

radblue

RGS User Guide

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Radical Blue Gaming, Inc.

85 Keystone Avenue Suite F
Reno, Nevada 89503

call us: +1.775.329.0990

visit us: www.radblue.com

drop us an email: sales@radblue.com

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At the RadBlue forum you can find the latest release information, report issues, get your questions answered, and submit suggestions for improving our products. Simply log on to:

<http://radblue.mywowbb.com>

Find out more about the GSA protocols

If you want to find out more about the Gaming Standards Association and the work being done in the area of protocol standardization for the gaming industry, we encourage you to visit their website at

www.gamingstandards.com.

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About the RGS Installation

RGS is available for both Windows and [Linux](#) operating systems. The following instructions are for Windows.

Pre-Installation Requirements

1. If you are using a student license, note that the computer you install RGS on must have a network connection. If it does not, you will not be able to send multicast commands successfully.
2. If you have a previous version of the tool installed, remove it before installing the new version.
3. You must have the RGS license file on your computer prior to installing RGS. If you are using a special version of RGS , you must have a license for that version. If you have not received an RGS license file, contact [RadBlue Support](#).

Computer Requirements

The minimum requirements for computers running RGS are:

- Operating System (32- or 64-bit): Windows (Vista or 7) or Linux
- Memory: 4 GB (minimum)
- Disk Space: 1 GB

Install RGS on Windows

Follow these steps to install RGS on a Windows operating system.

1. Double-click **RGS_x_x.exe**.
2. Click **Next**.
3. Review the RadBlue click-through agreement, and select **I accept the agreement** to accept the agreement.
4. Click **Next**.
5. Type the location where you want the RGS application installed, or click **Browse** to navigate to the location.
6. Click **Next**.

Note: If you have a previous version of the tool installed, you are prompted to remove it before installing the new version. Click **Next** to uninstall the previous version before continuing with the new installation, or click **Back** to install the new version in a different directory.

7. Navigate to the location of the RGS license file, and click **Next**.

Note: For version 34 and higher, if you install a version of RGS over an existing version, you can choose to use the existing license. If you do not want to use the existing license, you can browse to a new license. Note that this option is only available when you install RGS over a previous installation. All components of the previous installation are removed by the installer except the license file and any backup files.

8. Select the **Start Menu folder** for RGS.

If you only want to create a shortcut for the current user, clear the **Create shortcuts for all users** checkbox.

If you do not require a Start Menu folder for RGS, select **Don't create a Start Menu folder**.

9. Click **Finish**.
10. Double-click the **RGS** desktop icon to launch the application.

Install RGS on Linux

RGS is available for both [Windows](#) and Linux operating systems. The following instructions are for Linux.

1. Download the tool's self-extracting install script from the RadBlue website onto your Linux computer.
2. Make the downloaded install script executable by typing the following command:
chmod +x script_name.sh
3. Run the install script using the format:
/script_path/script_name.sh
4. If you do not have Java installed on the computer, type **y** to install a JRE.
5. Click **Next**.
6. If you accept the RGS licensing terms, select **I accept the agreement**, and click **Next**.
7. Type the location of the directory where you want to install RGS, or click **Browse** to navigate to a location.
8. Click **Next**.

Note: If you have a previous version of the tool installed, you are prompted to remove it before installing the new version. Click **Next** to uninstall the previous version before continuing with the new installation, or click **Back** to install the new version in a different directory.

9. Navigate to the location of the RGS license file, and click **Next**.

Note: For version 34 and higher, if you install a version of RGS over an existing version, you can choose to use the existing license. If you do not want to use the existing license, you can browse to a new license. Note that this option is only available when you install RGS over a previous installation. All components of the previous installation are removed by the installer except the license file and any backup files.

10. Click **Finish**.

Uninstall RGS

You can uninstall RGS through the **Uninstall** option (**Start > All Programs > RadBlue G2S Scope**) or by running the **uninstall.exe** file in the RGS installation directory.

When RGS is uninstalled, a backup folder is created in the RGS directory that saves the installation's security and configuration parameters. When a subsequent RGS version is installed, the installer uses the backed up data to populate security and configuration settings, so you do not need to re-key the information into the new installation.

Note: Backup files are **not** available for versions using student licenses, which always use default values for upgrades.

The backup folder is located in the RGS installation directory. The following files are saved in the backup folder:

- All Java Keystore Files (JKS)
- Derby Port
- filing-cabinet.xml
- Host ID
- Host Path
- scep_config.xml
- Schema Version
- security_manager.xml
- SOAP Port
- SSL Port

The following configuration parameters are retained between installations:

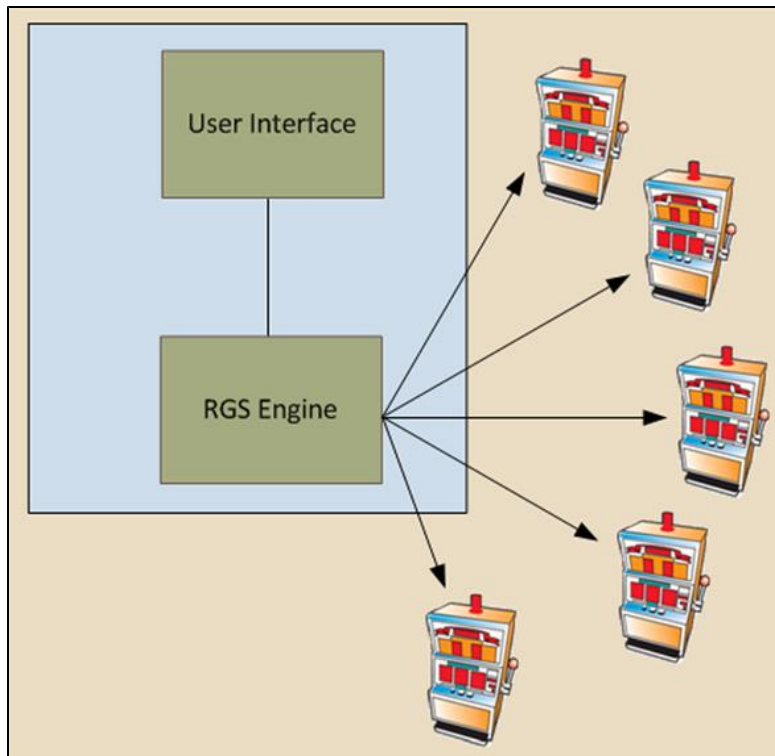
- Active Startup Algorithm (**Tester Toolkit > Startup Algorithms > Active Algorithm**)
- On **Tools > Configure > Engine Options > Filters** screen:
 - Filter G2S ACKS from Transcript
 - Filter G2S Keep Alive from Transcript
 - Filter G2S Set Progressive Values from Transcript
 - Filter Multicast G2S Bonus Activities from Transcript
- On **Tools > Configure > Engine Options > Database** screen:
 - Clear On Startup
 - Enable General Transcript Analyzer

- Database Transcripts to Save
- Database Save Transcripts

About RGS

The RadBlue G2S Scope (RGS) is an EGM development and testing tool in which RGS acts as a single G2S host for up to five EGMs. It is designed to be used as a bench tool for EGM developers. With the RGS, you can

- select one of up to five EGMs and send G2S commands as a host.
- view all messages that are sent and received by RGS.
- compare two transcript messages.
- view and modify the RGS voucher and progressive databases.
- create, delete and modify layouts and desktops.
- view SOAP and Multicast message transcripts.



The RGS engine can communicate with up to five EGMs at once.

Assumptions

This guide assumes that you have a basic understanding of and experience with the following:

- Computer industry concepts, such as: hardware, software, databases, and security
- LAN and private networking concepts.
- Gaming industry terminology.
- The casino environment, such as: casino management, department structure and jobs, games, layout, and regulations.
- Software programming concepts.
- G2S protocols, classes, attributes, and commands.

Additional Resources

For more information, see the following:

- [RGS Release Notes](#)
- [RST, RPA and RGS Quick Start](#)
- *G2S Message Protocol Game to System* document from [GSA](#) website

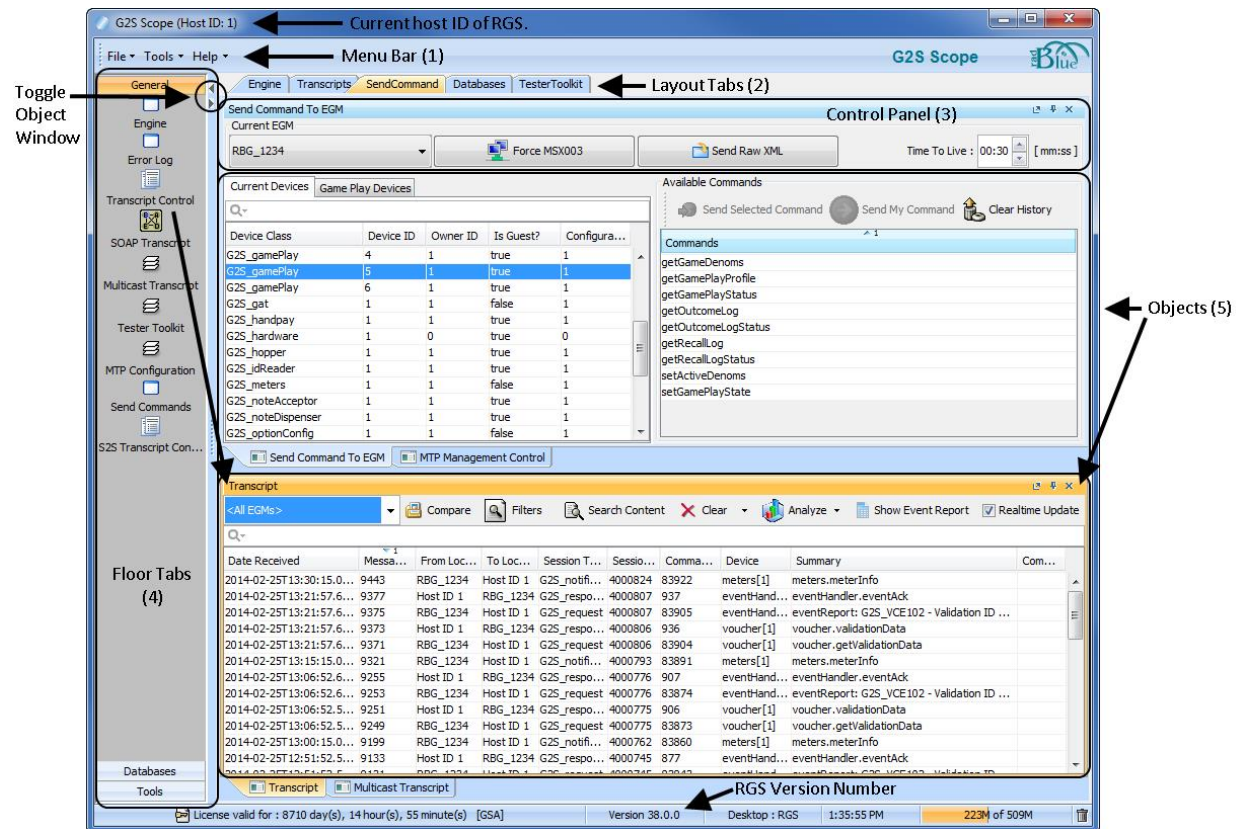
Supported GSA Versions

The following Gaming Standards Association (GSA) protocol versions are supported by RGS:

Protocol	Versions	
G2S	1.1.0	2.1.0

RGS Interface

Let's look at the Send Command layout.

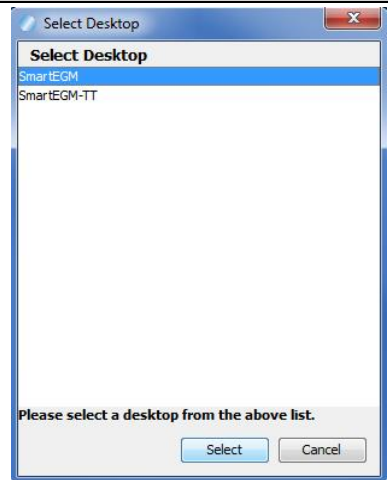
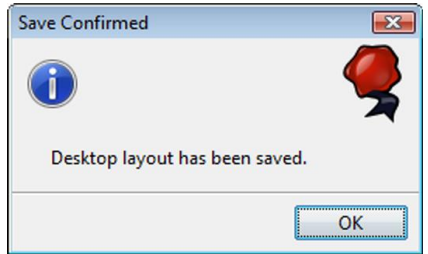
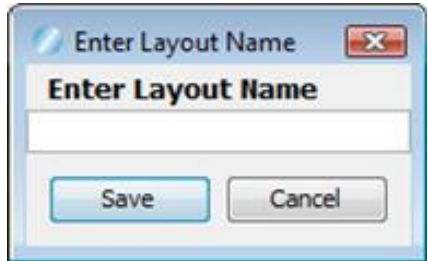
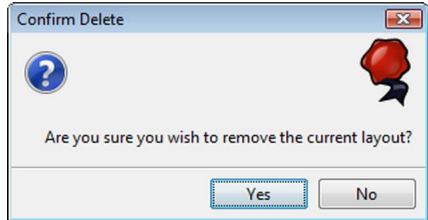


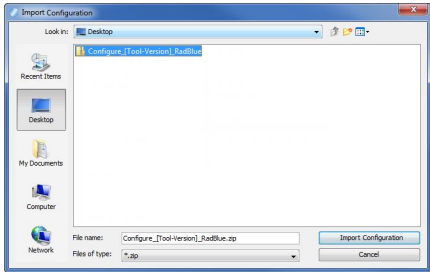
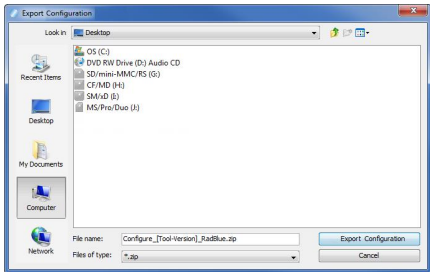
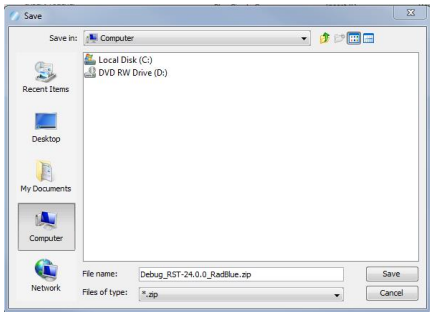
Menu Bar (1)

From the menu bar you can access product options.

File

Menu Option	Description	Screen
New Desktop	<p>Select to create a new desktop. The <i>desktop</i> is a collection of objects and tabs that constitute the work area of the tool.</p> <p>Type the name of the new desktop, and click Save</p>	

Menu Option	Description	Screen
Open Desktop	<p>Select to change the current desktop. When you save a desktop, it becomes available in the Select Desktop list.</p> <p>Highlight the desktop you want to use, and click Select.</p>	
Save Desktop	<p>Select to save the current desktop. Once you save a desktop, you can open it at any time by selecting Open Desktop.</p> <p>Click OK.</p>	
Add Layout	<p>Select to add a new layout. The <i>layout</i> is a series of tabs on the desktop, used to organize objects by function. Within each layout, objects can be placed next to each other, or on top of each other (in which case they are accessed by object tabs).</p> <p>Type the name of the new layout, and click Save.</p>	
Remove Layout	<p>Select to delete the currently displayed layout.</p> <p>Click Yes to delete the layout.</p>	

Menu Option	Description	Screen
Import Configure...	Select to import all configuration settings for the tool, exported from another version of the same tool, including security certificates. This option is used when you want to quickly set up a specific configuration for the tool that is already set up in another version of the tool.	
Export Configure...	Select to export all configuration settings for the tool, including security certificates. The resulting ZIP file can then be imported into another version of the same tool.	
Export Debug	Select to create a ZIP file of troubleshooting information that can be sent to RadBlue support or used with the RadBlue Analysis Suite (RAS) . Browse to the location where you want to save the ZIP file, and click Save .	
Exit	Select to close the product.	

Tools

Option	Short cut	Description
Configure	F2	Select to see configuration options.
Toggle Floor Tab	F3	See <i>Floor Tabs</i> below.
GSA Message Validator	F4	Allows you to paste in a sample XML document and see if the message is valid against the selected schema.

Help

Option	Description
RGS Help	Select to launch RGS Help system.

Option	Description
Contact Us	Select to open the contact page of the RadBlue web site.
About RGS	Select to see the copyright, licensing, and version information.

Layout Tabs (2)

A series of tabs on the desktop, used to organize objects by function. Within each layout, objects can be placed next to each other, or on top of each other (in which case they are accessed by object tabs).

Layout Tabs	Description
Engine	Shows all messages in the Debug Console window and identifies the message type such as informational, warning, critical errors and so on. See About the Debug Console for more information.
Transcript	Lets you see messages, in real-time, as they are sent and received. With a mouse click you can see any message to view its contents in an easy- to-read command format or in its original XML structure. With SOAP Transcript and Multicast Transcript, you see the SOAP wrapper and multicast messages.
Send Command	Lets you send individual G2S commands from RGS to a single EGM. The RGS can connect with up to five EGMs at once, allowing you to select the target EGM through a drop-down box.
Databases	This layout provides an easy way to work with player, progressive, WAT key pair, and voucher information.
Tester Toolkit (module optional)	Enables you to extend normal testing by customizing messages sent by the RST. You can send messages that you create, test the SOAP layer as well as whether the host system can handle missing required values or illegal values. See Tester Toolkit User Guide .

Send Command Control Panel (3)

From the Send Command you can send G2S commands (simulating a G2S host). RGS allows you to send only one command at a time. Use this panel to:

- Start and stop the EGM simulation.
- Switch between EGM and MTP Management Control views.
- Force a loss of communications. See [Force a Restart of Communications with an EGM](#).
- Send raw content to an EGM over a G2S connection without RGS wrapping of the message.
- Type or select the time, in minutes and seconds, that you want to wait before a command times out. Then, send one or more commands. See [Set Time to Live for a Command](#).

Floor Tabs (4)

These tabs allow you to customize your desktop or layout.

Open/Close - The floor tab displays objects that you can drag and drop onto the **Object Window** when you want to create a custom desktop or layout.

Open this window using the toggle arrows in the top-left corner of the screen, or by going to **Tools > Toggle Floor Tabs**.

This panel contains views that you can see when you click the bars: General, Databases, and Tools.

- When you drag and drop an object from one of these views, the object opens as a tab.
- Click and hold the tab to open it into a floating window.
- When you find a custom layout, save that desktop, go to **File > Save Desktop**

Objects (5)

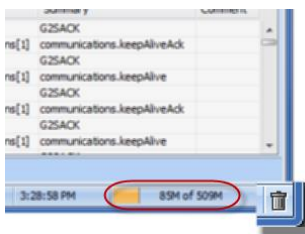
Objects contain a single function (or group of functions) that you work within the tool. They are populated from the tool's data model. The data model reflects all of the data that has been captured by the tool and any updates that are received while the tool is running.

When you first start the tool, all of the objects are empty. As messages are received by the tool, the appropriate objects are updated automatically. New objects are updated based on what's in the tool's data model.

As a result, objects are immediately populated when dragged onto a layout, as long as the tool has been running for a while and has received the applicable command. The same behavior holds true when switching between desktops. If the command is in the data model, the object is automatically populated.

