

RAA configuration in Azure

Traditional architecture

RAA configuration

Historically RAA does not interact with config server. And GIM config node (type=CFGGDMETL) is a container of RAA options at config server. Annex sections of switches, DNs and some other config elements may also contain the values for **agg-*** thresholds. Those values affects results of corresponding aggregates.

GIM passes the config options to RAA as a parameter of UPDATE_CONFIG command. The command is passed via **addCommand** method of [Aggregation](#) interface.

Example below discovers the xml format of the parameter in details:

```
<?xml version="1.0" encoding="UTF-8"?>
<CfgOptions>
  <Application id="351">

    <!-- agg section -->
    <i id="agg">
      <i k="deadlock-threshold" v="3600" />
      <i k="level-of-log" v=".:INFO,Agg.Writer:FINEST" />
      <i k="number-of-writers" v="4" />
      <i k="sub-hour-interval" v="15min" />
    </i>

    <!-- agg-feature section -->
    <i id="agg-feature">
      <i k="enable-callback" v="true" />
      <i k="enable-sdr" v="true" />
      <i k="enable-sdr-survey" v="true" />
      <i k="materialize-subhour-in-db" v="true" />
    </i>

    <!-- agg-gim-thld-AGENT-IXN section -->
    <i id="agg-gim-thld-AGENT-IXN">
      <i k="default" v="10" />
    </i>
    <!-- agg-gim-thld-ID-IXN section -->
    <i id="agg-gim-thld-ID-IXN">
      <i k="default" v="5,45,3600,7200" />
    </i>
    <!-- agg-gim-thld-QUEUE-ABN section -->
    <i id="agg-gim-thld-QUEUE-ABN">
      <i k="default" v="5,10,20,30,45,60,90,120,180,240,3600,7200,14400,28800,43200,57600,72000,86400,172800" />
    </i>
    <!-- agg-gim-thld-QUEUE-ACC section -->
    <i id="agg-gim-thld-QUEUE-ACC">
      <i k="default" v="5,20,30,45,60,90,120,180,240,3600,7200,14400,28800,43200,57600,72000,86400,172800,259200" />
    </i>
    <!-- agg-gim-thld-QUEUE-IXN section -->
    <i id="agg-gim-thld-QUEUE-IXN">
      <i k="default" v="5,44,44,5,44,44" />
    </i>
    <!-- agg-populate-disable section -->
    <i id="agg-populate-disable">
      <i k="default" v="" />
    </i>
    <!-- GIM specific parameters are coming here -->
    <i id="cfgApplication">
      <i k="CFGAPP_DBID" v="351" />
      <i k="CFGAPP_NAME" v="GIM" />
      <i k="CFGAPP_TYPE" v="CFGGDMETL" />
    </i>
    <i id="date-time">
      ....
    </i>
  </Application>

<Tenants>
  <i id="1">
    <Annex />
    <name>Environment</name>
    <dbid>1</dbid>
  </i>
</Tenants>

<Switches>
  <i id="105">
```

```

<Annex>
  <i id="gts">
    <i k="delivered-flag" v="1" />
    <i k="gls-acw-first" v="true" />
    <i k="gls-associations-rule" v="1" />
    <i k="gls-enable-acw-busy" v="0" />
    <i k="ring-divert" v="1" />
    <i k="sst-options" v="1" />
    <i k="valid-digits" v="+0123456789" />
  </i>
</Annex>
<name>us-east-1</name>
<dbid>105</dbid>
<tenantDBID>1</tenantDBID>
</i>
<i id="106">
  <Annex>
    <i id="gts">
      <i k="delivered-flag" v="1" />
      <i k="gls-acw-first" v="true" />
      ...
    </i>
  </Annex>
  <name>VQ-switch</name>
  <dbid>106</dbid>
  <tenantDBID>1</tenantDBID>
</i>
...
</Switches>

<DNs>
  <i id="25737">
    <Annex>
      <i id="agg-gim-thld-ID-IXN">
        <i k="default" v="9,60,3600,7200" />
      </i>
      <i id="agg-gim-thld-QUEUE-IXN">
        <i k="default" v="9,60,60,9,60,60" />
      </i>
      <i id="gim-etl">
        <i k="q-answer-threshold-voice" v="60" />
      </i>
    </Annex>
    <name>SBCOM_Existing_Order_vq</name>
    <dbid>25737</dbid>
    <tenantDBID>1</tenantDBID>
    <switchDBID>106</switchDBID>
    <type>5</type>
  </i>
  <i id="25738">
    <Annex>
      <i id="agg-gim-thld-ID-IXN">
        <i k="default" v="9,60,3600,7200" />
      </i>
      <i id="agg-gim-thld-QUEUE-IXN">
        <i k="default" v="9,60,60,9,60,60" />
      </i>
      <i id="gim-etl">
        <i k="q-answer-threshold-voice" v="60" />
      </i>
    </Annex>
    <name>SBCOM_Online_Account_vq</name>
    <dbid>25738</dbid>
    <tenantDBID>1</tenantDBID>
    <switchDBID>106</switchDBID>
    <type>5</type>
  </i>
  <i id="25739">
    ...
  </i>
  ...
</DNs>

<TimeZones>
  <i id="158">
    <Annex />
    <name>MST</name>
    <dbid>158</dbid>
    <tenantDBID>1</tenantDBID>
    <description>Mountain Standard Time</description>
    <state>true</state>
    <offset>-14</offset>
    <isDSTObserved>true</isDSTObserved>
  </i>

