator.simulation.jdbc_url	URL	Default address of bridged data source simulator simulation service
bridged-data-source-simulator.sim-detpro.jdbc_url	URL	Default address of bridged data source simulator sim detpro service
bridged-data-source-simulator.seed-detpro.jdbc_url	URL	Default address of bridged data source simulator seed detpro service
bridged-data-source-simulator.sim-soccpro.jdbc_url	URL	Default address of bridged data source simulator sim soccpro service
bridged-data-source-simulator.seed-soccpro.jdbc_url	URL	Default address of bridged data source simulator seed soccpro service
bridged-data-source-simulator.sim-al1.jdbc_url	URL	Default address of bridged data source simulator sim-al1 jdbc service
bridged-data-source-simulator.seed-al1.jdbc_url	URL	Default address of bridged data source simulator seed-al1 jdbc service
bridged-data-source-simulator.sim-al2.jdbc_url	URL	Default address of bridged data source simulator sim-al2 jdbc service
bridged-data-source-simulator.seed-al2.jdbc_url	URL	Default address of bridged data source simulator seed-al2 jdbc service

# Config for all travelTimeLookupTables, part of feature prediction service		
feature-prediction.minio-bucket-name	Service	Feature prediction minio buck name
feature-prediction.minio-url	URL	Default address of the feature prediction minio service

#config for waveform-bridge-repository		
bridgedWaveformRespository.useCannedProcessingMasks	Boolean	

3 INTERACTIVE ANALYSIS PROCESSING CONFIG

3.1 ak135-travel-time-lookup-table

The ak135-travel-time-lookup-table configuration provides a path to the lookup table for ak135 travel time.

config/processing/ak135-travel-time-lookup-table/default.json

ak135-travel-time-lookup-table Configuration Option					
	name	ak135-travel-time-lookup-table			
	criterion	**type**	**operator**	**priority**	**description**
	DEFAULT	—	—	—	Defines the constraint as default

ak135-travel-time-lookup-table parameters			
	parameter	**type**	**description**
	minio_key_prefix	Path	Path to the ak135 travel time lookup table within the file storage service.

3.2 bicubic-spline-feature-predictor

A configuration option for the bicubic-spline-feature-predictor

config/processing/bicubic-spline-feature-predictor/default.json

bicubic-spline-feature-predictor Configuration Option					
	name	bicubic-spline-feature-predictor			
	criterion	**type**	**operator**	**priority**	**description**
	DEFAULT	—	—	—	Defines the constraint as default

bicubic-spline-feature-predictor Configuration parameters			
	parameter	**type**	**description**
	extrapolate	Boolean	Determines whether BicubicSplineFeaturePredictor will extrapolate the available earth model data when calculations require earth model values undefined by the model.
	ellipticityCorrectorPluginNameByCorrectionType	Structure	Name of the Ellipticity Corrector Plugin that Bicubic Spline Feature Predictor will use to calculate ellipticity corrections of each Ellipticity Correction Type.
	travelTimeLookupTableByEarthModel	Structure	Maps basemodel earth model names to the names of the Travel Time Depth Distance Lookup Table Plugins that Bicubic Spline Feature Predictor will use to lookup each basemodel's values.

3.2.1 ellipticityCorrectorPluginNameByCorrectionType Structure

The structure for ellipticityCorrectorPluginNameByCorrectionType is as follows:

ellipticityCorrectorPluginNameByCorrectionType Structure			
	parameter	**type**	**description**
	DZIEWONSKI_GILBERT	Plugin (EllipticityCorrector)	Name of the Ellipticity Corrector Plugin that Bicubic Spline Feature Predictor will use to calculate ellipticity corrections for the Dziewonski Gilbert Ellipticity Correction Type.

3.2.2 travelTimeLookupTableByEarthModel Structure

The structure for travelTimeLookupTableByEarthModel is as follows:

travelTimeLookupTableByEarthModel Structure			
	parameter	**type**	**description**
	Ak135	Plugin (TravelTime)	Plugin for the travel time lookup table for Ak135
	Iaspei	Plugin (TravelTime)	Plugin for the travel time lookup table for Iaspei

3.3 event-manager.predict-features-for-location-definition

A configuration option for the Predict features for location definition

config/processing/event-manager.predict-features-for-location-definition/default.json

event-manager.predict-features-for-location-definition Configuration Option					
	name	predict-features-for-location-definition			
	criterion	**type**	**operator**	**priority**	**description**
	DEFAULT	—	—	—	Defines the constraint as default

event-manager.predict-features-for-location-definition parameters			
	parameter	**type**	**description**
	featurePredictionsDefinition	Structure	Provides the details

3.3.1 featurePredictionsDefinition Structure

The structure for featurePredictionsDefinition is defined as follows:

featurePredictionsDefinition Structure			
	parameter	**type**	**description**
	earthModel	Enumeration (EarthModel)	The name of the basemodel earth model the EventManager will request the FeaturePredictorService use to calculate each FeaturePrediction.
	predictionTypes	Enumeration (FeaturePredictionType) Array	The types of FeaturePredictions the EventManager will request the FeaturePredictorService to calculate.
	correctionDefinitions	Structure Array	The corrections to basemodel predictions the EventManager will request the FeaturePredictorService apply to each FeaturePrediction.

3.3.1.1 correctionDefinitions Structure

The structure for correctionDefinitions is defined as follows:

correctionDefinitions Structure			
	parameter	**type**	**description**
	mediumVelocityEarthModel	Enumeration (EarthModel) (Optional)	Earth model to apply for the CorrectionType.
	ellipticityCorrectionType	Enumeration (EllipticityCorrectionType) (Optional)	EllipticityCorrectionType to apply for the CorrectionType.
	correctionType	Enumeration (CorrectionType)	Correction type to apply the earth model and EllipticityCorrectionType to.

3.4 event-manager.predictions-for-location-solution-definition

A configuration option for the Predict features using default definition

config/processing/event-manager.predictions-for-location-solution-definition/default.json

event-manager.predictions-for-location-solution-definition Configuration Option					
	name	predictions-for-location-solution-definition			
	criterion	**type**	**operator**	**priority**	**description**
	DEFAULT	—	—	—	Defines the constraint as default

event-manager.predictions-for-location-solution-definition parameters			
	parameter	**type**	**description**
	earthModel	Enumeration (EarthModel)	Defines the earth model
	predictionTypes	Enumeration (FeaturePredictionType) Array	Enumeration array to describe prediction types
	correctionDefinitions	Enumeration (CorrectionType) Array	Correction Type

3.5 event-relocation-service.event-relocation-defining-feature-measurement

config/processing/event-relocation-service.event-relocation.defining-feature-measurement/default.json

event-relocation-service.event-relocation-defining-feature-measurement Configuration Option					
	name	default			
	criterion	**type**	**operator**	**priority**	**description**
	DEFAULT	—	—	—	Defines the constraint as default

config/processing/event-relocation-service.event-relocation.defining-feature-measurement/default-{feature-measurement-type}.json

event-relocation-service.event-relocation-defining-feature-measurement Configuration Option					
	name	default			
	criterion	**type**	**operator**	**priority**	**description**
	phaseType	Enumeration (PhaseType)	EQ	—	Defines the phase type to which this applies

config/processing/event-relocation-service.event-relocation.defining-feature-measurement/{station}-station-{feature-measurement-type}.json

event-relocation-service.event-relocation-defining-feature-measurement Configuration Option					
	name	default			
	criterion	**type**	**operator**	**priority**	**description**
	station	Database Value (Station)	EQ	—	Defines station to which this applies
	channel	Database Value (Channel)	IN	—	Defines channels to which this applies
	phaseType	Enumeration (PhaseType)	EQ	—	Defines the phase type to which this applies

event-relocation-service.event-relocation-defining-feature-measurement parameters			
	parameter	**type**	**description**
	definingFeatureByFeatureMeasurementType	Structure	Location defining information per FeatureMeasurementType.

3.5.1 definingFeatureByFeatureMeasurementType Structure

definingFeatureByFeatureMeasurementType Structure parameters			
	parameter	**type**	**description**
	{FeatureMeasurementType}	Structure	The name of the structure is one of the values from the FeatureMeasurementType enumeration.

3.5.2 {FeatureMeasurementType} Structure

The structure for {FeatureMeasurementType} is defined as follows:

{FeatureMeasurementType} Structure parameters			
	parameter	**type**	**description**
	analystOverridable	Boolean	Indicates if the Analyst can change the *defining* attribute's value.
	defining	Boolean	Indicates if the corresponding **FeatureMeasurement** is defining for a calculation (e.g. relocation)
	systemOverrideable	Boolean	Indicates if auto-processing can change the *defining* attribute's value.

3.6 event-relocation-service.event-relocation-earthmodels-for-predictors

config/processing/event-relocation-service.event-relocation-earthmodels-for-predictors/{predictor}.json

event-relocation-service.event-relocation-earthmodels-for-predictors Configuration Option					
	name	{predictor}			
	criterion	**type**	**operator**	**priority**	**description**
	predictor	Enumeration (Predictor)	EQ	—	Defines the predictor for which the earthModel is used

event-relocation-service.event-relocation-earthmodels-for-predictors parameters			
	parameter	**type**	**description**
	earthModel	Enumeration (EarthModel)	Earth model which is used for the predictor in the criterion.

3.7 event-relocation-service.event-relocation-predictors-for-phases

config/processing/event-relocation-service.event-relocation-predictors-for-phases/default.json

event-relocation-service.event-relocation-predictors-for-phases Configuration Option					
	name	default			
	criterion	**type**	**operator**	**priority**	**description**
	DEFAULT	—	—	—	Defines the constraint as default

config/processing/event-relocation-service.event-relocation-predictors-for-phases/{phase(s)}.json

event-relocation-service.event-relocation-predictors-for-phases Configuration Option					
	name	default			
	criterion	**type**	**operator**	**priority**	**description**
	phaseType	Enumeration (PhaseType)	IN	—	Defines the phase(s) to which configuration applies.

event-relocation-service.event-relocation-predictors-for-phases parameters			
	parameter	**type**	**description**
	predictor	Enumeration (Predictor)	Predictor to use

3.8 event-relocation-service.event-relocation-processing-definition

config/processing/event-relocation-service.event-relocation-processing-definition/default.json

event-repository-bridged.database-accounts-by-stage Configuration Option					
	name	event-repository-bridged-database-accounts-by-stage			
	criterion	**type**	**operator**	**priority**	**description**
	DEFAULT	—	—	—	Defines the constraint as default

event-repository-bridged.database-accounts-by-stage parameters			
	parameter	**type**	**description**
	residualDefinition	Structure	Parameters that define residual allowance
	locationUncertaintyDefinitions	Structure Array	Contains an entry for each of the Ellipse or Ellipsoid the will compute for each LocationSolution it creates.
	locationRestraints	Structure Array	Contains entries for each of the restrained location solutions the EventRelocatorPlugin will compute. The first LocationRestraint in this list may be used to select the output preferredLocationSolution for a relocated EventHypothesis.
	eventRelocator	Plugin (Event Relocator)	The name of an EventRelocatorPlugin implementation.
	defaultPredictorDefinition	Predictor Definition Structure	The default FeaturePredictorPlugin and earth model plugin the EventRelocatorPlugin implementation will use to predict signal features.
	eventRelocationPredictorDefinitions	Predictor Definition Structure Array	The earth model that will be used by each FeaturePredictorPlugin.

3.8.1 Predictor Definition Structure

The Predictor Definition Structure is defined as follows:

Structure parameters			
	parameter	**type**	**description**
	predictor	Enumeration (Predictor)	Identifier for the earth model plugin the EventRelocatorPlugin will use to predict signal features (e.g. ak135, iasp91 etc.; see Feature Predictor Service for the available earth model plugins).
	earthModel	Enumeration (Earth Model)	Identifier of the FeaturePredictorPlugin the EventRelocatorPlugin will use to predict signal features (e.g. lookup2d, bender, etc.; see Feature Predictor Service for the available FeaturePredictorPlugin implementations).

3.8.2 residualDefinition Structure

The residualDefinition structure is defined as follows:

residualDefinition Structure parameters		
parameter	**type**	**description**
allowBigResidual	Boolean	Whether the EventRelocatorPlugin implementation can relocate using defining FeatureMeasurement objects with big residual values.
maxFraction	Numeric (%)	A constraint on the maximum fraction of non-defining FeatureMeasurement objects.
bigResidualThreshold	Numeric (Optional)	Threshold weighted residual value above which the EventRelocatorPlugin implementation flags a FeatureMeasurement as having a big residual. Value greater than or equal to 0.0 and less than or equal to 100000.00. Populated when allowBigResidual is set to true.

3.8.3 locationUncertainityDefinitions Structure

The locationUncertainityDefinitions structure is defined as follows:

locationUncertainityDefinitions Structure parameters		
parameter	**type**	**description**
aprioriStandardError	Numeric	The apriori standard error scale factor. Represents an estimate of the ratio between the true and actual data standard errors. Value greater than or equal to 0.0 and less than or equal to 1000.0.
ellipsoid	Boolean	Indicates if an ellisoid or ellipse is to be calculated
kWeight	Numeric	Indicates how the Ellipse will be computed as a weighted combination of a priori and a posteriori scaling factors; this value is 0.0 when the scalingFactoryType is CONFIDENCE (a posteriori information is used in the scaling factors); this value is infinity when the scalingFactorType is COVERAGE (a priori information is used in the scaling factors); this value is between 0.0 and infinity when scalingFactoryType is K_WEIGHTED.
confidenceLevel	Numeric (%)	A confidence level used to scale the Ellipse.
scalingFactorType	Enumeration (ScalingFactorType)	Enum specifying the scaling factor type (confidence, coverage, k_weight}.

3.8.4 locationRestraints Structure

The locationRestraints structure is defined as follows:

locationRestraints Structure parameters		
parameter	**type**	**description**
depthRestraintType	Enumeration (RestraintType)	Describes how this LocationSolution's depthKm was restrained.
depthRestraintReason	Enumeration (DepthRestraintReason) (Optional)	Describes why this LocationSolution's depthKm was restrained. This value is not populated when depthRestraintType is UNRESTRAINED.
depthRestraintKm	Numeric (km) (Optional)	When populated, this is the value of a depth restrained LocationSolution's depthKm. A positive value is deeper. This value is never populated when depthRestraintType is UNRESTRAINED. This value is optionally populated when depthRestraintType is FIXED. It should be populated whenever the restrained depth is known and unambiguous. For example, if DepthRestraintReason is FIXED_AT_SURFACE but the surface depth will be determined by topography/bathymetry, then the surface depth may be unknown when a LocationRestraint is created, so this attribute would be left unpopulated.
positionRestraintType	Enumeration (RestraintType)	Describes how this LocationSolution's latitudeDegrees and longitudeDegrees were restrained.
timeRestraintType	Enumeration (RestraintType)	Describes how this LocationSolution's time was restrained.

3.9 event-relocation-service.locoo_3d_setttings-for-locoo_3d

The event-relocation-service.locoo_3d-settings-for-locoo_3d configuration provides parameters for LocOo 3d.

config/processing/event-relocation-service.locoo_3d_setttings-for-locoo_3d/default.json

event-relocation-service.locoo_3d_setttings-for-locoo_3d Configuration Option				
name	loco-3d-settings			
criterion	**type**	**operator**	**priority**	**description**
DEFAULT	—	—	—	Defines the constraint as default

event-relocation-service.locoo_3d_setttings-for-locoo_3d parameters			
	parameter	**type**	**description**
	azModelUncertainty	Boolean	If true, azimuth residuals and derivatives are weighted by the total uncertainty which consists of a combination of the model uncertainty and the pick uncertainty. If false, only the pick uncertainty is used.
	azPathCorrections	Boolean	Flag to turn off the use of azimuth path corrections.
	locOo3d2dLookupSettings	Structure	Defines setting for 2d lookup.
	locOo3dBenderSettings	Structure	Defines settings for bender.
	locOo3dRSTTSettings	Structure	Defines settings for RSTT.
	predictorToLibCorrSettings	Structure	Defines settings for Predictor to Lib Corr.
	shModelUncertainty	Boolean	If true, slowness residuals and derivatives are weighted by the total uncertainty which consists of a combination of the model uncertainty and the pick uncertainty. If false, only the pick uncertainty is used.
	shPathCorrections	Boolean	Flag to turn off the use of slowness path corrections.
	ttModelUncertainty	Boolean	If true, travel time residuals and derivatives are weighted by the total uncertainty which consists of a combination of the model uncertainty and the pick uncertainty. If false, only the pick uncertainty is used.
	ttPathCorrections	Boolean	Flag to turn off the use of travel time path corrections.

3.9.1 locOo3d2dLookupSettings Structure

The locOo3d2dLookupSettings structure is defined as follows:

locOo3d2dLookupSettings Structure parameters		
parameter	**type**	**description**
azSloUncertaintyFile	File Path	This file contain information about what value of azimuth_model_uncertainty and slowness_model_uncertainty to use with observations of those FeatureMeasurements.
maxIterationCount	Integer	Maximum allowable number of iterations. If this number is set to 0, the LocOO3D simply computes the residuals and location uncertainty information at the initial location and outputs the results.
model	File Path	Name of the 1D model that Lookup2D should use to calculate predictions of seismic observables.
sedimentaryVelocityS	Numeric (km/s)	The P-wave seismic velocity to be used in the calculation of elevation corrections.
sedimentaryVeloctiyP	Numeric (km/s)	The S-wave seismic velocity to be used in the calculation of elevation corrections.
seismicBaseData	File Path	Path to the seismicBaseData directory. If this property is not specified, then a copy of the seismicBaseData directory included with LocOO3D will be used. The default version of seismicBaseData delivered with LocOO3D includes lookup tables for velocity models ak135 and iasp91.
ttModelUncertaintyScale	Numeric	Travel time model uncertainty scale. If one value is specified, it will be used to scale the travel time model uncertainty. If two values are specified, the second will be added to the travel time model uncertainty: ttModelUncertainty = ttModelUncertainty * scale + offset
ttModelUncertaintyOffset	Numeric	Travel time model uncertainty offset. If one value is specified, it will be used to scale the travel time model uncertainty. If two values are specified, the second will be added to the travel time model uncertainty: ttModelUncertainty = ttModelUncertainty * scale + offset
useElevationCorrections	Boolean	A flag that can be used to turn off the use of elevation corrections.
useEllipticityCorrections	Boolean	A flag that can be used to turn off the use of ellipticity corrections.

3.9.2 locOo3dBenderSettings Structure

The locOo3dBenderSettings structure is defined as follows:

locOo3dBenderSettings Structure parameters		
parameter	**type**	**description**
allowCMBDiffraction	Boolean	Mark phases that diffract off the core-mantle boundary as valid observations. Setting to false will disallow these phases from the location computation.
allowMohoDiffraction	Boolean	Mark phases that diffract off the Moho as valid observations. Setting to false will disallow these phases from the location computation.
azSloUncertaintyFile	File Path	This file contain information about what value of azimuth_model_uncertainty and slowness_model_uncertainty to use with observations of those FeatureMeasurements.
benderUncertaintyType	Enumeration (BenderUncertaintyType)	Type of travel time uncertainty desired. If UncertaintyNAValue is specified (default), then all requests for travel time uncertainty return the NA_VALUE (-999999.). If DistanceDependent is specified, then distance dependent uncertainty is returned.
model	File Path	Path to GeoTess-format 3D velocity model that Bender uses to calculate predictions of seismic observables. If benderModel points to a salsa3d directory and the directory contains a file called 'prediction_model.geotess', then that model is used.
ttModelUncertaintyScaleScale	Numeric	Travel time model uncertainty scale. If one value is specified, it will be used to scale the travel time model uncertainty. If two values are specified, the second will be added to the travel time model uncertainty: ttModelUncertainty = ttModelUncertainty * scale + offset
ttModelUncertaintyScaleOffset	Numeric	Travel time model uncertainty offset. If one value is specified, it will be used to scale the travel time model uncertainty. If two values are specified, the second will be added to the travel time model uncertainty: ttModelUncertainty = ttModelUncertainty * scale + offset

3.9.3 locOo3dRSTTSettings Structure

The locO3dRSTTSettings structure is defined as follows:

locOo3dRSTTSettings Structure parameters

parameter	type	description
azSloUncertaintyFile	File Path	This file contain information about what value of azimuth_model_uncertainty and slowness_model_uncertainty to use with observations of those FeatureMeasurements.
chMax	Numeric	Specify the maximum value of c*h where c is the slbm Zhao c property and h is the turning depth of the ray below the Moho. See RSTT documentation for details.
depthMax	Numeric (km)	The maximum source depth, in km, for which SLBM will return valid Pn/Sn predicted travel times. If a Pn or Sn travel time prediction is requested from SLBM for a source depth greater than this depth, then the observation will be set to non-defining.
distanceMax	Numeric (deg)	The maximum source-receiver distance, in degrees, at which SLBM will return valid Pn/Sn predicted travel times. If a Pn or Sn travel time observation, which is supposed to use SLBM for predicted travel times, is more than the slbm_max_distance from the source, then the observation will be set to non-defining.
model	File Path	Path to RSTT model to use for predictions of seismic observables.
ttModelUncertaintyScale	Numeric	Travel time model uncertainty scale. Used to scale the travel time model uncertainty. ttModelUncertainty = ttModelUncertainty * scale + offset
ttModelUncertaintyOffset	Numeric	Travel time model offset. Added to the travel time model uncertainty: ttModelUncertainty = ttModelUncertainty * scale + offset
ttUncertaintyType	Enumeration (RSTTTTUncertaintyType)	When slbmUncertaintyType is one of the hierarchical types, and a LibCorr3D correction surface is available for a particular station-phase, the travel time uncertainty will be retrieved from the LibCorr3D correction surface. When slbmUncertaintyType is one of the hierarchical types and a LibCorr3D correction surface is not available for a particular station-phase, then travel time uncertainty computed by SLBM will be returned. When slbmUncertaintyType is not one of the hierarchical types then either path_dependent or distance_dependent travel time uncertainty computed by SLBM will be returned, regardless of whether a LibCorr3D correction surface is available.