About the Garbage Collector

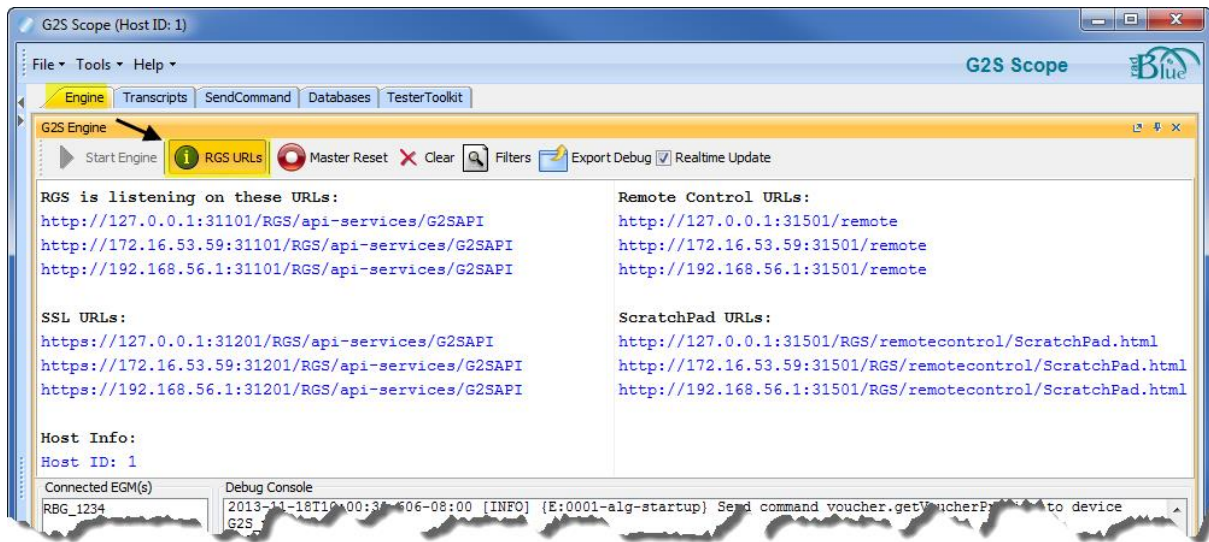
The Garbage Collector lets you reclaim memory that is no longer in needed in order to improve tool performance. To use the Garbage Collector, click the garbage can (🗑️) icon in the lower right corner of the user interface.



How to Determine RGS URLs

You can quickly determine the URLs RGS listens on, the URLs used for the RGS REST interface (Remote Control) and the URLs related to the Scratch Pad (REST interface demo). In addition, you view the host ID for RGS.

To view RGS URLs, go to the **Engine** layout and click **RGS URLs**. The URL and host information displays. Click **RGS URLs** a second time to close the panel.



To copy a URL, highlight the address and type **CTRL+C**.

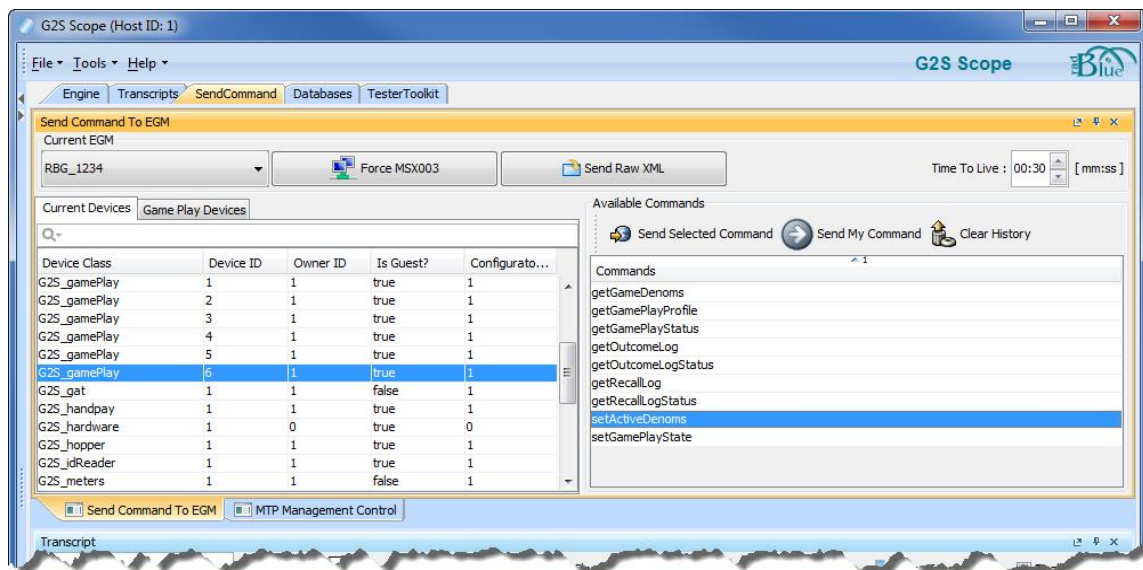
About the Send Command

Use the Send Command layout to send individual G2S commands from RGS to a single EGM. RGS can connect with up to five EGMs at once, and you can select a target EGM prior to sending a command. Any changes to command attributes or the Time to Live value that you make while an EGM is selected, is automatically saved to that EGM.

The Send Command layout contains the Send Command object and the Transcript object so you can see the message flow between RGS and an EGM after a command is sent to the EGM.

The Send Command object gets populated by the `descriptorList` command received from the EGM. The **Current Devices** tab lists the G2S devices that are supported by the EGM. In addition, this section displays the device ID, owner ID, configurator ID and guest status.

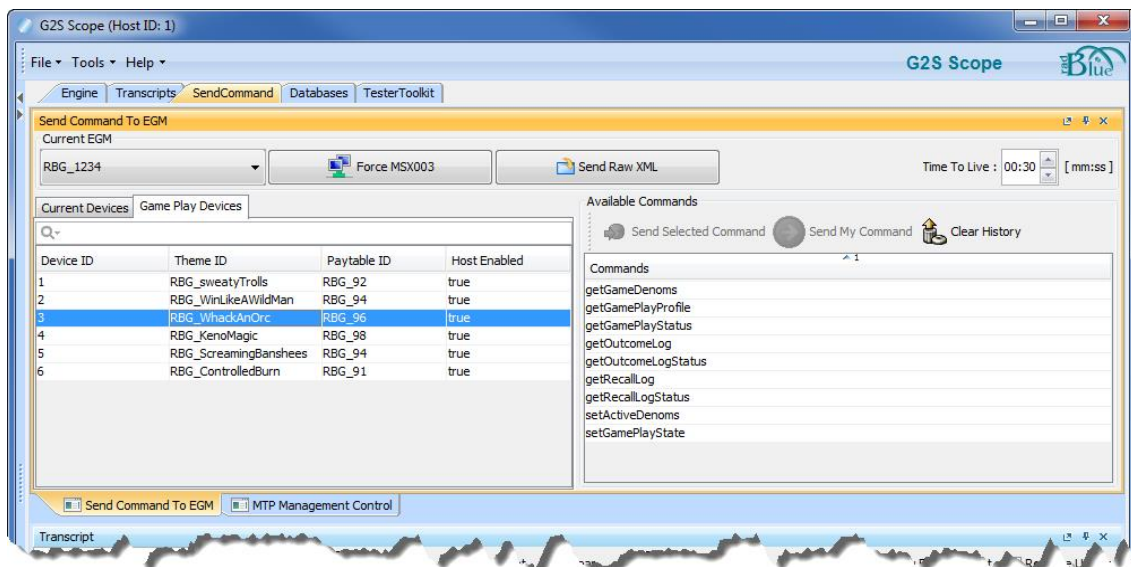
Double-click any device to view the device details. Device details include configuration date/time, configuration ID, product ID, serial number, vendor ID, vendor name, multicast support and theme information.



When you select a device, RGS displays all supported host-initiated commands for that device under the Available Commands section. You can send any command listed by selecting it and clicking **Send Selected Command** (or double-clicking). There are also three custom send options:

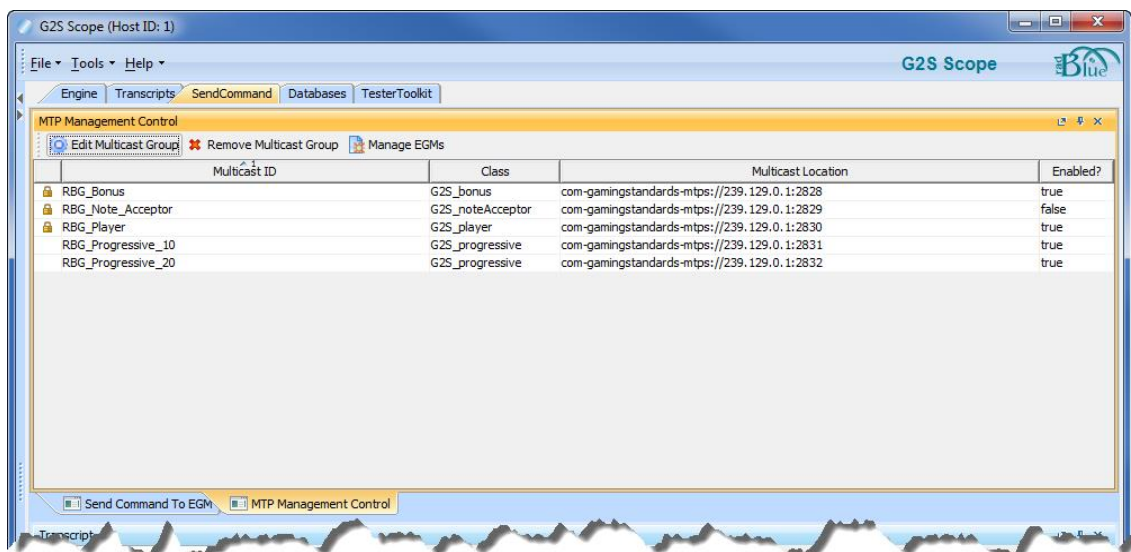
- [Send a Command with Custom Content](#)
- [Send a Custom Command](#)
- [Send Raw XML to an EGM](#)

Click the **Game Play Devices** tab to view information on all supported gamePlay devices.



The information displayed on the Game Play Devices tab includes device ID, theme ID, payable ID and whether or not the host instructed the EGM to enable gameplay. You can double-click any device to view the device details.

Finally, from the [MTP Management Control](#) tab, you can manage multicast groups.



Double-click any multicast group to [edit](#) it. From this screen, you can also [delete](#) multicast groups, and [add or delete](#) EGMs from a specific group.

Send a G2S Command

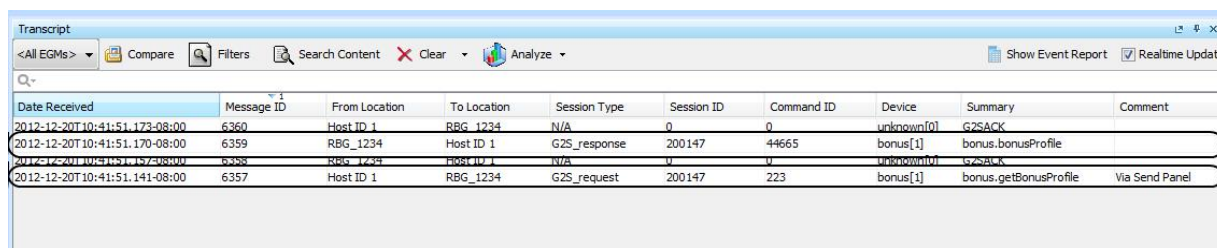
Follow these steps to send a message to an EGM:

1. At the bottom of the screen, in the **Transcript** pane, clear all existing commands. Click **Clear > Display**.
2. In the Transcript pane, ensure **Realtime Update** is selected.
3. At **Current EGM**, select the EGM to which you want to send the command.
4. Select a device from the **Current Devices** list.
5. Select a command from the **Commands** list.
6. Click **Send Selected Command** (or, double-click the selected command).
7. Configure command attribute values, if any, as needed.

Note: For information on specific attributes, see the [G2S protocol document](#).

8. Click **Send Command**.
9. Look at the **Transcript** object at the bottom of the screen. You see the message exchange between the RGS and EGM for the message you just sent.

For example, the `bonus.getBonusProfile` command was sent by RGS and acknowledged by the EGM.



Date Received	Message ID	From Location	To Location	Session Type	Session ID	Command ID	Device	Summary	Comment
2012-12-20T10:41:51.173-08:00	6360	Host ID 1	RBG_1234	N/A	0	0	unknown[0]	G2SACK	
2012-12-20T10:41:51.170-08:00	6359	RBG_1234	Host ID 1	G2S_response	200147	44665	bonus[1]	bonus.bonusProfile	
2012-12-20T10:41:51.167-08:00	6358	RBG_1234	Host ID 1	N/A	0	0	unknown[0]	G2SACK	
2012-12-20T10:41:51.141-08:00	6357	Host ID 1	RBG_1234	G2S_request	200147	223	bonus[1]	bonus.getBonusProfile	Via Send Panel

See [Working with the Transcript](#) for more information on using the Message Transcript.

Custom Send Options

There are three ways to send a custom command:

- [Send a Command with Custom Content](#) - Edit command XML through a text viewer before sending.
- [Send a Custom Command](#) - Send custom command that is automatically wrapped with valid G2S information.
- [Send Raw XML to an EGM](#) - Send any content over a G2S connection.

Send a Command with Custom Content

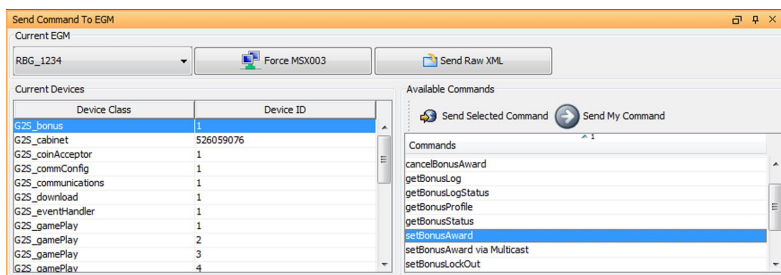
A Custom Send option is available for each command that allows you to edit the G2S message data after the message has been constructed. This option can be used when you want to send an attribute value not defined in the command dialog box *or* if you want to send an invalid message. A text viewer opens for you to modify the message XML as needed.

Note that the Custom Send option allows you to modify the command in any way that you want. When you send a custom command through Custom Send, the RGS has two options:

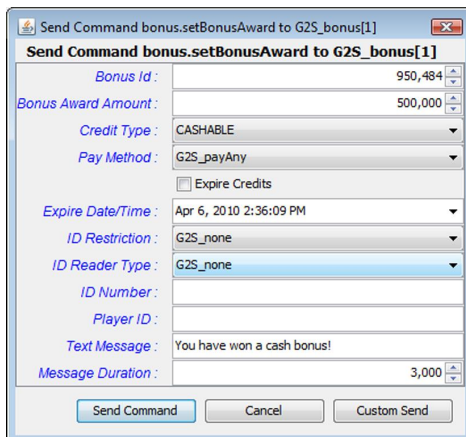
1. If the command is *valid*, RGS adds the body and class level attributes and sends the command.
2. If the command is *invalid*, RGS sends exactly what you entered. This means, attributes that might otherwise have been incremented (for example, the *commandId*), are sent exactly as they appear in the text viewer.

To use the Custom Send option:

1. Click the **Send Command** tab.



2. Under Current Devices, select a **Device Class** with the appropriate Device ID. We chose **G2S_bonus**.
3. Select the command you want to send from the **Available Commands** list. For this example, we chose **setBonusAward**.



Send Command bonus.setBonusAward to G2S_bonus[1]

Bonus Id : 950,484

Bonus Award Amount : 500,000

Credit Type : CASHABLE

Pay Method : G2S_payAny

☐ Expire Credits

Expire Date/Time : Apr 6, 2010 2:36:09 PM

ID Restriction : G2S_none

ID Reader Type : G2S_none

ID Number :

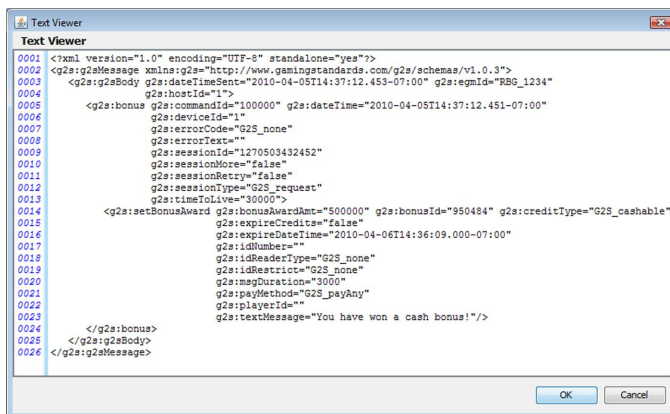
Player ID :

Text Message : You have won a cash bonus!

Message Duration : 3,000

Send Command Cancel Custom Send

4. Click **Custom Send**.



```

0001 <?xml version="1.0" encoding="UTF-8" standalone="yes"?>
0002 <g2s:g2sMessage xmlns:g2s="http://www.gamingstandards.com/g2s/schemas/v1.0.3">
0003   <g2s:g2sBody g2s:dateTimeSent="2010-04-05T14:37:12.453-07:00" g2s:regId="RSG_1234"
0004     g2s:hostId="1">
0005     <g2s:bonus g2s:commandId="100000" g2s:dateTime="2010-04-05T14:37:12.451-07:00"
0006       g2s:deviceId="1"
0007       g2s:errorCode="G2S_none"
0008       g2s:errorMessage=""
0009       g2s:sessionId="1270503432452"
0010       g2s:sessionMore="false"
0011       g2s:sessionRetry="false"
0012       g2s:sessionType="G2S_request"
0013       g2s:timeToLive="30000">
0014       <g2s:setBonusAward g2s:bonusAwardAmt="500000" g2s:bonusId="950484" g2s:creditType="G2S_cashable"
0015         g2s:expireCredits="false"
0016         g2s:expireDateTime="2010-04-06T14:36:09.000-07:00"
0017         g2s:idNumber=""
0018         g2s:idReaderType="G2S_none"
0019         g2s:idRestrict="G2S_none"
0020         g2s:msgDuration="3000"
0021         g2s:payMethod="G2S_payAny"
0022         g2s:playerId=""
0023         g2s:textMessage="You have won a cash bonus!"/>
0024     </g2s:bonus>
0025   </g2s:g2sBody>
0026 </g2s:g2sMessage>
  
```

OK Cancel

5. Click inside the text box, and make custom modifications (for example, add a new attribute).

Note: The *timeToLive* attribute is set to zero (0) by default, so the command does not time out in the time it takes you to make changes to it. You can change this value, as needed, when you are modifying the command.

6. Click **OK** to send the command with your XML changes.

Send a Custom Command

The Send My Command option lets you send a custom command that RGS then wraps with the G2S class and G2S message elements before sending. The G2S information completed automatically by RGS includes command ID, session ID and date/time values. You can also add attributes and elements in custom name spaces, if required. This option is useful when you want to send a custom command to a device exposed through the descriptor list.

1. Click the **Send Command** tab.
2. Under Current Devices, select a **Device Class** and **Device ID** for the command you want to send.
3. Select any command in the available commands list to enable the Send My Command option.
4. Click **Send My Command**.



5. Highlight **g2s:command**, and type or paste your command.



6. If the command being sent is in a custom namespace, press **Enter** and type or paste the custom namespace above the included namespaces.

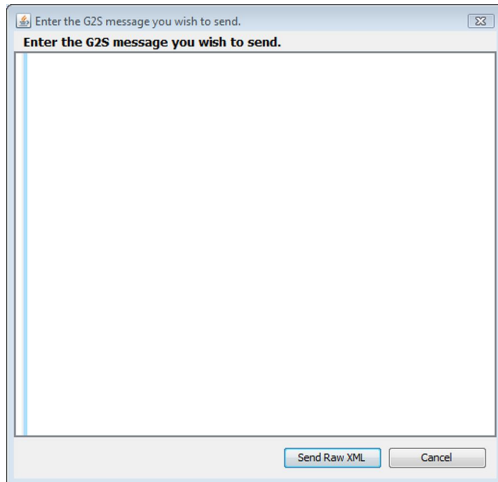
7. Click **Send My Command**.

The text **Via Send Panel** is automatically added to the Comments section of all messages sent through the Send My Command option.

Send Raw XML to an EGM

The Send Raw XML option lets you send any content to an EGM over a G2S connection. RGS does no additional wrapping of the message, but rather, sends exactly what you have entered to the EGM.

1. Click the **Send Command** tab.
2. Click **Send Raw XML**.



3. Click inside the text box.
4. Type, or cut-and-paste, the message content into the text box.
5. Click **Send Raw XML** to send the message, or click **Cancel** to return to the Send Command layout.

