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Genesys Rules System Deployment Guide

Deploying GRE in Genesys Administrator

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Prerequisites

To install GRE on Configuration Servers 8.1.0 or later, Genesys Administrator 8.1.0 or later is required.

Procedure

1. Import the installation package into Genesys Administrator.

1. On the Deployment tab of Genesys Administrator, select Import.
2. Select Installation CD-ROM.
3. Click Next.
4. Browse to the MediaInfo.xml file on the CD or the CD image location on the network (the path must be in UNC format).
5. Click Next.
6. To import the installation package, select GRE for your operating system as well as the appropriate type in the list:
 - For Management Framework 8.1, the type is Business Rules Execution Server.
 - For Management Framework 8.0 and earlier, the type is Genesys Generic Server.
7. Select Next to start the import.
8. Click Finish when the import is complete.

2. Install the GRE IP.

1. Select the Deployment tab in Genesys Administrator. The list of installation packages will now display GRE.
2. Right-click and select Install Package for the IP for your operating system and type.
3. Click Next to start the installation wizard. The following parameters must be defined/selected:
 - a. Application Name for the GRE application
 - b. Target Host—The host to which the .war file will be copied during the installation procedure
 - c. Working Directory—The directory in which the .war file will be created

- d. Client Side IP Address (optional)
- e. Client Side Port (optional)
- f. Configuration Server hostname
- g. Configuration Server port

Important

For a secure connection, the Configuration Server port should be of type Auto Detect (Upgrade).

- h. Connection delay time in seconds
- i. Reconnect Attempts.

3. Configure the Rules Engine application.

1. In the `Server Info` section, verify the default listening port, as well as the connector port on which the Rules Engine Servlet receives requests:

- The `ID` value is the name of the Rules Engine web application. The default name of this application is `genesys-rules-engine`.
- The `Listening` port is the connector port of the servlet container. For example, on Tomcat the default listening port is 8080.
- The `Connection Protocol` must be `http`.
- On the `Tenants` tab, add the Tenants that will be available to the Rules Engine.
- On the `Connections` tab, add a connection to Message Server if you want to use network logging.
- On the `Options` tab, configure options. In addition to the standard logging options that you can configure, you can configure an option named `fileEncoding` in the `logging` section.

`fileEncoding` specifies the encoding that is to be used during creation of the log file, for example, UTF-8. This value is optional. If you do not specify this option, the server's locale information will determine the log file encoding. This option is available for both GRE and GRAT. Also, the `log4j.properties` file that is included in both components supports a similar option, `log4j.appender.runtime.Encoding`. The `log4j.properties` file is used for initial log configuration prior to the reading of the log configuration from the Configuration Server database.

- There are several optional configuration options in the `settings` section:

Settings in GRE

Description	Valid values	Default value	Takes effect
deployed-rules-directory			
Specifies the directory in which to keep the working copy of deployed rule packages. When a package is deployed, a copy of the deployed package is placed here. When the rules engine is restarted, all packages defined in this directory are loaded and made available for execution. Specifying a deployed-rules-directory is recommended. If a value is not assigned to the deployed-rules-directory, the rule packages are placed in the WEB-INF\config sub-directory within the genesys-rules-engine web application directory. At this location the deployed rule		/GCTI/logs/GRS_Engine	After restart

Description	Valid values	Default value	Takes effect
<p>packages may be deleted when an updated .war file is deployed.</p> <p>If you choose to change the default value, ensure that the path exists and that the application server can write to the specified directory.</p>			
max-number-rule-executions			
<p>The maximum number of rules to be executed during a request. This is used to detect unwanted recursion when sequential-mode is false. If this maximum is reached an error is reported.</p> <p>May be set to -1 to denote no maximum.</p>	Any positive integer or -1	10,000	Next rules execution
sequential-mode			
Indicates whether to run the rules	true/false	false	On rules deployment