3.9.4 predictorToLibCorrSettings Structure

The predictorToLibCorrSettings structure is defined as follows:

predictorToLibCorrSettings Structure parameters		
parameter	**type**	**description**
interpolatorType	Enumeration (InterpolatorType)	Type of horizontal interpolation to use.
matchOnRefsta	Boolean	When true and a user Site and model Site have the same refsta, corrections will be applied to data from user Site regardless of the separation of the two Sites. Default is false.
maxModels	Integer	Number of models allowed before evicting models from memory.
maxSiteSeparation	Numeric (km)	When separation of user Site and model Site is less than LibcorrMaxSiteSeparation, corrections will be applied to data from user Site.
pathCorrectionsRelativePath	Path	The relative path from the directory where the correction surface files reside to the directory where the grid files reside. The default value of '.' specifies that either (1) the GeoTessGrid is stored in the GeoTessModel file, or (2) the GeoTessGrid is stored in a separate file in the same directory as the GeoTessModel.
pathCorrectionsRoot	Path	The name of the directory where the LibCorr3D correction surfaces reside. This directory should contain a separate file for each correction surface.
preloadModels	Boolean	If true, load all LibCorr3D models at startup. If false, load LibCorr3D models on an 'as needed' basis.

3.10 event-repository-bridged.database-accounts-by-stage

Configuration which identifies database accounts for the event bridge. This file references the global.database-accounts-by-stage configure. This file should not be modified.

config/processing/event-repository-bridged.database-accounts-by-stage/default.json

event-repository-bridged.database-accounts-by-stage Configuration Option				
name	event-repository-bridged-database-accounts-by-stage			
criterion	**type**	**operator**	**priority**	**description**
DEFAULT	—	—	—	Defines the constraint as default

event-repository-bridged.database-accounts-by-stage parameters		
parameter	**type**	**description**
$ref=global.database-accounts-by-stage	Reference	Pointer to the global.database-accounts-by-stage.

3.11 event-repository-bridged.monitoring-organization

Configuration which identifies the monitoring organization attribute for the bridged events.

config/processing/event-repository-bridged.monitoring-organziation/default.json

event-repository-bridged.monitoring-organization Configuration Option					
	name	event-repository-bridged-monitoring-organization			
	criterion	**type**	**operator**	**priority**	**description**
	DEFAULT	—	—	—	Defines the constraint as default

event-repository-bridged.monitoring-organization parameters			
	parameter	**type**	**description**
	$ref=global.database-accounts-by-stage	Reference	Reference to the global.database-accounts-by-stage.

3.12 feature-prediction-elevation-corrector

A configuration option for the feature prediction elevation corrector

config/processing/feature-prediction-elevation-corrector/default.json

feature-prediction-elevation-corrector Configuration Option					
	name	feature-prediction-elevation-corrector			
	criterion	**type**	**operator**	**priority**	**description**
	DEFAULT	—	—	—	Defines the constraint as default

feature-prediction-elevation-corrector parameters			
	parameter	**type**	**description**
	mediumVelocityEarthModelPluginNameByModelName	Structure	A map associating medium velocity earth model names to lookup information for the MediumVelocityEarthModelPlugin implementation providing those values. The keys in this map correspond to the values that will be used for the mediumVelocityEarthModel parameter to ElevationCorrector's correct operation.

3.12.1.1 mediumVelocityEarthModelPluginNameByModelName Structure

The structure for mediumVelocityEarthModelPluginNameByModelName is defined as follows:

mediumVelocityEarthModelPluginNameByModelName Structure parameters			
	parameter	**type**	**description**
	Ak135	Plugin (MediumVelocityEarthModel)	Plugin name for the AK135 earth model.

3.13 feature-prediction-service.ak135-global-medium-velocity

A configuration option for the feature prediction service ak135-global-medium-velocity.

config/processing/feature-prediction-service.ak135-global-medium-velocity/default.json

feature-prediction-service.ak135-global-medium-velocity Configuration Option					
	name	ak135-global-medium-velocity			
	criterion	**type**	**operator**	**priority**	**description**
	DEFAULT	—	—	—	Defines the constraint as default

feature-prediction-service.ak135-global-medium-velocity parameters			
	parameter	**type**	**description**
	dataDescriptor	Path	Path to the medium velocity model for AK135

3.14 feature-prediction-service.dziewonski-gilbert-ellipticity-corrector

A configuration option for the feature prediction service dziewonski-gilbert-ellipticity-corrector

config/processing/feature-prediction-service.dziewonski-gilbert-ellipticity-corrector/default.json

feature-prediction-service.dziewonski-gilbert-ellipticity-corrector Configuration Option					
	name	dziewonski-gilbert-ellipticity-corrector			
	criterion	**type**	**operator**	**priority**	**description**
	DEFAULT	—	—	—	Defines the constraint as default

feature-prediction-service.dziewonski-gilbert-ellipticity-corrector parameters			
	parameter	**type**	**description**
	correctionModelPluginNameByModelName	Plugin (CorrectionModel)	Describes the plugin name by location

3.15 feature-prediction-service.dziewonski-gilbert-lookup-table

A configuration option for the feature prediction service dziewonski-gilbert-lookup-table

config/processing/feature-prediction-service.dziewonski-gilbert-lookup-table/default.json

feature-prediction-service.dziewonski-gilbert-lookup-table Configuration Option					
	name	dziewonski-gilbert-lookup-table			
	criterion	**type**	**operator**	**priority**	**description**
	DEFAULT	—	—	—	Defines the constraint as default

feature-prediction-service.dziewonski-gilbert-lookup-table parameters			
	parameter	**type**	**description**
	Ak135	Plugin (Dziewonski Gilbert)	Describes the plugin name by location
	Iaspei	Plugin (Dziewonski Gilbert)	Describes the plugin name by location

3.16 feature-prediction-service

A configuration option for the feature prediction service

config/processing/feature-prediction-service/default.json

feature-prediction-service Configuration Option					
	name	feature-prediction-service			
	criterion	**type**	**operator**	**priority**	**description**
	DEFAULT	—	—	—	Defines the constraint as default

feature-prediction-service parameters			
	parameter	**type**	**description**
	pluginByFeatureMeasurementType	Structure	Specifies the FeaturePredictorPlugin to use for each prediction type by mapping FeatureMeasurementTypes to plugin registration information (e.g. plugin names) needed to lookup the FeaturePredictorPlugins in the PluginRegistry.

3.16.1 pluginByFeatureMeasurementType Strcture

The structure for pluginByFeatureMeasurementType is as follows:

pluginByFeatureMeasurementType Structure		
parameter	**type**	**description**
ARRIVAL_TIME	Plugin (FeaturePredictor)	Feature prediction service plugin used for predicting arrival time.
SLOWNESS	Plugin (FeaturePredictor)	Feature prediction service plugin used for predicting slowness.
SOURCE_TO_RECEIVER_AZIMUTH	Plugin (FeaturePredictor)	Feature prediction service plugin used for predicting source to receiver azimuth.
RECEIVER_TO_SOURCE_AZIMUTH	Plugin (FeaturePredictor)	Feature prediction service plugin used for predicting receiver to source azimuth.

3.17 fk-control.fk-spectra-definitions

The fk-control.fk-spectra-definitions is used for the JAVA implementation of FK calculation. This implementation is being replaced by a C++ implementation which uses the global.fk-spectra-template-config configuration.

config/processing/fk-control.fk-spectra-definitions/default.json

fk-control.fk-spectra-definitions Configuration Option					
name	DEFAULT				
criterion	**type**	**operator**	**priority**	**description**	
DEFAULT	—	—	—	Defines the constraint as default	

fk-control.fk-spectra-definitions parameters		
parameter	**type**	**description**
pluginName	String	Name of the plugin
sampleRateHz	Numeric (hz)	Expected sample rate of waveforms.
windowLead	Duration	Time before the signal detection which defines the window over which the FK calculation is made.
windowLength	Duration	Length of the FK calculation window.
lowFrequencyHz	Numeric (hz)	Low frequency used for the FK calculation. Defined in Hz.
highFrequencyHz	Numeric (hz)	High frequency used for the FK calculation. Defined in Hz.
useChannelVerticalOffsets	Boolean	Boolean to define if vertical offsets are used.
normalizeWaveforms	Boolean	Boolean to indicate if waveforms are normalized.
phaseType	Enumeration (PhaseType)	Phase Type of the FK Spectra.
slowStartXSecPerKm	Numeric (sec/km)	Defines the FK Grid; slowStartXSecPerKm is the minimum slowness value in the X direction.
slowDeltaXSecPerKm	Numeric (sec/km)	Defines the FK Grid; slowDeltaXSecPerKm is the delta between calculation points used in the X direction.
slowCountX	Integer	Defines the FK Grid; slowCountX is the number of calculation points in the X direction.
slowStartYSecPerKm	Numeric (sec/km)	Defines the FK Grid; slowStartYSexcPerKm is the minimum slowness value in the Y direction.
slowDeltaYSecPerKm	Numeric (sec/km))	Defines the FK Grid; slowDeltaYSecPerKm is the delta between calculation points used in the Y direction.
slowCountY	Integer	Defines the FK Grid; slowCountY is the number of calculation points in the Y direction.
waveformSampleRateHz	Numeric (hz)	Expected sample rate of the waveform.
waveformSampleRateToleranceHz	Numeric (hz)	Sample rate tolerance. Channels with Waveforms whose sample rate deviates by more than the tolerance will be excluded form the calculation.
minimumWaveformsForSpectra	Integer	Minimum number of waveforms required to perform the FK Calculation.

3.18 global.amplitude-measurement-conditioning-template

The global.amplitude-measurement-condition-template describes the waveform ChannelSegment the system uses to measure a specific amplitude measurement for a specific station. The amplitude may be measured on a raw Channel or a beamed Channel.

config/processing/global.amplitude-measurement-conditioning-template/default-{station}.json

global.amplitude-measurement-conditioning-template Beam Type Default Configuration Option					
	name	default-{station}			
	criterion	**type**	**operator**	**priority**	**description**
	station	Database Value (Station)	EQ	100	Constraint for the beam type.

config/processing/global.amplitude-measurement-conditioning-template/ amplitude-{amplitude type)-{station}.json

global.amplitude-measurement-conditioning-template Configuration Option					
	name	amplitude-{amplitude type}-{station}			
	criterion	**type**	**operator**	**priority**	**description**
	station	Database Value (Station)	ANY	100	List of stations to which the configuration applies
	amplitudeMeasurementType	Enumeration (AmplitudeMeasurementType)	ANY	90	List of station to which the configuration applies

global.amplitude-measurement-conditioning-template parameters		
parameter	**type**	**description**
beamformingTemplate	Structure (Optional)	Describes how to create a beamed waveform for measuring the amplitude. The BeamformingTemplate has the following constraints: 1. Must be associated to the same Station as the station attribute. 2. Must have beamType attribute value equal to the AMPLITUDE BeamType literal. 3. Must not be populated if the measuredChannel is populated. 4. Must not be populated if the rotationTemplate is populated.
rotationTemplate	Structure (Optional)	Describes how to create a rotated waveform for measuring the amplitude. The RotationTemplate has the following constraints: 1. Must be associated to the same Station as the station attribute. 2. Must not be populated if the measuredChannel is populated. 3. Must not be populated if the beamformingTemplate is populated. 4. Either the inputChannels collection or inutChannelGroup attribute must be populated.
measuredChannel	Name Value (Channel) (Optional)	A raw Channel producing the waveform used for the amplitude measurement. Populated as an entity reference. Unpopulated when either beamformingTemplate or rotationTemplate is populated. When one of those attributes is populated, the corresponding derived Channel is the measured
filterDefinition	Reference ($ref=global.filter-definition) (Optional)	A filter applied to the waveform samples prior to the amplitude measurement. If both beamformingTemplate and filterDefinition are populated, the filter is applied to the beamed samples (note the BeamformingTemplate has a pre-filter attribute specifying a filter applied to the unbeamed waveforms). If both rotationTemplate and filterDefinition are populated, the filter is applied to the rotated samples.

3.18.1 beamFormingTemplate Structure

The beamFormingTemplate Structure is defined as follows:

beamFormingTemplate Structure parameters		
parameter	**type**	**description**
station	Database Value (Station)	
leadDuration	Duration (Optional)	Beamed waveforms created from this template begin this duration before a reference time. For example, the reference time may be a predicted ARRIVAL_TIME for an EVENT beam or a SignalDetectionHypothesis object's ARRIVAL_TIME for an FK beam. Must be populated when the BeamDescription object's beamType is EVENT or FK.
beamDuration	Duration (Optional)	The duration of each beamed waveform ChannelSegment created using this template Must be populated when the BeamDescription object's beamType is EVENT or FK.
sampleRateToleranceHz	Numeric (hz)	The maximum (inclusive) tolerance from the beamed waveform's sample rate (sampleRateHz) of the unbeamed waveforms used to calculate the beamed waveforms.
orientationAngelToleranceDeg	Numeric (deg)	The maximum (inclusive) tolerance from the beamed derived Channel's orientation angles (horizontal or vertical) of the unbeamed Channel objects used to calculate the beamed waveforms. This is a threshold for the maximum difference between an input Channel object's orientation angle and the beamed Channel object's corresponding orientation angle.
minWaveformsToBeam	Integer	The minimum number of unbeamed waveform samples used to calculate a beamed waveform sample.
inputChannelGroups	Database Value (ChannelGroup) Array	Channel groups whose channels are used as input to the rotation.
inputChannels	Database Value (Channel) Array	Channels which are used as input to the rotation.
beamDescriptionParams	Structure	A beam description.

3.18.1.1 beamDescriptionParams Structure

The structure for beamDescriptionParams is defined as follows:

beamDescriptionParams Structure		
parameter	**type**	**description**
twoDimensiontal	Boolean	Whether beamforming uses two dimensional (latitude and longitude) or three-dimensional Channel (latitude, longitude, and elevation) locations to determine the unbeamed waveform time shifts.
beamType	Enumeration (BeamType)	Describes the beam's purpose or type.
phaseType	Enumeration (PhaseType)	
beamSummation	Enumeration (BeamSummation)	Describes how the waveform samples from each input waveform are combined to create the beamed samples. • COHERENT - the unbeamed samples are averaged to create the beamed samples. • INCOHERENT - the unbeamed waveform samples are rectified (i.e. absolute value function applied) before averaging to create the beamed samples. • RMS - the beamed samples are the Root Mean Squares of the unbeamed samples, i.e. each beamed sample is the square root of the mean of the squares of the unbeamed sample values.
samplingType	Enumeration (SamplingType)	How to sample unbeamed waveforms to determine their amplitudes at the beamed waveform's sample times.
prefilterDefinition	Reference ($ref=global.filter-definition)	The filter applied to each unbeamed waveform prior to the beamforming calculation. Typically used when the beamSummation is INCOHERENT or RMS. Typically undesigned since the input waveform sample rates are unknown until the beamforming calculation executes.

3.18.2 rotationTemplate

The rotationTemplate Structure is defined as follows:

rotatationTemplate Structure parameters		
parameter	**type**	**description**
station	Database Value (Station)	This template is used to create rotated waveform ChannelSegment objects for this Station.
leadDuration	Duration	Rotated waveforms created from this template begin this duration before a reference time, such as a predicted ARRIVAL_TIME.
duration	Duration	The duration of each rotated waveform ChannelSegment created using this template.
sampleRateToleranceHz	Numeric (hz)	The maximum (inclusive) tolerance from the rotated waveform's sample rate of the unrotated waveforms used to calculate the rotated waveforms.
locationToleranceKm	Numeric (km)	The Channel version objects to be rotated using these RotationParameters must be within this distance (inclusive) of the rotated Channel object's location.
orientationAngleToleranceDeg	Numeric (deg)	The maximum (inclusive) tolerance of the unrotated Channel objects' orientation angles from orthogonality with each other (e.g., for a 2-dimensional rotation using N and E Channel objects, the un-rotated orientation angles are orthogonal within this tolerance and are oriented horizontally within this tolerance).
inputChannelGroup	Database Value (Channel Group)	A ChannelGroup providing the input waveform ChannelSegment objects to rotation calculations using this template. The ChannelGroup must be in the station. It is acceptable for the ChannelGroup to contain Channel objects appropriate for a 3-dimensional rotation when the rotation will be 2-dimensional (i.e. when RotationDescription attribute twoDimensional is true).
inputChannels	Database Value (Channel)	Channels which provide the input waveform ChannelSegment objects to rotation calculations using this template. Each Channel must be in the station. It is acceptable for the collection to contain Channel objects appropriate for a 3-dimensional rotation when the rotation will be 2-dimensional (i.e. when RotationDescription attribute twoDimensional is true). When the collection is populated it must contain either two or three entries.
rotationDescription	Structure	A rotation description

3.18.2.1 rotationDescription

The rotationDescription structure is defined as follows:

rotationDescription Structure parameters			
	parameter	**type**	**description**
	phaseType	Enumeration (PhaseType)	The phase the rotated waveform is created to detect or help analyze.
	samplingType	Enumeration (SamplingType)	How to sample unrotated waveforms to determine their amplitudes at the rotated waveform's sample times.
	twoDimensional	Boolean	Whether the waveform rotation calculation rotates only the horizontal components (two dimensional), or both the horizontal and vertical components (three dimensional).

3.19 global.beamforming-configuration

The global.beam-forming-configuration is used to configure beams. Beam configuration can vary by beam type, station, and phase type.

config/processing/global.beamforming-configuration/{beam-type}-default.json

global.beamforming-configuration Beam Type Default Configuration Option					
	name	DEFAULT			
	criterion	**type**	**operator**	**priority**	**description**
	beamType	Enumeration (BeamType)	EQ	100	Constraint for the beam type.

config/processing/global.beamforming-configuration/{beam type}-{station type}-default.json

global.beamforming-configuration Configuration Option					
	name	{beam type}-{station type}-default			
	criterion	**type**	**operator**	**priority**	**description**
	beamType	Enumeration (BeamType)	EQ	100	Constraint for the beam type.
	station	Database Value (Station)	IN	90	List of stations to which the configuration applies

config/processing/global.beamforming-configuration/{beam type}-{station}-{phase}.json

global.beamforming-configuration Configuration Option				
name	{beam type}-{station type}-default			
criterion	**type**	**operator**	**priority**	**description**
beamType	Enumeration (BeamType)	EQ	100	Constraint for the beam type.
station	Database Value (Station)	EQ	90	List of stations to which the configuration applies
phaseType	Enumeration (PhaseType)	EQ	80	List of station to which the configuration applies

global.beamforming-configuration Beam Type Default parameters		
parameter	**type**	**description**
leadDuration	Duration	Default duration prior to the reference time that is used to rotate the beam. Value can be modified for a single rotation on the Rotate Waveform display.
beamDuration	Duration	Default duration of the rotated waveforms. Value can be modified for a single rotation on the Rotate Waveform display.
orientationAngleTolerance	Numeric (deg)	The maximum (inclusive) tolerance from the beamed derived Channel's orientation angles (horizontal or vertical) of the unbeamed Channel used to calculate beamed waveforms. This is a threshold for the maximum difference between an input Channel's orientation angle and the beamed Channel's corresponding orientation angle.
sampleRateToleranceHz	Numeric (hz)	The maximum (inclusive) tolerance from the beamed Channel's nominal sample rate (the sampleRateHz attribute in this class) of the unbeamed waveforms used to calculate beamed waveforms.
minWaveformsToBeam	Integer	The minimum number of unbeamed waveform samples used to calculate a beamed waveform sample. Value must be greater than 0.
inputChannelGroups	Database Value (ChannelGroup) Array	Channels used in calculating the beam. Each channel listed here must be part of the station
inputChannels	Database Value (Channel) Array	A non-empty collection of the Channel objects providing the input waveform ChannelSegment objects to beamforming calculations using this template. Each Channel must be in the station. Each Channel in the collection is populated as an entity reference.
beamDescriptionParams	Structure	Structure describing source and receiver specific waveform beamforming attributes.

