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GMS IAN Configuration Guide

Version 1.25 (for GMS PI 25 Open Source 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 2 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 does not have an impact on the processing.

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 value for this is STRING. 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).

- **Criterion** – This is what is constrained. What can be used as a criterion depends on the configuration object type. Possible criterion are: StationName, ChannelName, MonitorType, StationGroupName, and protocol.

- **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.

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

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 Type	Operator Negated
EQ	EQ	False
IN	IN	False
NOT EQ	EQ	True
NOT IN	IN	True

There are 38 configuration objects included in the processing configuration:

1. ak135-travel-time-lookup-table
2. bicubic-spline-feature-predictor
3. event-manager.predict-features-for-location-definition
4. event-manager.predictions-for-location-solution-definition
5. event-repository-bridged.database-accounts-by-stage
6. event-repository-bridged.monitoring-organization
7. feature-prediction-elevation-corrector
8. feature-prediction-service.ak135-global-medium-velocity
9. feature-prediction-service.dziewonski-gilbert-ellipticity-corrector
10. feature-prediction-service.dziewonski-gilbert-lookup-table
11. feature-prediction-service
12. fk-control.fk-spectra-definitions
13. global.beamforming-configuration
14. global.database-accounts-by-stage
15. global.filter-cascade
16. global.filter-definition
17. global.filter-description
18. global.filter-list-definition
19. global.filter-list
20. global.filter-metadata
21. global.fk-reviewable-phases
22. global.monitoring-org
23. global.operational-time-period
24. global.processing-mask-definition
25. global.stage-accounts
26. iaspei-travel-time-lookup-table
27. qc-mask.qc-duration-time-parameters
28. signal-detection.waveform-lead-lag
29. simulator.bridged-data-source-config
30. station-definition-manager.beamforming-configuration
31. station-definition-manager.event-beam-configuration
32. station-definition-manager.processing-mask-definition
33. station-definition-manager.station-group-names
34. ui.analyst-settings
35. ui.common-settings
36. workflow-manager.bridge-polling-period
37. workflow-manager.stage-definition
38. workflow-manager.workflow-definition

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.

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	Port is a positive integer value
idle-timeout	Text String of the idle-timeout value using ISO-8601 duration
min-threads	Positive integer that is the minimum number of threads allocated
max-threads	Positive integer that is the maximum number of threads allocated
# Default DB Connection Info	
sql_url	Text string of the URL to connect to the PostgreSQL database
sql_user	Text string of the username to connect to the PostgreSQL database
sql_elev_user	Text string of the username to connect to the PostgreSQL database
c3p0_connection_pool_size	Number for the connection pool size
# Default backoff retry policy	
retry_max_attempts	Positive integer of the maximum retry attempts
retry_min_backoff	Positive integer of minimum backoff retry attempts
retry_max_backoff	Positive integer of maximum backoff retry attempts

retry_backoff_units	Text string to set the units of the backoff retry
# Default Retry for processing Config	
processing-retry-initial-delay	Positive integer for retry of the initial delay processing
processing-retry-max-delay	Positive integer for retry of maximum delay processing
processing-retry-delay-units	Text string to set the units of the delay processing
processing-retry-max-attempts	Positive integer for maximum number of retry attempts processing
# Values common to all GMS Services	
experimental-enabled	Boolean value defaulted to false.
osd.host	Text string of the osd repository service name
osd.c3p0_connection_pool_size	Number for the connection pool size
preloader.c3p0_connection_pool_size	Positive Integer for the connection pool size
# Global ignite properties	
ignite-failure-detection-timeout	Number for the timeout of the basic network operations
ignite-instance-name	Text string of the ignite instance name
ignite-kubernetes-ipfinder	Boolean value defaulted to true
# Global kafka properties for producers/consumers	
kafka-bootstrap-servers	Text string of the different bootstrap servers (separated by commas)
kafka-key-serializer	Text string providing the full qualified Java object name used to write the key part of the kafka message into a provided kafka topic
kafka-value-serializer	Text string providing the full qualified Java object name used to write the value part of the kafka message into a provided kafka topic
kafka-key-deserializer	Text string providing the full qualified Java object name used to read the key part of the kafka message from a provided kafka topic
kafka-value-deserializer	Text string providing 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	Text string of kafka consumer session time in milliseconds
# Heartbeat interval measured milliseconds	
kafka-consumer-heartbeat-interval	Text string of kafka consumer heartbeat interval time in milliseconds
reactor-kafka-key-serializer	Text string of the reactor kafka key serializer path
reactor-kafka-value-serializer	Text string of the reactor kafka value serializer