Force a Restart of Communications with an EGM

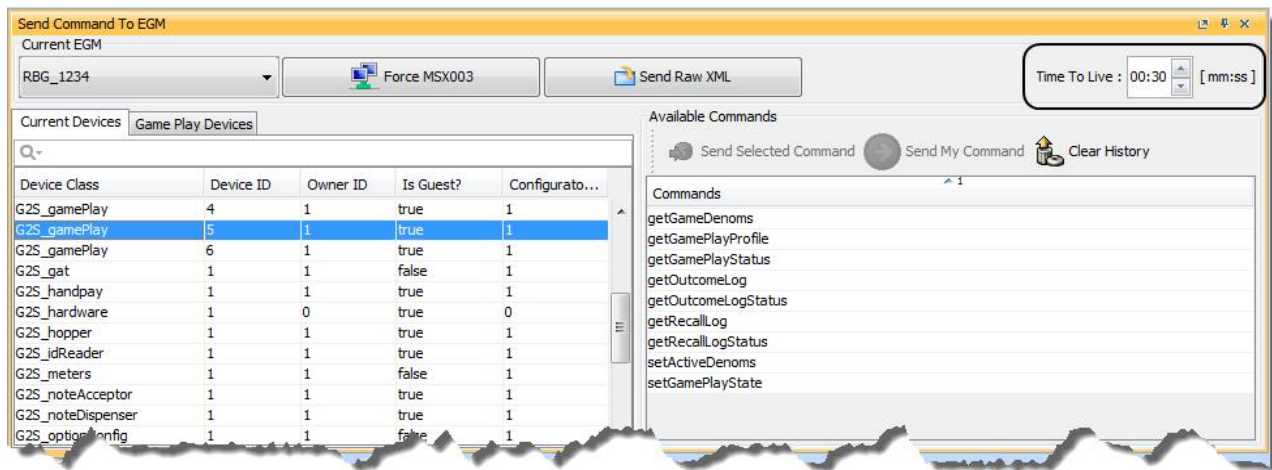
You can force a restart of communications with the host through the **Force MSX003** button on the Send Command layout. This feature lets you quickly and easily put the communications channel for the specified EGM into a “lost” state.

When you click **Force MSX003**, a `G2S_MSX003` (Communications Not Online) error is sent to the EGM in response to the next command received by RGS. The EGM will then re-initialize its communications queues and restart communications by sending a `commsOnLine` command to RGS.

Set Time to Live for a Command

The Time To Live option on the Send Command layout lets you change the timeout setting for the command(s) you are sending. Time to Live is the amount of time, in minutes and seconds, that the recipient has to process the command. If the recipient doesn't process the message within the specified time, it should return a `G2S_APX011` (Time to Live Expired) error to RGS. The *timeToLive* attribute is in every G2S command, so this option can be used with all commands.

To set the Time To Live attribute, type or select the time, in minutes and seconds, that you want to wait before a command times out. Then, send one or more commands. RGS uses the current Time To Live value in each command sent from the Send Command layout. The default value is **30 seconds**.



Note that you can also set the *timeToLive* attribute through the [Default Time To Live](#) configuration option (**Tools > Configuration > Engine Options > Message > Communications**) as well as through the Custom Scripting feature of the optional Tester Toolkit module.

Download

Configure the Download a Package Macro

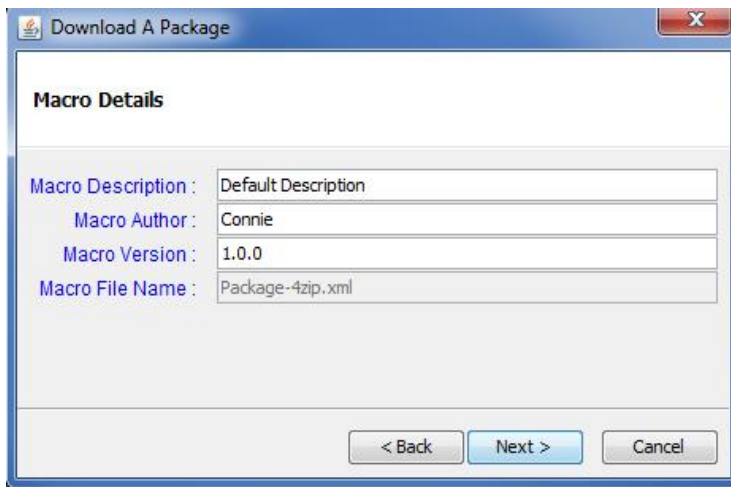
The Download a Package macro lets you configure the options to download a package to an EGM. You can define the transfer location, transfer type and package identifier. You can choose to authenticate the package, define package authorizers and install the package once it's downloaded.

Note: Macros are only available with the optional Tester Toolkit module.

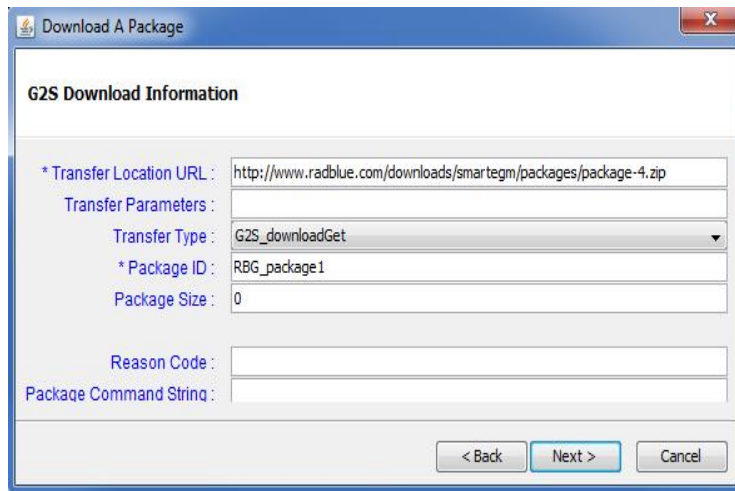
1. Go to: **Tester Toolkit > Components > Macros**
2. Click **Add** to create a new macro. See [Add a Macro](#) for more information.

or

Click to select a download macro you want to edit, and click **Edit**.



3. Modify identifying information for the algorithm. Note that RGS automatically inserts default information.
 - **Macro Description** - Type a description for the macro.
 - **Macro Author** - Type an identifier for the macro author.
 - **Macro Version** - Type a version for number for the macro. This field can contain any information required.
 - **Macro File Name** - Package file name. This field is read-only.

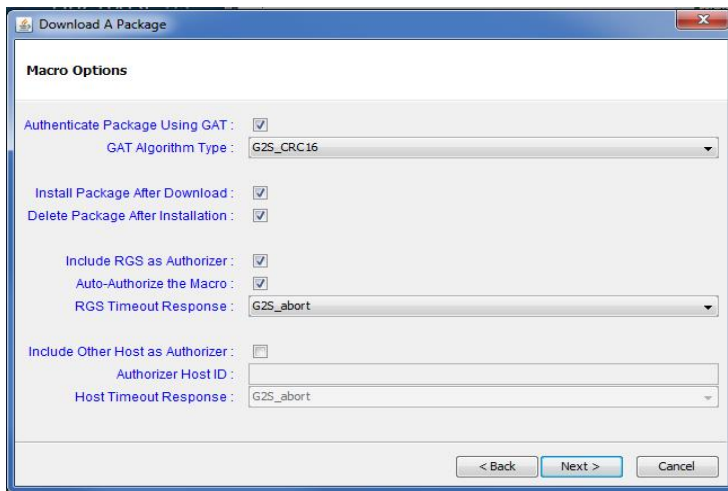
4. Click **Next**.

5. Complete the information for the download. Required fields are denoted with an asterisk (*).

- **Transfer Location URL** - Enter the network address of the location on the Software Download Distribution Point (SDDP) where the package resides.
- **Transfer Parameters** - Enter any parameters required for the package transfer. This field is optional.
- **Transfer Type** - Select whether the host or EGM initiates the transfer as well as the direction of the transfer.
- **Package ID** - Type a unique identifier for this package on the EGM. The first three characters must be a GSA-assigned manufacturer identifier, followed by an underscore character ("_").

Note: If you install a package more than once, the package ID *must* be unique each time you add the package. Otherwise, a G2S_DLX002 error will be generated when the Set Script for Package command is sent.

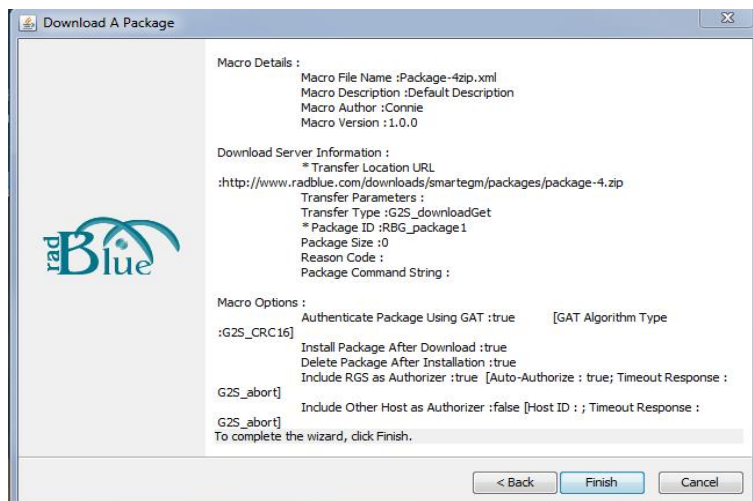
- **Package Size** - Size of package according to the System Management Point (SMP). A value of zero (0) indicates that the file size is unknown. This field is optional.
- **Reason Code** - Enter the reason for the transfer. This field is optional.
- **Package Command String** - Enter script command elements that you want to execute with the package. The EGM validates command strings prior to starting the macros. This field is optional.

6. Click **Next**.

7. Set the options for the macro.

- **Authenticate Package Using GAT** - Select to authenticate the package on the EGM, once it is downloaded, using the Game Authentication Terminal (GAT) class.
- **GAT Algorithm** - Select the authentication algorithm you want the EGM to use to authenticate the package.
- **Install Package After Installation** - Select to automatically install the package when download is complete.
- **Include RGS as Authorizer** - Select if you want RGS to authorize the macro.
- **Auto-Authorize the Macro** - Select if you want RGS to automatically authorize the macro. If this option is cleared, the macro waits until you manually authorize the package.
To manually authorize a package, go to:
Send Command > G2S_download > authorizeScript
 - i. The **Script ID** is automatically updated to reflect your macro's identifier.
 - ii. Click the **Authorized** drop-down arrow, and select **true** to authorize the macro.
 - iii. Click **Send Command**.
- **RGS Timeout Response** - Select to continue the operation if the host authorization times out (G2S_ignore) or to cancel the download installation script if the host authorization times out (G2S_abort).
- **Include Other Host as Authorizer** - Select if you want to include a host other than RGS as an authorizing host.
- **Authorizer Host ID** - Type the host identifier of the authorizing host.
- **Host Timeout Response** - Select to continue the operation if the host authorization times out (G2S_ignore) or to cancel the download if the host authorization times out (G2S_abort).

8. Click **Next**.



9. Review the macro information, and click **Finish**.

The new macro is added to the **Available Macros** list.

Direct the EGM to Download a Package

Use this procedure to add a package to an EGM's package list. Note that, because packages are EGM-specific, you can only use RadBlue packages with RST.

1. Select **SendCommand**.
2. Select **G2S_download** from **Current Device**.

Under the **Available Commands** list, double-click **Download - Add Package**.

Name	Value
Send Command : DownloadAddPackage [Device Id : 1]	
Command Fields	
transferType	DOWNLOAD_GET
packageId	RBG_package9
packageSize	35,052
reasonCode	New Stuff
transferId	12,345,678
transferLocation	http://www.radblue.com/downloads...
transferParameters	

Send Command Cancel Custom Send

3. Set the **Add Package** options as needed:

- **Package ID** - Type a unique identifier for the package. The first three characters must be a GSA-assigned manufacturer identifier. If you are using the RadBlue installable package, enter **RBG_package4**.

If you install a package more than once, the package ID must be unique each time you add the package. Otherwise, a `G2S_DLX002` error will be generated when you send the **Set Script for Package** command.

- **Package Size** - Type or select the size of the package according to the System Management Point (SMP). A value of zero (0) indicates that the file size is unknown.
- **Reason Code** - Enter the reason for the transfer. This field is optional.
- **Transfer ID** - Type or select the host-provided unique identifier. This field is optional.
- **Transfer Type** - Click the drop-down arrow, and indicate whether the host or EGM initiates the transfer as well as the direction of the transfer. For this example, we selected **G2S_downloadGet** to instruct the EGM to get the package from the specified transfer location.
- **Transfer Location** - Enter the network address of the location on the Software Download Distribution Point (SDDP) where the package resides.

If you are using the RadBlue installable package, choose:

- <http://www.radblue.com/downloads/smartegm/packages/package-1.zip>
- <http://www.radblue.com/downloads/smartegm/packages/package-2.zip>
- <http://www.radblue.com/downloads/smartegm/packages/package-4.zip>

The `download.addPackage` command supports **file:///** URLs. Use **file:///** to reference a file on the same computer that the RST is running on. The **file:///** convention applies to Java applications, which is used for all RadBlue tools.

Example: If you want to load the file **C:/downloads/test.zip**, the file URL would be **file:///c:/downloads/test.zip**. The SmartEGM reads the content directly from the disk, allowing you to add packages if the computer does not have access to an FTP or HTTP server.

Note: Installable packages only work with the EGM for which they are intended. This means that you can only use RadBlue packages with RST, and you can only use your EGM's packages with your EGM.

- **Transfer Parameters** - Enter any parameters required for the package transfer. This field is optional.

4. Click **Send Command**.

Direct the EGM to Perform an Action on a Package

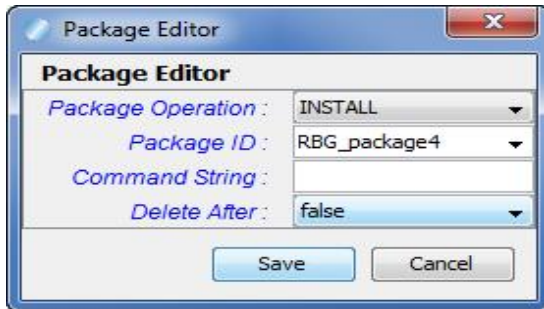
Use this procedure to direct the EGM to perform an action on one or more packages, on an EGM. Using this procedure, you can install, uninstall or execute a package. You must [add a package](#) to the EGM's package list before you can direct the EGM to perform an action on it.

Note that, because packages are EGM-specific, you can only use RadBlue packages with RST.

1. Select the **Send Command** layout.
2. Under the **Available Commands** list, double-click **Download - Set Script for Package**.
3. Set the **Set Script for Package** options as needed.
 - **Script ID** - Enter the script's unique identifier, which is provided by the host.
 - **Reason Code** - Enter a description or code that represents the action associated with the package. This field is optional.
 - **Disable Condition** - Select the circumstances under which the EGM disables prior to the initiation of the script operation.
 - **G2S_none** to disable condition does not apply.
 - **G2S_immediate** to disable the EGM immediately.
 - **G2S_idle** to disable the EGM when it is idle.
 - **G2S_zeroCredits** to disable the EGM when the credit meter reaches 0 (zero) credits.
 - **Start Date Time** - Enter the start of the time period that the script operation is allowed to occur. Click the drop-down arrow to select the date and time using a calendar.
 - **End Date Time** - Enter the end of the time period that the script operation is allowed to occur. Click the drop-down arrow to select the date and time using a calendar.
 - **Apply Condition** - Select the condition under which script command processing starts.
 - **G2S_immediate** to apply changes immediately after required authorizations are complete.
 - **G2S_disable** to apply changes after the EGM has disabled itself (`startDateTime`, `endDateTime`, and `disableConditions` apply).
 - **G2S_egmAction** to apply changes after an operator action at the EGM takes place, such as an audit key or menu option.
 - **G2S_cancel** to cancel changes after validation.

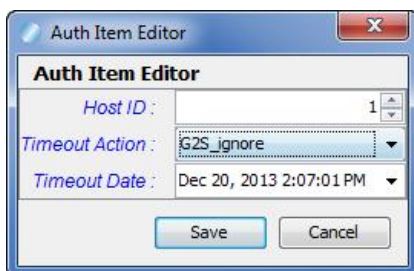
4. Add installable packages.

This example assumes that you are using RST as the EGM. If you are using a real EGM, you must use a package that is compatible with that EGM.



a. Configure the package editor as needed.

- **Package Operation** - Select **Install** to install the specified package. You can also **uninstall** or **execute** the package.
- **Package ID** - Enter the unique identifier for the installable package. For this example, we chose **RBG_package4** from the **package-4.zip** file, one of the RadBlue installable packages for use with RST.
- **Command String** - Enter the script command elements that you want to execute with the package. The EGM validates command strings prior to starting the script. This field is optional.
- **Delete After** - Select whether the package should be deleted from the package list and internal storage once the command has completed.

b. Click **Save** to save the package information to the Packages list.5. To add an authorizing host select the **Authorizing Host** tab, and click **Add**.

6. Set the Authorization Items options as needed:

- **Host ID** - Enter a unique host-server identifier that is an integer greater than 0 (zero). By default, the RGS host ID is **1**.

- **Timeout Action** - Select the type of timeout response you want to send from the specified host. Select **G2S_abort** if you want the host to cancel the configuration change, or select **G2S_ignore** if you want the host to continue with the package operation after a timeout occurs.
 - **Timeout Date** - Enter the date and time when the EGM should timeout if no authorization is received by the specified host. Select the date and time using a calendar.
7. Click **Save** to add the authorizing host to the list.
 8. Click **Send Command** to send the `download.setScript` command.

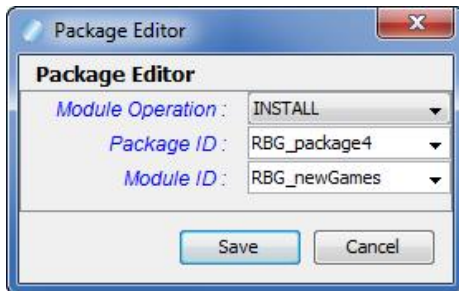
Direct an EGM to Perform an Action on a Module

Use this procedure to direct the EGM to perform an action on package modules, on an EGM. Using this procedure, you can install or uninstall one or more modules. Note that, because packages (and their modules) are EGM-specific, you can only use RadBlue packages with RST.

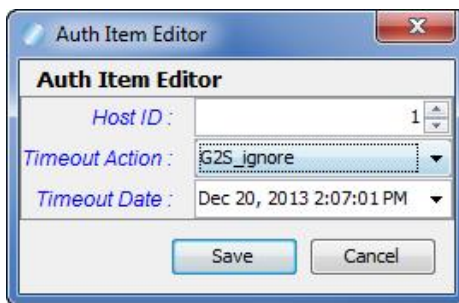
1. From the RGS, select the **Send Command** layout.
2. Under the Available Commands list, double-click **Download - Set Script for Module**.

3. Set the following **Set Script for Module** options:
 - **Script ID** - Enter the script's unique identifier, which is provided by the host.
 - **Reason Code** - Enter a description or code that represents the action associated with the package. This field is optional.
 - **Disable Condition** - Select the circumstances under which the EGM disables prior to the initiation of the script operation.
 - **G2S_none** to disable condition does not apply.
 - **G2S_immediate** to disable the EGM immediately.
 - **G2S_idle** to disable the EGM when it is idle.
 - **G2S_zeroCredits** to disable the EGM when the credit meter reaches 0 (zero) credits.
 - **Start Date Time** - Enter the start of the time period that the script operation is allowed to occur. Click the drop-down arrow to select the date and time using a calendar.
 - **End Date Time** - Enter the end of the time period that the script operation is allowed to occur. Click the drop-down arrow to select the date and time using a calendar.
 - **Apply Condition** - Select the condition under which script command processing starts.

- **G2S_immediate** to apply changes immediately after required authorizations are complete.
 - **G2S_disable** to apply changes after the EGM has disabled itself (`startDateTime`, `endDateTime`, and `disableConditions` apply).
 - **G2S_egmAction** to apply changes after an operator action at the EGM takes place, such as an audit key or menu option.
 - **G2S_cancel** to cancel changes after validation.
5. Add modules and the action to be performed on each by clicking **Add** on the **Modules** tab.