3.19.1 beamDescriptionParams Structure

The structure for beamDescriptionParams is defined as follows:

beamDescriptionParams Structure		
parameter	**type**	**description**
beamSummation	Enumeration (BeamSummation)	Describes how the waveform samples from each input waveform are combined to create the beamed samples. • COHERENT - the unbeamed samples are averaged to create the beamed samples. • INCOHERENT - the unbeamed waveform samples are rectified (i.e. absolute value function applied) before averaging to create the beamed samples. • RMS - the beamed samples are the Root Mean Squares of the unbeamed samples, i.e. each beamed sample is the square root of the mean of the squares of the unbeamed sample values.
beamType	Enumeration (BeamType)	Describes the beam's purpose or type.
prefilterDefinition	Reference ($ref=global.filter-definition)	The filter applied to each unbeamed waveform prior to the beamforming calculation. Typically used when the beamSummation is INCOHERENT or RMS. Typically undesigned since the input waveform sample rates are unknown until the beamforming calculation executes.
samplingType	Enumeration (SamplingType)	How to sample unbeamed waveforms to determine their amplitudes at the beamed waveform's sample times.
twoDimensiontal	Boolean	Whether beamforming uses two dimensional (latitude and longitude) or three-dimensional Channel (latitude, longitude, and elevation) locations to determine the unbeamed waveform time shifts.

3.20 global.database-accounts-by-stage

The global.database-accounts-by-stage provides the user account name for each Stage defined in the workflow-manager.workflow-definition configuration.

config/processing/global.database-accounts-by-stage/default.json

global.database-accounts-by-stage Configuration Option					
name	database-accounts-by-stage				
criterion	**type**	**operator**	**priority**	**description**	
DEFAULT	—	—	—	Defines the constraint as default	

global.database-accounts-by-stage parameters		
parameter	**type**	**description**
{Stage}	Database Value (UserAccount)	Defines the database account for the Auto Network stage.

3.21 global.default-filter-definitions-by-usage

The global.default-filter-definitions-by-usage configuration provides the filter to use when applying a named filter usage (DETECTION, ONSET, FK, or AMPLITUDE) when there is no defined filter in the legacy database. The global.

config/processing/global.default-filter-definitions-by-usage/default-filter.json

global.default-filter-definitions-by-usage Default Configuration Option				
name	default-filter			
criterion	**type**	**operator**	**priority**	**description**
DEFAULT	—	—	—	Defines the constraint as default

config/processing/global.default-filter-definitions-by-usage/
default-default-default-default-default-{phase}-filter.json

global.default-filter-definitions-by-usage Phase Configuration Option				
name	default-default-default-default-default-{phase}-filter			
criterion	**type**	**operator**	**priority**	**description**
phase	Enumeration (PhaseType)	IN	50	Defines the channel orientation to which this applies

config/processing/global.default-filter-definitions-by-usage/
default-default-default-default-{channel-orientation}-default-filter.json

global.default-filter-definitions-by-usage Orientation Configuration Option				
name	default-default-default-default-{channel-orientation}-default-filter			
criterion	**type**	**operator**	**priority**	**description**
channelOrientation	Enumeration (ChannelOrientationType)	IN	60	Defines the channel orientation to which this applies

config/processing/global.default-filter-definitions-by-usage/
default-default-default-default-{channel-orientation}-{phase}-filter.json

global.default-filter-definitions-by-usage Orientation Phase Configuration Option				
name	default-default-default-default-{channel-orientation}-{phase}-filter			
criterion	**type**	**operator**	**priority**	**description**
channelOrientation	Enumeration (ChannelInstrumentType)	IN	60	Defines the channel orientation to which this applies
phase	Enumeration (PhaseType)	IN	50	Defines the phase type to which this applies

config/processing/global.default-filter-definitions-by-usage/
default-default-default-{channel instrument}-default-default-filter.json

global.default-filter-definitions-by-usage Instrument Configuration Option				
name	default-default-default-{channel instrument}-default-default-filter			
criterion	**type**	**operator**	**priority**	**description**
channelInstrument	Enumeration (ChannelInstrumentType)	IN	70	Defines the channel instrument to which this applies

config/processing/global.default-filter-definitions-by-usage/
default-default-default-{channel instrument}-default-{phase}-filter.json

global.default-filter-definitions-by-usage Instrument Phase Configuration Option				
name	default-default-default-{channel instrument}-default-{phase}-filter			
criterion	**type**	**operator**	**priority**	**description**
channelInstrument	Enumeration (ChannelInstrumentType)	IN	70	Defines the channel instrument to which this applies
phase	Enumeration (PhaseType)	IN	50	Defines the phase type to which this applies

config/processing/global.default-filter-definitions-by-usage/
default-default-default-{channel instrument}-{channel-orientation}-default-filter.json

global.default-filter-definitions-by-usage Instrument Orientation Configuration Option				
name	default-default-default-{channel instrument}-{channel-orientation}-default-filter			
criterion	**type**	**operator**	**priority**	**description**
channelInstrument	Enumeration (ChannelInstrumentType)	IN	70	Defines the channel instrument to which this applies
channelOrientation	Enumeration (ChannelOrientationType)	IN	60	Defines the channel orientation to which this applies

config/processing/global.default-filter-definitions-by-usage/
default-default-default-{channel instrument}-{channel-orientation}-{phase}-filter.json

global.default-filter-definitions-by-usage Instrument Orientation Phase Configuration Option				
name	default-default-default-{channel instrument}-{channel-orientation}-{phase}-filter			
criterion	**type**	**operator**	**priority**	**description**
channelInstrument	Enumeration (ChannelInstrumentType)	IN	70	Defines the channel instrument to which this applies
channelOrientation	Enumeration (ChannelOrientationType)	IN	60	Defines the channel orientation to which this applies
phase	Enumeration (PhaseType)	IN	50	Defines the phase type to which this applies

config/processing/global.default-filter-definitions-by-usage/
default-default-{channel band}-default-default-default-filter.json

global.default-filter-definitions-by-usage Band Configuration Option				
name	default-default-{channel band}-default-default-default-filter			
criterion	**type**	**operator**	**priority**	**description**
channelBand	Enumeration (ChannelBandType)	IN	80	Defines the channel band to which this applies

config/processing/global.default-filter-definitions-by-usage/
default-default-{channel band}-default-default-{phase}-filter.json

global.default-filter-definitions-by-usage Band Phase Configuration Option				
name	default-default-{channel band}-default-default-{phase}-filter			
criterion	**type**	**operator**	**priority**	**description**
channelBand	Enumeration (ChannelBandType)	IN	80	Defines the channel band to which this applies
phase	Enumeration (PhaseType)	IN	50	Defines the phase type to which this applies

config/processing/global.default-filter-definitions-by-usage/
default-default-{channel band}-default-{channel-orientation}-default-filter.json

global.default-filter-definitions-by-usage Band Orientation Configuration Option				
name	default-default-{channel band}-default-{channel-orientation}-default-filter			
criterion	**type**	**operator**	**priority**	**description**
channelBand	Enumeration (ChannelBandType)	IN	80	Defines the channel band to which this applies
channelOrientation	Enumeration (ChannelOrientationType)	IN	60	Defines the channel orientation to which this applies

config/processing/global.default-filter-definitions-by-usage/
default-default-{channel band}-default-{channel-orientation}-{phase}-filter.json

global.default-filter-definitions-by-usage Band Orientation Phase Configuration Option				
name	default-default-{channel band}-default-{channel-orientation}-{phase}-filter			
criterion	**type**	**operator**	**priority**	**description**
channelBand	Enumeration (ChannelBandType)	ANY	80	Defines the channel band to which this applies
channelOrientation	Enumeration (ChannelOrientationType)	ANY	60	Defines the channel orientation to which this applies
phase	Enumeration (PhaseType)	ANY	50	Defines the phase type to which this applies

config/processing/global.default-filter-definitions-by-usage/
default-default-{channel band}-{channel instrument}-default-default-filter.json

global.default-filter-definitions-by-usage Band Instrument Configuration Option				
name	default-default-{channel band}-{channel instrument}-default-default-filter			
criterion	**type**	**operator**	**priority**	**description**
channelBand	Enumeration (ChannelBandType)	ANY	80	Defines the channel band to which this applies
channelInstrument	Enumeration (ChannelInstrumentType)	ANY	70	Defines the channel instrument to which this applies

config/processing/global.default-filter-definitions-by-usage/
default-default-{channel band}-{channel instrument}-default-{phase}-filter.json

global.default-filter-definitions-by-usage Band Instrument Phase Configuration Option				
name	default-default-{channel band}-{channel instrument}-default-{phase}-filter			
criterion	**type**	**operator**	**priority**	**description**
channelBand	Enumeration (ChannelBandType)	ANY	80	Defines the channel band to which this applies
channelInstrument	Enumeration (ChannelInstrumentType)	ANY	70	Defines the channel instrument to which this applies
phase	Enumeration (PhaseType)	ANY	50	Defines the phase type to which this applies

config/processing/global.default-filter-definitions-by-usage/
default-default-{channel band}-{channel instrument}-{channel-orientation}-default-filter.json

global.default-filter-definitions-by-usage Channel Code Configuration Option				
name	default-default-{channel band}-{channel instrument}-{channel-orientation}-default-filter			
criterion	**type**	**operator**	**priority**	**description**
channelBand	Enumeration (ChannelBandType)	ANY	80	Defines the channel band to which this applies
channelInstrument	Enumeration (ChannelInstrumentType)	ANY	70	Defines the channel instrument to which this applies
channelOrientation	Enumeration (ChannelOrientationType)	ANY	60	Defines the channel orientation to which this applies

config/processing/global.default-filter-definitions-by-usage/
default-default-{channel band}-{channel instrument}-{channel-orientation}-{phase}-filter.json

global.default-filter-definitions-by-usage Channel Code Phase Configuration Option				
name	default-default-{channel band}-{channel instrument}-{channel-orientation}-{phase}-filter			
criterion	**type**	**operator**	**priority**	**description**
channelBand	Enumeration (ChannelBandType)	ANY	80	Defines the channel band to which this applies
channelInstrument	Enumeration (ChannelInstrumentType)	ANY	70	Defines the channel instrument to which this applies
channelOrientation	Enumeration (ChannelOrientationType)	ANY	60	Defines the channel orientation to which this applies
phase	Enumeration (PhaseType)	ANY	50	Defines the phase type to which this applies

config/processing/global.default-filter-definitions-by-usage/{station}-default-filter.json

global.default-filter-definitions-by-usage Station Configuration Option					
name	{station)-default-filter				
criterion		**type**	**operator**	**priority**	**description**
station		Database Value (Station)	ANY	100	Defines the station(s) to which this applies.

config/processing/global.default-filter-definitions-by-usage/
{station}-default-default-default-default-{phase}-filter.json

global.default-filter-definitions-by-usage Station Phase Configuration Option					
name	{station}-default-default-default-default-{phase}-filter				
criterion		**type**	**operator**	**priority**	**description**
station		Database Value (Station)	ANY	100	Defines the station(s) to which this applies.
phase		Enumeration (PhaseType)	ANY	50	Defines the phase type to which this applies

config/processing/global.default-filter-definitions-by-usage/
{station}-default-default-default-{channel-orientation}-default-filter.json

global.default-filter-definitions-by-usage Station Orientation Configuration Option					
name	{station}-default-default-default-{channel-orientation}-default-filter				
criterion		**type**	**operator**	**priority**	**description**
station		Database Value (Station)	ANY	100	Defines the station(s) to which this applies.
channelOrientation		Enumeration (ChannelOrientationType)	ANY	60	Defines the channel orientation to which this applies

config/processing/global.default-filter-definitions-by-usage/
{station}-default-default-default-{channel-orientation}-{phase}-filter.json

global.default-filter-definitions-by-usage Station Orientation Phase Configuration Option					
name	{station}-default-default-default-{channel-orientation}-{phase}-filter				
criterion		**type**	**operator**	**priority**	**description**
station		Database Value (Station)	ANY	100	Defines the station(s) to which this applies.
channelOrientation		Enumeration (ChannelOrientationType)	ANY	60	Defines the channel orientation to which this applies
phase		Enumeration (PhaseType)	ANY	50	Defines the phase type to which this applies

config/processing/global.default-filter-definitions-by-usage/
{station}-default-default-{channel instrument}-default-default-filter.json

global.default-filter-definitions-by-usage Station Instrument Configuration Option				
name	{station}-default-default-{channel instrument}-default-default-filter			
criterion	**type**	**operator**	**priority**	**description**
station	Database Value (Station)	ANY	100	Defines the station(s) to which this applies.
channelInstrument	Enumeration (ChannelInstrumentType)	ANY	70	Defines the channel instrument to which this applies

config/processing/global.default-filter-definitions-by-usage/
{station}-default-default-{channel instrument}-default-{phase}-filter.json

global.default-filter-definitions-by-usage Station Instrument Phase Configuration Option				
name	{station}-default-default-{channel instrument}-default -{phase}-filter			
criterion	**type**	**operator**	**priority**	**description**
station	Database Value (Station)	ANY	100	Defines the station(s) to which this applies.
channelInstrument	Enumeration (ChannelInstrumentType)	ANY	70	Defines the channel instrument to which this applies
phase	Enumeration (PhaseType)	ANY	50	Defines the phase type to which this applies

config/processing/global.default-filter-definitions-by-usage/
{station}-default-default-{channel instrument}-{channel-orientation}-default-filter.json

global.default-filter-definitions-by-usage Station Instrument Orientation Configuration Option				
name	{station}-default-default-{channel instrument}-{channel-orientation}-default-filter			
criterion	**type**	**operator**	**priority**	**description**
station	Database Value (Station)	ANY	100	Defines the station(s) to which this applies.
channelInstrument	Enumeration (ChannelInstrumentType)	ANY	70	Defines the channel instrument to which this applies
channelOrientation	Enumeration (ChannelOrientationType)	ANY	60	Defines the channel orientation to which this applies

config/processing/global.default-filter-definitions-by-usage/
{station}-default-default-{channel instrument}-{channel-orientation}-{phase}-filter.json

global.default-filter-definitions-by-usage Station Instrument Orientation Phase Configuration Option				
name	{station}-default-default-{channel instrument}-{channel-orientation}-{phase}-filter			
criterion	**type**	**operator**	**priority**	**description**
station	Database Value (Station)	ANY	100	Defines the station(s) to which this applies.
channelInstrument	Enumeration (ChannelInstrumentType)	ANY	70	Defines the channel instrument to which this applies
channelOrientation	Enumeration (ChannelOrientationType)	ANY	60	Defines the channel orientation to which this applies
phase	Enumeration (PhaseType)	ANY	50	Defines the phase type to which this applies

config/processing/global.default-filter-definitions-by-usage/
{station}-default-{channel band}-default-default-default-filter.json

global.default-filter-definitions-by-usage Station Band Configuration Option				
name	{station}-default-{channel band}-default-default-default-filter			
criterion	**type**	**operator**	**priority**	**description**
station	Database Value (Station)	EQ	100	Defines the station(s) to which this applies.
channelBand	Enumeration (ChannelBandType)	ANY	80	Defines the channel band to which this applies

config/processing/global.default-filter-definitions-by-usage/
{station}- default-*{channel band}-default-default-{phase}-filter.json*

global.default-filter-definitions-by-usage Station Band Phase Configuration Option				
name	{station}-default-{channel band}- default- default- default-filter			
criterion	**type**	**operator**	**priority**	**description**
station	Database Value (Station)	EQ	100	Defines the station(s) to which this applies.
channelBand	Enumeration (ChannelBandType)	ANY	80	Defines the channel band to which this applies
phase	Enumeration (PhaseType)	ANY	50	Defines the phase type to which this applies

config/processing/global.default-filter-definitions-by-usage/
{station}- default-*{channel band}-default-{channel-orientation}-default-filter.json*

global.default-filter-definitions-by-usage Station Band Orientation Configuration Option				
name	{station}-default {channel band}-default-{channel-orientation}- default-filter			
criterion	**type**	**operator**	**priority**	**description**
station	Database Value (Station)	ANY	100	Defines the station(s) to which this applies.
channelBand	Enumeration (ChannelBandType)	ANY	80	Defines the channel band to which this applies
channelOrientation	Enumeration (ChannelOrientationType)	ANY	60	Defines the channel orientation to which this applies

config/processing/global.default-filter-definitions-by-usage/
{station}-{default}-{channel band}-default-{channel-orientation}-{phase}-filter.json

global.default-filter-definitions-by-usage Station Band Orientation Phase Configuration Option				
name	{station}-default-{channel band}-default-{channel-orientation}-{phase}-filter			
criterion	**type**	**operator**	**priority**	**description**
station	Database Value (Station)	ANY	100	Defines the station(s) to which this applies.
channelBand	Enumeration (ChannelBandType)	ANY	80	Defines the channel band to which this applies
channelOrientation	Enumeration (ChannelOrientationType)	ANY	60	Defines the channel orientation to which this applies
phase	Enumeration (PhaseType)	ANY	50	Defines the phase type to which this applies

config/processing/global.default-filter-definitions-by-usage/
{station}-default-{channel band}-{channel instrument}-default-default-filter.json

global.default-filter-definitions-by-usage Station Band Instrument Configuration Option				
name	{station}-default-{channel band}-{channel instrument}-default-default-filter			
criterion	**type**	**operator**	**priority**	**description**
station	Database Value (Station)	ANY	100	Defines the station(s) to which this applies.
channelBand	Enumeration (ChannelBandType)	ANY	80	Defines the channel band to which this applies
channelInstrument	Enumeration (ChannelInstrumentType)	ANY	70	Defines the channel instrument to which this applies

config/processing/global.default-filter-definitions-by-usage/
{station}-default-{channel band}-{channel instrument}-default-{phase}-filter.json

global.default-filter-definitions-by-usage Station Band Instrument Phase Configuration Option				
name	{station}-{channel group}-{channel band}-default-{channel-orientation}-{phase}-filter			
criterion	**type**	**operator**	**priority**	**description**
station	Database Value (Station)	ANY	100	Defines the station(s) to which this applies.
channelBand	Enumeration (ChannelBandType)	ANY	80	Defines the channel band to which this applies
channelInstrument	Enumeration (ChannelInstrumentType)	ANY	70	Defines the channel instrument to which this applies
phase	Enumeration (Phase Type)	ANY	50	Defines the phase type to which this applies

config/processing/global.default-filter-definitions-by-usage/
{station}-default-{channel band}-{channel instrument}-{channel-orientation}-default-filter.json

global.default-filter-definitions-by-usage Station Channel Code Configuration Option				
name	{station}-default-{channel band}-default-{channel-orientation}-{phase}-filter			
criterion	**type**	**operator**	**priority**	**description**
station	Database Value (Station)	ANY	100	Defines the station(s) to which this applies.
channelBand	Enumeration (ChannelBandType)	ANY	80	Defines the channel band to which this applies
channelInstrument	Enumeration (ChannelInstrumentType)	ANY	70	Defines the channel instrument to which this applies
channelOrientation	Enumeration (ChannelOrientationType)	ANY	60	Defines the channel orientation to which this applies

config/processing/global.default-filter-definitions-by-usage/
{station}-default-{channel band}-{channel instrument}-{channel-orientation}-{phase}-filter.json