```

```

    <DSTStartDate>-2113896285000</DSTStartDate>
    <DSTStopDate>-2147450725000</DSTStopDate>
  </i>
  <i id="159">
    <Annex />
    <name>NET</name>
    <dbid>159</dbid>
    <tenantDBID>1</tenantDBID>
    <description>Near East Time</description>
    <state>true</state>
    <offset>8</offset>
    <isDSTObserved>true</isDSTObserved>
    <DSTStartDate>0</DSTStartDate>
    <DSTStopDate>0</DSTStopDate>
  </i>
  <i id="160">
    ...
  </i>
  ....
</TimeZones>

```

```

<Fields>
  <i id="111">
    <Annex>
      <i id="default">
        <i k="icon_attribute" v="1" />
      </i>
    </Annex>
    <name>daily_till</name>
    <dbid>111</dbid>
    <tenantDBID>1</tenantDBID>
  </i>
  <i id="112">
    <Annex>
      <i id="default">
        <i k="icon_attribute" v="1" />
      </i>
    </Annex>
    <name>tz_dbid</name>
    <dbid>112</dbid>
    <tenantDBID>1</tenantDBID>
  </i>
  ...
</Fields>

```

```

<Scripts />

```

```

<MediaTypes>
  <i id="1079">
    <Annex />
    <name>voice</name>
    <dbid>1079</dbid>
    <tenantDBID>1</tenantDBID>
  </i>
  <i id="1080">
    <Annex />
    <name>voip</name>
    <dbid>1080</dbid>
    <tenantDBID>1</tenantDBID>
  </i>
  <i id="1081">
    <Annex />
    <name>email</name>
    <dbid>1081</dbid>
    <tenantDBID>1</tenantDBID>
  </i>
  ...
</MediaTypes>

```

```

</CfgOptions>

```

Application element holds configuration of corresponding GIM node in config server. Groups of switches, DNs and other elements with agg-* thresholds are declared after application element.

GIM initiates UPDATE_CONFIG command right before first START command for correct initialisation of RAA. UPDATE_CONFIG command also passed each time after config changes.

RAA customization

Aggregation customization is specified by a set of *.ss files placed in a work dir. See [How Do I Customize Queries and Hierarchies?](#) for details.

Configuration in Azure

Configuration

Access for config server is restricted to Azure application due to architecture requirements. And GIM application is not interacting with config server directly here. GIM team refused from providing of configuration and its changes via **addCommand** method of [Aggregation](#) interface.

RAA is a separate container in Azure based on architecture described in [RAA separation from GIM](#). And it is decided that application level options are supplied to RAA via config.xml file placed into config dir along with with custom *.ss files. And GIDB_GC_ANNEX table become a source of **agg**-* thresholds in Annex sections of switches, DNS and other elements. RAA checks for corresponding changes in GIDB_GC_ANNEX table periodically once per 5 minutes.