- **Module Operation:** Click the drop-down arrow, and select install or uninstall.
 - **Package ID:** Enter the identifier for the package you want to install or uninstall.
 - **Module ID:** Enter the identifier for the module you want to install or uninstall.
6. Click **Save**. The operation information is added to the list on the Modules tab.
7. To add an authorizing host select the **Authorizing Host** tab, and click **Add**.



5. Set the **Authorization Item** options as needed:
- **Host ID** - Click in the dialog box, and enter the unique identifier of the host server you want to authorize the download.
 - **Timeout Action** - Click the drop-down arrow to select the type of timeout response you want to send from the specified host. Select **G2S_abort** if you want the host to cancel the configuration change, or select **G2S_ignore** if you want the host to continue with the package operation after a timeout occurs.

- **Timeout Date** - Enter the date and time when the EGM should timeout if no authorization is received by the specified host. Click the drop-down arrow to select the date and time using a calendar.
6. Click **Save** to add an authentication item to the list.
 7. Click **Send Command** to send the `download.setScript` command.

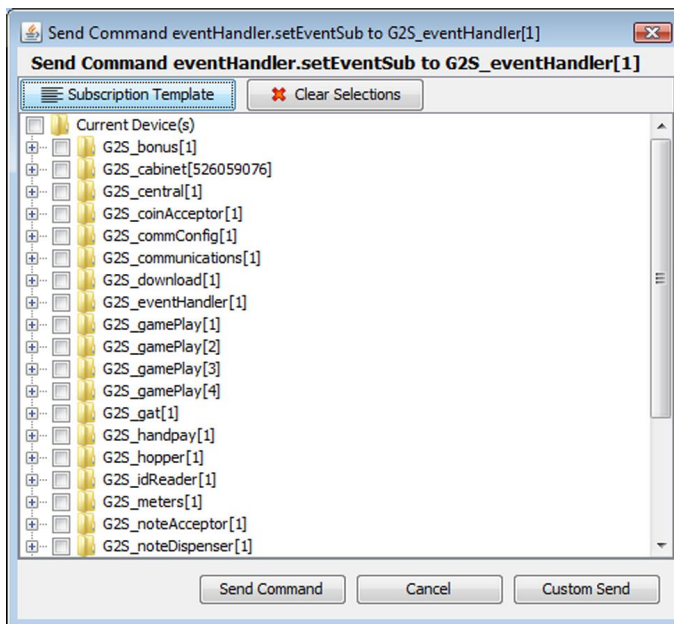
Event Handler

setEventSub

The `setEventSub` command lets you define the event subscriptions for RGS. Your changes will not take effect until RGS sends a `commsOnLine` command to the EGM, so you may want to close and re-launch the tool.

The Subscription Template option lets you easily apply certain types of information to all events and persist all events without having to manually select to each individual event.

1. From the Send Command object, select **G2S_eventHandler**.
2. Double-click **setEventSub**.

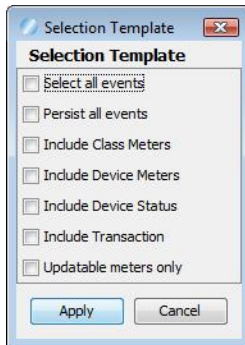


3. Select the event or class of events to which you want RGS to subscribe. At a minimum, you must select basic event for each event you want to receive.
4. To clear *all* selected event subscriptions and attributes, click **Clear Selections**.
5. Click **OK**.

Use Apply Template

Use the Apply Template option to apply specific types of event information to all events.

1. Click **Apply Template**.



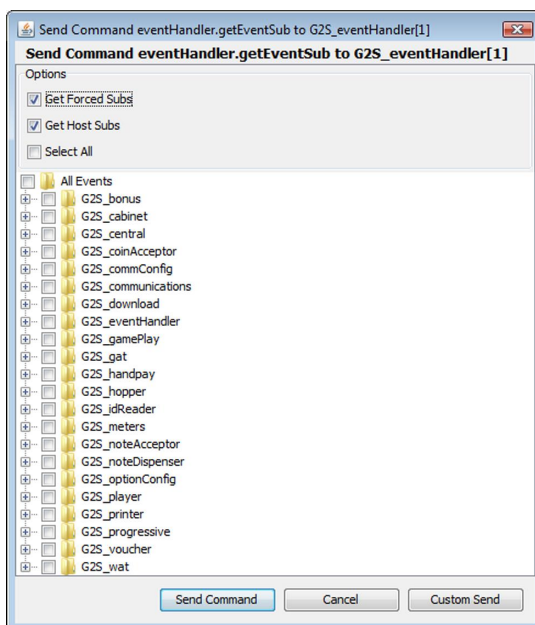
2. Select the information you would like to receive from all events, or select **Select** all events.
3. Click **Apply**.
4. Click **OK**.

getEventSub

The `getEventSub` command requests the complete list of event subscriptions for a specific EGM device. You can get all forced subscriptions, host subscriptions or just the classes or events you choose. The `eventSubList` command should be sent in response to this command.

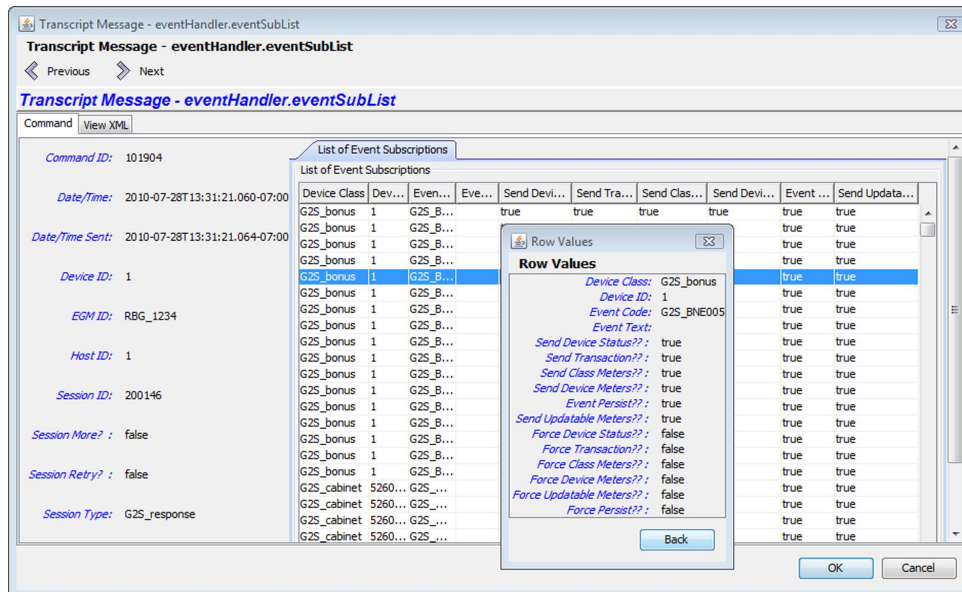
The `eventHandler.eventSubList` command should be returned by the EGM. You can view event subscriptions by double-clicking that command in the Transcript.

1. From the Send Command object, select **G2S_eventHandler**.
2. Double-click **getEventSub**.



3. Select the events you want to request.
4. The initial view is at the device level. Click the plus (+) sign to drill down to specific events. You can also select the following options:
 - **Get Forced Subs** - Get forced event subscriptions. Select to request attribute values for forced subscriptions, for the selected event subscriptions.
 - **Get Host Subs** - Get host-set event subscriptions. Select to request attribute values for host subscriptions, for the selected event subscriptions.
 - **Select All** - Select to force the command to include all device classes (G2S_all), all device IDs (-1) and all event codes (G2S_all).
 - **All Events** - Select to receive all events subscriptions from the EGM using the event codes for the selected events.

5. Click **Send Command**.
6. Go to the transcript, and double-click the **eventHandler.eventSubList** command to display the command detail screen.

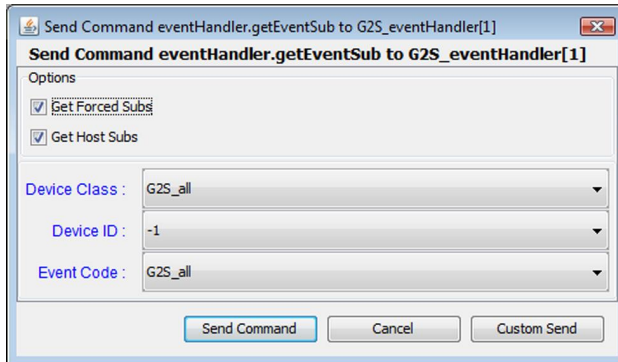


7. Click the **Command** tab.
8. Double-click any row under **List of Event Subscriptions** to view all attributes for that event.
9. Click **OK** to close the command detail screen.

getEventSub Using G2S_all (Wildcard)

The getEventSub with WildCard command lets you request event subscriptions using the G2S_all event code value, which is another method for requesting event subscriptions.

1. From the Send Command object, select **G2S_eventHandler**.
2. Double-click **getEventSub with WildCard**.



3. Select the events you want to request.
 - **Get Forced Subs** - Get forced event subscriptions. Select to request attribute values for forced subscriptions, for the selected event subscriptions.
 - **Get Host Subs** - Get host-set event subscriptions. Select to request attribute values for host subscriptions, for the selected event subscriptions.
 - **Device Class** - Click the drop-down arrow, and select G2S_all for all classes or select a specific class. If you select a specific class, the Device ID field provides more options.
 - **Device ID** - Click the drop-down arrow, and select -1 for all devices in a specific class or select a specific device ID. If you choose a specific device ID, the Event Codes field provides more options.
 - **Event Code** - Click the drop-down arrow, and select G2S_all to select all event codes or select a specific event code. For example:

to requests all bonus devices and all events, enter:

- **Device Class:** G2S_bonus
- **Device ID:** -1
- **Event Code:** G2S_all

to request all bonus events from bonus device #1, enter:

- **Device Class:** G2S_bonus
- **Device ID:** 1
- **Event Code:** G2S_all

to request the BNE109 event sub for bonus device 1 only, enter:

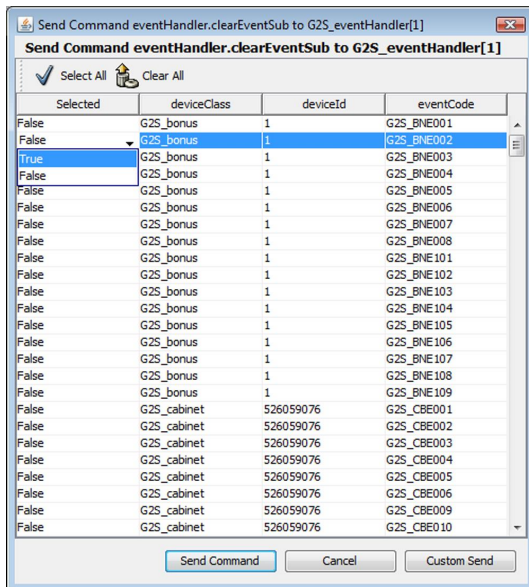
- **Device Class:** G2S_bonus
- **Device ID:** 1
- **Event Code:** BNE109

4. Click **Send**.
5. Go to the transcript, and double-click the **eventHandler.eventSubList** command to display the command detail screen.
6. Click the **Command** tab.
7. Double-click any row under **List of Event Subscriptions** to view all attributes for that event.
8. Click **OK** to close the command detail screen.

clearEventSub

The `clearEventSub` command gives a list of events to which the RGS is subscribed (based on the most recent `eventSubList`). You can then select individual events to which you would no longer like to be subscribed. You can also select all events to clear all event subscriptions.

1. From the Send Command object, select **G2S_eventHandler**.
2. Double-click **clearEventSub**.



The **Selected** column indicates whether the specified event subscription will be cleared when you send the `clearEventSub` command. By default, all events are set to **False** (do not clear).

3. To clear an individual event subscription, click the drop-down arrow for the event you want to clear and select **True**.
4. To clear all event subscriptions, click **Select All** (which you can undo by clicking **Clear All**).
5. Click **Send Command**.

GAT

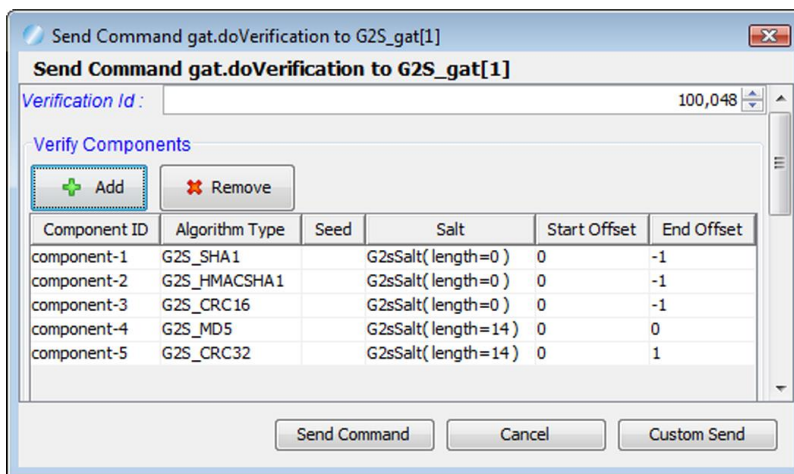
doVerification

The `gat.doVerification` command lets you request a report on one or more software components and devices. A `gat.verificationStatus` is returned in response to this command.

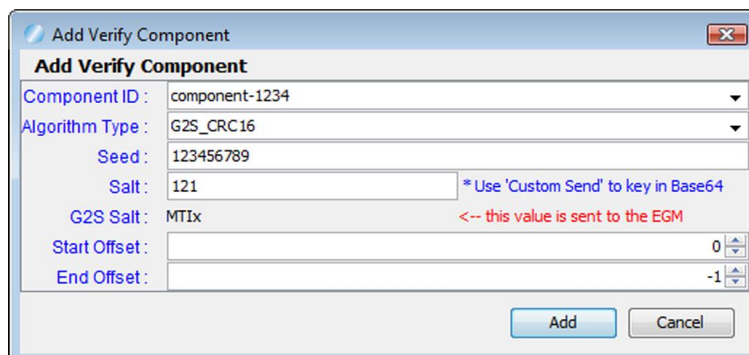
1. From the **Send Command** layout, select **G2S_gat** under the **Current Devices** list.
2. Double-click **doVerification**.

or

Click to highlight **doVerification**, and click **Send Selected Command**.

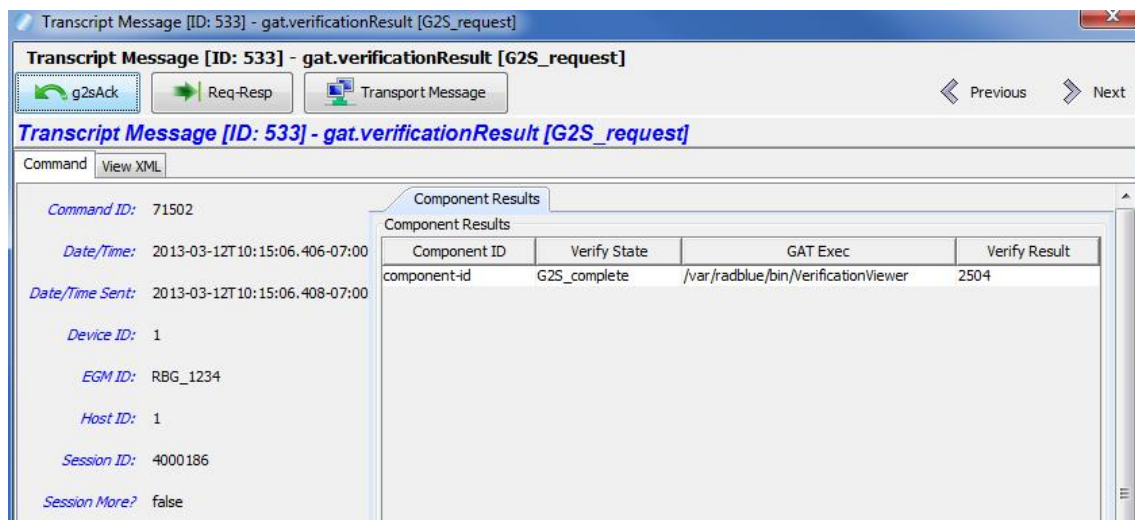


3. Type or select an identifier for the current verification (**Verification ID**).
4. To add a component:
 - a. Click **Add**.



- b. Configure the component options as needed.

- **Component ID** - Type or select a unique identifier for the component to be authenticated. This field is *required*.
 - **Algorithm Type** - Click the drop-down arrow, and select the type of authentication algorithm to run on the component. This field is *required*.
 - **Seed** - Type a seed value for the algorithm.
 - **Salt** - Type a salt value that will be added to the beginning of the component's byte buffer after the offsets are applied, but prior to generating the hash.
 - **G2S Salt** - Encoded value that is sent to the EGM.
 - **Start Offset** - Type or select the starting offset value.
 - **End Offset** - Type or select the ending offset value.
- c. Click **Add**.
The new component displays in the **Verify Components** list.
- d. Repeat steps a through c to add additional components.
- Note:** To delete a component, click to highlight the component, and click **Remove**.
5. Click **Send Command**.
 6. Go to the **Transcript** tab.
 7. Find and double-click the `gat.verificationResult` command.
 8. On the message detail screen you can see command results in the **Component Results** table.

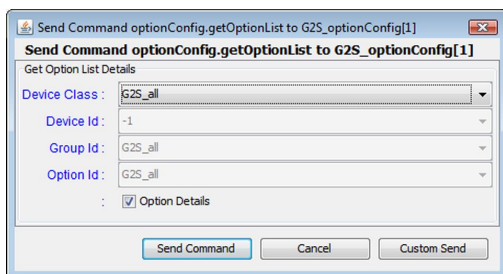


OptionConfig

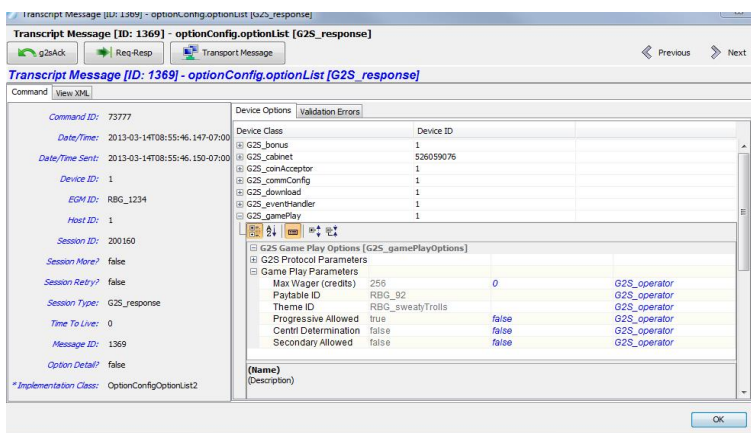
getOptionList

The `getOptionList` command lets you request from an EGM a list of supported devices and the configuration of each device's options.