global.default-filter-definitions-by-usage Station Channel Code Phase Configuration Option				
name	{station}-default-{channel band}-{channel instrument}-{channel-orientation}-{phase}-filter			
criterion	**type**	**operator**	**priority**	**description**
station	Database Value (Station)	ANY	100	Defines the station(s) to which this applies.
channelBand	Enumeration (ChannelBandType)	ANY	80	Defines the channel band to which this applies
channelInstrument	Enumeration (ChannelInstrumentType)	ANY	70	Defines the channel instrument to which this applies
channelOrientation	Enumeration (ChannelOrientationType)	ANY	60	Defines the channel orientation to which this applies
phase	Enumeration (PhaseType)	ANY	50	Defines the phase type to which this applies

config/processing/global.default-filter-definitions-by-usage/
{station}-{channel group}-default-default-default-defaykt-filter.json

global.default-filter-definitions-by-usage Station Channel Group Channel Code Phase Configuration Option				
name	{station}-{channel group}-{channel band}-{channel instrument}-{channel-orientation}-{phase}-filter			
criterion	**type**	**operator**	**priority**	**description**
station	Database Value (Station)	EQ	100	Defines the station(s) to which this applies.
channelGroup	Database Value (ChannelGroup)	ANY	90	Defines channel group to which this applies

config/processing/global.default-filter-definitions-by-usage/
{station}-{channel group}-default-default-default-{phase}-filter.json

global.default-filter-definitions-by-usage Station Channel Group Channel Code Phase Configuration Option				
name	{station}-{channel group}-{channel band}-{channel instrument}-{channel-orientation}-{phase}-filter			
criterion	**type**	**operator**	**priority**	**description**
station	Database Value (Station)	EQ	100	Defines the station(s) to which this applies.
channelGroup	Database Value (ChannelGroup)	ANY	90	Defines channel group to which this applies
phase	Enumeration (PhaseType)	ANY	50	Defines the phase type to which this applies

config/processing/global.default-filter-definitions-by-usage/
{station}-{channel group}-default-default-{channel-orientation}-default-filter.json

global.default-filter-definitions-by-usage Station Channel Group Channel Code Phase Configuration Option					
	name	{station}-{channel group}-{channel band}-{channel instrument}-{channel-orientation}-{phase}-filter			
	criterion	**type**	**operator**	**priority**	**description**
	station	Database Value (Station)	EQ	100	Defines the station(s) to which this applies.
	channelGroup	Database Value (ChannelGroup)	ANY	90	Defines channel group to which this applies
	channelOrientation	Enumeration (ChannelOrientationType)	ANY	60	Defines the channel orientation to which this applies

config/processing/global.default-filter-definitions-by-usage/
{station}-{channel group}-default-default-{channel-orientation}-{phase}-filter.json

global.default-filter-definitions-by-usage Station Channel Group Channel Code Phase Configuration Option					
	name	{station}-{channel group}-{channel band}-{channel instrument}-{channel-orientation}-{phase}-filter			
	criterion	**type**	**operator**	**priority**	**description**
	station	Database Value (Station)	EQ	100	Defines the station(s) to which this applies.
	channelGroup	Database Value (ChannelGroup)	ANY	90	Defines channel group to which this applies
	channelOrientation	Enumeration (ChannelOrientationType)	ANY	60	Defines the channel orientation to which this applies
	phase	Enumeration (PhaseType)	ANY	50	Defines the phase type to which this applies

config/processing/global.default-filter-definitions-by-usage/
{station}-{channel group}-default-{channel instrument}-default-default-filter.json

global.default-filter-definitions-by-usage Station Channel Group Channel Code Phase Configuration Option					
	name	{station}-{channel group}-{channel band}-{channel instrument}-{channel-orientation}-{phase}-filter			
	criterion	**type**	**operator**	**priority**	**description**
	station	Database Value (Station)	EQ	100	Defines the station(s) to which this applies.
	channelGroup	Database Value (ChannelGroup)	ANY	90	Defines channel group to which this applies
	channelBand	Enumeration (ChannelBandType)	ANY	80	Defines the channel band to which this applies
	channelInstrument	Enumeration (ChannelInstrumentType)	ANY	70	Defines the channel instrument to which this applies

config/processing/global.default-filter-definitions-by-usage/
{station}-{channel group}-default-{channel instrument}-default-{phase}-filter.json

global.default-filter-definitions-by-usage Station Channel Group Channel Code Phase Configuration Option					
	name	{station}-{channel group}-{channel band}-{channel instrument}-{channel-orientation}-{phase}-filter			
	criterion	**type**	**operator**	**priority**	**description**
	station	Database Value (Station)	EQ	100	Defines the station(s) to which this applies.
	channelGroup	Database Value (ChannelGroup)	ANY	90	Defines channel group to which this applies
	channelInstrument	Enumeration (ChannelInstrumentType)	ANY	70	Defines the channel instrument to which this applies
	phase	Enumeration (PhaseType)	ANY	50	Defines the phase type to which this applies

config/processing/global.default-filter-definitions-by-usage/
{station}-{channel group}-default-{channel instrument}-{channel-orientation}-default-filter.json

global.default-filter-definitions-by-usage Station Channel Group Channel Code Phase Configuration Option					
	name	{station}-{channel group}-{channel band}-{channel instrument}-{channel-orientation}-{phase}-filter			
	criterion	**type**	**operator**	**priority**	**description**
	station	Database Value (Station)	EQ	100	Defines the station(s) to which this applies.
	channelGroup	Database Value (ChannelGroup)	ANY	90	Defines channel group to which this applies
	channelBand	Enumeration (ChannelBandType)	ANY	80	Defines the channel band to which this applies
	channelInstrument	Enumeration (ChannelInstrumentType)	ANY	70	Defines the channel instrument to which this applies
	channelOrientation	Enumeration (ChannelOrientationType)	ANY	60	Defines the channel orientation to which this applies

config/processing/global.default-filter-definitions-by-usage/
{station}-{channel group}-default-{channel instrument}-{channel-orientation}-{phase}-filter.json

global.default-filter-definitions-by-usage Station Channel Group Channel Code Phase Configuration Option					
	name	{station}-{channel group}-{channel band}-{channel instrument}-{channel-orientation}-{phase}-filter			
	criterion	**type**	**operator**	**priority**	**description**
	station	Database Value (Station)	EQ	100	Defines the station(s) to which this applies.
	channelGroup	Database Value (ChannelGroup)	ANY	90	Defines channel group to which this applies
	channelInstrument	Enumeration (ChannelInstrumentType)	ANY	70	Defines the channel instrument to which this applies
	channelOrientation	Enumeration (ChannelOrientationType)	ANY	60	Defines the channel orientation to which this applies
	phase	Enumeration (PhaseType)	ANY	50	Defines the phase type to which this applies

config/processing/global.default-filter-definitions-by-usage/
{station}-{channel group}-{channel band}-default-default-{phase}-filter.json

global.default-filter-definitions-by-usage Station Channel Group Channel Code Phase Configuration Option					
	name	{station}-{channel group}-{channel band}-{channel instrument}-{channel-orientation}-{phase}-filter			
	criterion	**type**	**operator**	**priority**	**description**
	station	Database Value (Station)	EQ	100	Defines the station(s) to which this applies.
	channelGroup	Database Value (ChannelGroup)	ANY	90	Defines channel group to which this applies
	channelBand	Enumeration (ChannelBandType)	ANY	80	Defines the channel band to which this applies

config/processing/global.default-filter-definitions-by-usage/
{station}-{channel group}-{channel band}-default-default-{phase}-filter.json

global.default-filter-definitions-by-usage Station Channel Group Channel Code Phase Configuration Option					
	name	{station}-{channel group}-{channel band}-{channel instrument}-{channel-orientation}-{phase}-filter			
	criterion	**type**	**operator**	**priority**	**description**
	station	Database Value (Station)	EQ	100	Defines the station(s) to which this applies.
	channelGroup	Database Value (ChannelGroup)	ANY	90	Defines channel group to which this applies
	channelBand	Enumeration (ChannelBandType)	ANY	80	Defines the channel band to which this applies
	phase	Enumeration (PhaseType)	ANY	50	Defines the phase type to which this applies

config/processing/global.default-filter-definitions-by-usage/
{station}-{channel group}-{channel band}-default-{channel-orientation}-default-filter.json

global.default-filter-definitions-by-usage Station Channel Group Channel Code Phase Configuration Option					
	name	{station}-{channel group}-{channel band}-{channel instrument}-{channel-orientation}-{phase}-filter			
	criterion	**type**	**operator**	**priority**	**description**
	station	Database Value (Station)	EQ	100	Defines the station(s) to which this applies.
	channelGroup	Database Value (ChannelGroup)	ANY	90	Defines channel group to which this applies
	channelBand	Enumeration (ChannelBandType)	ANY	80	Defines the channel band to which this applies
	channelOrientation	Enumeration (ChannelOrientationType)	ANY	60	Defines the channel orientation to which this applies

config/processing/global.default-filter-definitions-by-usage/
{station}-{channel group}-{channel band}-default-{channel-orientation}-{phase}-filter.json

global.default-filter-definitions-by-usage Station Channel Group Channel Code Phase Configuration Option					
	name	{station}-{channel group}-{channel band}-{channel instrument}-{channel-orientation}-{phase}-filter			
	criterion	**type**	**operator**	**priority**	**description**
	station	Database Value (Station)	EQ	100	Defines the station(s) to which this applies.
	channelGroup	Database Value (ChannelGroup)	ANY	90	Defines channel group to which this applies
	channelBand	Enumeration (ChannelBandType)	ANY	80	Defines the channel band to which this applies
	channelOrientation	Enumeration (ChannelOrientationType)	ANY	60	Defines the channel orientation to which this applies

config/processing/global.default-filter-definitions-by-usage/
{station}-{channel group}-{channel band}-{channel instrument}-default-default-filter.json

global.default-filter-definitions-by-usage Station Channel Group Channel Code Phase Configuration Option					
	name	{station}-{channel group}-{channel band}-{channel instrument}-{channel-orientation}-{phase}-filter			
	criterion	**type**	**operator**	**priority**	**description**
	station	Database Value (Station)	EQ	100	Defines the station(s) to which this applies.
	channelGroup	Database Value (ChannelGroup)	ANY	90	Defines channel group to which this applies
	channelBand	Enumeration (ChannelBandType)	ANY	80	Defines the channel band to which this applies
	channelInstrument	Enumeration (ChannelInstrumentType)	ANY	70	Defines the channel instrument to which this applies

config/processing/global.default-filter-definitions-by-usage/
{station}-{channel group}-{channel band}-{channel instrument}-default-{phase}-filter.json

global.default-filter-definitions-by-usage Station Channel Group Channel Code Phase Configuration Option					
	name	{station}-{channel group}-{channel band}-{channel instrument}-{channel-orientation}-{phase}-filter			
	criterion	**type**	**operator**	**priority**	**description**
	station	Database Value (Station)	EQ	100	Defines the station(s) to which this applies.
	channelGroup	Database Value (ChannelGroup)	ANY	90	Defines channel group to which this applies
	channelBand	Enumeration (ChannelBandType)	ANY	80	Defines the channel band to which this applies
	channelInstrument	Enumeration (ChannelInstrumentType)	ANY	70	Defines the channel instrument to which this applies
	phase	Enumeration (PhaseType)	ANY	50	Defines the phase type to which this applies

config/processing/global.default-filter-definitions-by-usage/
{station}-{channel group}-{channel band}-{channel instrument}-{channel-orientation}-default-filter.json

global.default-filter-definitions-by-usage Station Channel Group Channel Code Phase Configuration Option					
	name	{station}-{channel group}-{channel band}-{channel instrument}-{channel-orientation}-{phase}-filter			
	criterion	**type**	**operator**	**priority**	**description**
	station	Database Value (Station)	EQ	100	Defines the station(s) to which this applies.
	channelGroup	Database Value (ChannelGroup)	ANY	90	Defines channel group to which this applies
	channelBand	Enumeration (ChannelBandType)	ANY	80	Defines the channel band to which this applies
	channelInstrument	Enumeration (ChannelInstrumentType)	ANY	70	Defines the channel instrument to which this applies
	channelOrientation	Enumeration (ChannelOrientationType)	ANY	60	Defines the channel orientation to which this applies

config/processing/global.default-filter-definitions-by-usage/
{station}-{channel group}-{channel band}-{channel instrument}-{channel-orientation}-{phase}-filter.json

global.default-filter-definitions-by-usage Station Channel Group Channel Code Phase Configuration Option				
name	{station}-{channel group}-{channel band}-{channel instrument}-{channel-orientation}-{phase}-filter			
criterion	**type**	**operator**	**priority**	**description**
station	Database Value (Station)	EQ	100	Defines the station(s) to which this applies.
channelGroup	Database Value (ChannelGroup)	ANY	90	Defines channel group to which this applies
channelBand	Enumeration (ChannelBandType)	ANY	80	Defines the channel band to which this applies
channelInstrument	Enumeration (ChannelInstrumentType)	ANY	70	Defines the channel instrument to which this applies
channelOrientation	Enumeration (ChannelOrientationType)	ANY	60	Defines the channel orientation to which this applies
phase	Enumeration (PhaseType)	ANY	50	Defines the phase type to which this applies

global.default-filter-definitions-by-usage parameters		
parameter	**type**	**description**
filterDefinitionsForDistanceRangesByUsage	Structure	Structure which defines the filter definition for each Usage (ONSET, DETECTION, FK, and AMPLITUDE) which can be broken down by range.

3.21.1 filterDefinitionsForDistanceRangesByUsage Structure

The structure for filterDefinitionsForDistanceRangesByUsage is defined as follows:

filterDefinitionsForDistanceRangesByUsage Structure		
parameter	**type**	**description**
ONSET	FilterDefinitionForDistance Structure Array	Defines the default ONSET filters. This parameter is required when there is a DEFAULT constraint but otherwise it is optional.
DETECTION	FilterDefinitionForDistance Structure Array	Defines the default DETECTION filters This parameter is required when there is a DEFAULT constraint but otherwise it is optional.
FK	FilterDefinitionForDistance Structure Array	Defines the default FK filters This parameter is required when there is a DEFAULT constraint but otherwise it is optional.
AMPLITUDE	FilterDefinitionForDistance Structure Array	Defines the default AMPLITUDE filters This parameter is required when there is a DEFAULT constraint but otherwise it is optional.

3.21.2 Filter Definition For Distance Structure

The structure for Filter Definition For Distance Structure is defined as follows:

Filter Definition For Distance Structure			
	parameter	**type**	**description**
	distanceRange	Structure (Optional)	Distance Range is an optional structure. When not present the filter is applied for all distances. When used in a configuration with a DEFAULT contain a structure must be present providing the default filter for the entire distance range (0 to 180)
	filterDefinition	Reference ($ref=global.filter-definition) ($ref=fglobal.filter-cascade)	Reference to either global.filter-definiton or global.filter-cascade.

3.21.2.1 distanceRange Structure

The structure for distanceRange is defined as follows:

distanceRange Filter Definition For Distance Structure			
	parameter	**type**	**description**
	minDistanceDeg	Numeric (deg)	Minimum distance in degrees for which the filter applies. Value must be greater than or equal to 0 and less than or equal to 180.
	maxDistanceDeg	Numeric (deg)	Maximum distance in degrees for which the filter applies. Value must be greater than or equal to 0 and less than or equal to 180.

3.22 global.filter-cascade

The global.filter-cascade is used to define cascade filters. Cascade filters are made up of a series of two or more linear filters defined in the global.filter-description configuration.

config/processing/global.filter-cascade/{cascade-filter-name}.json

global.filter-cascade Configuration Option					
	name	{cascade-filter-name}			
	criterion	**type**	**operator**	**priority**	**description**
	name	Named Value (CascadeFilter)	EQ	—	Defines the name of the cascade filter

global.filter-cascade parameters			
	parameter	**type**	**description**
	comments	String	Comments on the filter.
	filterType	Enumeration (FilterType)	Filter type enumeration. Value will always be CASCADE.
	filterDescriptions	Reference Array	An ordered collection of references to global.filter-description configuration. Applying this filter cascade to a waveform result in applying each of these filters in order. The collection must contain at least two referenced configurations since if it only contained one then the single referenced configuration could have been used directly in a non-cascaded global.filter-definition configuration.
	parameters	Structure	Structure defining the general parameters of the cascade filter.

3.22.1 parameters Structure

The structure for parameters is defined as follows:

parameters Structure			
	parameter	**type**	**description**
	sampleRateHz	Numeric (hz)	The sample rate of waveform data that can be filtered using these parameters.
	sampleRateToleranceHz	Numeric (hz)	A +/- tolerance around *sampleRateHz* on the sample rate of waveform data that can be filtered using these parameters.
	groupDelaySec	Duration (Optional)	The overall group delay of waveform samples filtered with these parameters, indicating how the samples are shifted in time relative to the unfiltered samples. Optional since some FilterTypes GMS will implement in the future do not have meaningful ways to assign it a value.

3.23 global.filter-definition

The global.filter-definition configuration defines a filter. It describes the name of the filter, provide comments on the filter and reference the global.filter-description configuration for the details of the filter.

config/processing/global.filter-definition/{filter-name}.json

global.filter-definition Configuration Option					
	name	*{filter-name}*			
	criterion	**type**	**operator**	**priority**	**description**
	name	Named Value (Filter)	EQ	—	Constrains the filter definition to a specific filter name

global.filter-definition parameters			
	parameter	**type**	**description**
	name	Named Value (Filter)	Name of the filter
	comments	String	Comments about the filter
	filterDescription	Structure	Pointer to the global.filter-description(s) and value(s)

3.23.1 filterDescription Structure

The structure for filterDescription is defined as follows:

filterDescription parameters			
	parameter	**type**	**description**
	$ref=global.filter-description	Reference	Pointer to the global.filter-description(s) and value(s)

3.24 global.filter-description

The global.filter-description configuration describes the details of a linear filter. The global.filter-description configuration is utilized via reference either from global.filter-definition or global.filter-cascade.

config/processing/global.filter-description/{filter-name}.json

global.filter-description Configuration Option					
	name	*{filter-name}*			
	criterion	**type**	**operator**	**priority**	**description**
	name	Named Value (Filter)	EQ	—	Constrains the filter description to a specific filter name

global.filter-description parameters		
parameter	**type**	**description**
comments	String	Comments about the filter
causal	Boolean	TRUE if the filter is causal (i.e. the filtered result for a particular sample depend on previous samples but not later samples) and FALSE otherwise.
filterType	Enumeration (FilterType)	Gives the filter type from the FilterType enumeration list.
lowFrequency	Numeric (hz)	This value's interpretation depends on the *passbandType*.
highFrequency	Numeric (hz)	This value's interpretation depends on the *passbandType*.
order	Integer	Filter order. Describes fall-off (transition abruptness between the filter's passband and stopband).
passBandType	Enumeration (FilterPassBandType)	Describes how to interpret the *lowFrequecyHz* and *highFrequencyHz* attributes (e.g. the **PassbandType** literal BAND_REJECT means frequency content between *lowFrequecyHz* and *highFrequencyHz* will be suppressed in filtered **Waveform** objects).
linearFilterType	Enumeration (LinearFilterType)	Enumeration for the type of linear filter.

3.25 global.filter-list-definition

A configuration option for global filter list definition default

config/processing/global.filter-list-definition/default.json

global.filter-list-definition Configuration Option					
name	signal-enhancement-configuration.filter-list-definition				
criterion	**type**	**operator**	**priority**	**description**	
DEFAULT	—	—	—	Defines the constraint as default	

global.filter-list-definition parameters		
parameter	**type**	**description**
preferredFilterListByActivity	Structure Array	Defines the preferred filter list for each activity. Each activity defined in the workflow-manager.stage-definition should be listed in exactly one of the preferenceFilterListByActivity structure within the array.
filterLists	Reference Array	Structure which describes the details of a global filter list definition, including a pointer to the global.filter-list(s) along with the respective value(s)

3.25.1 preferedFilterListByActivity Structure

The structure for preferedFitlerListByActivity is defined as follows:

preferredFilterListByActivity parameters			
	parameter	**type**	**description**
	name	Named Value (FilterList)	Name of the Filter List. This should match the name of a configuration defined in global.filter-list.
	workflowDefinitionId	Entity Reference (Activity)	Structure which defines the workflow for which the defined Filter List is preferred.