# Reactor kafka shared settings	
reactor-kafka-request-timeout	Positive integer for the max amount of time the client will wait
# Reactor kafka consumer settings	
reactor-kafka-consumer-session-timeout	Text string of reactor kafka consumer session time in milliseconds
reactor-kafka-consumer-max-poll-interval	Text string of reactor kafka consumer max poll interval time in milliseconds
reactor-kafka-consumer-max-poll-records	Positive integer for the reactor kafka consumer max number of poll records
reactor-kafka-auto-commit	Boolean text string true or false
reactor-kafka-auto-commit-interval	Positive integer for the reactor kafka auto-commit interval
reactor-kafka-consumer-heartbeat-interval	Text string for reactor kafka consumer heartbeat interval time in milliseconds
# Reactor kafka sender settings	
reactor-kafka-sender-acks	Text string for reactor kafka sender acks
reactor-kafka-sender-delivery-timeout	Text string for reactor kafka sender delivery timeout time in milliseconds
# Kafka properties	
verification-attempts	Positive integer for the number of verification attempts
streams-close-timeout-ms	Positive Integer with time in milliseconds
connection-retry-count	Positive Integer for the connection retry counts
retry-backoff-ms	Positive Integer with time in milliseconds for retry backoff
# Config for Configuration Consumers	
config-cache-expiration	Text String of the configuration cache expiration using ISO-8601 duration

# Config for mapping DB Accounts to URLs	
soccpro_jdbc_url	Text string of the URL to connect to the soccpro database
al1_jdbc_url	Text string of the URL to connect to the AL1 database
al2_jdbc_url	Text string of the URL to connect to the AL2 database
# Config for HTTP Service Client Retry Policies	
service-client-send-retry-initial-delay	Positive integer for retry of the initial delay for service client send
service-client-send-retry-max-delay	Positive integer for retry of the maximum delay for service client send
service-client-send-retry-delay-units	Text string to set the units of the service client send retry
service-client-send-retry-max-attempts	Positive integer for retry of the maximum attempts for service client send
service-client-upgrade-retry-initial-delay	Positive integer for retry of the initial delay for service client upgrade
service-client-upgrade-retry-max-delay	Positive integer for retry of the maximum delay for service client upgrade
service-client-upgrade-retry-delay-units	Text string to set the units of the service client upgrade retry
service-client-upgrade-retry-max-attempts	Positive integer for retry of the maximum attempts for service client upgrade
# Config Loader	
config-loader.host	Text string of event location service
config-loader.port	Port is a positive integer value
config-loader.statusEndpoint	Text string of the URL to connect to the PostgreSQL database
# File Store	
file-store.configLoaderStatusCheckRetryIntervalMillis	Positive integer for file store
# Config for waveform QC Control	
#Config for beam control	
# Config for event-location-control-service	
event-location-control.host	Text string of event location service

# Config for signal-detection-association-control-service	
signal-detection-association-control.processing-configuration-root	Text string of location of configuration-base