1. From the Send Command object, select **G2S_optionConfig**.
2. Double-click **getOptionConfig**.



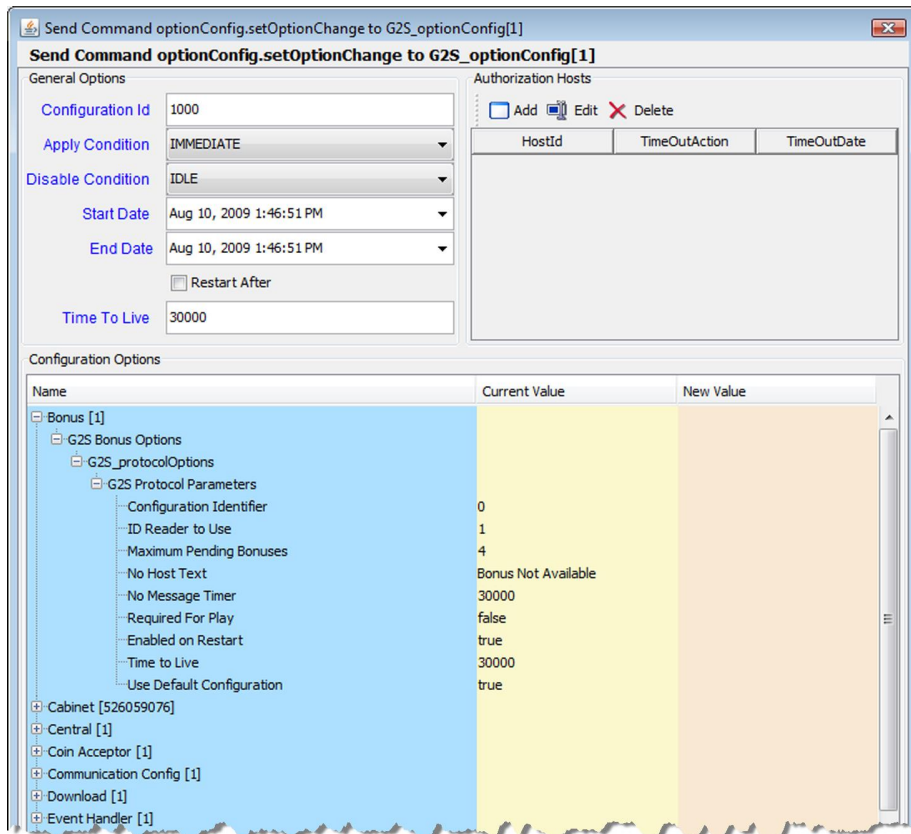
3. Click the **Device Class** drop-down arrow and a specific device class on which to report, or select **G2S_all** to report on all supported device classes.
4. Click **Send Command**.
5. Go to the transcript, and double-click the **optionConfig.optionList** command to display the command detail screen.
6. Click the **Command** tab.



3. Notice that the requested devices are listed on the right-hand side of the window. The initial view is at the device level. Click the plus (+) sign to drill down to the device options.
4. Click **OK** to close the command detail screen.

setOptionChange

The `setOptionChange` command allows you to send option configuration information to an EGM. This interface has a tree structure so you can easily drill-down to the options of interest.



The initial view is at the device level. Click the plus (+) sign to drill down to the device options. Once you select the option you want to change, double-click the option to view the Option Config dialog box.

1. The **Field Editor** tab displays the current setting and, if the option is configurable, allows you to enter a new value.
2. The **Option Constraints** tab shows option details. When you change an option, RGS automatically verifies that it meets the option constraints. If a change falls outside a given set of constraints, an error message is displayed.
3. The **Constraints** section at the bottom of the dialog box displays a definition of the option as well as any information for setting the option.

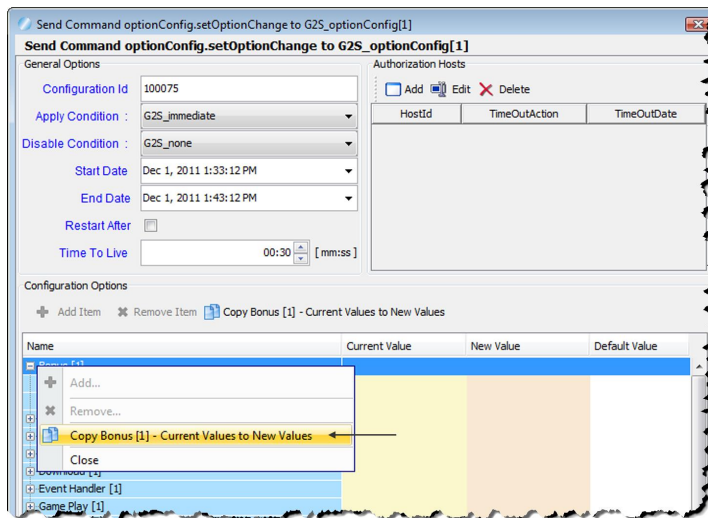
The `setOptionChange` command screen is populated by the values returned from the EGM through the `optionList` command. The `getOptionList` command is normally executed during start-up to request a copy of all `optionConfig` parameters for the EGM. If you skip that command, this control

will be blank. If you just request the options for a couple of devices, that's all that will populate the control. However, we now store the options in the RGS database, so any changes you make are immediately reflected in the user interface.

If you make a change to the configuration options, you must send a `getOptionList` request to update the RGS data model (and to be able to see any differences in a snapshot comparison).

Send an Unchanged `setOptionConfig` Command

You can send an unchanged `setOptionConfig` command to an EGM by copying one or more settings to the New Value column. To do this, right-click on the class, option or attribute you want to copy, and click **Copy x to Current New Value**.



Using Denomination Ranges

A denomination range is a shorthand method of expressing a series of denominations as the minimum value, the maximum value, and the interval between each element in the series.

The Game Play - Set Active Denoms screen uses the data from the most recent `gameDenomList` command from each game play device to determine the valid denominations for that game play device and whether it supports ranges.

1. From the Send Command layout, select the `gamePlay` device you want to test.
2. Double-click **Game Play - Get Game Denoms**.
3. Look at the Transcript and verify that the EGM returns a `gamePlay.gameDenomList` command.
4. Double-click **Game Play - Set Active Denoms**.
5. Activate or deactivate individual denominations or entire ranges as required.
 - Select the checkbox to activate the associated denomination or range
 - Clear the checkbox to deactivate the associated denomination or range.
 - To change individual denominations within a range, expand the range and select or clear the denominations you want to change. Note that if the entire range is not all active or all inactive, RGS sends the denominations within that range as individual denominations.
6. Click **Add New Range** to define a new denomination range.
7. Define the new game denomination range, in millicents, as required.
 - **Minimum** - Enter the lowest denomination in the range.
 - **Maximum** - Enter the highest denomination in the range.
 - **Interval** - Enter the minimum divisible denomination for the range.

If any of the individual denominations within the range are active, a `G2S_GPX001 (Active Range Denom [n] was listed more than once)` error is returned.

A range must include two or more denominations. All individual denominations in the range must be supported by the EGM. If you want to send an unsupported range, define the range through the Custom Send option.
8. Click **Save**.
9. Click **Send Command**.

A `gamePlay.gameDenomList` response command is returned by the EGM with the updated denomination information.

Progressives

setProgressiveValue

This procedure allows you to send updated progressive host information to the EGM. The values sent in this command are current values for this progressive ID in the RGS progressive database.

1. From the Send Command object, select **G2S_progressive**.
2. Double-click **setProgressiveValue via Database**.
3. Click **Send Command**.
4. Follow steps 1-3 for each progressive device you want to update.

WAT

Available WAT Accounts

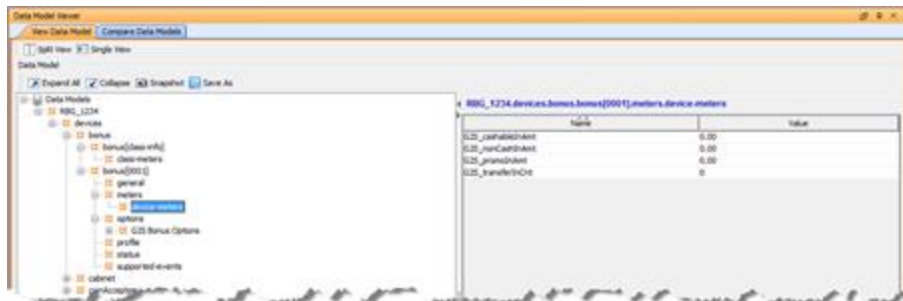
When using WAT, you can select one of three fund types available for player account 12345678. Those fund types, along with all available WAT accounts, are listed below.

Card ID	Player ID	WAT Account	Cashable	Promotional	Non-Cashable
1234	P-1234	1234	\$500	\$500	\$500
1111	P-1111	1111	\$500	\$500	\$500
2222	P-2222	2222	\$500	\$500	\$500
3333	P-3333	3333	\$500	\$500	\$500
4444	P-4444	4444	\$500	\$500	\$500
5555	P-5555	5555	\$500	\$500	\$500
6666	P-6666	6666	\$500	\$500	\$500
7777	P-7777	7777	\$500	\$500	\$500
8888	P-8888	8888	\$500	\$500	\$500
9999	P-9999	9999	\$500	\$500	\$500
12345678	P-12345678	12345678-1	\$500	\$0	\$0
12345678	P-12345678	12345678-2	\$500	\$0	\$0
12345678	P-12345678	12345678-3	\$0	\$0	\$500

About the Data Model Viewer

As commands are sent from an EGM, the RGS data model changes. For example, if an EGM's meters are incremented, the corresponding meters are updated in the RGS data model when RGS receives the appropriate event message. The data model not updating as expected could indicate an issue with G2S protocol compliance or a general implementation issue.

The RGS Data Model Viewer lets you easily see changes to the RGS data model as they occur. Using a tree-structure control, you can quickly drill-down to the attribute(s) or information you want to view.



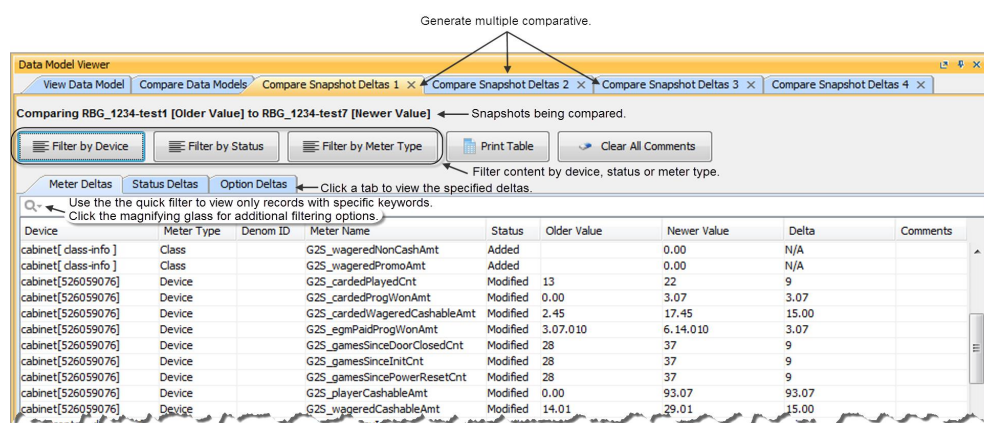
RGS supports up to five EGMs and you can select the data model you want to view. A Split View option lets you view two different areas of a data model at once or view information for two different EGMs at once.

All information displayed in the Data Model Viewer is *read-only* and cannot be modified. However, you can export the selected data model for use with the RadBlue System Tester (RST). Attributes that are deprecated in G2S 2.1 display in a strike-through font (for example, ~~Enable Money Out~~).

RGS does not request all EGM data at start-up, so some information may be missing from the data model until RGS receives that information. You can request all EGM data or data for specific classes through the Custom Configuration module. See [Configure the DMV Update Macro](#) for more information.

About Snapshot Comparison

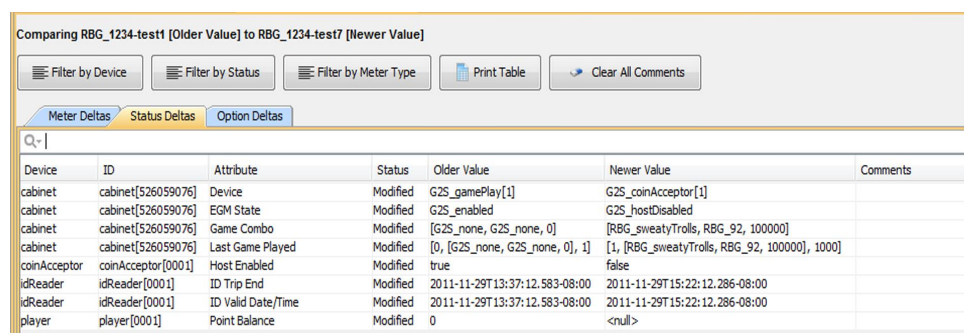
When you compare two snapshots, the information is displayed in a separate Compare Snapshot Deltas tab and displayed by information type (options, meters and status). Device, status and meter type filters let you display just the information you want to see. In addition, you can dynamically filter data by typing keywords into the [quick filter](#) dialog at the top of each delta tab. You can add comments to the comparison output and print the current view of the active tab.



Snapshot comparison report.

Each snapshot comparison generates three separate comparisons: Status Deltas, Meter Deltas and Option Deltas. The information displayed on each comparison includes: device name, device identifier, attribute name, comparison status, attribute value from the older snapshot, attribute value from the newer snapshot, and user-entered comments.

The Status Deltas comparison displays status parameters from the selected EGM snapshots.



Status Deltas comparison.

The Meter Deltas comparison displays meter parameters from the selected EGM data models. The Meter Deltas comparison contains an additional Delta field that shows the meter difference between the older and newer snapshots. In the Delta field, amount differences are displayed with the appropriate decimals to make entries easier to read.

Comparing RBG_1234-test1 [Older Value] to RBG_1234-test7 [Newer Value]

Filter by Device Filter by Status Filter by Meter Type Print Table Clear All Comments

Meter Deltas Status Deltas Option Deltas

Q=

Device	Meter Type	Denom ID	Meter Name	Status	Older Value	Newer Value	Delta	Comments
cabinet[class-info]	Class		G2S_wageredNonCashAmt	Added		0.00	N/A	
cabinet[class-info]	Class		G2S_wageredPromoAmt	Added		0.00	N/A	
cabinet[526059076]	Device		G2S_cardedPlayedCnt	Modified	13	22	9	
cabinet[526059076]	Device		G2S_cardedProgWonAmt	Modified	0.00	3.07	3.07	
cabinet[526059076]	Device		G2S_cardedWageredCashableAmt	Modified	2.45	17.45	15.00	
cabinet[526059076]	Device		G2S_egmPaidProgWonAmt	Modified	3.07.010	6.14.010	3.07	
cabinet[526059076]	Device		G2S_gamesSinceDoorClosedCnt	Modified	28	37	9	
cabinet[526059076]	Device		G2S_gamesSinceInitCnt	Modified	28	37	9	

Meter Deltas comparison.

The Option Deltas comparison displays option parameters from the selected EGM data models.

Comparing RBG_1234-test1 [Older Value] to RBG_1234-test11 [Newer Value]

Filter by Device Filter by Status Filter by Meter Type Print Table Clear All Comments

Meter Deltas Status Deltas Option Deltas

Q=

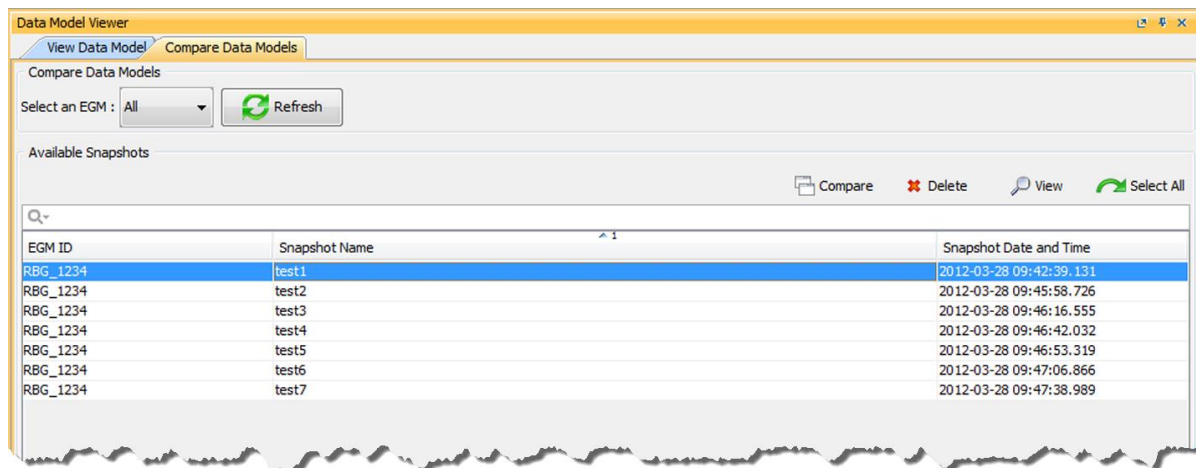
Device	ID	Attribute	Status	Older Value	Newer Value	Comments
bonus	bonus[0001]	Configuration Identifier	Modified	0	100033	
bonus	bonus[0001]	No Message Timer	Modified	30000	35000	
bonus	bonus[0001]	Time to Live	Modified	30000	35000	
cabinet	cabinet[526059076]	Configuration Identifier	Modified	0	100033	
cabinet	cabinet[526059076]	Bass Volume	Modified	60	50	
cabinet	cabinet[526059076]	Subwoofer Volume	Modified	60	50	
download	download[0001]	Configuration Identifier	Modified	0	100033	
download	download[0001]	Time to Live	Modified	30000	35000	
gamePlay	gamePlay[0001]	Max Wager (credits)	Modified	256	200	
gamePlay	gamePlay[0001]	Configuration Identifier	Modified	0	100033	
mediaDisplay	mediaDisplay[0001]	Configuration Dat/Time	Modified	2011-11-29T08:57:04.158-08:00	2011-11-30T09:23:20.575-08:00	

Option Deltas comparison.

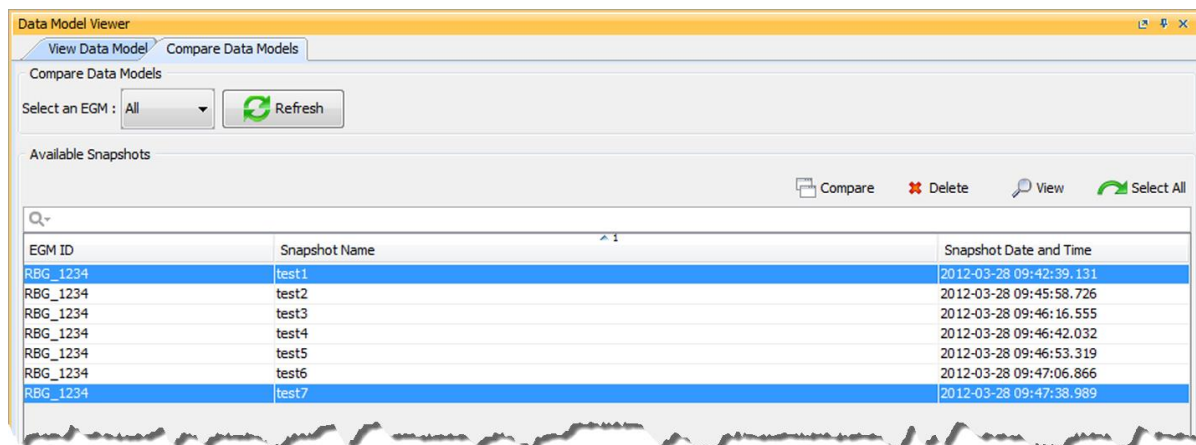
Compare Snapshots

Use this procedure to view the differences between two EGM data model snapshots.

1. Select the **Compare Data Models** tab from the Data Model Viewer.



2. Click **Refresh** to update the Available Snapshots list.
3. Click the **Select an EGM** drop-down to view only a specific EGM identifier (or leave the default **All** to display snapshots for all EGMs).
4. Hold down CTRL, and click the two snapshots you want to compare.