3.26 global.filter-list

Each global.filter-list configuration describes a single filter list that is displayed on the Filter Display. For each filter within the filter list the filter will be identified as either the unfiltered option, the FK filter, the ONSET filter, the DETECTION filter, or a pointer to either global.filter-defintion or global.filter-cascade will be given to identify the filter. Each filter will identify whether it is part of the hotkey cycle. Optionally a name and comments can be identified for each filter. Note that name and comments are also included as part of the global.filter-definition so when pointing to the a global.filter-definition including the name and comments is unnecessary.

config/processing/global.filter-list/{filter-list-name}.json

global.filter-list Configuration Option					
	name	{filter-list-name}			
	criterion	**type**	**operator**	**priority**	**description**
	name	Named Value (FilterList)	EQ	—	Constrains the filter list to a specific filter list name

global.filter-list parameters			
	parameter	**type**	**description**
	name	Named Value (FilterList)	Name of the filter list.
	defaultFilterIndex	Integer	Order of the Filter Lists as they appear on the Filter Display. Numbering starts with 0 and is unique and consecutive across each global.filter-list configuration.
	filters	Structure Array	Structure array which describes filters included in the filter list. Each described filter is either a namedFilter or a pointer to the global.filter-definitions and global.filter-cascade(s) along with their respective value(s)

3.26.1 filters Structure

The structure for filters is defined as follows:

filters Structure			
	parameter	**type**	**description**
	withHotKeyCycle	Boolean	Indicates if the Filter is part of the hotkey cycle.
	unfiltered	Boolean (Optional)	Indicates this entry in the filter list is for applying no filter. When unfiltered is set to true then no Filter is applied. Either unfiltered is set to true, namedFilter is populated, or filterDefinition is populated but not more than one of those.
	namedFilter	Enumeration (FilterDefinitionUsage) (Optional)	When the namedFilter is used then the Filter applies the filter associated with the usage or the configured default filter for that usage type. Either unfiltered is set to true, namedFilter is populated, or filterDefinition is populated but not more than one of those.
	filterDefinition	Reference ($ref=global.filter-definition) or Structure (Optional)	Reference to either $ref=global.filter-definition or structure which then provides reference to $ref=global.filter-cascade. Either unfiltered is set to true, namedFilter is populated, or filterDefinition is populated but not more than one of those.

3.26.2 filterDefinition Structure

The structure for filterDefinition is defined as follows:

filterDefinition Structure			
	parameter	**type**	**description**
	name	String (Optional)	Name of the filter
	comments	String (Optional)	Comments about the filter
	filterDescription	Reference ($ref=global.filter-cascade)	Structure which provides a reference to a filter either a global.filter-definition or global.filter-cascade.

3.27 global.filter-metadata

The global.filter-metadata configuration is obsolete and has been replaced by the global.default-fitler-definition-by-usage configuration.

The global.filter-metadata defines the default filter to use for a named filter (DETECTION, ONSET, FK). When one of the named filters is selected on the Filter Display the named filter defined for the signal detection will be used to the filter

the waveform. In the event that there is no named filter associated with the signal detection then the filter defined in the global.fitler-metadata for the named filter will be applied.

config/processing/global.filter-metadata/default-{filter}.json

global.filter-metadata Configuration Option					
	name	{applied filter case}			
	criterion	**type**	**operator**	**priority**	**description**
	filter	Named Value (Filter)	IN	30	NameFilterType enumerations to which the filter is used.

config/processing/global.filter-metadata/{applied filter case}.json

global.filter-metadata Configuration Option				
	name	{applied filter case}		
	criterion	**operator**	**priority**	**description**
	station	EQ	100	Station to which configuration applies
	channelGroup	EQ	90	Channel group to which configuration applies
	channelBand	EQ	80	Channel band to which configuration applies.
	channelInstrument	EQ	70	Channel Instrument to which configuration applies.
	channelOrientation	EQ	60	Channel orientation to which configuration applies.
	phase	EQ	50	Phase Type to which configuration applies.
	distance	IN	40	Distance from event to which configuration applies.
	filter	IN	30	Filter Usage to which the default filter applies.

global.filter-metadata parameters			
	parameter	**type**	**description**
	filterDefinition	Reference ($ref=global.filter-definition)	Pointer to the global.filter-definitions

3.28 global.fk-reviewable-phases

The global.fk-reviewable-phases configuration defines which FK Spectra need to be reviewed on the Azimuth/Slowness Display. The global.fk-reviewable-phases configuration allows both station and workflow activity as constraints and defines a list of phases which requires review.

There is no default configuration for global.fk-reviewable. Each station must be configured in order to have any reviewable phases.

config/processing/global.fk-reviewable-phase/{station-type/station}-{default/activity}.json

global.fk-reviewable-phase Configuration Option					
	name	{station-type}-default			
	criterion	**type**	**operator**	**priority**	**description**
	station	Database Value (Station)	IN	100	List of stations to which this configuration applies
	activity	Named Value (Activity)	IN	80	List of activities to which this configuration applies

The format for the parameters for the global.fk-reviewable-phase-parameters is as follows:

global.fk-reviewable-phase parameters			
	parameter	**type**	**description**
	phases	Enumeration (PhaseType)	List of phases which need their FK reviewed.

3.29 global.fk-spectra-template-config

The gloal.fk-spectra-template-config configuration defines the parameters required for calculating an FK Spectra.

config/processing/globa.fk-spectra-template-config/fk-spectra-template-default-default.json

global.fk-spectra-template-config Configuration Option					
	name	fk-spectra-template-default-default			
	criterion	**type**	**operator**	**priority**	**description**
	DEFAULT	—	—	—	Defines constraint as default

config/processing/globa.fk-spectra-template-config/fk-spectra-template-{station}-{phase}.json

global.fk-spectra-template-config Configuration Option					
	name	fk-spectra-template-default-default			
	criterion	**type**	**operator**	**priority**	**description**
	station	Database Value (Station)	EQ or IN	200	Defines stations for which the config applies
	phaseType	Enumeration (PhaseType)	EQ or IN	100	Defines phases for which the config applies

global.fk-spectra-template-config parameters			
	parameter	**type**	**description**
	fkSpectraWindow	Structure	Structure defining the lead and duration of the FK Spectra
	inputChannels	Database Value (Channel) Array	List of Channel codes that are used for the FK Spectrum calculations
	inputChannelGroups	Database Value (ChannelGroup) Array	List of Channel Groups that are used for the FK Spectrum calculations or "*" for all Channels Groups. "*" should be used when no Station is specified as selector.
	fkSpectrumParameters	Structure	Structure defining the parameters for the FK Spectrum calculation

3.29.1 fkSpectraWindow Structure

The structure for fkSpectraWindow is defined as follows:

fkSpectraWindow Structure			
	parameter	**type**	**description**
	duration	Duration	Duration of time over which the FK Spectra is calculated
	lead	Duration	Time before the signal detection over which the FK Spectrum calculation window begins

3.29.2 fkSpectraParameters Structure

The structure for fkSpectraParameters is defined as follows:

fkSpetraParameters Structure		
parameter	**type**	**description**
prefilter	Structure	Reference to the filter applied to the waveform before calculating the FK Spectrum.
slownessGrid	Structure	Defines the size of the power and fstat arrays in FK Spectrum.
fftTaperFunction	Enumeration (TapperFunction)	The taper function to apply to the waveforms before the Fourier transform
fkSpectrumWindow	Structure	Determines the start and end times of the waveforms used to compute each FK Spectrum.
fkFrequencyRange	Structure	Determines the frequency range of waveforms used to compute the FK Spectra.
fkUncertaintyOption	Enumeration (FKUncertaintiyOption)	The uncertainty option for calculating azimuth and slowness uncertainty.
waveformSampleRate	Structure	Determines which waveforms can be included in an FK Spectra calculation based on their sample rates.
spectrumStepDuration	Duration	The duration of time between each FK Spectrum within the FK Spectra.
orientationAngleToleranceDeg	Numeric (deg)	The maximum (inclusive) tolerance from the beamed FK derived Channel object's orientation angles (horizontal or vertical) of the un-beamed Channel objects used to calculate beamed waveforms. This is a threshold for the maximum difference between an input Channel object's orientation angle and the beamed Channel object's corresponding orientation angle. Value must be greater than or equal to 0 and less than or equal to 360.
minimumWaveformsForSpectra	Integer	The minimum number of waveforms needed to create each FK Spectrum in the FK Spectra.
normalizeWaveforms	Boolean	Whether the waveforms used to calculate the FK Spectra will be normalized.
twoDimensional	Boolean	Whether the FK calculations will use the vertical positions of the input channels when calculating time delays.
fftTaperPercent	Numeric (%)	The percent of the frequency range the taper function is calculated over.

3.29.2.1 prefilter Structure

The structure for prefilter is defined as follows:

preFilter Structure			
	parameter	**type**	**description**
	$ref=global.filter-definition	Reference (Optional)	Reference to a filter definition in global.filter-definition. Either $ref=global.filter-definition or $ref=global.filter-cascade should be populated but not both.
	$ref=global.filter-cascade	Reference (Optional)	Reference to cascade filter in globa.filter-cascade. Either $ref=global.filter-definition or $ref=global.filter-cascade should be populated but not both.

3.29.2.2 slownessGrid Structure

The structure for slownessGrid is as follows:

slownessGrid Structure			
	parameter	**type**	**description**
	maxSlowness	Numeric (sec/deg)	Maximum Slowness in both x and y directions. Minimum slowness in both x and y directions is always equal to the negative maxSlowness.
	numPoints	Integer	The number of calculation points in both x and y direction that are calculated for each FK Spectrum.

3.29.2.3 frequencyRange

The structure for frequencyRange is defined as follows:

frequencyRange Structure			
	parameter	**type**	**description**
	lowFrequencyHz	Numeric (hz)	Lower bound of frequency range
	highFrequencyHz	Numeric (hz)	Upper bound of frequency range

3.29.2.4 fkSpectrumWindow Structure

The structure for fkSpectrumWindow is defined as follows:

fkSpectrumWindow Structure			
	parameter	**type**	**description**
	duration	Duration	Duration of time over which the FK Spectrum is calculated
	lead	Duration	Time before the signal detection plus of minus the spectrumStepDuration over which the FK Spectrum calculation window begins

3.29.2.5 waveformSampleRate Structure

The waveformSampleRate gives the expected waveform sample rate and the tolerance for the sample rate. Waveforms with a sample rate outside the tolerance (wavefromSampleRateHz +/- waveformSampleRateTolerance) will be excluded from the FK calculation. The structure for waveformSampleRate is defined as follows:

wavefromSampleRate Structure			
	parameter	**type**	**description**
	waveformSampleRateHz	Numeric (hz)	Expected sample rate of the waveforms used.
	waveformSampleRateToleranceHz	Numeric (hz)	Tolerance for the sample rate.

3.30 global.monitoring-org

Global monitoring Org is a string defining how to assign the monitoringOrganization attribute for the bridged SignalDetection and SignalDetectionHypothesis objects. This configuration is shared by several Bridge components. SignalDetectionBridgeConfiguration should access it as a Global Configuration Reference.

config/processing/global.monitoring-org/default.json

global.monitoring-org Configuration Option					
	name	monitoring-org-default			
	criterion	**type**	**operator**	**priority**	**description**
	DEFAULT	—	—	—	Defines the constraint as default

global.monitoring-org parameters			
	parameter	**type**	**description**
	monitoringOrganization	String	Name of organization that is monitoring

3.31 global.operational-time-period

The operational time-period defined the window of time for which data can be accessed in GMS. The global.operational-time-period defines the beginning and end of the operational time period with respect to the current time.

config/processing/global.operational-time-period/default.json

global.operational-time-period Configuration Option					
	name	cache-config-default			
	criterion	**type**	**operator**	**priority**	**description**
	DEFAULT	—	—	—	Defines the constraint as default

global.operational-time-period parameters			
	parameter	**type**	**description**
	operationalPeriodStart	Duration	Duration prior to current time which defines the start of the operational time-period
	operationalPeriodEnd	Duration	Duration prior to current time which defined the end of the operational time-period

3.32 global.processing-mask-definition

The global.processing-mask-definition gives the combinations of QcSegmentCategory and QcSegmentType which create a processing mask.

config/processing/global.processing-mask-definition/default.json

global.processing-mask-definition Configuration Option (default)					
	name	default			
	criterion	**type**	**operator**	**priority**	**description**
	DEFAULT	—	—	—	Defines the constraint as default

config/processing/global.processing-mask-definition/{processingOperation}.json

global.processing-mask-definition Configuration Option					
	name	{processingOperation}			
	criterion	**type**	**operator**	**priority**	**description**
	processingOperation	Enumeration (ProcessingOperation)	EQ	100	Processing operation for which configuration applies

config/processing/global.processing-mask-definition/{processingOperation}-{channelInstrument}.json

global.processing-mask-definition Configuration Option					
	name	{processingOperation}-{channelInstrument}			
	criterion	**type**	**operator**	**priority**	**description**
	processingOperation	Enumeration (ProcessingOperation)	EQ	100	Processing operation for which configuration applies
	channelInstrument	Enumeration (ChannelInstrumentType)	EQ	40	Channel Instrument for which configuration applies.

config/processing/global.processing-mask-definition/{processingOperation}-{channelBand}.json

global.processing-mask-definition Configuration Option					
	name	{processingOperation}-{channelBand}			
	criterion	**type**	**operator**	**priority**	**description**
	processingOperation	Enumeration (ProcessingOperation)	EQ	100	Processing operation for which configuration applies
	channelBand	Enumeration (ChannelBandType)	EQ	50	Channel band for which configuration applies

config/processing/global.processing-mask-definition/
{processingOperation}-{channelBand}- {channelInstrument}.json

global.processing-mask-definition Configuration Option					
	name	{processingOperation}-{channelBand}- {channelInstrument}			
	criterion	**type**	**operator**	**priority**	**description**
	processingOperation	Enumeration (ProcessingOperation)	EQ	100	Processing operation for which configuration applies
	channelBand	Enumeration (ChannelBandType)	EQ	50	Channel band for which configuration applies
	channelInstrument	Enumeration (ChannelInstrumentType)	EQ	40	Channel Instrument for which configuration applies.

config/processing/global.processing-mask-definition/
{processingOperation}-{channelBand}-{channelInstrument}.json

global.processing-mask-definition Configuration Option					
	name	{processingOperation}-{channelBand}-{channelInstrument}			
	criterion	**type**	**operator**	**priority**	**description**
	processingOperation	Enumeration (ProcessingOperation)	EQ	100	Processing operation for which configuration applies
	phaseType	Enumeration (PhaseType)	EQ	60	Phase Type for which configuration applies.

config/processing/global.processing-mask-definition/
{processingOperation}-{phaseType}-{channelInstrument}.json

global.processing-mask-definition Configuration Option					
	name	{processingOperation}-{phaseType}-{channelInstrument}			
	criterion	**type**	**operator**	**priority**	**description**
	processingOperation	Enumeration (ProcessingOperation)	EQ	100	Processing operation for which configuration applies
	phaseType	Enumeration (PhaseType)	EQ	60	Phase Type for which configuration applies.
	channelInstrument	Enumeration (ChannelInstrumentType)	EQ	40	Channel Instrument for which configuration applies.

config/processing/global.processing-mask-definition/
{processingOperation}-{phaseType}-{channelBand}.json

global.processing-mask-definition Configuration Option					
	name	{processingOperation}-{phaseType}-{channelBand}			
	criterion	**type**	**operator**	**priority**	**description**
	processingOperation	Enumeration (ProcessingOperation)	EQ	100	Processing operation for which configuration applies
	phaseType	Enumeration (PhaseType)	EQ	60	Phase Type for which configuration applies.
	channelBand	Enumeration (ChannelBandType)	EQ	50	Channel band for which configuration applies

config/processing/global.processing-mask-definition/
{processingOperation}-{phaseType}-{channelBand}-{channelInstrument}.json

global.processing-mask-definition Configuration Option					
	name	{processingOperation}-{phaseType}-{channelBand}-{channelInstrument}			
	criterion	**type**	**operator**	**priority**	**description**
	processingOperation	Enumeration (ProcessingOperation)	EQ	100	Processing operation for which configuration applies
	phaseType	Enumeration (PhaseType)	EQ	60	Phase Type for which configuration applies.
	channelBand	Enumeration (ChannelBandType)	EQ	50	Channel band for which configuration applies
	channelInstrument	Enumeration (ChannelInstrumentType)	EQ	40	Channel Instrument for which configuration applies.

config/processing/global.processing-mask-definition/
{processingOperation}-{station}.json

global.processing-mask-definition Configuration Option				
name	{processingOperation}-{station}			
criterion	**type**	**operator**	**priority**	**description**
processingOperation	Enumeration (ProcessingOperation)	EQ	100	Processing operation for which configuration applies
station	Database Value (Station)	IN	90	Station(s) to which configuration applies.

config/processing/global.processing-mask-definition/
{processingOperation}-{station}-{channel}.json

global.processing-mask-definition Configuration Option				
name	{processingOperation}-{station}-{channel}			
criterion	**type**	**operator**	**priority**	**description**
processingOperation	Enumeration (ProcessingOperation)	EQ	100	Processing operation for which configuration applies
station	Database Value (Station)	EQ	90	Station to which configuration applies.
channel	Database Value (Channel)	EQ	70	Channel for which configuration applies.

config/processing/global.processing-mask-definition/
{processingOperation}-{station}-{channel}-{phaseType}.json

global.processing-mask-definition Configuration Option				
name	{processingOperation}-{station}-{channel}-{phaseType}			
criterion	**type**	**operator**	**priority**	**description**
processingOperation	Enumeration (ProcessingOperation)	EQ	100	Processing operation for which configuration applies
station	Database Value (Station)	EQ	90	Station to which configuration applies.
channel	Database Value (Channel)	EQ	70	Channel for which configuration applies.
phaseType	Enumeration (PhaseType)	EQ	60	Phase Type for which configuration applies.

config/processing/global.processing-mask-definition/
{processingOperation}-{station}-{channelGroup}.json

global.processing-mask-definition Configuration Option				
name	{processingOperation}-{station}-{channelGroup}			
criterion	**type**	**operator**	**priority**	**description**
processingOperation	Enumeration (ProcessingOperation)	EQ	100	Processing operation for which configuration applies
station	Database Value (Station)	EQ	90	Station to which configuration applies.
channelGroup	Database Value (ChannelGroup)	EQ	80	Channel group for which configuration applies.

config/processing/global.processing-mask-definition/
{processingOperation}-{station}-{channelGroup}-{phaseType}.json

global.processing-mask-definition Configuration Option				
name	{processingOperation}-{station}-{channelGroup}-{phaseType}			
criterion	**type**	**operator**	**priority**	**description**
processingOperation	Enumeration (ProcessingOperation)	EQ	100	Processing operation for which configuration applies
station	Database Value (Station)	EQ	90	Station to which configuration applies.
channelGroup	Database Value (ChannelGroup)	EQ	80	Channel group for which configuration applies.
phaseType	Enumeration (PhaseType)	EQ	60	Phase Type for which configuration applies.

config/processing/global.processing-mask-definition/
{processingOperation}-{station}-{channelGroup}-{channel}.json

global.processing-mask-definition Configuration Option				
name	{processingOperation}-{station}-{channelGroup}-{channel}			
criterion	**type**	**operator**	**priority**	**description**
processingOperation	Enumeration (ProcessingOperation)	EQ	100	Processing operation for which configuration applies
station	Database Value (Station)	EQ	90	Station to which configuration applies.
channelGroup	Database Value (ChannelGroup)	EQ	80	Channel group for which configuration applies.
channel	Database Value (Channel)	EQ	70	Channel for which configuration applies.

config/processing/global.processing-mask-definition/
{processingOperation}-{station}-{channelGroup}-{channel}-{phaseType}.json

global.processing-mask-definition Configuration Option				
name	{processingOperation}-{station}-{channelGroup}-{channel}-{phaseType}			
criterion	**type**	**operator**	**priority**	**description**
processingOperation	Enumeration (ProcessingOperation)	EQ	100	Processing operation for which configuration applies
station	Database Value (Station)	EQ	70	Station to which configuration applies.
channelGroup	Database Value (ChannelGroup)	EQ	60	Channel group for which configuration applies.
channel	Database Value (Channel)	EQ	50	Channel for which configuration applies.
phaseType	Enumeration (PhaseType)	EQ	40	Phase Type for which configuration applies.

global.processing-mask-definition parameters		
parameter	**type**	**description**
maskedSegmentMergeThreshold	Duration	Represents the maximum duration (inclusive) between the end of one QcSegmentVersion and the start of the next QcSegmentVersion that may be included in a ProcessingMask
appliedQcSegmentCategoryAndTypes	Structure Array	Collection of Qc Segment Category and Qc Segment Types defining which QcSegmentVersions will be included in the ProcessingMasks created from this ProcessingMaskDefinition. When a QcSegmentVersion has both a category and type which match one of the appliedQcSegemntCategoryAndTypes the QcSegmentVersion is included when creating processing masks.