# Config for ui processing configuration service	
ui-processing-configuration-service.processing-configuration-root	Text string for the default address of processing configuration for UI processing configuration service
# Config for Event Magnitude Control	
event-magnitude-control.processing-configuration-root	Text string for the default address of processing configuration for Event Magnitude Control
# Config for Amplitude Control	
amplitude-control.processing-configuration-root	Text string for the default address of processing configuration for Amplitude Control
# Config for filter control	
filter-control.processing-configuration-root	Text string for the default address of filter control processing configuration service
filter-control.max-threads	Positive integer of the maximum number of filter control threads that will be allocated
# Config for fk control	
fk-control.processing-configuration-root	Text string for the default address of fk control processing configuration service
# Config for signal-detector-control	
signal-detector-control.processing-configuration-root	Text string for the default address of signal detector control processing configuration service
client-timeout	Text string of the client timeout in ISO-8601 format
# Config for Processing Configuration Service	
processing-cfg.processing-configuration-root	Text string of the location of the configuration-base
processing-cfg.host	Text string of the processing configuration service
processing-cfg.sql_url	Text string for the default address of processing configuration sequel service
processing-cfg.sql_user	Text string for processing the configuration sequel user

processing-cfg.c3p0_connection_pool_size	Positive integer of processing the configuration c3p0 connection pool size
# Config for User Manager	
user-manager.host	Text string of the user manger service
user-manager.sql_url	Text string for the default address of user manager sequel service
user-manager.sql_user	Text string for the user manager sequel user
user-manager.c3p0_connection_pool_size	Positive integer of the user manager c3p0 connection pool size
user-manager.schema	Text string of the user manager schema
# Config for signal detection bridge	
signal-detection.oracle_wallet_location	Text string for the default address of signal detection oracle wallet location
signal-detection.tns_entry_location	Text string for the default address of signal detection TNS entry location
signal-detection.host	Text string of the signal detection service
signal-detection.jdbc_url	Database url for the jdbc account
signal-detection.retry-initial-delay	Positive Integer for the initial retry counts
signal-detection.retry-delay-units	Text string to set the units of the signal detection retry delay
signal-detection.retry-max-attempts	Positive Integer for the max retry attempts
signal-detection.retry-max-delay	Positive Integer for the max delays before timeout
# Config for Signal Detection Bridge	
signal-detection.oracle wallet_location	Text string for the default address of signal detection oracle wallet location
signal-detection.tns_entry_location	Text string for the default address of s signal detection tns entry location
signal-detection.host	Text string for the signal detection host
signal-detection.jdbc_url	Text string of the signal detection jdbc service
signal-detection.retry-initial-delay	Positive Integer for the initial retry counts
signal-detection.retry-delay-units	Text string to set the units of the signal detection retry delay
signal-detection.retry-max-attempts	Positive Integer for the max retry attempts
signal-detection.retry-max-delay	Positive Integer for the max delays before timeout
# Config for Processing Station	
station-definition.jdbc_url	Text string for the default address of station definition jdbc service

station-definition.oracle_wallet_location	Text string for the default address of station definition oracle wallet location
station-definition.tns_entry_location	Text string for the default address of station definition TNS entry location
station-definition.host	Text string of the station definition service
station-definition.retry-initial-delay	Positive Integer for the initial retry counts
station-definition.retry-delay-units	Text string to set the units of the signal detection retry delay
station-definition.retry-max-attempts	Positive Integer for the max retry attempts
station-definition.retry-max-delay	Positive Integer for the max delays before timeout
# Config for Processing Waveforms	
waveform-manager.jdbc_url	Text string for the default address of waveform manager service
waveform-manager.oracle_wallet_location	Text string for the default address of waveform manager oracle wallet location
waveform-manager.tns_entry_location	Text string for the default address of waveform manager TNS entry location
waveform-manager.host	Text string of the waveform manger service
waveform-manager.retry-initial-delay	Positive Integer for the initial retry counts
waveform-manager.retry-delay-units	Text string to set the units of the signal detection retry delay
waveform-manager.retry-max-attempts	Positive Integer for the max retry attempts
waveform-manager.retry-max-delay	Positive Integer for the max delays before timeout
# Config for Processing Events	
event-manager.oracle_wallet_location	Text string for the default address of event manager oracle wallet location
event-manager.tns_entry_location	Text string for the default address of event manager TNS entry location
event-manager.host	Text string of event manager service
#Required by station definition, signal detection, and waveform accessors	
event-manager.retry-initial-delay	Positive Integer for the initial retry counts
event-manager.retry-delay-units	Text string to set the units of the signal detection retry delay
event-manager.retry-max-attempts	Positive Integer for the max retry attempts
event-manager.retry-max-delay	Positive Integer for the max delays before timeout
event-manager.jdbc_url	Text string for the default address of event manger jdbc service
# Config for Processing Workflow	
workflow-manager.kafka-bootstrap-servers	Text string of the different kafka bootstrap servers (separated by commas)