Description	Valid values	Default value	Takes effect
engine in sequential mode. In sequential mode, after the initial data set, no more data can be inserted or modified. This allows for the rules engine to operate in a simplified way.			
verify-deployer-address			
Indicates whether to verify the TCP address of the application deploying rules to be that of an associated Genesys Rules Authoring Tool.	true/false	true	Immediately
esp-worker-threads			
Specifies the maximum number of worker threads available when using the ESP interface to execute rules.	Any positive integer	5	Immediately
load-packages-on-start			
Indicates whether	true/false	true	Immediately

Description	Valid values	Default value	Takes effect
to load deployed rule packages at application start up. If packages are not loaded at startup (value=false), then a package is loaded on its first execution request.			
json-hierarchical-driver			
With value true, the <code>JsonHierarchicalStreamDriver</code> class is used to serialize JSON responses. With value false, the <code>JettisonMappedXmlDriver</code> class is used. The Jettison driver is unaware of the original data type and will try to detect numerical values and omit the quotes, whereas the <code>JsonHierarchicalStreamDriver</code> will maintain the data type.	true/false	false	Immediately
cache-operational-parameters (new in 8.5.0)			
Operational parameters are	true/false	true	Immediately

Description	Valid values	Default value	Takes effect
<p>rule parameters whose value is obtained at rule execution time. They are configured in GAX as Parameter Groups, and stored in the Configuration Server database. Prior to 8.5, whenever an operational parameter was referenced during the execution of a rule, GRE would fetch the current value from Configuration Server. In high-volume environments, this could put unnecessary stress on Configuration Server.</p> <p>In GRS 8.5, the value of the operational parameters can be cached inside GRE, to make fetching faster. Instead of fetching the value with each</p>			

Description	Valid values	Default value	Takes effect
<p>reference, GRE will set up a listener to Configuration server and maintain the value in a local cache. When the administrator changes the value of the parameter using GAX, GRE will receive an event and update its local cache.</p> <p>If cache-operational-parameters is set to true (default), this new caching mechanism will be enabled.</p> <p>If cache-operational-parameters is set to false, no caching will be used and each reference will fetch the current value from Configuration Server (as was done prior to 8.5).</p>			
parameter-cache-timeout (new in 8.5.0)			

Description	Valid values	Default value	Takes effect
When cache-operational-parameter is set to true, parameter-cache-timeout defines how long (in hours) an operational “parameter group” will remain in the cache. After the timeout expires, the transaction will be removed from the cache until the next time the value is requested. This is used to clean up old subscriptions to parameter groups which are no longer being referenced. The default value for this will be 168 (168 hours = 1 week).	Integer	168	Immediately
clear-cache-on-disconnect (new in 8.5.0)			
When cache-operational-parameter is set to true, the clear-cache-on-disconnect	true/false	false	Immediately

Description	Valid values	Default value	Takes effect
parameter defines what the behavior should be if GRE loses connection with the Configuration Server. If clear-cache-on-disconnect is set to false, GRE will continue to use the cached value for any rule evaluations, until such time as the Configuration Server is restored. With this option, there is a risk that GRE could use “stale” values for rule evaluation during the time the connection to Configuration Server is down. If clear-cache-on-disconnect is set to true, the cache will be cleared and a null (“”) value will be used in the rules. With this option, there is potential that rules will fail evaluation during the period that the Configuration Server connection			

Description	Valid values	Default value	Takes effect
is down.			
include-rule-evaluation-detail-in-response (new in 8.5.001)			
<p>Returns rules that did not fire, conditions that evaluated false and rule evaluation time back to the REST client invoking the rule evaluation request. Prior to 8.5.001, only the results of rules that fired were returned.</p> <p>Note: Currently, the <code>rulesDisqualified</code> and <code>executionTime</code> is not returned via ESP to iWD.</p>	true/false	false	Immediately
unload-inactive-package-timeout (new in 8.5.1)			
Specifies the interval (in minutes) after which, if a rule package remains unused by GRE, it is unloaded from memory. If the option is not	Integer	No default	At GRE start/restart