3.32.1 appliedQcSegmentCategoryAndTypes Structure

The structure for appliedQcSegmentCategoryAndTypes is defined as follows:

appliedQcSegmentCategoryAndTypes Structure		
parameter	**type**	**description**
category	Enumeration (QcSegmentCategory)	QcSegmentCategory enumeration.
type	Enumeration (QcSegmentType)	QcSegmentType enumeration.

3.33 global.stage-accounts

A mapping of a workflow definition ID to a database account that is used to retrieve data for that stage. Global Stage Accounts used in signal detection manager, when queried, the service for data on detections from a certain stage, knows which database account to look.

A configuration option for soccpro global stage accounts default

config/processing/global.stage-accounts/default.json

global.stage-accounts Configuration Option					
	name	stage-accounts-default			
	criterion	**type**	**operator**	**priority**	**description**
	DEFAULT	—	—	—	Defines the constraint as default

global.stage-accounts parameters			
	parameter	**type**	**description**
	databaseAccountsByStage	Structure Array	Structure containing workFlowDefinitionID name of the analyst and databaseAccount address for that name

3.33.1 databaseAccountsByStage Structure

The structure for databaseAccountsByStage is defined as follows:

databaseAccountsByStage parameters			
	parameter	**type**	**description**
	workflowDefinitionId	Entity Reference (Stage)	Name of the stage.
	databaseAccount	Database Value (Schema)	Name of the database schema.
	hasPreviousStage	Boolean	Indicates if is a previous stage.

3.34 iaspei-travel-time-lookup-table

The iaspei-travel-time-lookup-table configuration provides a path to the lookup table for iaspei travel time.

config/processing/iaspei-travel-time-lookup-table/default.json

iaspei-travel-time-lookup-table Configuration Option					
	name	iaspei-travel-time-lookup-table			
	criterion	**type**	**operator**	**priority**	**description**
	DEFAULT	—	—	—	Defines the constraint as default

The parameters for the iaspei-travel-time-lookup-table is defined as follows:

iaspei-travel-time-lookup-table parameters			
	parameter	**type**	**description**
	minio_key_prefix	Path	Path to the iaspei travel time lookup table within the file storage service.

3.35 qc-mask.qc-duration-time-parameters

The qc-mask.qc-duration-time-parameters configuration contains parameters used in bridging QcSegments.

qc-mask.qc-duration-time-parameters Configuration Option					
	name	qc-duration-time-default			
	criterion	**type**	**operator**	**priority**	**description**
	DEFAULT	—	—	—	Defines the constraint as default

qc-mask.qc-duration-time-parameters parameters			
	parameter	**type**	**description**
	maxQcSegmentDuration	Duration	Represents the maximum length of a QcSegment. When bridging QcSegments longer than the maxQcSegmentDuration the QcSegment will be broken into the minimum number of equal lengths QcSegments shorter than the maxQcSegmentDuration.
	seedQcMaskInfoStartTime	Time of Day	Gives the time of day to start QCMASK_INFO records when writing QcSegments to the legacy database. The seedQcMaskInfoStartTime is only used when there are no existing QCMASK_INFO records for the Channel. Otherwise, the last QCMASK_INFO record will be used.
	seedQcMaskInfoDuration	Duration	Give the length of time for a QCMASK_INFO record when writing QcSegment to the legacy database. The seedQcMaskInfoDuration is only used when there are no existing QCMASK_INFO records for the Channel. Otherwise, the last QCMASK_INFO record will be used.

3.36 signal-detection.waveform-lead-lag

Signal detection waveform lead lag is a string that measuredWaveformLeadDuration and measuredWaveformLagDuration - offsets before and after the SignalDetection's ARRIVAL_TIME. It is used to define the maximum duration between a FeatureMeasurement.ChannelSegment's startTime and endTime.

config/processing/signal-detection.waveform-lead-lag/default.json

signal-detection.waveform-lead-lag Configuration Option					
	name	waveform-lead-lag-default			
	criterion	**type**	**operator**	**priority**	**description**
	DEFAULT	—	—	—	Defines the constraint as default

signal-detection.waveform-lead-lag parameters			
	parameter	**type**	**description**
	measuredWaveformLeadDuration	Duration	Duration of the waveform prior to a signal detection which is included in the ChannelSegment.
	measuredWaveformLagDuration	Duration	Duration of the waveform after the signal detection which is included in the ChannelSegment.

3.37 signal-enhancement.rotation-template-config

The signal-enhancement.rotation-template-config contains configuration related to rotating channels. This configuration can vary by Station and Phase Type.

config/processing/signal-enhancement.rotation-template-config/default.json

signal-enhancement.rotation-template-config Configuration Option					
	name	default			
	criterion	**type**	**operator**	**priority**	**description**
	DEFAULT	—	—	—	Defines the constraint as default

config/processing/signal-enhancement.rotation-template-config/default-{phase}.json

signal-enhancement.rotation-template-config Configuration Option					
	name	default			
	criterion	**type**	**operator**	**priority**	**description**
	phase	Enumeration (PhaseType)	IN	90	Defines the phases to which this applies

config/processing/signal-enhancement.rotation-template-config/{station}-default.json

signal-enhancement.rotation-template-config Configuration Option					
	name	{station}-{phase}			
	criterion	**type**	**operator**	**priority**	**description**
	station	Database Value (Station)	IN	100	Defines the station(s) to which this applies

config/processing/signal-enhancement.rotation-template-config/{station}-{phase}.json

signal-enhancement.rotation-template-config Configuration Option					
	name	{station}-{phase}			
	criterion	**type**	**operator**	**priority**	**description**
	station	Database Value (Station)	IN	100	Defines the station(s) to which this applies
	phase	Enumeration (PhaseType)	IN	90	Defines the phases to which this applies

signal-enhancement.rotation-template-config parameters			
	parameter	**type**	**description**
	leadDuration	Duration	Rotated waveforms created from this template begin this duration before a reference time, such as a predicted ARRIVAL_TIME.
	duration	Duration	The duration of each rotated waveform ChannelSegment created using this template.
	sampleRateToleranceHz	Numeric (hz)	The maximum (inclusive) tolerance from the rotated Channel's nominal sample rate (the sampleRateHz attribute in this class) of the unrotated waveforms used to calculate rotated waveforms.
	locationToleranceKm	Numeric (km)	The Channels to be rotated using these parameter must be within this distance (inclusive) of the rotated Channel's location.
	orientationAngleToleranceDeg	Numeric (deg)	The maximum (inclusive) tolerance of the un-rotated Channel’s orientation angles from orthogonality with each other (e.g., for a 2-dimensional rotation using N and E Channels, the un-rotated orientation angles are orthogonal within this tolerance and are oriented horizontally within this tolerance).
	twoDimensional	Boolean	Whether the waveform rotation calculation rotates only the horizontal components (two dimensional), or both the horizontal and vertical components (three dimensional).
	samplingType	Enumeration (SamplingType)	How to sample unrotated waveforms to determine their amplitudes at the rotated waveform's sample times.

3.38 signal-feature-measurement.amplitude-measurement-definitions

The signal-feature-measurement.amplitude-measurement-definitions

config/processing/signal-feature-measurement.amplitude-measurement-definitions/default.json

signal-feature-measurement.amplitude-measurement-definitions Configuration Option					
	name	amplitude-measurement-definition-default			
	criterion	**type**	**operator**	**priority**	**description**
	DEFAULT	—	—	—	Defines the constraint as default

config/processing/signal-feature-measurement.amplitude-measurement-definitions/amplitude-measurement-definitions-{amplitude-measurement-type}.json

signal-feature-measurement.amplitude-measurement-definitions Configuration Option					
	name	amplitude-measurement-definition-{amplitude measurement type}			
	criterion	**type**	**operator**	**priority**	**description**
	amplitudeMeasurementType	Enumeration (AmplitudeMeasurementType)	EQ	—	Defines amplitude measurement type configuration applies to

signal-feature-measurement.amplitude-measurement-definitions parameters			
	parameter	**type**	**description**
	maxPeriod	Numeric (sec) (Optional)	The measured amplitude's maximum period (inclusive). Populated except when *measurementMethod* is ROOT_MEAN_SQUARE. Must be less than or equal to the minPeriod.
	measurmentMethod	Enumeration (AmplitudeMeasurementMethod)	Describes how the amplitude is measured on a waveform. See below for a description of each literal.
	minPeriod	Numeric (sec) (Optional)	The measured amplitude's minimum period (inclusive). Populated except when measurementMethod is ROOT_MEAN_SQUARE.
	phases	Enumeration (PhaseType) Array	The amplitude is measured for SignalDetectionHypothesis objects with a PHASE FeatureMeasurement value matching any of these phases.
	removeFilterResponse	Boolean	Indicates whether the conditioning filter's response should be removed from the measured amplitude.
	removeInstrumentResponse	Boolean	Indicates whether the measured Channel object's instrument response should be removed from the measured amplitude.
	smoothnessThreshold	Numeric (%) (Optional)	Any waveform excursion (i.e. a local peak or trough) between the measured amplitude's peak and trough (or zero and peak) samples must have an amplitude less than or equal to this fraction of the measured amplitude. Populated except when measurementMethod is ROOT_MEAN_SQUARE.

signal-feature-measurement.amplitude-measurement-definitions parameters		
parameter	**type**	**description**
widnowArrivalTimeLead	Numeric (sec)	The earliest possible time (inclusive), relative to the measured SignalDetectionHypothesis object's ARRIVAL_TIME FeatureMeasurement value, of the first sample in the measured amplitude (e.g. a peak or trough sample). A positive windowArrivalTimeLead value is before the ARRIVAL_TIME FeatureMeasurement value and a negative windowArrivalTimeLead value is after it.
windowDuration	Numeric (sec)	Used to define the latest possible time (inclusive) of the last sample in the measured amplitude (e.g. a peak or trough sample). To find this time, add the windowDuration value to the time found by offsetting the measured SignalDetectionHypothesis object's ARRIVAL_TIME FeatureMeasurement value by windowArrivalTimeLead.

3.39 signal-feature-measurement.stations-by-feature-measurement-type

config/processing/signal-feature-measurement.stations-by-feature-measurment-type /default.json

signal-feature-measurement.stations-by-feature-measurement-type Configuration Option					
name	stations-to-measure-by-amplitude-type-default				
criterion	**type**	**operator**	**priority**	**description**	
DEFAULT	—	—	—	Defines the constraint as default	

config/processing/ signal-feature-measurement.stations-by-feature-measurment-type / amplitude -{amplitude-measurement-type}.json

signal-feature-measurement.stations-by-feature-measurement-type Configuration Option				
name	amplitude-{amplitude measurement type}			
criterion	**type**	**operator**	**priority**	**description**
amplitudeMeasurementType	Enumeration (AmplitudeMeasurementType)	EQ	—	Defines amplitude measurement type configuration applies to

signal-feature-measurement.stations-by-feature-measurement-type parameters		
parameter	**type**	**description**
stations	Database Value (Station) Array	

3.40 simulator.bridged-data-source-config

Configuration which identifies which schemas to use for the simulator for test purposes.

config/processing/simulator.bridged-data-source-config/default.json

simulator.bridged-data-source-config Configuration Option				
name	bridged-data-source-config			
criterion	**type**	**operator**	**priority**	**description**
DEFAULT	—	—	—	Defines the constraint as default

simulator.bridged-data-source-config parameters		
parameter	**type**	**description**
default_schema	Database Value (Schema)	Database schema where seed data exists for the simulator. This data is read only
simulation_schema	Database Value (Schema)	Database schema where the replicated seed data exists. This is an empty schema at start time
calib_delta	Integer	Number of groups in which calibration data will be updated over the calibration update period found in the simulation spec

3.41 station-definition-manager.event-beam-configuration

The station-definition-manager.event-beam-configuration maps bridged event beam to phases.

config/processing/station-definition-manager.event-beam-configuration/default.json

station-definition-manager.event-beam-configuration Configuration Option				
name	default			
criterion	**type**	**operator**	**priority**	**description**
DEFAULT	—	—	—	Defines the constraint as default

station-definition-manager.event-beam-configuration parameters		
parameter	**type**	**description**
phaseTypesByBeamDescriptions	Structure	Maps beam description from the legacy database to a phase.

3.41.1 phaseTypesByBeamDescriptions Structure

The structure for phaseTypeByBeamDescription is defined as follows:

phaseTypesByBeamDescriptions Structure			
	parameter	**type**	**description**
	szb	Enumeration (PhaseType)	Mapped phase for szb
	Pgb	Enumeration (PhaseType)	Mapped phase for Pgb
	Pnb	Enumeration (PhaseType)	Mapped phase for Pnb
	MTB	Enumeration (PhaseType)	Mapped phase for MTB
	MZB	Enumeration (PhaseType)	Mapped phase for MZB
	lzb	Enumeration (PhaseType)	Mapped phase for lzb
	ltb	Enumeration (PhaseType)	Mapped phase for ltb

3.42 station-definition-manager.processing-mask-definition

The station-definition-manager.processing-mask-definition defines the creation of processing masks. This configuration is obsolete and has been replaced by the global.processing-mask-definition configuration.

config/processing/station-definition-manager.processing-mask-definition/default.json

station-definition-manager.processing-mask-definition Configuration Option					
	name	default			
	criterion	**type**	**operator**	**priority**	**description**
	DEFAULT	—	—	—	Defines the constraint as default

station-definition-manager.processing-mask-definition parameters			
	parameter	**type**	**description**
	maskedSegmentMergeThreshold	Duration	Specifies the time range between adjacent QcSegmentVersions included in a ProcessingMask. It represents the maximum duration (inclusive) between the end of one QcSegmentVersion and the start of the next QcSegmentVersion that may be included in a ProcessingMask. A ProcessingMask includes all the QcSegmentVersions within this duration of their adjacent QcSegmentVersions.
	appliedQcSegmentCategoryAndTypes	Structure Array	Describes a QcSegmentCategory and an optional QcSegmentType, which together define the data quality problem represented by a QcSegmentVersion. The QcSegmentType attribute is optional because some QcSegmentCategory literals have no corresponding QcSegmentType literals; the intent is for QcSegmentCategoryAndType to define a single data quality problem. Providing a QcSegmentCategory without a QcSegmentType should not be used to exclude all QcSegmentVersion objects with a particular QcSegmentCategory.

3.42.1 appliedQcSegmentCategoryAndTypes Structure

The structure for appliedQcSegmentCategoryAndTypes is defined as follows:

appliedQcSegmentCategoryAndTypes Structure			
	parameter	**type**	**description**
	category	Enumeration (QcSegmentCategory)	Waveforms of this QcSegmentCategory enumeration and the type will be masked.
	type	Enumeration (QcSegmentType) (Optional)	Waveforms of this QcSegmentType enumeration and the category will be masked.

3.43 station-definition-manager.station-group-names

The station-definition-manager.station-group-names configuration defines which Station Groups are used for IAN. These Station Groups must match those defined in the bridged data.

The station-definition-manager.station-group-names configuration does not define the Station Groups by listing the Station which they include. The Stations which are included in the Station Group must be defined in the bridged data.

The station-definition-manager.station-group-names configuration contains a single default.json file which lists the Station Groups displayed on the UI.

config/processing/station-definition-manager.station-group-names/default.json

station-definition-manager.station-group-names Configuration Option					
	name	station-group-names-default			
	criterion	**type**	**operator**	**priority**	**description**
	DEFAULT	—	—	—	Defines the constraint as default

station-definition-manager.station-group-names parameters			
	parameter	**type**	**description**
	stationGroupNames	String Array	List of names of station groups used in IAN processing. Each name needs to match a network record contained in the legacy database.

3.44 station-definition.frequency-amplitude-phase-definition

The station-definition.frequency-amplitude-phase-definition configuration provides information which determines what range of frequencies to place inside a FrequencyAmplitudePhase object as well as how to interpolate frequencies that are not directly represented in the response files.

config/processing/station-definition.frequency-amplitude-phase-definition/default.json

station-definition.frequency-amplitude-phase-definition Configuration Option					
	name	{station}-FAP-Values			
	criterion	**type**	**operator**	**priority**	**description**
	station	Database Value (Station)	EQ	100	Defines the station the configuration applies to
	channelBand	Enumeration (ChannelBandType)	EQ	80	Defines the channel band which the configuration applies to
	channelInstrument	Enumeration (ChannelInstrumentType)	EQ	70	Defines the channel instrument which the configuration applies to

station-definition.frequency-amplitude-phase-definition parameters			
	parameter	**type**	**description**
	lowerFrequencyBoundHz	Numeric (hz)	The lowest frequency that will be used for interpolation, inclusive.
	upperFrequencyBoundHz	Numeric (hz)	The highest frequency that will be used for interpolation, inclusive.
	frequencySamplingMode	Enumeration (SamplingScaleType)	If LINEAR, the interpolator will perform a direct linear interpolation. If LOG, the interpolator will calculate the base-10 logarithm of the input axes (i.e. a monotonically increasing set of frequencies) before performing linear interpolation, and raise 10 to the value of the input to the resulting interpolated function.
	frequencySamplingCount	Integer	Specifies how many frequencies will be contained inside the frequenciesHz collection of each FrequencyAmplitudePhase object created based on this FrequencyAmplitudePhaseDefinition. Note that this also prescribes the number of AmplitudePhaseResponse objects inside the FrequencyAmplitudePhase objects' amblitudePhaseResponse collections.

3.45 ui.analyst-settings

These settings allow the user to configure the UI.

config/processing/ui.analyst-settings/ui.analyst-settings.json

ui.analyst-settings Configuration Option					
	name	Defines the constraint as default			
	criterion	**type**	**operator**	**priority**	**description**
	DEFAULT	—	—	—	Defines the constraint as default

ui.analyst-settings parameters			
	parameter	**type**	**description**
	defaultNetwork	String	This is obsolete.
	defaultInteractiveAnalysisStationGroup	String	This is obsolete.
	currentIntervalEndTime	Date Time	This is obsolete.
	currentIntervalDuration	Duration	This is obsolete.
	maximumOpenAnythingDuration	Duration	Maximum duration which can be opened using the Open Anything on the Workflow Display.
	leadBufferDuration	Duration	Time before open interval or custom time range which is automatically loaded.
	lagBufferDuration	Duration	Time after open interval or custom time range which is automatically loaded.

ui.analyst-settings parameters			
	parameter	**type**	**description**
	phasesWithoutPredictions	Enumeration (PhaseType) Array	List of phases for which no predictions are expected. The UI uses this to exclude these from requesting Feature Predictions.
	phaseLists	Structure Array	Controls the phases that appear on the Phase Display. Each of the structure which is in the phaseLists represents one of the pages on the display. The page can be changed.
	defaultSDTimeUncertainty	Duration	Default duration of time uncertainty bars on signal detections.
	keyboardShortcuts	Structure	Each shortcut has a description, helpText, hotkey, tags, and category. The functions include Zoom, mouse wheeling, draw to measure window, selection, scaling, toggling, panning, show details
	preventBrowserDefaults	Structure	Default browser short keys which are prevented.
	uiThemes	Structure Array	Used by Analyst to change the look of the display (background color and opacity)
	zasDefaultAlignmentPhase	Enumeration (PhaseType)	Default value for the alignment phase
	gmsFilters	Structure	Parameters used by the Filter Code which are not included in the Filter Description, including default sample rates for pre-caching designed filter.
	zasZoomInterval	Duration	Controls the amount of time of the zoom interval when zoom-align-sort (ZAS).
	unassociatedSignalDetectionLengthMeters	Integer	Length of unassociated signal detections shown on the Map Display.
	minimumRequestDuration	Duration	Controls the minimum amount of time that panning will request. For example, if a user is zoomed in and pans right enough to trigger a load of new data, it will never request less than this amount of time, even if the user's display is zoomed in enough that it only needs to display a smaller amount of time. This prevents repeated pan actions from making many tiny requests.
	waveform	Structure	Configuration related to waveform display.
	workflow	Structure	Lists the panSingleArrow and panDoubleArrows which give the duration of time that Workflow Display will pan when using the single or double arrow.
	fixedAmplitudeScaleValues	Numeric Array	Floating point structure with list of floating-point numbers.
	qcMaskTypeVisibilities	Structure	Gives default visibilities for Qc Mask Types on the Waveform Display.
	endpointConfigurations	Structure	Fine tune number of parallel webservice requests

ui.analyst-settings parameters			
	parameter	**type**	**description**
	defaultDeletedEventVisibility	Boolean	Indicates if deleted events are visible by default on the Event and Map Displays. Visibly of deleted events can be toggled in the individual displays.
	deaultRejectedEventVisibility	Boolean	Indicates if rejected event are visible by default on the Event Display and Map Display. Visibility of rejected events can be toggled in the individual displays.
	defaultDeletedSignalDetectionVisibilty	Boolean	Indicates if deleted signal detections are visible by default on the Waveform, Signal Detection, and Map Displays. Visibility of deleted signal detections can be toggled in the individual displays.
	beamAndFKInputChannelPrioritization	Enumeration (Channel) Array	Prioritization list of channels (e.g., SHZ, BHZ) for use in determining which channel to prioritize for event beamforming and FK spectra computations when multiple channels are retrieved for a station's beamforming/FK spectra configuration
	fkConfigurations	Structure	Provides FK configuration specific to each Station Type.
	beamforming	Structure	Provides beamforming configuration which is not specific to a Station.
	rotation	Structure	Provides rotation configuration which is no specific to a station.