workflow-manager.jdbc_url	Text string for the default address of workflow manager service
workflow-manager.oracle_wallet_location	Text string for the default address of workflow manager oracle wallet location
workflow-manager.tns_entry_location	Text string for the default address of workflow manager TNS entry location
workflow-manager.host	Text string of the workflow manger service
workflow-manager.retry-initial-delay	Positive Integer for the initial retry counts
workflow-manager.retry-delay-units	Text string to set the units of the signal detection retry delay
workflow-manager.retry-max-attempts	Positive Integer for the max retry attempts
# Config for Bridge Simulator	
bridged-data-source-simulator.oracle_wallet_location	Text string for the default address of the bridged data source simulator oracle wallet location
bridged-data-source-simulator.tns_entry_location	Text string for the default address of bridged data source simulator TNS entry location
bridged-data-source-simulator.seed.jdbc_url	Text string for the default address of bridged data source simulator seed service
bridged-data-source-simulator.simulation.jdbc_url	Text string for the default address of bridged data source simulator simulation service
bridged-data-source-simulator.sim-detpro.jdbc_url	Text string for the default address of bridged data source simulator sim detpro service
bridged-data-source-simulator.seed-detpro.jdbc_url	Text string for the default address of bridged data source simulator seed detpro service
bridged-data-source-simulator.sim-soccpro.jdbc_url	Text string for the default address of bridged data source simulator sim soccpro service
bridged-data-source-simulator.seed-soccpro.jdbc_url	Text string for the default address of bridged data source simulator seed soccpro service
bridged-data-source-simulator.sim-al1.jdbc_url	Text string for the default address of bridged data source simulator sim-al1 jdbc service
bridged-data-source-simulator.seed-al1.jdbc_url	Text string for the default address of bridged data source simulator seed-al1 jdbc service
bridged-data-source-simulator.sim-al2.jdbc_url	Text string for the default address of bridged data source simulator sim-al2 jdbc service
bridged-data-source-simulator.seed-al2.jdbc_url	Text string for the 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	Text string of the feature prediction minio buck name
feature-prediction.minio-url	Text string for the default address of the feature prediction minio service

2.2 Interactive Analysis Processing Config

2.2.1 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

Configuration Option				
	Name	**description**		
	monitoring-org-default	A configuration option defining global monitoring organization default		
	constraintType	**criterion**	**operator**	**description**
	DEFAULT	—	—	Defines the constraint as default
	parameters	**type**		**description**
	monitoringOrganization	String		Name of organization that is monitoring

2.2.2 Event Respository Bridged Monitoring Organization

Configuration which identifies the monitoringOrization attribute for the bridged events.

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

Configuration Option				
	Name	**description**		
	default	The default configuration option for event-respository-bridged.monitoring-organization		
	constraintType	**criterion**	**operator**	**description**
	DEFAULT	—	—	Defines the constraint as default
	parameters	**type**		**description**
	$ref=global.database-accounts-by-stage	String		Pointer to the global.database-accounts-by-stage.

2.2.3 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.