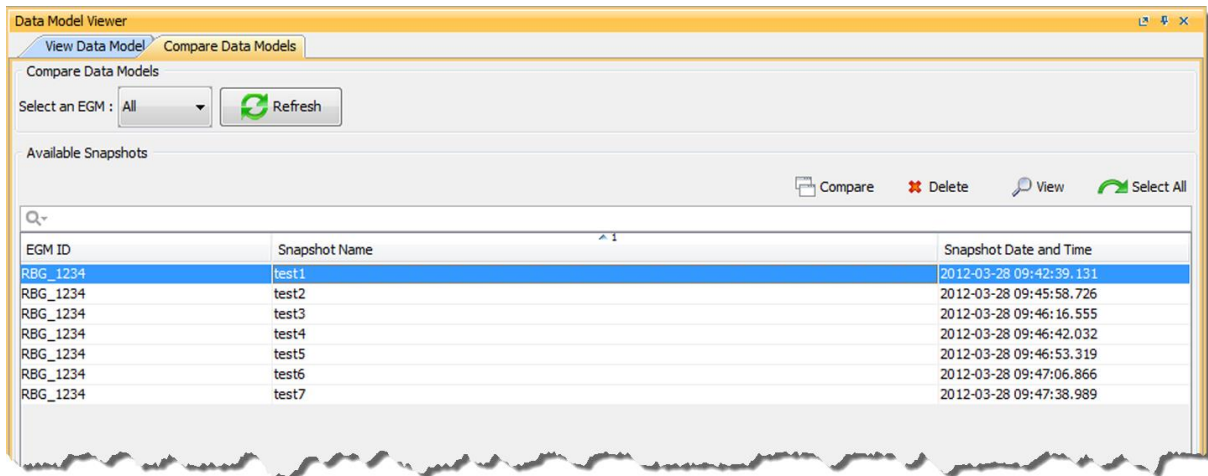


3. Click **Compare** to generate the [Compare Snapshot Deltas](#) screen.

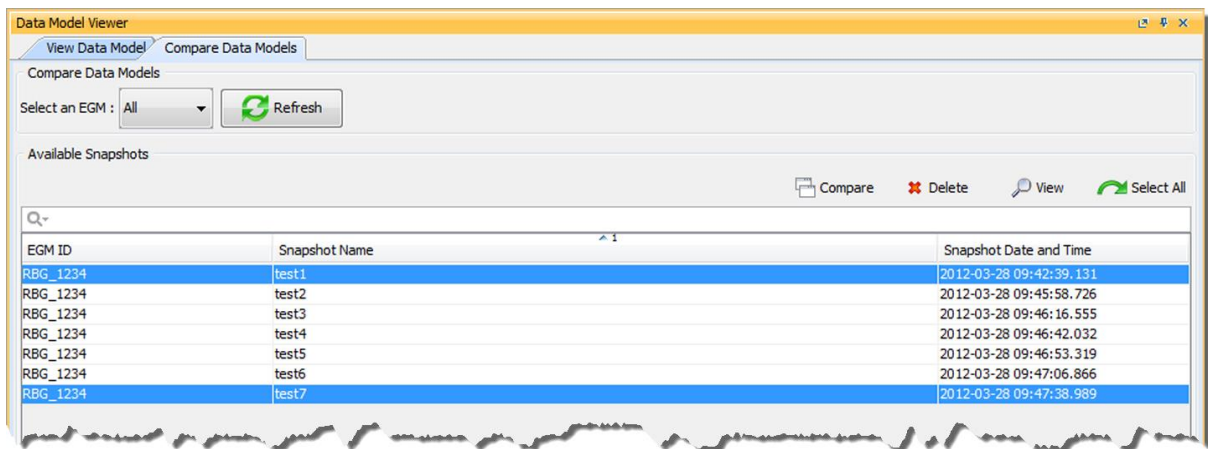
Delete a Data Model Snapshot

Use the Delete Selected option on the Compare Data Models screen to delete one or more snapshots. Deleted snapshots are no longer available for comparison.

1. Select the **Compare Data Models** tab from the Data Model Viewer.



2. Click the Select an EGM drop-down arrow, and choose to display all snapshots for a specific EGM or all EGMs.
3. Hold down **CTRL** and click the snapshots you want to delete, or click **Select All** to highlight all snapshots.



4. Click **Delete Selected** to delete all selected snapshots.

Export an EGM Data Model

Use the Save As option to export an EGM data model to an XML file that you can then use with the RadBlue System Tester (RST) or the RadBlue Load Tester (RLT). For example, if:

- you don't have full-time access to a real EGM, you can save the data model from a real EGM and then load it into RST.
- you want RLT to mimic real EGMs, you can save multiple data models from real EGMs and load them into RLT.
- you have a real EGM, but it does not allow you the same access and control for testing as the RST. Simply save an EGM data model through RGS, and then load it into RST.

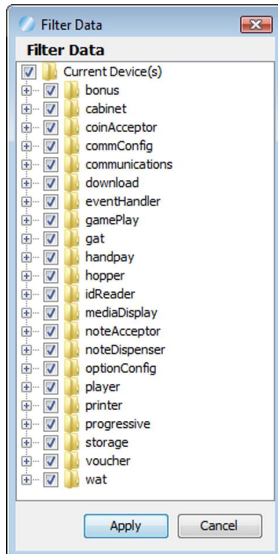
To capture and export a data model, RGS must be configured to communicate with a real EGM.

1. Go to: **Databases > Data Model Viewer**
2. Click **Save As**.
3. Navigate to the save location of your choice.
4. Change the default file name as required.
5. Click **Open**.

Filter Snapshot Comparison by Device

Use this option to filter information by device. *Only devices reported by the EGM are displayed.*

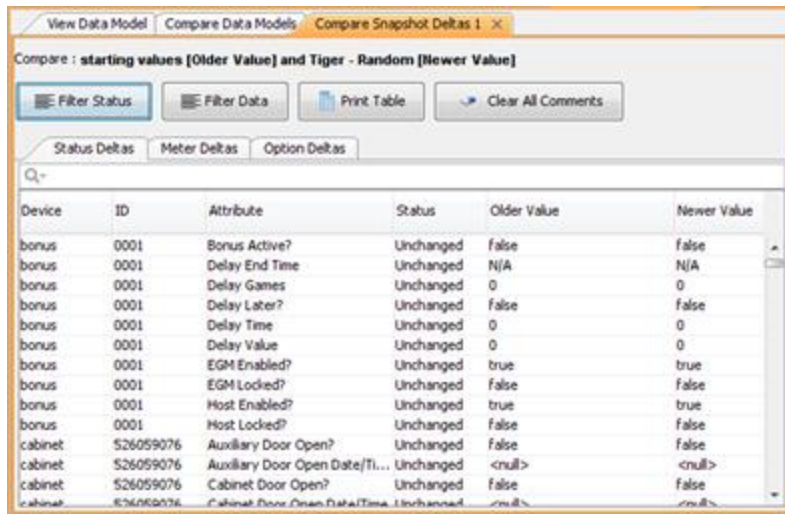
1. Click **Filter Data**.



2. Clear the checkbox of any devices you do not want to view.
3. Select the checkbox of any devices you want to view.
4. Click **Apply** to update the comparison.

Filter Snapshot Comparison Data

There are three ways to filter comparison data on the Compare Snapshot screen: [Filter Status](#), [Filter Data](#) and [Quick Filter](#). You can use these options to filter out unwanted data.



Compare : starting values [Older Value] and Tiger - Random [Newer Value]

Filter Status Filter Data Print Table Clear All Comments

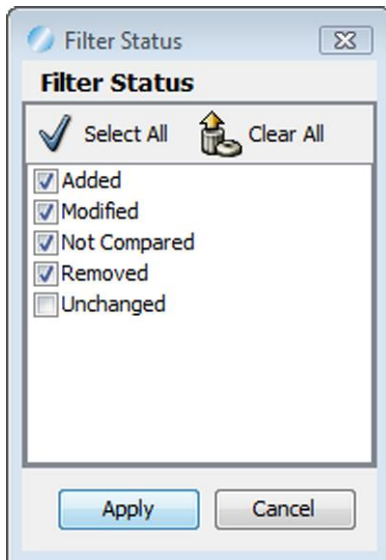
Status Deltas Meter Deltas Option Deltas

Device	ID	Attribute	Status	Older Value	Newer Value
bonus	0001	Bonus Active?	Unchanged	false	false
bonus	0001	Delay End Time	Unchanged	N/A	N/A
bonus	0001	Delay Games	Unchanged	0	0
bonus	0001	Delay Later?	Unchanged	false	false
bonus	0001	Delay Time	Unchanged	0	0
bonus	0001	Delay Value	Unchanged	0	0
bonus	0001	EGM Enabled?	Unchanged	true	true
bonus	0001	EGM Locked?	Unchanged	false	false
bonus	0001	Host Enabled?	Unchanged	true	true
bonus	0001	Host Locked?	Unchanged	false	false
cabinet	526059076	Auxiliary Door Open?	Unchanged	false	false
cabinet	526059076	Auxiliary Door Open Date/Ti...	Unchanged	<null>	<null>
cabinet	526059076	Cabinet Door Open?	Unchanged	false	false
cabinet	526059076	Cabinet Door Open Date/Time	Unchanged	<null>	<null>

Filter Snapshot Comparison by Status

Use this option to filter information by comparison status.

1. Click **Filter Status**.



2. Select or clear statuses as needed.
 - **Select All** - Click to select all statuses. Selected statuses are included in the comparison.
 - **Clear All** - Click to clear all statuses. Cleared statuses are filtered out of the comparison.
 - **Added** - Select to show device parameters with information that was added from the older snapshot to the newer snapshot.
 - **Modified** - Select to show device parameters with information that was modified from the older snapshot to the newer snapshot.
 - **Not Compared** - Select to show device parameters that were not compared. This status may indicate that an error occurred during comparison or that the values could not be compared.
 - **Removed** - Select to show device parameters that have been removed from the data model from the older snapshot to the newer snapshot.
 - **Unchanged** - Select to show device parameters with no changes from the older snapshot to the newer snapshot. By default, this status is cleared.
3. Click **Apply** to update the comparison view.

Print a Comparison Report

Use the Print Table option to print the currently displayed comparison to a report. Note that you can only print the active Deltas tab of the current Compare Snapshot Detail.

1. Right-click in the header of the comparison table you want to print, and select **Auto Resize All Columns**.
2. Click **Print Table**.



3. Set the print properties as needed, and click **Print**.

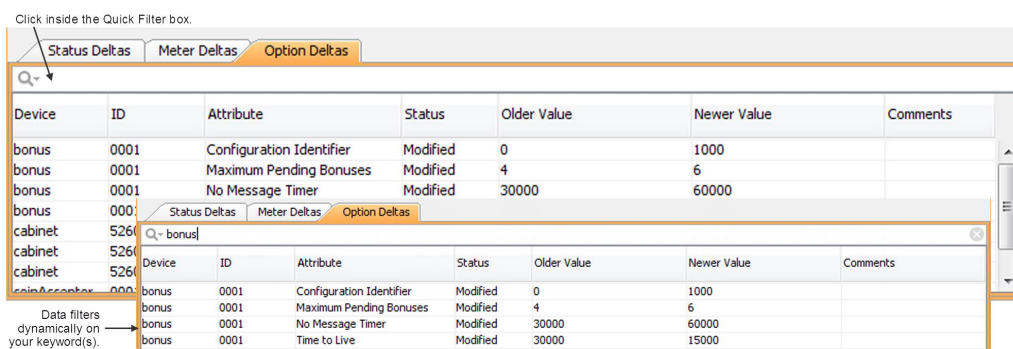
DMV Compare Meter Deltas 2008-10-22 12:17:51

Device	ID	Attribute	Status	Older Value	Newer Value	Delta	Comments
cabinet	526059076	G2S_gamesSinceDoorClosedCnt	Modified	0	1	1	
cabinet	526059076	G2S_gamesSinceInitCnt	Modified	0	1	1	
cabinet	526059076	G2S_gamesSincePowerResetCnt	Modified	0	1	1	
cabinet	526059076	G2S_playerCashableAmt	Modified	0	134500000	1345.00.000	
cabinet	526059076	G2S_wageredCashableAmt	Modified	0	500000	5.00.000	
coinAcceptor	0001	G2S_currencyInAmt	Modified	0	10000000	100.00.000	
coinAcceptor	0001	G2S_currencyInCnt	Modified	0	1000	1000	
coinAcceptor	0001	G2S_currencyToDropAmt	Modified	0	10000000	100.00.000	
coinAcceptor	0001	G2S_currencyToDropCnt	Modified	0	1000	1000	
gamePlay	0001	G2S_lostCnt	Modified	0	1	1	Lost Count
gamePlay	0001	G2S_theoPaybackAmt	Modified	0	462250	4.62.250	
gamePlay	0001	G2S_wageredAmt	Modified	0	500000	5.00.000	
noteAcceptor	0001	G2S_currencyInAmt	Modified	0	125000000	1250.00.000	
noteAcceptor	0001	G2S_currencyInCnt	Modified	0	125	125	
noteAcceptor	0001	G2S_currencyToDispAmt	Modified	0	125000000	1250.00.000	
noteAcceptor	0001	G2S_currencyToDispCnt	Modified	0	125	125	
progressive	0001	G2S_playedCnt	Modified	0	1	1	Played Count
progressive	0001	G2S_wageredAmt	Modified	0	500000	5.00.000	

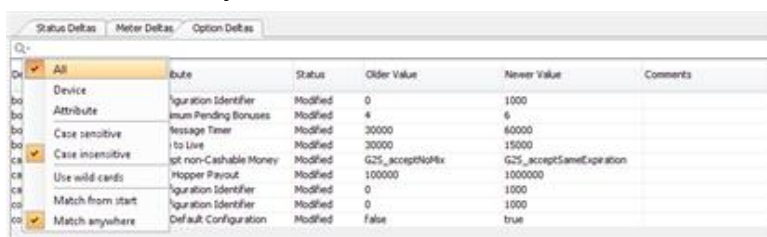
Filter Snapshot Comparison View Quickly

Use this option to quickly filter the comparison data view by keyword(s).

1. Click inside the Quick Filter box, and type your keyword(s). As you type, only records containing the characters you type display.



2. Click to refine your filter.



3. Click on the filter options you want to use.
 - **All** - Select to filter on all columns. You can also select to sort on a specific column only. The column names you see depend on whether you are on the Compare Data Models tab or on a Compare Snapshot Deltas *n* tab.
 - **Case sensitive** - Select to consider title case in your filter entry.
 - **Case insensitive** - Select to disregard title case in your filter entry.
 - **Use wild cards** - Select to allow the use of wild cards in your filter entry. Acceptable wild cards are "?" (match any letter or digit) and "*" (match several letters or digits).
 - **Use regular expression** - Select to use Java regular expressions. For more information, go to: <http://java.sun.com/developer/technicalArticles/releases/1.4regex/>
 - **Match from start** - Select to filter from the start of your entry.
 - **Match exactly** - Select to filter on the exact character, spacing and case of the keyword(s).
 - **Match anywhere** - Select to filter on any part of your entry.
4. Click in the filter box, and type your keyword(s).

Snapshot a Data Model

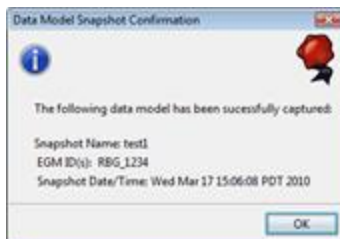
The Snapshot option lets you take snapshots of one or all EGM data models as changes occur over the course of testing. Use this procedure to create a snapshot of the current EGM data model, for the selected EGM.

See [About Snapshot Comparison](#) for information on comparing data models.

1. Select the **View Data Model** tab from the Databases layout.
2. Click **Snapshot**.



3. **Select an EGM** - select the EGM you want to snapshot or select All to snapshot all EGMs.
4. Type a name for the snapshot(s). If you are taking a snapshot of all EGMs, a snapshot with the defined name will be created for each EGM.
5. Click **Capture**.

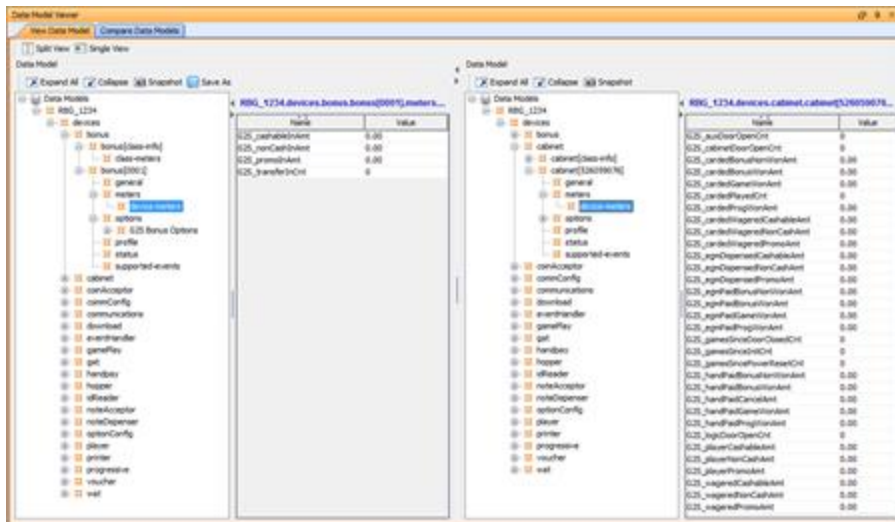


6. Review the snapshot summary information, and click **OK**.
 7. Click the **Compare Data Models** tab to view the snapshots under the Available Snapshots list.
- Note:** Speed of the snapshot capture and display depends upon the data model size.

Split the Data Model View

Use the Split View option to view two different areas of a data model at once or view information for two different EGMs at once.

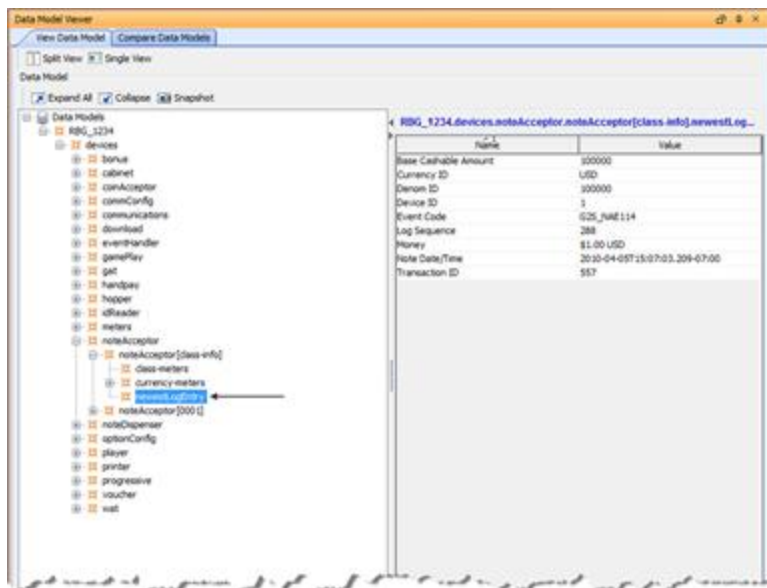
1. Go to: **Databases > Data Model Viewer**



2. Click **Split View**.
3. Select the information you want to view for each data model view.
If you want to view the data models for two different EGMs, select a second EGM ID in one of the views.
4. To return to a singular view, click **Single View**. The view on the left side of the screen is retained. The right-side panel view is retained for the next split view.

View Latest Log Entry for a Class

Logs are available for some G2S classes. You can view the last entry in the log by clicking the newestLogEntry entry under the class you want to view. Note that logs are not created until data for the log is created. For example, to see the note acceptor log (**Data Models > {EGM ID} > noteAcceptor > noteAcceptor [class-info] > newestLogEntry**) when none exists, insert a note into the EGM.



Configure the DMV Update Macro

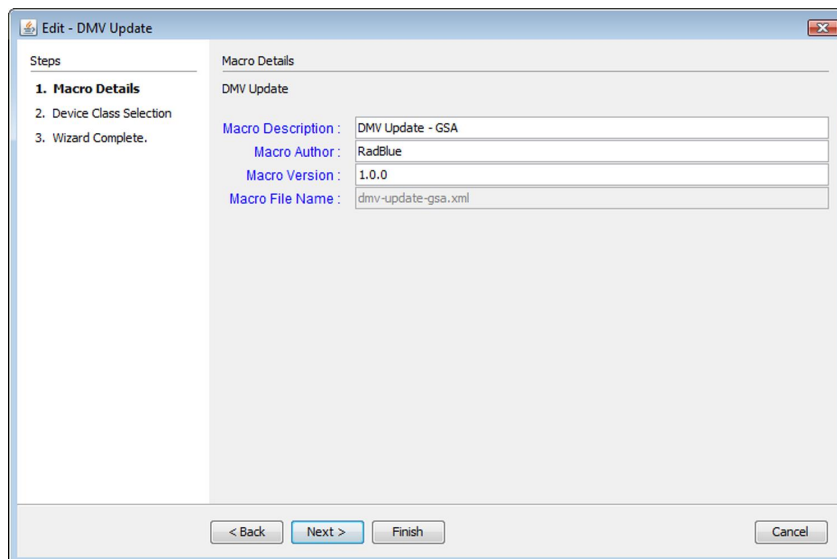
The DMV Update macro lets you request the latest data model information for a specific EGM. This macro requests the status, meters, profile and option list for every device in the selected class.