3.45.1 Analysis Mode Structure

The Analysis Mode Structure is defined as follows:

Shortcut Structure			
	parameter	**type**	**description**
	defaultMode	Enumeration (WaveformMode)	Determines if derived waveforms are displayed in a single row or in separate rows.
	numberOfWaveforms	Integer	Number of waveforms displayed on the Waveform Display.

3.45.2 Shortcut Structure

The Shortcut Structure is used within the keyboardShortcuts structure and preventBrowserDefault parameters of the ui.analyst-settings configuration.

The Shortcut Structure is defined as follows:

Shortcut Structure		
parameter	**type**	**description**
description	String	Name of the shortcut that is displayed on the Keyboard Shortcuts Display
helpText	String	Help text displayed upon hover
combos	Keyboard Shortcut Array	List of keyboard short cuts that should be used.
tags	String Array	List of keywords that can be searched for in the Keyboard Shortcuts Display.
categories	Named Value (Shortcut Category) Array	List of categories under which the keyboard shortcut item will appear in the Keyboard Shortcut Display.

3.45.3 Prevent Browser Default Structure

The Prevent Browser Default Structure is defined as follows:

Interpolation Methods Structure		
parameter	**type**	**description**
combos	Keyboard Shortcut	Keyboard short cuts that should be prevented.

3.45.4 Interpolation Methods Structure

The Interpolation Methods Structure is defined as follows:

Interpolation Methods Structure		
parameter	**type**	**description**
NEAREST_SAMPLE	String	Display name of NEAREST_SAMPLE method.
INTERPOLATED	String	Display name of INTERPOLATED method.

3.45.5 phaseLists Structure

The structure for phaseLists is defined as follows:

phaseLists Structure			
	parameter	**type**	**description**
	favorites	Enumeration (PhaseType) Array	List of Phases which are starred on the Phase List and included under the Favorites sub phase lists.
	defaultPhaseLabelAssignment	Enumeration (PhaseType)	Default phase for the specific phase list. Used as the default phase whenever the phase list is selected.
	listTitle	String	Name of Phase List. Displayed in a drop-down menu on the Current Phase Display.
	categorizedPhases	Structure Array	Identifies sub phases lists within the major phase list.

3.45.5.1 categorizedPhases Structure

The structure for categorizedPhases is defined as follows:

categorizedPhases Structure			
	parameter	**type**	**description**
	categoryTitle	String	Name of the sub phase list.
	phases	Enumeration (PhaseType) Array	List of phases included in the sub phase list.

3.45.6 keyboardShortcuts Structure

The structure for keyboardShortcuts is defined as follows:

keyboardShortcuts Structure			
	parameter	**type**	**description**
	clickEvents	Structure	Shortcut keys used when clicking.
	doubleClickEvents	Structure	Shortcut keys used when double clicking.
	dragEvents	Structure	Shortcut keys used when dragging.
	scrollEvents	Structure	Shortcut keys used when scrolling.
	hotkeys	Structure	Shortcut key used without clicking, dragging, or scrolling.

3.45.6.1 clickEvents Structure

The structure for clickEvents is defined as follows:

clickEvents Structure		
parameter	**type**	**description**
createSignalDetectionWithCurrentPhase	Shortcut Structure	Create new signal detection with current phase on the clicked channel/station. Works in Waveform Display.
createSignalDetectionWithDefaultPhase	Shortcut Structure	Create new signal detection with default phase on the clicked channel/station. Works in Waveform Display.
createSignalDetectionWithChoosenPhase	Shortcut Structure	Create new signal detection with chosen phase on the clicked channel/station. Works in Waveform Display.
createSignalDetectionNotAssociatedWithWaveformCurrentPhase	Shortcut Structure	Create new signal detection with current phase & no waveform on the clicked channel/station. Works in Waveform Display.
createSignalDetectionNotAssociatedWithWaveformDefaultPhase	Shortcut Structure	Create new signal detection with default phase & no waveform on the clicked channel/station. Works in Waveform Display.
createSignalDetectionNotAssociatedWithWaveformChosenPhase	Shortcut Structure	Create new signal detection with chosen phase & no waveform on the clicked channel/station. Works in Waveform Display.
viewQcSegmentDetails	Shortcut Structure	View details about existing QC segments. Works in Waveform Display.
showEventDetails	Shortcut Structure	Show additional details about the event. Works in Map Display.
showSignalDetectionDetails	Shortcut Structure	Show additional details about the signal detection. Works in the Waveform, Signal Detection, or Map Display.
showStationDetails	Shortcut Structure	Show additional details about the station or site. Works in Map Display.
selectParentChild	Shortcut Structure	Select a channel and its children. Works in Waveform Display.
selectParentChildRange	Shortcut Structure	Alt + click a station label to select a range of channels and their children. Works in Waveform Display.

3.45.6.2 doubleClickEvents Structure

The structure for doubleClickEvents is defined as follows:

doubleClickEvents Structure		
parameter	**type**	**description**
associateSelectedSignalDetections	Shortcut Structure	If they are not associated to the currently open event, double click to associate selected signal detection(s) to the currently open event. Works in Waveform and Signal Detection List Displays.
unassociateSelectedSignalDetections	Shortcut Structure	If they are associated to the currently open event, double click to unassociate selected signal detection(s) from the open event. Works in Waveform and Signal Detection List Displays.

3.45.6.3 dragEvents Structure

The structure for dragEvents is defined as follows:

dragEvents Structure		
parameter	**type**	**description**
zoomToRange	Shortcut Structure	Zoom in on a selection by clicking and dragging (with a modifier key). Works in Waveform Display.
drawMeasureWindow	Shortcut Structure	Select a region on a channel to view it in the measure window. Works in Waveform Display.
scaleWaveformAmplitude	Shortcut Structure	Click and drag (with modifier key) to increase/decrease the scale of the y axis, which makes waveforms smaller/larger. Works in Waveform Display.
createQcSegments	Shortcut Structure	Create new QC segments on selected raw channels. Works in Waveform Display.
showRuler	Shortcut Structure	Click and drag to show a popup that measures times in the Waveform Display. Works in Waveform Display.

3.45.6.4 scrollEvents Structure

The structure for scrollEvents is defined as follows:

scrollEvents Structure		
parameter	**type**	**description**
zoomMouseWheel	Shortcut Structure	Zoom in and out using the mouse wheel. Works in Waveform Display.

3.45.6.5 hotkeys Structure

The structure for hotkeys is defined as follows:

hotkeys Structure		
parameter	**type**	**description**
saveGmsToFile	Shortcut Structure	Saves the state of the application to a chosen .gms file. If a file has already been saved/loaded, use that file. Works within App.
saveGmsToFileAs	Shortcut Structure	Save the state of the application to a chosen .gms file. Always prompts to choose/rename the file. Works within in App.
loadGmsFromFile	Shortcut Structure	Loads a saved .gms file. Works within App.
deleteSignalDetection	Shortcut Structure	Delete selected signal detections within Waveform, Map, or Signal Detection List Displays
zoomInOneStep	Shortcut Structure	Zoom in by a percentage. Zooming in and then out one step returns you to the same view. Works in Waveform Display.
zoomOutOneStep	Shortcut Structure	Zoom out by a configured percentage. Zooming out and then in one step returns you to the same view. Works in Waveform Display.
pageDown	Shortcut Structure	Scroll down in the waveform display so that the bottom-most row is at the top. Works in Waveform Display.
pageUp	Shortcut Structure	Scroll up in the waveform display so that the top-most row is at the bottom. Works in Waveform Display.
zoomOutFully	Shortcut Structure	Zoom out to the open interval. Works in Waveform Display.
zas	Shortcut Structure	Zoom to configured range, align on predicted P, sort by distance. Add stations with signal detections associated to the current open event. Works in Waveform Display.
createEventBeam	Shortcut Structure	Create event beams with default settings for all selected stations or all loaded stations if none are selected. Works in Waveform Display.
panRight	Shortcut Structure	Scroll the Waveform Display to the right one step. This will not load additional data outside of the current bounds. Works in Waveform Display.
panLeft	Shortcut Structure	Scroll the Waveform Display to the left one step. This will not load additional data outside of the current bounds. Works in Waveform Display.
loadLaterData	Shortcut Structure	Load additional data after the open time range. Works in Waveform Display. Works in Waveform Display.

hotkeys Structure		
parameter	**type**	**description**
loadEarlierData	Shortcut Structure	Load additional data before the open time range. Works in Waveform Display.
scaleAllWaveformAmplitude	Shortcut Structure	Scale all waveform amplitudes to match the selected channel. If no channel is selected, this has no effect. Works in Waveform Display.
resetSelectedWaveformAmplitudeScaling	Shortcut Structure	Reset manual amplitude scaling for selected channels. This has no effect on non-selected channels. Works in Waveform Display.
resetAllWaveformAmplitudeScaling	Shortcut Structure	Reset amplitude scaling for all waveforms. Works in Waveform and Azimuth/Slowness Display.
toggleUncertainty	Shortcut Structure	Toggle on and off the uncertainty bars for signal detections. Works in Waveform Display.
editSignalDetectionUncertainty	Shortcut Structure	Enable edit signal detection time uncertainty capability on waveform display. Works in Waveform Display.
toggleQcMaskVisibility	Shortcut Structure	Toggle on and off the visibility of the QC masks. Works in Waveform Display.
toggleAlignment	Shortcut Structure	Switch between time alignment and predicted/observed phase alignment. Use the dropdown menu from the Waveform Display toolbar for more options. Works in Waveform Display.
workflowRightOneDay	Shortcut Structure	Scroll the Workflow Display forward in time by one day. Works in Workflow Display.
workflowLeftOneDay	Shortcut Structure	Scroll the Workflow Display back in time by one day. Works in Workflow Display.
workflowRightOneWeek	Shortcut Structure	Scroll the Workflow Display forward in time by one week. Works in Workflow Display.
workflowLeftOneWeek	Shortcut Structure	Scroll the Workflow Display back in time by one week. Works in Workflow Display.
showKeyboardShortcuts	Shortcut Structure	Show the list of keyboard shortcuts. Works within the App.
toggleSetPhaseMenu	Shortcut Structure	Open set phase menu to change the phase label for selected Signal Detections. Works in Waveform, Signal Detection List, and Map Displays.
toggleCommandPalette	Shortcut Structure	Open a popup tool for typing commands. Works within the App.
selectNextFilter	Shortcut Structure	Select the next filter in the hotkey cycle (indicated by stars in the filter list). Works within Waveform Display.
selectPreviousFilter	Shortcut Structure	Select the previous filter in the hotkey cycle (indicated by stars in the filter list). Works within the Waveform Display.

hotkeys Structure		
parameter	**type**	**description**
selectUnfiltered	Shortcut Structure	Select the \"unfiltered\" option in the hotkey cycle. This removes the filtering from any selected channels in the waveform display, or from all channels if nothing is selected. Works within the Waveform Display.
createNewEvent	Shortcut Structure	Create event with selected signal detections or virtual event using no signal detections. Works within Waveform, Signal Detection List, Events List, and Map Displays.
associateSelectedSignalDetections	Shortcut Structure	Associate selected signal detection(s) to the currently open event. Works within Waveform, Signal Detection List, and Map Displays.
unassociateSelectedSignalDetections	Shortcut Structure	Un-associate selected signal detection(s) from the currently open event. Works within Waveform, Signal Detection List, and Map Displays.
currentPhaseLabel	Shortcut Structure	Set phase label for selected signal detection(s) to the current phase. Works within Waveform, Signal Detection List, and Map Displays.
defaultPhaseLabel	Shortcut Structure	Set phase label for selected signal detection(s) to the default phase. Works within Waveform, Signal Detection List, and Map Displays.
historyEventMode	Shortcut Structure	Toggle event mode for history undo/redo. Works within App.
undo	Shortcut Structure	Undo previous action. Works within App.
redo	Shortcut Structure	Redo previous undone action. Works within App.
eventUndo	Shortcut Structure	Undo previous event action for the open event. Works within App.
eventRedo	Shortcut Structure	Redo previous undone event action for the open event. Works within App.
toggleCurrentPhaseMenu	Shortcut Structure	Open the current phase popup menu to change the current phase label. Works within Waveform Display.
hideMeasureWindow	Shortcut Structure	Hide the open measure window. Works within Waveform Display.
increaseVisibleWaveforms	Shortcut Structure	Increase the number of visible waveforms by one. Works within Waveform Display.
decreaseVisibleWaveforms	Shortcut Structure	Decrease the number of visible waveforms by one. Works within Waveform Display.
closeCreateSignalDetectionOverlay	Shortcut Structure	Close the currently open signal detection creation overlay. Works within Waveform Display.

hotkeys Structure		
parameter	**type**	**description**
rotate	Shortcut Structure	Rotate waveforms based on your selection. Valid selections include either: nothing (rotates everything), stations only, two orthogonal channels from a single station, or signal detections. Works within Waveform Display.
nextFk	Shortcut Structure	Advance to the next reviewable FK. Works within Azimuth/Slowness Display.

3.45.7 preventBrowserDefault Structure

The structure for preventBrowserDefaults is defined as follows:

preventBrowserDefault Structure		
parameter	**type**	**description**
{set parameter name}	Prevent Browser Default Structure	Prevent browser from using default behavior for the keys defined in the shortcut structure.

3.45.8 uiThemes Structure

The structure for uiThemes is defined as follows:

uiThemes Structure		
parameter	**type**	**description**
name	Named Value (Theme)	Name of the UI Theme as it appears in User Preferences
isDarkMode	Boolean	Used to brighten or darken color to increase contrast.
display	Structure	Defines opacity values used in the theme.
colors	Structure	Defines colors used in the UI when the UI theme is used.

3.45.8.1 display Structure

The structure for display is as follows:

display Structure		
parameter	**type**	**description**
edgeEventOpacity	Numeric (%)	Gives the opacity of events which are outside the time window.
edgeSDOpacity	Numeric (%)	Gives the opacity of signal detections which are outside the time window.
predictionSDOpacity	Numeric (%)	Gives the opacity of the signal detection phase marker for predicted phase on the Waveforms Disapply. 0 is invisible 1 is solid.

3.45.8.2 colors Structure

All parameters within the color structure are optional. If the value is not present then default values will be used. Core components are widgets like button, dialogs, popovers, date pickers. gms is defining domain specific color. The structure for colors is as follows:

colors Structure		
parameter	**type**	**description**
analystComplete	Color	The association color of completed events
analystOpenEvent	Color	The association color of the open event
analystUnassociated	Color	The color representing not being associated to any event
analystOther	Color	The association color representing other events
completeEventSDColor	Color	The color of signal detections associated to completed events
completeEventSDHoverColor	Color	The hover color of signal detections associated to completed events
conflict	Color	The color of the conflict marker
coreBackground	Color	A default background color (low elevation)
coreMain	Color	A default foreground color (high contrast)
corePopoverBackground	Color	A default background color for popovers
coreProminent	Color	A default foreground color (medium contrast)
coreProminentBackground	Color	A default background color (mid elevation)
coreRecessed	Color	A default background color (lowest elevation)
coreScrollbarOverride	Color	The color for the scrollbar
coreScrollbarOverrideBackground	Color	The color for the scrollbar background
coreSoft	Color	A default foreground color (low contrast)
deletedEventColor	Color	The color of deleted events
fkNeedsReview	Color	The color indicating an FK needs review
fkDisplayed	Color	The color indicating the FK that is currently displayed
gmsBackground	Color	A generic background color at a neutral elevation
gmsButton	Color	The general button color
gmsButtonHover	Color	The color of buttons on hover
gmsDialogBackground	Color	The background color of dialog popups
gmsGood	Color	The color indicating success
gmsGridBackground	Color	The color used to indicate a grid row (such as in dialogs, forms, tooltips).
gmsInputHighlight	Color	The color indicating whether a display is in the foreground, and if it is active. This may control some input colors, too, but I can't seem to get it to change them when I play with it.
gmsMain	Color	The general, primary foreground color for things like text. Should have high contrast against gmsBackground.

colors Structure		
parameter	**type**	**description**
gmsMainInverted	Color	A foreground color for use against inverted backgrounds. For example, in dark modes, this should be black for use against inverted (white) backgrounds (in things like white tooltips). In light mode, this should be white, for use against inverted (dark) backgrounds
gmsPopoverBackground	Color	The background color of some tooltips, alternating, non-dimmed table rows, phase selector list element background colors, the top bar of the application
gmsProminent	Color	A general foreground color with medium contrast
gmsProminentBackground	Color	A general background color with mid elevation
gmsRecessed	Color	A general background color with the lowest elevation
gmsSelectionColor	Color	The color the border of selected table rows
gmsScrollbar	Color	The color of scrollbars
gmsScrollbarBackground	Color	The color of the background trough of scrollbars
gmsSelection	Color	The color of selected items (filters, map elements, FK thumbnails, selected phases)
gmsSoft	Color	A general color use for low contrast foregrounds
gmsStrongWarning	Color	A color indicating an error, or dangerous state
gmsTabHeaderBackground	Color	The color behind the golden layout tabs when maximized
gmsTableHeaderBackground	Color	The color of table Colum headers
gmsTableSelection	Color	The color of command palette selected options
gmsTooltipBackground	Color	The background color of tooltips
gmsTooltipForeground	Color	The foreground (text) color of tooltips
gmsTransparent	Color	Deprecated
gmsWarning	Color	A color indicating a warning
gmsWaveformSplitExpandBorderColor	Color	The color of the border of split rows when in split mode (waveform disambiguation when selecting a waveform in overlapping mode)
gmsWaveformSplitExpandLabelColor	Color	The color of the label when in split mode (waveform disambiguation when selecting a waveform in overlapping mode)
interval	Structure	Defines colors for cells on the Workflow Display.
mapVisibleStation	Color	The color of stations visible in the waveform display
mapStationDefault	Color	The color of stations that are not visible in the waveform display
mapArraySiteLines	Color	The color of lines connecting array sites to the station marker
openEventSDColor	Color	The association color of signal detections associated to the open event

colors Structure		
parameter	**type**	**description**
otherEventSDColor	Color	The association color of signal detections associated to a not-open event
predictionSDColor	Color	The color of predicted phase markers
popover	Structure	Defines colors related to time pickers.
qcMaskColors	Structure	Defines colors of the Qc Segments.
rejectedEventColor	Color	The color of rejected events
deletedSdColor	Color	The color of deleted signal detections
tooltipLabelBrightnessPercent	Numeric (%)	The color shown behind labels in tooltips, such as the workflow interval tooltip and filter tooltip.
unassociatedSDColor	Color	The color of unassociated signal detections
waveformIntervalBoundary	Color	The color of the waveform interval boundary (vertical lines)
waveformDimPercent	Numeric (%)	The opacity of dimmed waveforms (when others are selected)
waveformFilterLabel	Color	The color of the waveform filter label text
waveformMaskLabel	Color	The color of the waveform mask label (M in the station row)
waveformRaw	Color	The color of the waveform line
waveformSelected	Color	The color of selected waveforms
weavesBackground	Color	The color of the weavess background. Overridden by GMS color. Not needed in themes
weavessPopoverBackground	Color	The color of the weavess popover (currently the ruler component only)
weavessText	Color	The color of some text in weavess (y axis labels, time interval)
weavessOutOfBounds	Color	The color of the out-of-bounds overlay in weavess rows (beyond the loaded time range when aligned)
workflowDayDivider		Unused, but intended to control the workflow day divider component marking the start of a new day in the workflow display
gmsActionTarget	Color	Highlight color applied to targets of a user action, (such as when right clicking on an event in the events list). This may be the user's selection, or the item they interacted with if not part of that selection.