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

Configuration Option		
	Name	**description**

	stage-accounts-default	A configuration option for soccpro global stage accounts default		
	constraintType	**criterion**	**operator**	**description**
	DEFAULT	—	—	Defines the constraint as default
	parameters	**type**		**description**
	databaseAccountsByStage	Complex Structure		Complex structure containing workFlowDefinitionID name of the analyst and databaseAccount address for that name
	previousDatabaseAccountsByStage	Complex Structure		Complex structure containing workFlowDefinitionID name of the analyst and databaseAccount address for that name

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

Configuration Option				
	Name	**description**		
	database-accounts-by-stage	A configuration option for AL2 global stage accounts default		
	constraintType	**criterion**	**operator**	**description**
	DEFAULT	—	—	Defines the constraint as default
	parameters	**type**		**description**
	Auto Network	String		Defines the auto network name
	AL1	String		Defines the name for AL1
	AL2	String		Defines the name for AL2

config/processing/global.filter-cascade/cascade-{[filterName]}.json

Configuration Option				
	Name	**description**		
	cascade-filter{[name]}	A configuration option for global filter cascade account default		
	constraintType	**criterion**	**operator**	**description**
	DEFAULT	—	—	Defines the constraint as default
	constraintType	String	EQ	Defines the constraint type as string
	parameters	**type**		**description**
	$ref=global.filter-description	String		Pointer to the global.filter-description(s) and value(s)
	sampleRateHz	Integer		Numeric value for the Hz of the sample rate
	sampleRateToleranceHz	Integer		Numeric value for the Hz of the sample rate tolerance
	groupDelaySec	Duration		Text string of the group delay time span in ISO-8601 format

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

Configuration Option			
Name	**description**		
cascade-filter-{[name]}	A configuration option for global filter cascade account default		
constraintType	**criterion**	**operator**	**description**
DEFAULT	—	—	Defines the constraint as default
constraintType	String	EQ	Defines the constraint type as string
parameters	**type**		**description**
$ref=global.filter-description	String		Pointer to the global.filter-description(s) and value(s)

config/processing/global.filter-description/globalFilterDescription(s).json

Configuration Option			
Name	**description**		
global.filter-description	A configuration option for global filter description default		
constraintType	**criterion**	**operator**	**description**
DEFAULT	—	—	Defines the constraint as default
constraintType	String	EQ	Defines the constraint type as string
parameters	**type**		**description**
$ref=global.filter-description	String		Pointer to the global.filter-description(s) and value(s)

config/processing/global.filter-list-definition/globalFilterListDefinition(s).json

Configuration Option			
Name	**description**		
global.filter-list-definiton	A configuration option for global filter list definition default		
constraintType	**criterion**	**operator**	**description**
DEFAULT	—	—	Defines the constraint as default
constraintType	String	EQ	Defines the constraint type as string
parameters	**type**		**description**
name	Complex Global Filter List Definition structure		Complex 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)

config/processing/global.filter-list/globalFilterList(s).json

Configuration Option			
Name	**description**		
global.filter-list	A configuration option for global filter list description default		
constraintType	**criterion**	**operator**	**description**
DEFAULT	—	—	Defines the constraint as default
constraintType	String	EQ	Defines the constraint type as string
parameters	**type**		**description**
name	Complex Global Filter structure		Complex structure which describes the details of a global filter, including a pointer to the global.filter-definition(s) and global.filter-cascade(s) along with their respective value(s)

config/processing/global.filter-metadata/globalFilterMetadata(s).json

Configuration Option			
Name	**description**		
global.filter-metadata	A configuration option for global filter metadata description default		
constraintType	**criterion**	**operator**	**description**
DEFAULT	—	—	Defines the constraint as default
constraintType	String	EQ	Defines the constraint type as string
Value	String		Defines the Station
parameters	**type**		**description**
$ref=global.filter-definitions	String		Pointer to the global.filter-definitions(s) and value(s)

2.2.4 Event Respository Bridged Database Accounts By Stage

Configuration which identifies database accounts for the event bridge.

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

Configuration Option				
	Name	**description**		
	default	The default configuration option for event-respository-bridged.database-accounts-by-stage		
	constraintType	**criterion**	**operator**	**description**
	DEFAULT	—	—	Defines the constraint as default
	parameters	**type**		**description**
	$ref=global.database-accounts-by-stage	String		Pointer to the global.database-accounts-by-stage.