Customization

A **gcxi-raa-config** file share (AzureFiles) is created by each **gcxi<region><environment>share** storage account (i.e. for each **<region><environment>**). The **gcxi-raa-config/gcxi-raa-<tenantid>-<region>-<environment>** folder is mapped to RAA container as a work dir and reflects current RAA configuration (RAA work dir is a place for config files by design). The change of shared RAA config folder will not affect RAA behaviour because folder content always copied from the **tenants** folder of gcxi-raa-config repo with the help of init container and deployment pipeline.

A tenant config folder is created in **tenants** folder of gcxi-raa-config with the default [conf.xml](#) and [user-data-map.ss](#) during the tenant deployment. Such the tenant folder created in repo only if absent. The following benefits are reached with such the repo based approach:

- An access to gcxi-raa-config repo can be granted to PS since no other data is available here.
- The repo itself holds a history of configuration changes per tenant.
- A provisioning of a tenant specific configuration can be done by creating config folder in repo before the tenant deployment.

A simple config pipeline is added to apply configuration changes automatically. See the details in [README file](#).

Default conf.xml

The content is copied from [onf.xml](#) for those who have no access to gcxi-raa-config repo.

```
<CfgOptions>
  <Application>
    <i id="agg">
      <i k="sub-hour-interval" v="30min"/>
    </i>
    <i id="agg-feature">
      <i k="materialize-subhour-in-db" v="true"/>
      <i k="enable-available-features" v="true"/>
    </i>
    <i id="cfgApplication">
      <i k="CFGAPP_NAME" v="RAA" />
    </i>
  </Application>
</CfgOptions>
```

Default user-data-map.ss

The content is copied from [user-data-map.ss](#) for those who have no access to gcxi-raa-config repo:

```
(map-user-data-key (hierarchy: H_ID) (dimension: USER_DATA_KEY1) (expression: irfud.CUSTOM_KEY_1))
(map-user-data-key (hierarchy: H_ID) (dimension: USER_DATA_KEY2) (expression: irfud.CUSTOM_KEY_2))
(map-user-data-key (hierarchy: H_AGENT) (dimension: USER_DATA_KEY1) (expression: irfud.CUSTOM_KEY_1))
(map-user-data-key (hierarchy: H_AGENT) (dimension: USER_DATA_KEY2) (expression: irfud.CUSTOM_KEY_2))
(map-user-data-key (hierarchy: H_AGENT_QUEUE) (dimension: USER_DATA_KEY1) (expression: irfud.CUSTOM_KEY_1))
(map-user-data-key (hierarchy: H_AGENT_QUEUE) (dimension: USER_DATA_KEY2) (expression: irfud.CUSTOM_KEY_2))
(map-user-data-key (hierarchy: H_AGENT_CAMPAIGN) (dimension: USER_DATA_KEY1) (expression: irfud.CUSTOM_KEY_1))
(map-user-data-key (hierarchy: H_AGENT_CAMPAIGN) (dimension: USER_DATA_KEY2) (expression: irfud.CUSTOM_KEY_2))
(map-user-data-key (hierarchy: H_CAMPAIGN) (dimension: USER_DATA_KEY1) (expression: irfud.CUSTOM_KEY_1))
(map-user-data-key (hierarchy: H_CAMPAIGN) (dimension: USER_DATA_KEY2) (expression: irfud.CUSTOM_KEY_2))
(map-user-data-key (hierarchy: H_QUEUE) (dimension: USER_DATA_KEY1) (expression: irfud.CUSTOM_KEY_1))
(map-user-data-key (hierarchy: H_QUEUE) (dimension: USER_DATA_KEY2) (expression: irfud.CUSTOM_KEY_2))
(map-user-data-key (hierarchy: H_QUEUE_ABN) (dimension: USER_DATA_KEY1) (expression: irfud.CUSTOM_KEY_1))
(map-user-data-key (hierarchy: H_QUEUE_ABN) (dimension: USER_DATA_KEY2) (expression: irfud.CUSTOM_KEY_2))
(map-user-data-key (hierarchy: H_QUEUE_ACC_AGENT) (dimension: USER_DATA_KEY1) (expression: irfud.CUSTOM_KEY_1))
(map-user-data-key (hierarchy: H_QUEUE_ACC_AGENT) (dimension: USER_DATA_KEY2) (expression: irfud.CUSTOM_KEY_2))
```