Description	Valid values	Default value	Takes effect
specified, then packages are loaded in GRE with no timeout. If a request for a rule package is received after the package has been unloaded, it is automatically loaded into memory again and the timer is restarted.			
ikd-set-department-from-process (new in 8.5.100.21)			
Enables (value = true), GRE to determine the Department from the properties of its Process, for ESP server requests. The setting of the Department from the Process properties will only occur if the Department is not specified and the business context level 1 is not specified.	true/false	false	At GRE start/restart
enable-memory-monitor (implemented in HF 8.5.100.15)			
Enables or	true/false:	false	At GRE start/restart

Description	Valid values	Default value	Takes effect
disables the Memory Monitor feature.	Absence of this property or invalid value results in false		
memory-monitor-interval (implemented in HF 8.5.100.15)			
The interval in seconds between periodic memory usage checks.	integer: min 1	60	At GRE start/restart
memory-monitor-threshold (implemented in HF 8.5.100.15)			
The memory usage threshold expressed as a percentage. If memory usage goes above the threshold, GRE's status.jsp returns HTTP 503 status with a message <code>SYSTEM_STATUS_MEMORY_USAGE_ABOVE_THRESHOLD</code> . Genesys Management layer is also notified about GRE's unavailability via status set in LCA Connection. When memory usage is back below the threshold, GRE's status.jsp returns HTTP 200	integer: min 40, max 80	70	Immediately

Description	Valid values	Default value	Takes effect
status and Genesys Management Layer is notified that GRE is available.			
memory-monitor-threshold-strategy (implemented in HF 8.5.100.15)			
<p>Allows you to change the out of memory error handling behavior of memory monitor.</p> <ul style="list-style-type: none"> adaptive—At out-of-memory error, a new threshold is calculated and it is obtained by reducing the configured memory-monitor-adaptive-threshold-safety-margin amount from the percentage memory usage at the time Memory Monitor receives the out-of-memory notification. The threshold is reset only if the new calculated value is less than the configured threshold (or less than current override)—for example, if the configured threshold is 80 %, the safety margin is 10 % and if an out-of-memory error notification is retrieved when memory usage is 70 %, the new 	adaptive/forced	adaptive	Immediately

Description	Valid values	Default value	Takes effect
<p>override threshold will be 70 - 10 = 60 %. In this scenario, Memory Monitor learned that out-of-memory error can happen at 70 % memory usage, so it adjusts the threshold to be 60 %.</p> <p>The override threshold that the "adaptive" strategy sets can be removed by temporarily setting the strategy to "forced". It must be kept as "forced" for at least the memory-monitor-interval time. The override can also be removed by reducing the configured threshold value so that the new configured value is equal to, or lower than, the override threshold.</p> <p>The override is removed if GRE is restarted, so it is recommended to change the configured threshold to match the override threshold before restarting the GRE.</p> <ul style="list-style-type: none">• forced—At out-of-memory error, it does nothing except logging the current memory usage. It forces Memory Monitor to raise an alarm only when			

Description	Valid values	Default value	Takes effect
memory usage is above the threshold. If using this approach, the threshold must be set low enough so that no out-of-memory errors occur. Temporarily setting this strategy allows the removal of the override threshold set by the "adaptive" strategy.			
memory-monitor-adaptive-threshold-safety-margin (implemented in HF 8.5.100.15)			
The safety margin percentage used by the "adaptive" strategy, when set. The new threshold, set when application memory is exhausted, is obtained by reducing this percentage amount from the percentage memory usage at the time of memory exhaustion.	integer: min 10, max 30	10	Immediately

- Save your changes.

Next Steps

- Deploy the `genesys-rules-engine.war` file to your application server. See [Deploying the .WAR files](#).