2.2.5 Operational Time Period

Defines the window of time data is accessible. The time window is defined based on the duration from the current time.

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

Configuration Option				
	Name	**description**		
	cache-config-default	The default configuration option for simulator.bridged-data-source-config		
	constraintType	**criterion**	**operator**	**description**
	DEFAULT	—	—	Defines the constraint as default
	parameters	**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

2.2.6 Station Groups

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

Configuration Option				
	Name	**description**		
	default	The only configuration option for the station-definition-manager.station-group-names configuration object		
	constraintType	**criterion**	**operator**	**description**
	DEFAULT	—	—	Defines the constraint as default
	parameters	**type**	**description**	
	stationGroupNames	String list	List of names of station groups used in IAN processing	

2.2.7 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

Configuration Option				
	Name	**description**		
	default	The default configuration option for simulator.bridged-data-source-config		
	constraintType	**criterion**	**operator**	**description**
	DEFAULT	—	—	Defines the constraint as default
	parameters	**type**		**description**
	default_schema	String		Database schema where seed data exists for the simulator. This data is read only
	simulation_schema	String		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

2.2.8 IAN Display Parameters

These settings allow the user to configure the UI. For example, what station group to use by default.

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

Configuration Option				
	Name	**description**		
	default	The default configuration option for ui.analyst-settings		
	constraintType	**criterion**	**operator**	**description**

	DEFAULT	—	—	Defines the constraint as default
	parameters	**type**		**description**
	defaultNetwork	String		This is obsolete.
	defaultInteractiveAnalysisStationGroup	String		Used to identify the Station Group
	currentIntervalEndTime	Date Time/String		Used by IAN Map and Waveform Display to set the end time of the interval which is used by default. UseCurrentTime will use latest data
	currentIntervalDuration	Duration		Used by IAN Map and Waveform Display along with the currentIntervalEndTime to set the interval which is used by default
	maximumOpenAnythingDuration	Duration		Text String of maximumOpenAnything Duration using ISO-8601 duration
	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.
	keyboardShortcuts	Complex 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
	uiThemes	Complex structure		Used by Analyst to change the look of the display (background color and opacity)
	priorityPhases	String		List of the priority phases
	zasDefaultAlignmentPhase	String		Default value for the alignment phase
	zasZoomInterval	Duration		Duration in ISO 8601 format that controls the minimum amount of time of the zoom interval.
	unassociatedSignalDetectionLengthMeters	Integer		Length of unassocated signal detections shown on the Map Display.
	minimumRequestDuration	Duration		Duration in ISO 8601 format that 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.
	waveformPanningBoundaryDuration	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.
	waveformPanRatio	Decimal	Percentage of the open time range which the Waveform Display will pan using the panning arrows.
	workflow	String	Lists the panSingleArrow and panDoubleArrows which give the duration of time that Workflow Display will pan when using the the single or double arrow.
	fixedAmplitudeScaleValues	Floating Point Structure	Floating point structure with list of floating point numbers.
	endpointConfigurations	Complex Structure	Fine tune number of parallel webservice requests

2.2.9 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

Configuration Option			
Name	**description**		
default	The default configuration option for workflow manager bridge polling period		
constraintType	**criterion**	**operator**	**description**
DEFAULT	—	—	Defines the constraint as default
parameters	**type**		**description**
bridgePollingPeriod	Integer		Text String of the bridge polling period using ISO-8601 duration