3.45.8.2.1 interval Structure

The structure for interval is defined as follows:

interval Structure		
parameter	**type**	**description**
activityDarkenCellBy	Color	A css filter for modifying activity cells.
complete	Color	The color of completed workflow intervals
inProgress	Color	The color of workflow intervals that are in progress
notComplete	Color	The color of workflow intervals that are not complete
notStarted	Color	The color of workflow intervals that are not started
skipped	Color	The color of workflow intervals that are skipped
failed	Color	The color of workflow intervals that failed

3.45.8.2.2 popover Structure

The structure for popover is defined as follows:

popover Structure		
parameter	**type**	**description**
background	Color	Core components date time picker input background color—overridden in GMS. Not needed in themes
input	Color	Core components time picker input—overridden in GMS. Not needed in themes
invalidInput	Color	Core components time picker invalid input color—overridden in GMS. Not needed in themes

3.45.8.2.3 qcMaskColors Structure

The structure for qcMaskColors is defined as follows:

qcMaskColors Structure		
parameter	**type**	**description**
analystDefined	Color	The color of analyst defined qc masks
dataAuthentication	Color	The color of data authentication qc masks
longTerm	Color	The color of long-term qc masks
processingMask	Color	The color of processing masks
rejected	Color	The color of rejected qc masks
stationSOH	Color	The color of Station SOH qc masks
unprocessed	Color	The color of unprocessed qc masks
waveform	Color	The color of waveform qc masks

3.45.9 gmsFilters Structure

The structure for gmsFilters is as defined as follows:

gmsFilters Structure		
parameter	**type**	**description**
defaultTaper	Numeric (%)	Default taper value used for filtering.
defaultRemoveGroupDelay	Boolean	Indicates if group delay is removed.
defaultSampleRateToleranceHz	Numeric (hz)	Default sample rate tolerance used for filtering.
defaultGroupDelaySecs	Numeric (sec)	Default group delay in seconds used for filtering.
defaultDesignedSampleRates	Integer Array	Default sample rate array used for pre-caching designed filters.

3.45.10 waveform

The structure for waveform is defined as follows:

waveform Structure		
parameters	**type**	**description**
analysisModeSettings	Structure	Gives behavior of Waveform Display based upon analysis mode.
panningBoundaryDuration	Duration	Maximum length of additional time before or after the open interval or time range that the user can load by panning on the Waveform Display.
panRatio	Numeric (%)	Percentage of the open time range which the Waveform Display will pan using the panning arrows.
trimWaveformLead	Duration	Lead time used in trimming raw waveforms in the UI when an analyst creates a new SD on a raw channel.
trimWaveformDuration	Duration	Duration time used in trimming raw waveforms in the UI when an analyst creates a new SD on a raw channel.
trimWaveformRetimeThreshold	Duration	Threshold used to determine whether a new waveform should be trimmed when changing an arrival time measurement associated to a raw channel.

3.45.11 analysisModeSettings

The structure of analysisModeSettings is defined as follows:

analysisModeSettings Structure		
parameters	**type**	**description**
EVENT_REVIEW	Analysis Mode Structure	Waveform Display behavior when in EVENT_REVIEW mode.
SCAN	Analysis Mode Structure	Waveform Display behavior when in SCAN mode.

3.45.12 workflow Structure

The structure for workflow is defined as follows:

workflow Structure		
parameter	**type**	**description**
panSingleArrow	Duration	Duration of time which the single arrows pan forward/backward on the workflow display.
panDoubleArrow	Duration	Duration of time which the double arrows pan forward/backward on the workflow display.

3.45.13 qcMaskTypeVisibilities Structure

The structure for qcMaskTypeVisibilities is defined as follows:

qcMaskTypeVisibilities Structure		
parameter	**type**	**description**
analystDefined	Boolean	Determines if Analyst Defined Qc Masks are visible by default.
dataAuthentication	Boolean	Determines if Data Authentication Qc Masks are visible by default.
longTerm	Boolean	Determines if Long Term Qc Masks are visible by default.
processingMask	Boolean	Determines if Processing Masks are visible by default.
qcSegments	Boolean	Determine if Qc Segments are visible by default.
rejected	Boolean	Determines if Reject Qc Masks are visible by default.
stationSOH	Boolean	Determines if Station SOH Qc Masks are visible by default.
unprocessed	Boolean	Determines if Unprocessed Qc Masks are visible by default.
waveform	Boolean	Determines if Waveform Qc Masks are visible by default.

3.45.14 endpointConfigurations Structure

The structure for endpointConfigurations is defined as follows:

endpointConfigurations Structure		
parameter	**type**	**description**
maxParallelRequests	Integer	Maximum number of parallel requests.
getEventsWithDetectionsAndSegmentsByTime	Max Time Range Structure	Maximum time range allowed for getEventsWithDetectionsAndSegmentsByTime.
fetchQcSegmentsByChannelsAndTime	Max Time Range Structure	Maximum time range allowed for fetchQcSegmentsByChannelAndTime.

3.45.14.1.1 Max Time Range Structure

The Max Time Range Structure is defined as follows:

Max Time Range Structure			
	parameter	**type**	**description**
	maxTimeRangeRequestInSeconds	Numeric (sec)	Maximum time range in seconds.

3.45.15 fkConfigurations Structure

The structure for fkConfigurations is defined as follows:

fkConfigurations Structure			
	parameter	**type**	**description**
	fkStationTypeConfigurations	Structure	Defines parameters for FK for each Station Type.
	keyActivityPhases	Structure	Common phases configured for processing activities
	fkRetimeThresholdSeconds	Numeric (sec)	Threshold to determine whether FK Spectra and FK beam should be recomputed when modifying the arrival time of a signal detection

3.45.15.1 fkStationTypeConfigurations Structure

The structure for fkStationTypeConfigurations is defined as follows:

fkStationTypeConfigurations Structure			
	parameter	**type**	**description**
	SEISMIC_ARRAY	FK Station Type Structure	FK parameters for seismic Array stations.
	SEISMIC_3_COMPONENT	FK Station Type Structure	FK parameters for 3 component Seismic stations.
	INFRASOUND	FK Station Type Structure	FK parameter for infrasound stations.
	INFRASOUND_ARRAY	FK Station Type Structure	FK parameters for infrasound array stations.
	HYDROACOUSTIC	FK Station Type Structure	FK parameters for hydroacoustic stations.
	HYDROACOUSTIC_ARRAY	FK Station Type Structure	FK parameters for hydroacoustic array stations.

3.45.15.1.1 FK Station Type Structure

The FK Station Type Structure is defined as follows:

FK Station Type Structure			
	parameter	**type**	**description**
	constantVelocityRings	Numeric (km/sec) Array	Velocity rings shown on FK Spectrum.
	frequencyBands	Structure Array	List of precomputed FK preview frequency bands.
	spectrumWindowDefinitions	Structure Array	Defines the time windows for FK Spectrum calculations which can be auto selected.
	filters	Structure Array	Defines filters which can be selected in the FK Parameters menu.

3.45.15.1.1.1 frequencyBands Structure

The structure for frequencyBands is as follows:

frequencyBands Structure			
	parameter	**type**	**description**
	lowFrequencyHz	Numeric (hz)	Lower frequency value. Must be less than the highFrequencyHz value within the same structure.
	highFrequencyHz	Numeric (hz)	High frequency value. Must be greater than the lowFrequencyHz value within the same structure.
	previewPreFilterDefinition	Structure (Filter Definition)	Defines prefilter definitions associated with FK preview frequency bands which can be selected in the FK Parameters menu

3.45.15.1.1.2 spectrumWindowDefinitions Structure

The structure for spectrumWindowDefinitions is defined as follows:

spectrumWindowDefinitions Structure			
	parameter	**type**	**description**
	lead	Numeric (sec)	Lead time in seconds prior to the reference time which defines the starting time range for the FK Spectrum calculation.
	duration	Numeric (sec)	Duration in seconds over which the FK Spectrum is calculated.

3.45.15.1.1.3 filters Structure

The structure for filters is defined as follows:

filters Structure		
parameter	**type**	**description**
filterDefinition	Structure Array	Definition of a single filter which can be selected from the FK Settings menu.

3.45.15.1.1.3.1 filterDefinition Structure

The structure for filterDefiniton is defined as follows:

filterDefinition Structure		
parameter	**type**	**description**
name	String	Name of filter which is seen in the FK Setting menu
filterDescription	Structure	Parameters used to filter the output.

3.45.15.1.1.3.2 filterDescription Structure

The structure for filterDescription is defined as follows:

filterDescription Structure		
parameter	**type**	**description**
filterType	Enumeration (FilterType)	Defines the filter type.
causal	Boolean	TRUE if the filter is causal (i.e. the filtered result for a particular sample depend on previous samples but not later samples) and FALSE otherwise.
passBandType	Enumeration (FilterPassBandType)	Describes how to interpret the lowFrequecyHz and highFrequencyHz attributes (e.g. the PassbandType literal BAND_REJECT means frequency content between lowFrequecyHz and highFrequencyHz will be suppressed in filtered Waveform objects).
lowFrequencyHz	Numeric (hz)	This value's interpretation depends on the passbandType.
highFrequencyHz	Numeric (hz)	This value's interpretation depends on the passbandType.
order	Integer	Filter order. Describes fall-off (transition abruptness between the filter's passband and stopband).
zeroPhase	Boolean	Whether applying the filter should result in samples have zero phase response at all frequencies.

3.45.15.2 keyActivityPhases Structure

The structure for keyActivityPhases is defined as follows:

keyActivityPhases Structure		
parameter	**type**	**description**
{activity}	Enumeration (PhaseType) Array	List of phases for which the FK Spectra will require review for the given activity.

3.45.16 beamforming

The structure for beamforming is defined as follows:

beamforming Structure		
parameter	**type**	**description**
expandedTimeBuffer	Integer	
beamChannelThreshold	Integer	
createEventBeamsDescription	String	Description of creating event beams.
leadDuration	Duration	Beamed waveforms begin this duration before a reference time.
beamDuration	Duration	Duration of the beamed waveform.
beamSummationMethods	Structure	Display names of beam summation methods.
interpolationMethods	Structure (Interpolation Methods)	Display names of interpolation methods.
defaultSummationMethod	Enumeration (BeamSummation)	Describes how the waveform samples from each input waveform are combined to create the beamed samples. • COHERENT - the unbeamed samples are averaged to create the beamed samples. • INCOHERENT - the unbeamed waveform samples are rectified (i.e. absolute value function applied) before averaging to create the beamed samples. • RMS - the beamed samples are the Root Mean Squares of the unbeamed samples, i.e. each beamed sample is the square root of the mean of the squares of the unbeamed sample values.
defaultInterpolationMethod	Enumeration (SamplingType)	How to sample unbeamed waveforms to determine their amplitudes at the beamed waveform's sample times.
beamInputChannelPrioritization	Enumeration (Channel) Array	Prioritization list of channels (e.g., SHZ, BHZ) for use in determining which channel to prioritize for event beamforming computations when multiple channels are retrieved for a station's beamforming configuration
prefilterList	Structure (Filter Definition)	Defines prefilter definitions which can be selected in the Event beam dialog

3.45.16.1 beamSummationMethods Structure

The structure for beamSummationMethods is defined as follows:

beamSummationMethods Structure		
parameter	**type**	**description**
COHERENT	String	Display name for COHERT method.
INCOHERENT	String	Display name for INCOHERT method.
RMS	String	Display name for RMS method.

3.45.17 rotation Structure

The structure for rotation is defined as follows:

rotation Structure		
parameter	**type**	**description**
defaultRotationLeadTime	Duration	Duration prior to the reference time for rotated waveforms.
defaultRotationDuration	Duration	Duration of the rotated waveform.
defaultRotationInterpolation	String	
defaultRotationPhaseByActivity	Structure Array	Provides the default phase used in rotating for each activity. Each activity should be listed in exactly one of the structures within the array.
interpolationMethods	Structure (Interpolation Methods)	Display names of interpolation methods.
rotationDescription	String	Description of rotating waveforms.

3.45.17.1 defaultRotationPhaseByActivity Structure

The structure for defaultRotationPhaseByActivity is defined as follows:

rotation Structure		
parameter	**type**	**description**
workflowDefinitionId	Named Value (Activity)	Name of the activity.
defaultRotationPhase	Enumeration (PhaseType)	Default phase for the activity.

3.46 ui.common-settings

The ui.common-settings configuration sets the limit for the number of messages on the System Messages Display. The System Message Display is not currently included in IAN.

config/processing/ui.common-settings/ui.common-settings.json

ui.common-settings Configuration Option					
	name	ui-common-settings			
	criterion	**type**	**operator**	**priority**	**description**
	DEFAULT	—	—	—	Defines the constraint as default

ui.common-settings parameters			
	parameter	**type**	**description**
	systemMessageLimit	Integer	Limit on the number of system messages displayed.

3.47 workflow-manager.bridge-polling-period

The frequency which the workflow manager polls for new interval data from the interval bridge. Under the data bridge architecture, the WorkflowManager initializes a single timer to periodically call operation updateWorkflowIntervals. The timer period is defined via processing configuration as the bridgePollingPeriod.

config/processing/workflow-manager.bridge-polling-period/default.json

workflow-manager.bridge-polling-period Configuration Option					
	name	workflow-bridge-polling-period-default			
	criterion	**type**	**operator**	**priority**	**description**
	DEFAULT	—	—	—	Defines the constraint as default

workflow-manager.bridge-polling-period Configuration parameters			
	parameter	**type**	**description**
	bridgePollingPeriod	Duration	Duration of the bridge polling period

3.48 workflow-manager.stage-definition

Definitions for each named stage, detailing the sequences, steps, and activities of that stage.

config/processing/workflow-manager.stage-definition/{stage}.json

workflow-mana:ger.stage-definition Configuration Option					
	name	{stage name}			
	criterion	**type**	**operator**	**priority**	**description**
	name	Named Value (Stage)	EQ	—	Name of configuration used for referencing configuration from workflow-manager.workflow-definition

workflow-manager.stage-definition parameters			
	parameter	**type**	**description**
	name	Named Value (Stage)	Stage Name
	duration	Duration	Duration of the stage
	mode	Enumeration (StageMode)	Enumeration defining the mode of the Stage defaulted to INTERACTIVE
	activities	Structure Array (Optional)	Collection of analysis activities that the analyst would perform as a part of completing the stage. When mode is INTERACTIVE then activities is required. When mode is AUTOMATIC then activities is not included.
	sequences	Structure Array (Optional)	Collection of Processing Sequences performed by the system as part of completing the state. When mode is AUTOMATIC then sequences is required. When mode is INTERACTIVE then sequences is not included.

3.48.1 activities Structure

The structure for activities is defined as follows:

activities parameters			
	parameter	**type**	**description**
	name	Named Value (Activity)	Activity Name
	stationGroup	Entity Reference (StationGroup)	Name of the Station Group
	analysisMode	Enumeration (AnalysisMode)	Enumeration for the analysis mode.

3.48.2 sequences Structure

The structure for sequences is defined as follows:

activities parameters			
	parameter	**type**	**description**
	name	String	Sequence name within an Automatic Processing Stage.
	steps	Structure Array	Ordered list of steps within the sequence.

3.48.2.1 steps Structure

The structure for steps is defined as follows:

activities parameters			
	parameter	**type**	**description**
	name	String	A simple description of the steps purpose or function. Value is not seen in UI.

3.49 workflow-manager.workflow-definition

The workflow-manager.workflow-definition defines an ordered list of processing stages which are displayed on the workflow display. Each stage defined under stage name needs to be included in as stage in the workflow-manager.stage-definition.

config/processing/workflow-manager.stage-definition/default.json

workflow-manager.stage-definition Configuration Option					
	name	workflow-definition-default			
	criterion	**type**	**operator**	**priority**	**description**
	DEFAULT	—	—	—	Defines the constraint as default

workflow-manager.stage-definition parameters			
	parameter	**type**	**description**
	name	String	Describes organization name
	stageNames	Named Value (Stage) Array	Ordered list of stages. Details of each stage is defined further in the workflow-mangage.stage-definition configuration.

4 ELLIPTICITY CORRECTION

4.1 ellipticity-correction/dziewonski-gilbert

config/ellipticity-correction/dziewonski-gilbert/[deleted sta json files for dg]

Configuration Option		
	name	**description**
	default	A ellipticity correction table list providing the following information: Number of depth samples Number of distance samples Travel time at depth

5 MEDIUM VELOCITY

5.1 mediumvelocity

config/mediumvelocity/ak135.json

Configuration Option		
	name	**description**
	default	Medium velocity from MinIO

6 USER PREFERENCES

6.1 Default User Preferences

There is a defaultUserPreferences.json file which defines the default layout for the display. This file is not a processing configuration file and thus does not have constraints.

config/user-preferences/defaultUserPreferences.json

parameter name	type	description
defaultAnlaystLayoutName	Named Value (WorkspaceLayout)	Name of the default Layout
userID	String	Value is defaultUser
audibleNotifications	Structure Array	Array giving the list of audio files for each notification type. Array is empty in IAN since there are no valid notification types for IAN.
preferences	Structure	Defines the default ui theme and default preferences. These values can be changed under the Preferences menu.
workspaceLayouts	Structure Array	List of one or more Structures detailing the workspace layout

6.1.1 audibleNotifications Structure

The structure for audibleNotifications is defined as follows:

audibleNotifications Structure			
	parameter	**type**	**description**
	fileName	File Name	Name of audio file.
	notificationType	Enumeration (NotificationType)	Notification type for which audio files is played. Currently no valid notification types.

6.1.2 preferences Structure

The structure for preferences is defined as follows:

preferences Structure			
	parameter	**type**	**description**
	colorMap	Enumeration (ColorMap)	Defines the default color map used,
	currentTheme	Named Value (Theme)	Defines the current UI Theme.

6.1.3 workspaceLayout Structure

The structure for workspaceLayout is defined as follows:

workpaceLayout Structure			
	parameter	**type**	**description**
	name	Named Value (WorkspaceLayout)	Name of the Layout
	supportedUserInterfaceMode	Enumeration (UserInterfaceMode) Array	List of User Interface Modes which the layout can be used for. Currently there is only one supported User Interface Mode (IAN).
	layoutConfiguration	Layout	Layout of the tabs

7 EARTH-MODELS/TRAVEL-TIME

8 UPDATING CONFIGURATION

8.1 System Config

The default set of system configuration values are built into the SOH system and should generally not be changed. If required, individual system configuration values may be overwritten. Environment variables, provided to the system via **gmskube** on initial deployment, can be specified to override any value.

Environment variable names are restricted to alphanumeric characters and an underscore. By convention, environment variable names are specified with uppercase characters. System configuration names must be translated into corresponding environment variable names to specify them for override. The transformation rules are:

1. The prefix `GMS_CONFIG_` is added to the name to avoid collision with other potentially identical environment variables.
2. The characters are all converted to upper case to match the UNIX convention.
3. Any dash character (−) is replaced with a single underscore (_).
4. Any period (.) is replaced with two underscores (__).

For example, to override the value of `cd11-rsdf-processor.retry-backoff-ms`, the environment variable `GMS_CONFIG_CD11_RSDF_PROCESSOR__RETRY_BACKOFF_MS` would be specified.

To specify this override when starting the system, it would be provided via a `--env` argument to **gmskube**. Any number of overrides can be specified, just by specifying multiple `--env` arguments. To override `cd11-rsdf-processor.retry-backoff-ms` to 2 seconds, the following would be specified in the deployment command:

```
$ gmskube install –env
GMS_CONFIG_CD11_RSDF_PROCESSOR__RETRY_BACKOFF_MS=2000 …
```

8.1.1 Overrides

The processing configuration, station reference, station processing, and user preferences can be overwritten at startup by providing an alternate set of configuration files in the directory structure specified above.

The path to the top-level directory of this alternate configuration can be specified via the `--config` argument to **gmskube install**. Note that the alternate set of files may be sparse, and any directories not found in the overrides will fall back to default values in the default configuration.

```
%gmskube install --tag {RELEASE} --type ian --config path-to-my-
configuration ...
```

After the system has been initially deployed, the processing configuration can be updated by running **gmskube reconfig**. Note that on update, most SOH components will be automatically restarted to use the new configuration. The updated processing config must be specified under a processing subdirectory and must match the same directory structure specified above.

```
% gmskube reconfig --config path-to-my-configuration …
```

In addition to processing config, a new `station-reference/stationdata/processing-station-group-definition.json` file can also be included in the configuration to update the station group definitions. It is important to note that no other configuration will be updated as part of a reconfig.