Note: Macros are available only with the optional Tester Toolkit module.

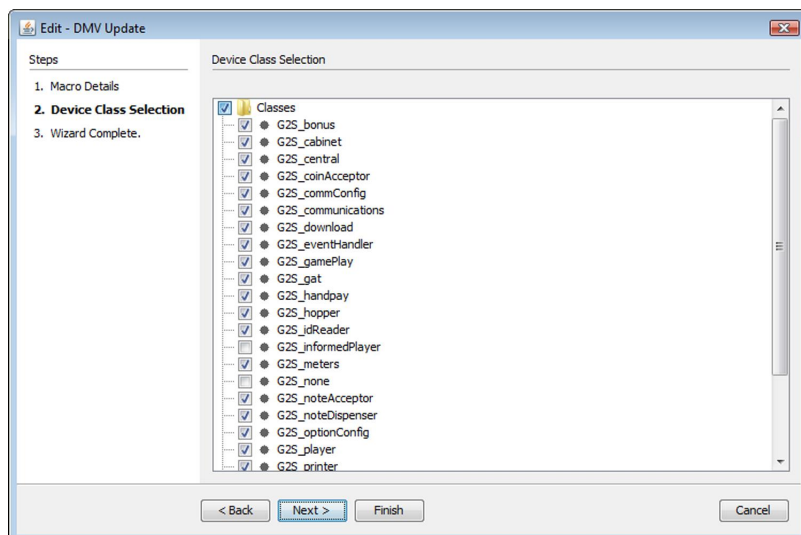
1. Go to: **Custom Configuration > Components > Macros**
2. Click **Add** and create a new macro. See [Add a Macro](#) for more information.

or

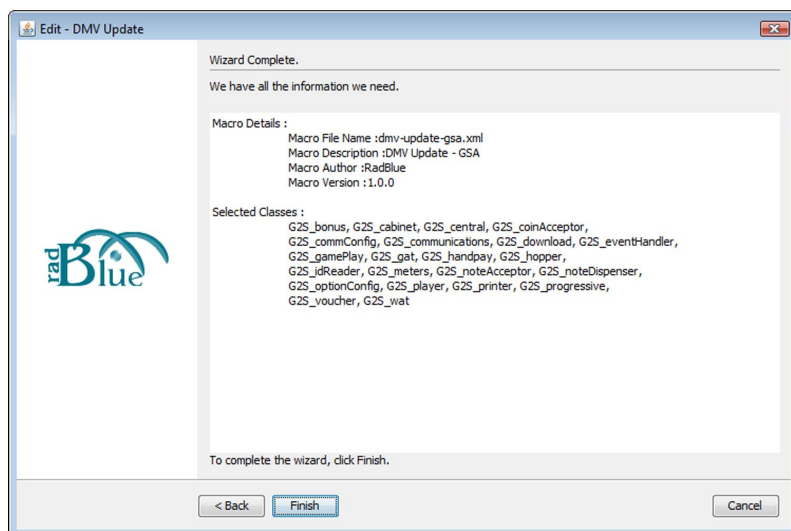
Click to select the download macro you want to edit, and click **Edit**.



3. Modify identifying information for the algorithm. Note that RGS automatically inserts default information.
 - **Macro Description** - Type a description for the macro.
 - **Macro Author** - Type an identifier for the macro's author.
 - **Macro Version** - Type a version for number for the macro. This field can contain any information required.
 - **Macro File Name** - File name of the macro. This field is *read-only*.

4. Click **Next**.

5. Select the classes for which you want updated data model information.

6. Click **Next**.

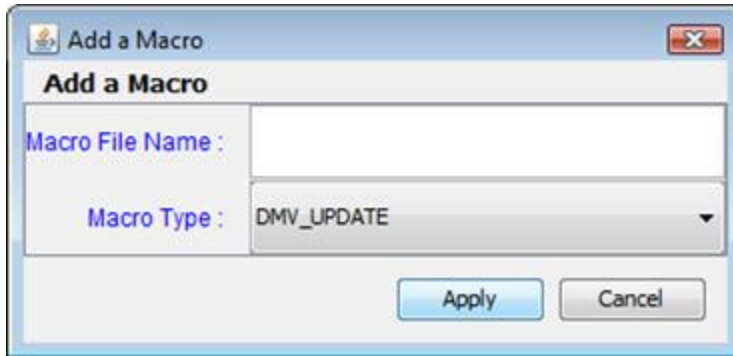
7. Review the macro information.

8. Click **Back** to make additional changes to the macro, click **Finish** to save the macro or click **Cancel** to exit the wizard without saving your changes.

Add a Macro

This procedure lets you add a new script to Custom Scripting. This script can then be run as many times as necessary with the click of a button.

1. Go to: **Custom Configuration > Components > Macros**
2. Click **Add**.



3. Type a name for the macro (spaces are not allowed). Note that the macro file name must be unique.
4. Click the drop-down arrow, and select the type of macro you want to create.
5. Click **Apply**.
6. Configure the macro.

For information on configuring the **Download a Package** macro, see [Configure the Download a Package macro](#).

About Multicast Groups

In RGS, there are two ways to send multicast messages: manual and automated.

If the **Automate Multicast Host Behavior** option (**Configure > Engine Options**) is selected, RGS automatically creates default multicast groups for the connecting EGM (automated). If this option is cleared, you can send multicast messages through the Send Command to EGM object, but the automated functionality is suppressed (manual).

Note: If the **Automate Multicast Host Behavior** option is selected, you cannot use the `joinMcast`, `leaveMcast` and `mcastKeyUpdate` commands through the Send Command to EGM object. You must use the MTP Multicast Control object.

In manual mode, you manually manage multicast groups by individually sending multicast commands through the **Send Command to EGM** object. Manual mode allows you additional testing flexibility, including negative testing. However, managing multicast groups can be complex. For this reason, manual mode is not recommended unless required.

In automated mode, RGS takes care of managing multicast groups for you. When communications are initiated, RGS automatically requests multicast group information from the EGM (see [How Automated Multicast Works in RGS](#)). This information is then displayed on the **MTP Management Control** object on the Send Command layout.

From the MTP Management Control object, you can manage all multicast groups. By default, the following multicast groups are created for you:

- **RBG_Bonus** - RadBlue multicast group for the bonus class. This group cannot be deleted.
- **RBG_Note_Acceptor** - RadBlue multicast group for the note acceptor class. This group cannot be deleted.
- **RBG_Player** - RadBlue multicast group for the player class. This group cannot be deleted.

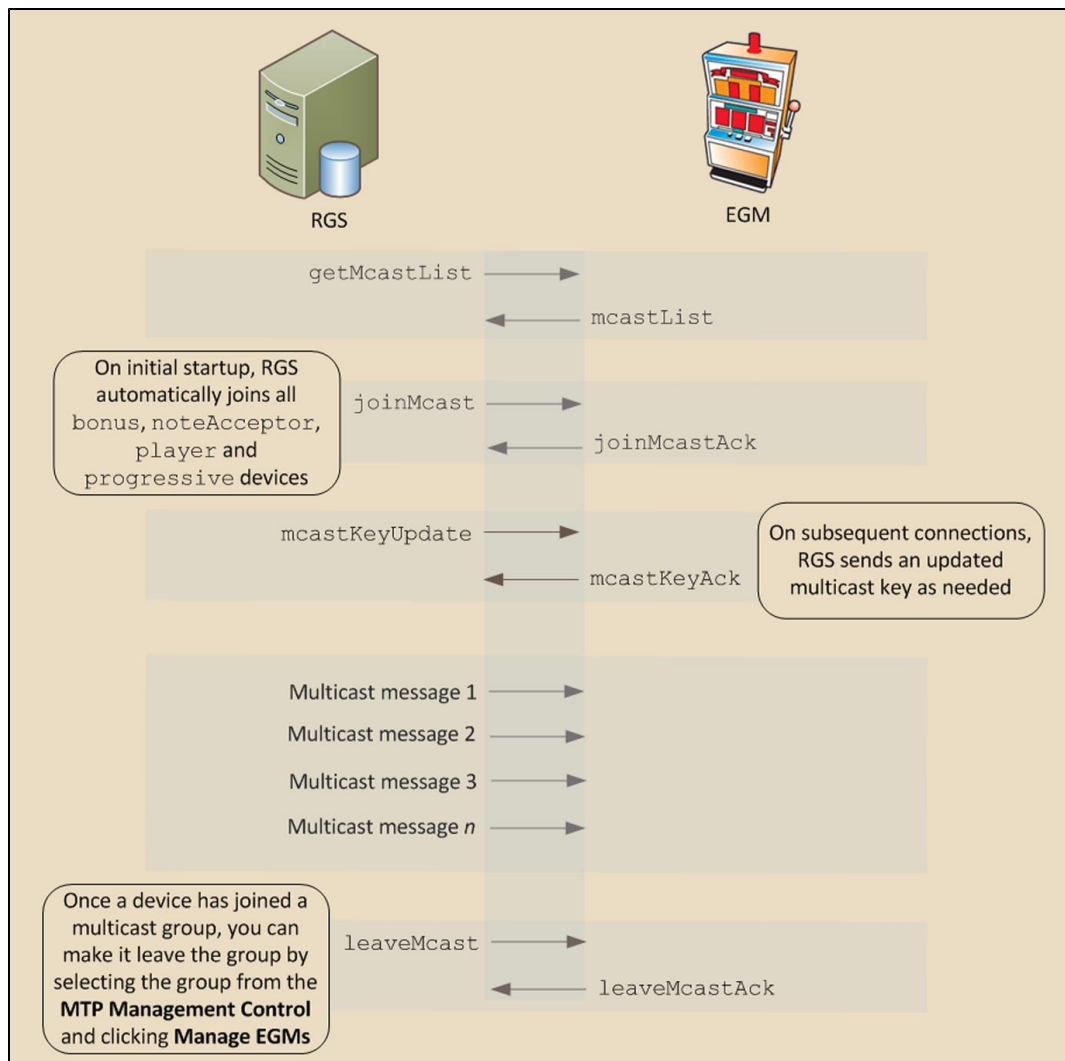
In addition, a multicast group is created for each progressive supported by the EGM.

From the MTP Management Control object, you can:

- [Edit a Multicast Group](#)
- [Add an EGM to a Multicast Group](#)
- [Delete a Multicast Group](#)

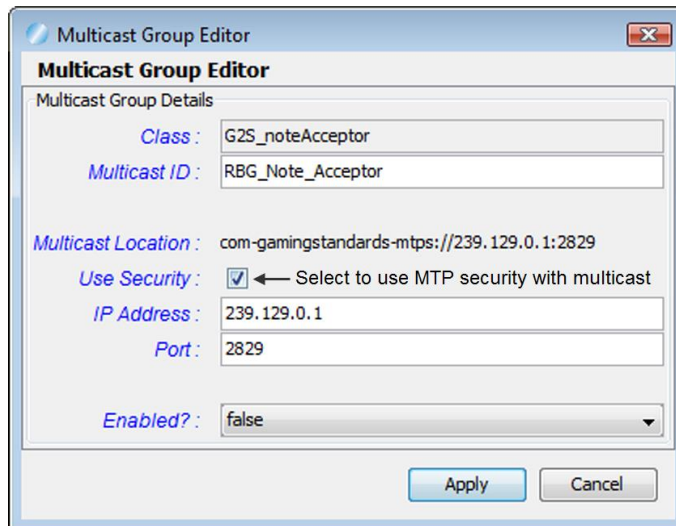
How Automated Multicast Works In RGS

When automated multicast is [enabled](#), RGS sends a `getMcastList` command to the EGM during communication startup to determine the existing multicast groups and affected devices. If RGS has no prior multicast groups stored, a `joinMcast` command is sent to all `bonus`, `noteAcceptor`, `player` and `progressive` devices. If RGS already has the EGM's multicast group information, an `mcastKeyUpdate` command is sent to the EGM to update the security parameters for the multicast session.



Note: Normally, the `mcastKeyUpdate` command is sent for security purposes. If a multicast group does not have security enabled, the `securityParams` attribute in the `mcastKeyUpdate` command is empty.

To define the multicast security setting for each multicast group, go to the [Edit Group](#) option on the MTP Management Control object, and select or clear the **Use Security** option.



The screenshot shows a Windows-style dialog box titled "Multicast Group Editor". It contains several input fields and a checkbox. The fields are labeled "Class", "Multicast ID", "Multicast Location", "IP Address", "Port", and "Enabled?". The "Use Security" checkbox is checked, and a tooltip message "Select to use MTP security with multicast" is visible next to it. At the bottom of the dialog are "Apply" and "Cancel" buttons.

Multicast Group Editor	
Multicast Group Details	
Class :	G2S_noteAcceptor
Multicast ID :	RBG_Note_Acceptor
Multicast Location :	com-gamingstandards-mtps://239.129.0.1:2829
Use Security :	<input checked="" type="checkbox"/> ← Select to use MTP security with multicast
IP Address :	239.129.0.1
Port :	2829
Enabled? :	false
<div>Apply Cancel</div>	

How Bonus Works with Automated Multicast

When a bonus multicast group is [configured](#) in RGS, RGS can send three bonus commands, using multicast, to all EGMs in the bonus group -`bonusActivity`, `setBonusAward` and `setBonusMessage`.

The `bonusActivity` command can be configured to be automatically sent every x seconds by the RGS, acting as a "heartbeat" message to verify that RGS is still communicating with the EGM. The interval for sending the `bonusActivity` command is defined by the **Automatic Bonus Updates Interval** option. Whether they are sent via point-to-point or Multicast is determined by the **Automatic Bonus Updates Using Multicast** option.

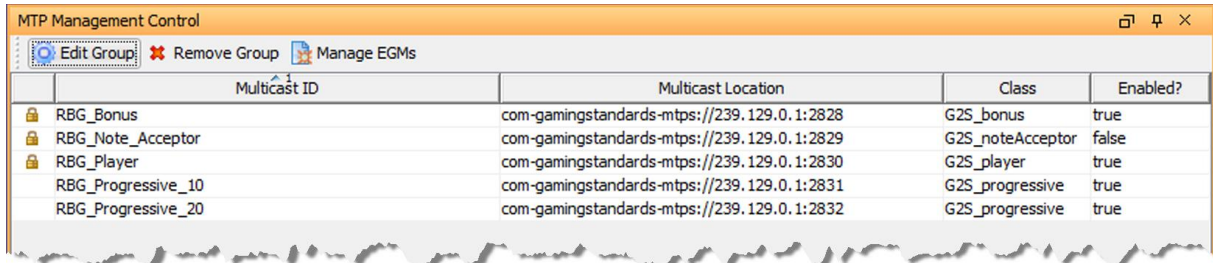
To set the *bonusActive* attribute to **true** in the `bonusActivity` command, select the **bonusActive flag** option on the Engine configuration screen.

When the command is sent using multicast, a `bonusStatus` response command is not expected to be returned (in point-to-point messaging, which can be done through the Send Command to EGM object, a `bonusStatus` response command is required).

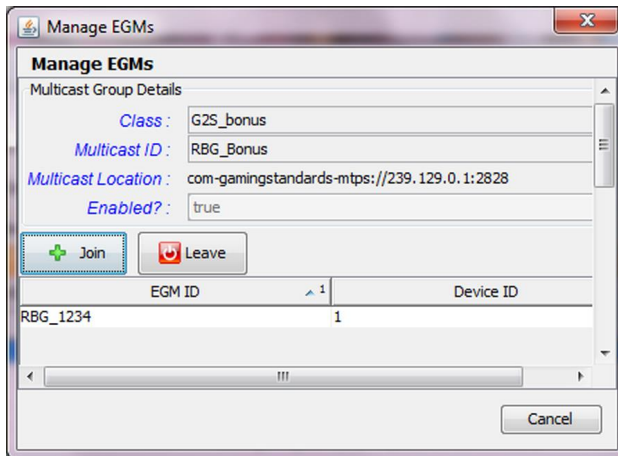
Add an EGM to a Multicast Group

The Manage EGMs option lets you add an EGM to a multicast group.

1. From Send Command tab, click the **MTP Management Control** subtab.



2. Click to select the multicast group you want to modify, and click **Manage EGMs**.



3. To add an EGM to the selected multicast group, click **Join**.

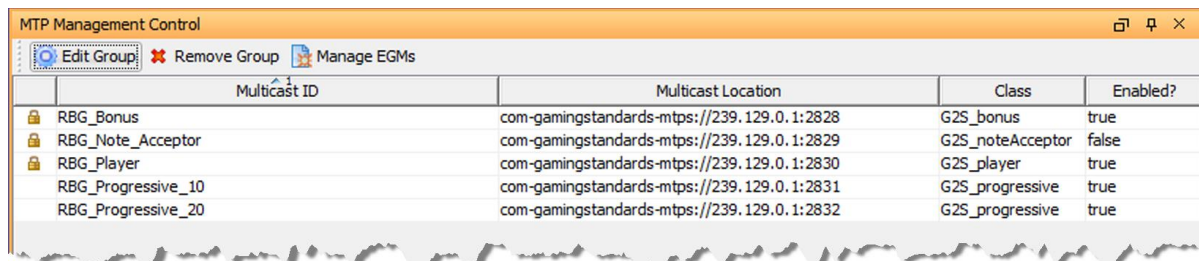


4. Click the drop-down arrow and select an **EGM**.
5. Click the drop-down arrow, and select a **Device ID**.
6. Click **Apply**.

Delete a Multicast Group

Use the Remove Group option to delete multicast groups.

1. From Send Command tab, click the **MTP Management Control** subtab.



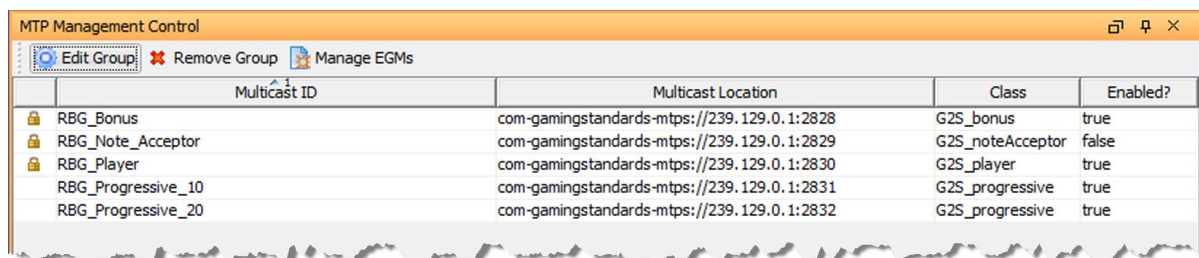
2. Click to select the multicast group you want to delete, and click **Remove Group**.

Note: Default multicast groups (designated by a lock symbol) cannot be deleted.

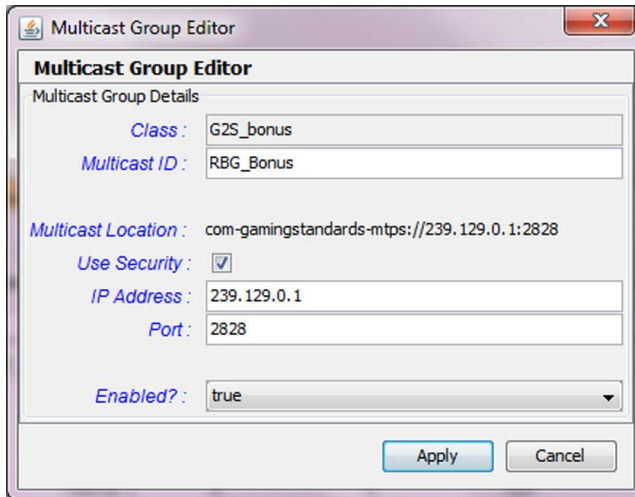
Edit an Automated Multicast Group

The Edit Group option lets you modify multicast group details. From this option you can change the multicast ID, URL, and security setting. You can also enable and disable the group.