2.2.10 Workflow Manager Stage Definition

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

config/processing/workflow-manager.stage-definition /al1.json

Configuration Option				
	Name	**description**		
	String	Analyst 1 default stage definition		
	constraintType	**criterion**	**operator**	**description**
	String	String	EQ	
	parameters	**type**		**description**
	name	String		Text String to describe analyst 1
	duration	Duration		Text String of the al1 duration using ISO-8601 duration
	mode	String		Text string for the mode defaulted to INTERACTIVE
	activities	Complex Structure		Structure is a collection of analysis activities that the analyst would perform as a part of completing the stage

config/processing/workflow-manager.stage-definition /al2.json

Configuration Option			
Name	**description**		
String	Analyst 2 default stage definition		
constraintType	**criterion**	**operator**	**description**
String	String	EQ	
parameters	**type**		**description**
name	String		Text String to describe analyst 2
duration	Duration		Text String of the al2 duration using ISO-8601 duration
mode	String		Text string for the mode defaulted to INTERACTIVE
activities	Complex Structure		Structure is a collection of analysis activities that the analyst would perform as a part of completing the stage

config/processing/workflow-manager.stage-definition /auto-network.json

Configuration Option			
Name	**description**		
String	Automatic processing to build events before analyst begins analysis		
constraintType	**criterion**	**operator**	**description**
String	String	EQ	Configuration constraint to allow selection by stage name
parameters	**type**		**description**
name	String		Text String to describe auto network
duration	Duration		Text String of the auto network duration using ISO-8601 duration
mode	String		Always set to automatic
sequences	Complex Structure		Collection of processing sequences and steps the automated stage performs

config/processing/workflow-manager.stage-definition /auto-post-al1.json

Configuration Option			
Name	**description**		
String	Automatic processing to build events before analyst begins analysis		
constraintType	**criterion**	**operator**	**description**
String	String	EQ	Configuration constraint to allow selection by stage name
parameters	**type**		**description**
name	String		Text String to describe auto post al1
duration	Duration		Text String of the auto post al1 duration using ISO-8601 duration
mode	String		Always set to automatic
sequences	Complex Structure		Collection of processing sequences and steps the automated stage performs

2.2.11 Workflow Manager Workflow Definition

The ordered list of processing stages used to generate the workflow.

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

Configuration Option			
Name	**description**		
String	The default configuration option for workflow manager stage definitions workflow definition		
constraintType	**criterion**	**operator**	**description**
String	-	-	Defines the constraint as default
parameters	**type**		**description**
name	String		Text String to describe organization name
stageNames	String		Text String to describe workflow definition stage names

2.2.12 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. Durations that are added/subtracted from endpoints are queried for signal detection to allow the incorporatation of data on the edges of the query. If queries for data between A and B, and lead = C, lag = D, then the query looks for data between A - C and B + D.

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

Configuration Option				
	Name	**description**		
	default	A configuration option for signal detection waveform lead and lag default		
	constraintType	**criterion**	**operator**	**description**
	DEFAULT	—	—	Defines the constraint as default
	parameters	**type**		**description**
	measuredWaveformLeadDuration	Duration		ISO 8601 string value for measure waveform lead duration
	measuredWaveformLagDuration	Duration		ISO 8601 string value for measure waveform lead duration

2.2.13 Feature Prediction Service

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

Configuration Option				
	Name	**description**		
	default	A configuration option for the feature prediction service		
	constraintType	**criterion**	**operator**	**description**
	DEFAULT	—	—	Defines the constraint as default
	parameters	**type**		**description**
	pluginByFeatureMeasurementType	Complex Structure		Gives arrival time

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

Configuration Option				
	Name	**description**		
	default	A configuration option for the feature prediction elevation corrector		
	constraintType	**criterion**	**operator**	**description**
	DEFAULT	—	—	Defines the constraint as default
	parameters	**type**		**description**
	mediumVelocityEarthModelPluginNameByModelName	Complex Structure		Gives plugin name elevation

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

Configuration Option		
	Name	**description**
	default	A configuration option for the feature prediction service ak135-global-medium-velocity

	constraintType	criterion	operator	description
	DEFAULT	—	—	Defines the constraint as default
	parameters	**type**		**description**
	dataDescription	String		Describes the name

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

Configuration Option				
	Name	**description**		
	default	A configuration option for the feature prediction service dziewonski-gilbert-ellipticity-corrector		
	constraintType	**criterion**	**operator**	**description**
	DEFAULT	—	—	Defines the constraint as default
	parameters	**type**		**description**
	correctionModelPluginNameByModelName	String		Describes the plugin name by location

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

Configuration Option				
	Name	**description**		
	default	A configuration option for the feature prediction service dziewonski-gilbert-lookup-table		
	constraintType	**criterion**	**operator**	**description**
	DEFAULT	—	—	Defines the constraint as default
	parameters	**type**		**description**
	location	String		Describes the plugin name by location

2.2.14 ak135 Travel Time Lookup

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

Configuration Option				
	Name	**description**		
	default	A lookup table for ak135 travel time		
	constraintType	**criterion**	**operator**	**description**
	DEFAULT	—	—	Defines the constraint as default
	parameters	**type**		**description**
	Minio key prefix	Complex Structure		Gives travel time

2.2.15 bicubic-spline-feature-predictor

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

Configuration Option				
	Name	**description**		
	default	A configuration option for the bicubic-spline-feature-predictor		
	constraintType	**criterion**	**operator**	**description**
	DEFAULT	—	—	Defines the constraint as default
	parameters	**type**		**description**
	Extrapolate	String		Test String as true
	ellipticityCorrectorPluginNameByCorrectionType	String		Text String to describe ellipticity corrector plugin name by correction type
	plugins	Complex Structure		Lookup tables

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

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

Configuration Option				
	Name	**description**		
	default	A configuration option for the Predict features using default definition		
	constraintType	**criterion**	**operator**	**description**
	DEFAULT	—	—	Defines the constraint as default
	parameters	**type**		**description**
	earthModel	String		Text String to describe earth model
	predictionTypes	String		Text String to describe prediction types

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

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

Configuration Option			
Name	**description**		
default	A configuration option for the Predict features for location definition		
constraintType	**criterion**	**operator**	**description**
DEFAULT	—	—	Defines the constraint as default
parameters	**type**		**description**
earthModel	String		Text String to describe earth model
predictionTypes	String		Text String to describe prediction types
correctionType	String		Text String to describe correction types

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

Configuration Option			
Name	**description**		
default	A configuration option for updating the common config at the base level		
constraintType	**criterion**	**operator**	**description**
DEFAULT	—	—	Defines the constraint as default
parameters	**type**		**description**
systemMessageLimit	integer		Length of character limit

2.2.18 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

2.2.19 mediumvelocity

config/mediumvelocity/ak135.json

Configuration Option		
	Name	**description**
	default	Mediumvelocity from MinIO

3 USER PREFERENCES

3.1 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
defaultLayoutName	string	Name of the default Layout
userID	string	Value is defaultUser
currentTheme	string	Name of the current theme
audibleNotifications		
workspaceLayouts	Complex Workspace Layout Structure List	List of one or more Complex Structures detailing the workspace layout

Each Complex Workspace Layout Structure is comprised of:

Parameter name	Type	Description
name	string	Name of the Layout
supportedUserInterfaceMode	string list	List of User Interface Modes which the layout can be used for. Currently, the only valid value is ANALYST
layoutConfiguration	string	Layout of the tabs Note this is not easily human readable.

4 UPDATING CONFIGURATION

4.1 System Config

The default set of system configuration values are built into the 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 …
```

4.2 Other Configuration

The default set of processing configuration, station reference, station processing, and user preferences will automatically be loaded when a new instance of the system is freshly deployed.

These processing config files are expected to be organized in the following subdirectories under a top-level, configuration directory:

- **Processing**
  This directory contains processing configuration used to configure processing components in the system.
- **Station-reference/stationdata**

This directory contains several JSON files that contain the Common Object Interface (COI) representations of station reference configuration and station processing configuration. Note that these files should not be edited directly, but should instead be generated from a set of source CSS-formatted files in **station-reference/data**

- **User-preferences**
  This directory contains a JSON file which specifies the user preferences for the user interface.

4.2.1 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 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.