1. From Send Command tab, click the **MTP Management Control** subtab.



- Click to select the multicast group you want to modify, and click **Edit Group**.



The screenshot shows a window titled "Multicast Group Editor" with a close button (X) in the top right corner. The window contains a section titled "Multicast Group Details" with several fields: "Class" (G2S_bonus), "Multicast ID" (RBG_Bonus), "Multicast Location" (com-gamingstandards-mtps://239.129.0.1:2828), "Use Security" (checked checkbox), "IP Address" (239.129.0.1), "Port" (2828), and "Enabled?" (true). At the bottom right are "Apply" and "Cancel" buttons.

- Modify the selected multicast group as required.
 - **Class** - Device class of selected multicast group. This field is read-only.
 - **Multicast ID** - Type an identifier for the multicast group.
 - **Multicast Location** - Indicates the specified location of the multicast group. This field is created using the Use Security, IP Address, and Port fields.
 - **Use Security** - Select to enable SSL security.
 - **IP Address** - Type the IP address for the multicast location.
 - **Port** - Type the port number for the multicast location.
 - **Enabled?** - Select to enable the multicast group.

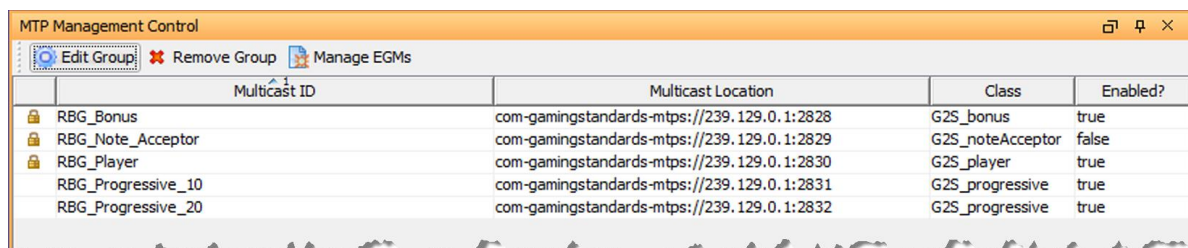
Note: Disabling a multicast group means that group will no longer be available in the RGS. When you disable the group, `aleaveMcast` command is automatically sent to all EGMs in the group to terminate the multicast association. When the group is enabled, devices within each EGM are added to the group when the EGM restarts communications.

- Click **Apply**.

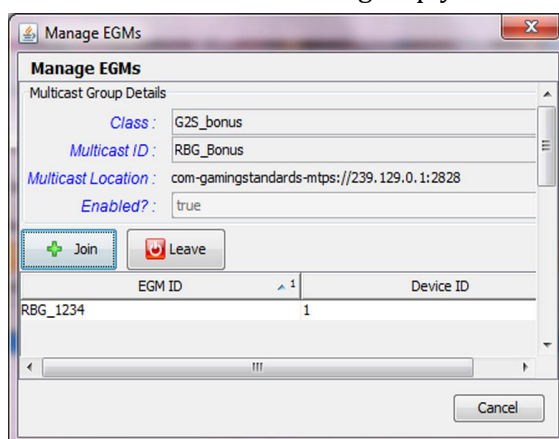
Join or Leave Automated Multicast Groups

You can request that connected EGMs join and leave automated multicast groups using the Manage EGMs options on the MTP Management Control object.

1. From Send Command tab, click **MTP Management Control**.



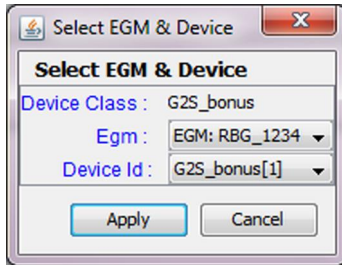
2. Click to select the multicast group you want to modify, and click **Manage EGMs**.



3. Note the following *read-only* fields. These fields are configured through the [Edit Multicast Group](#) option.
 - **Class** - Device class of selected multicast group.
 - **Multicast ID** - Multicast group identifier.
 - **Multicast Location** - Indicates the location of the multicast group.
 - **Enabled?** - Indicates whether or not the multicast group is enabled.

4. To request that an EGM join a multicast group:

- a. Click **Join**.



- b. Click the **EGM** drop-down arrow, and select the EGM you want to join the multicast group.

Note: An EGM must be communicating with RGS to appear in the list of available EGMs.

- c. Click the **Device ID** drop-down arrow, and select the device identifier within the selected class that is to be associated with this multicast group. If only one device ID is available, the selected class has only one device ID.

- d. Click **Apply**.

5. To request that an EGM leave a multicast group:

- a. Highlight the EGM you want to leave the multicast group.

- b. Click **Leave**.

6. Click **OK**.

About RGS Databases

The RGS Databases layout provides an easy way to work with player, progressive, WAT key pair and voucher information.

The Player Database lets you manage player and employee accounts. Note that when RGS receives an `idReader.getIdValidation` command with an unknown *idNumber* attribute value and *idReaderType* data type value, it automatically creates a new player account in the Player Database. The following attributes are set in the new player account:

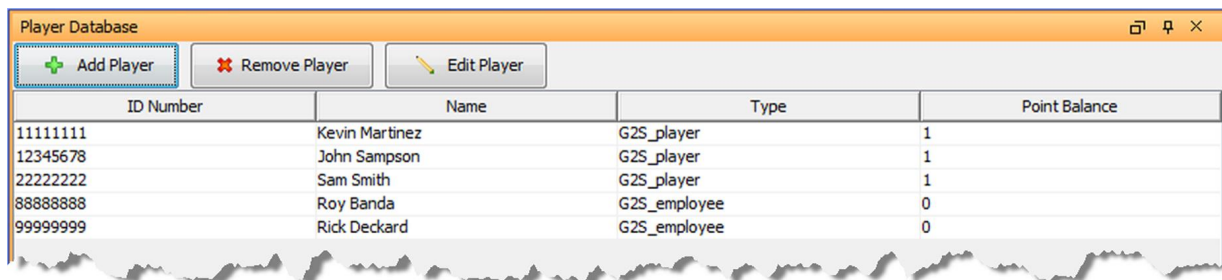
- *fullName* - Missing Player
- *preferName* - Missing Player
- *locale* - en_US
- *idType* - G2S_player

Once a player account is created, either manually or automatically, it can be edited as needed through the Player Database object.

The Progressive Database lets you add, edit and delete progressive groups. From the Voucher Database tab, you can add, edit and redeem vouchers. The Key Pair Database lets you delete current and expired WAT encryption key pairs stored by RGS. Finally, from the Voucher History, you can see the status of vouchers as they move through the redemption process.

Using the Player Database

The Player Database stores player and employee records in RGS. From the Player Database tab, under the Databases layout, you can view, add, edit and delete player and employee accounts.



ID Number	Name	Type	Point Balance
11111111	Kevin Martinez	G2S_player	1
12345678	John Sampson	G2S_player	1
22222222	Sam Smith	G2S_player	1
88888888	Roy Banda	G2S_employee	0
99999999	Rick Deckard	G2S_employee	0

- **ID Number** - Player identifier.
- **Name** - Player's first and last name.
- **Type** - Type of record: player (G2S_player) or (G2S_employee).
- **Point Balance** - Point balance for record.

Add or Edit a Player or Employee Record

The Add Player option lets you create new player and employee records. The Edit Player option lets you modify existing player and employee records. For each record, you can define general player or employee information, player rating information and Wagering Account Transfer (WAT) information.

Note: A player record can also be created [automatically](#) by RGS when an unknown player account is received. This account can then be edited as required.

1. Click the **Database** layout.
2. Click the **Player Database** subtab.

- Click **Add Player** to create a new player or employee record.

or

Click to select the record you want to edit, and click **Edit Player**.

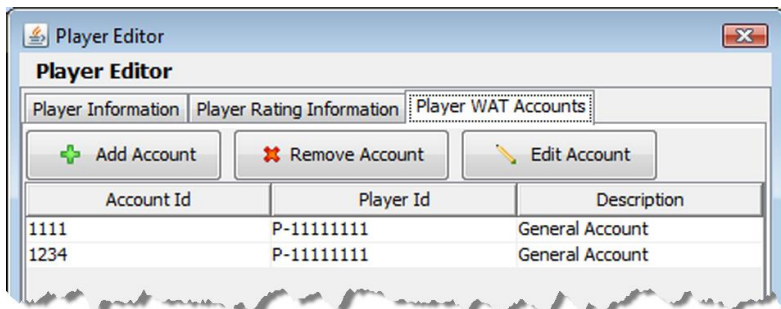
- Define or modify Player Information as required.

- **ID Number** - Type a unique identifier between 1 and 32 numeric characters. This field is required by the RGS player database.
- **ID Type** - Click the drop-down arrow, and select an identification type.
- **Player ID** - Type a 1- to 16-character player account identifier.
- **ID State** - Click the drop-down arrow, and select the status of the identifier (active, inactive or lost).
- **Validation Source** - Click the drop-down arrow, and select the entity that validates the ID number.
- **Validation Date/Time** - Type a date/time offset for when the voucher is determined to be valid, invalid or cleared.

This value is expressed in the format **+n[seconds | minutes | hours | days | months]**. For example, “+20 hours” indicates the voucher is valid from the current date/time plus 20 hours.

- **ID Class** - Type additional player or employee information, up to 32 characters, as required.
 - **Full Name** - Type the first and last name of the player.
 - **Preferred Name** - Type the player's nickname.
 - **Gender** - Click the drop-down arrow, and select the player's gender.
 - **Age** - Select or type the player's age.
 - **Locale ID** - Type the language identifier in the format **languageId_countryId**, which corresponds to ISO-639 and ISO-3166, respectively.
 - **VIP** - Click the drop-down arrow, and indicate whether the player is a preferred player (**true**) or not (**false**).
 - **Anniversary** - Click the drop-down arrow, and indicate whether it is the player's anniversary (**true**) or not (**false**).
 - **Birthday** - Click the drop-down arrow, and indicate whether it is the player's birthday (**true**) or not (**false**).
 - **Banned** - Click the drop-down arrow, and whether the player is barred from playing at the property (**true**) and not (**false**).
 - **Privacy** - Click the drop-down arrow, and indicate whether the player wants to remain anonymous (**true**) or not (**false**).
 - **Loss Limit** - Select or type the note acceptor limit for the player.
 - **Loss Limit End** - Type a date/time offset for the end of the loss limit session.
This value is expressed in the format **+n[seconds | minutes | hours | days | months]**. For example, "+20 hours" indicates the voucher is valid from the current date/time plus 20 hours.
5. Define or modify **Player Rating Information** as required.
- **Point Balance** - Select or type the current points balance for the player account.
 - **Host Carry Over** - Select or type the initial countdown carryover.
 - **Override Start** - Type a date/time offset for starting the active override.
This value is expressed in the format **+n[seconds | minutes | hours | days | months]**. For example, "+20 hours" indicates the voucher is valid from the current date/time plus 20 hours.
 - **Override End** - Type a date/time offset for ending the active override.
 - **Player Target** - Select or type the countdown target for the override.
 - **Player Increment** - Select or type the countdown target for the override.
 - **Player Award** - Select or type the countdown point award.

6. Add, edit or delete player WAT accounts as required.



Add or Edit a WAT Account

- a. Click **Add Account** to create a new WAT account.

or

Click to select the WAT account you want to edit, and click **Edit Account**.

- b. Define or modify WAT account information as required.
- **Account ID** - Type a unique identifier for the player WAT account.
 - **Account Description** - Type a description for the player WAT account.

- **Cashable Amount** - Select or type the amount of cashable funds in the player WAT account.
- **Promo Amount** - Select or type the amount of cashable promotional funds in the player WAT account.
- **Non-Cashable Amount** - Select or type the amount of non-cashable promotional funds in the player WAT account.
- **Frozen** - Click the drop-down arrow, and select whether the player's WAT account funds are available for withdrawal (**false**) or unavailable for withdrawal (**true**).
- **Auth Required** - Click the drop-down arrow, and select whether the player must enter identifying information before performing balance and fund transfer transactions.
- **Withdrawal OK** - Click the drop-down arrow, and select whether the player can withdraw funds from the WAT account.
- **Cash Deposit OK** - Click the drop-down arrow, and select whether the WAT account accepts non-cashable promotional deposits.
- **Promo Deposit OK** - Click the drop-down arrow, and select whether the WAT account accepts cashable promotional deposits.
- **Non-Cash Deposit OK** - Click the drop-down arrow, and select whether the WAT account accepts non-cashable promotional deposits.
- **Select Amount** - Click the drop-down arrow, and select whether the player can select the amount of WAT funds to withdraw.
- **Default Withdrawal Amount** - Type the amount WAT funds that are withdrawn by default.
- **Withdrawal Max** - Select or type the amount of WAT funds that can be withdrawn for a single request.
- **Deposit Max** - Select or type the amount of WAT funds that can be deposited for a single request.

c. Click **Save**.

Note: If you want to delete a WAT account, select the account you want to delete and click **Remove Account**.

7. Click **Save** to save the new or modified record.

Delete a Player or Employee Record

The Remove Player option lets you delete player and employee records from the player database.

1. Click the **Database** layout.
2. Click the **Player Database** tab.
3. Click to highlight the record you want to delete.

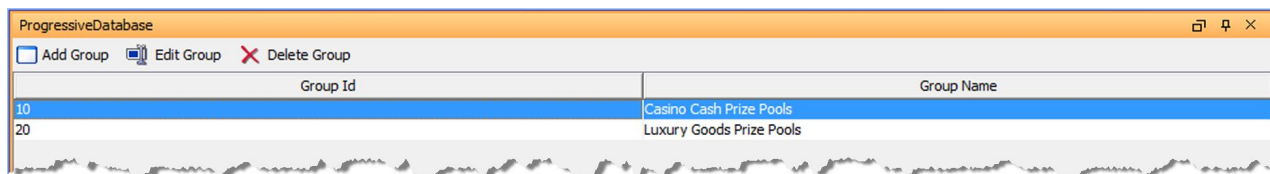
or

CTRL+click or SHIFT+click to highlight multiple records.

4. Click **Remove Player**.
5. To delete the selected player, click **Yes**. To return to the player database screen without making any changes, click **No**.

Using the Progressive Database

The Progressive Database object displays the content of the RGS progressive database, and allows you to add, modify and delete progressive groups and levels.



The event that updates the RGS progressive database is G2S_PG101 (Progressive Money Wagered).

If this event is not generated by the EGM (no supported or not subscribed to by the RGS), the RGS progressive values won't update when a game is played. The setProgressiveValue command is then used by the RGS to send the updated progressive values back to the EGM.

To verify that the RGS subscribes to the G2S_PRE101 event, go to **Configure** > Event Options > G2S_progressive, and verify that Progressive Money Wagered (G2S_PGE101) is selected.

If the Progressive Money Wagered (G2S_PGE101) option is not selected, you must add it to the event subscriptions list and then update the RGS event subscriptions. For instructions on modifying and updating event subscriptions, see Event Options.

Configuring Progressives to Work with an EGM

RGS, acting as a progressive host, must have progressive groups and levels that correspond to the progressive groups and levels on the EGM. You can create progressive groups and levels through the Progressive Database:

- [Add a Progressive Group](#)
- [Add or Edit a Progressive Level in a Progressive Group](#)
- [Delete a Progressive Group](#)
- [Delete a Progressive Level](#)

Note that meter contributions are defined by the Contribution % field when you add or edit a level.

Once you've configured progressives groups, send a setProgressiveValue command by going to **Send Command** > **G2S_progressive** > **setProgressiveValue** via database, and click **Send**. The EGM should return a progressive.progressiveValueAck response command.

Look at the progressive.setProgressiveValue command in the transcript and verify the information is correct.

Set Progressive Configuration Options

When you are satisfied that progressives are working correctly, go to **Configure > Engine Options**, and configure progressive options.

- **Automatic Progressive Updates Interval** - Use this option to automatically send the `setProgressiveValue` every *x* minutes or seconds.
Type (in minutes and seconds) the time at which RGS sends the `setProgressiveValue` command to the EGM. For example, a value of “15000” sends the `setProgressiveValue` command every 15 seconds. Zero disables this option. The default is **0**.
- **Filter G2S Set Progressive Values from Transcript** - Select to filter G2S `setProgressiveValue` commands from the Transcript database. If this option is selected, `setProgressiveValue` commands do not appear on the transcript.
- **Automatic Progressive Updates Using Multicast** - Select to deliver automatic progressive updates using multicast messaging.
- **Progressives - Win Command Pay Method** - Click the drop-down arrow, and select the payment method for progressive wins (sent in the *payMethod* attribute in the `setProgressiveWin` command).
- **setProgressiveWin Message Duration** - Type the Progressive Message Duration sent in the `setProgressiveWin` command.

Add a Progressive Group

1. From the Databases layout, select the **Progressive Database** tab.
2. Click **Add Group**.
3. Type a **Progressive ID** and **Name** for the new progressive.
4. [Configure the progressive group levels](#) as required.
5. Click **Save**. The new progressive is added to the progressive group list on the Progressive Database object.

Add or Edit a Progressive Level in a Progressive Group

1. From the Databases layout, select the **Progressive Database** tab.
2. Double-click the progressive group of the level you want to add or edit.
3. To add a new level, click **Add Level**.

or

To edit an existing level, highlight the level you want to edit, and click **Edit Level**.

The screenshot shows a dialog box titled "Level Id : 1". It contains the following fields and values:

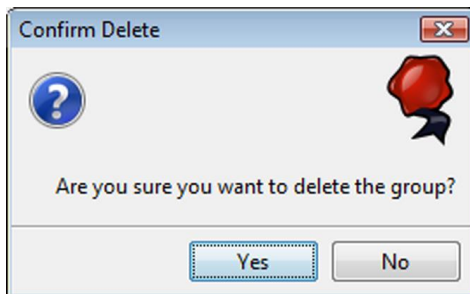
Field	Value
Progressive Value Text	Default Prize Description
Level Id	1
Contribution %	0.02
Current Value	0
Reset Value	100,000
High Denomination Id	1,000,000
High # of Credits	4
High Odds	4
Low Denomination Id	100,000
Low # of Credits	1
Low Odds	1

At the bottom are "Save" and "Cancel" buttons.

- **Progressive Value Test** - Description of the progressive prize. Note that this text is displayed in the player display of the SmartEGM when a progressive with a non-dollar value prize is hit (Current Value equals zero).
 - **Level ID** - Identifier of the progressive group level.
 - **Contribution %** - Percentage of each wager that is added to the prize for the specified level.
 - **Current Value** - Starting dollar amount of the progressive prize.
 - **Reset Value** - Dollar amount of the progressive prize reset.
 - **High Denomination ID** - Denomination for the High # of Credits field.
 - **High # of Credits** - Number of credits wagered in a high bet.
 - **High Odds** - Best bet:odds ratio.
 - **Low Denomination ID** - Denomination for the Low # of Credits field.
 - **Low # of Credits** - Number of credits wagered in a low bet.
 - **Low Odds** - Worst bet:odds ratio.
4. Click **Save** to save your changes.

Delete a Progressive Group

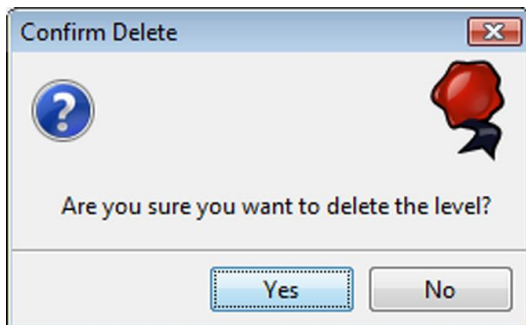
1. From the Database layout, select the **Progressive Database** tab.
2. Select the progressive group you want to delete.
3. Click **Delete Group**.



4. Click **Yes** to delete the selected progressive group.

Delete Progressive Level

1. From the Database layout, select the **Progressive Database** tab.
2. Double-click the progressive group containing the level you want to delete.
3. Highlight the Level ID, and click **Delete Level**.



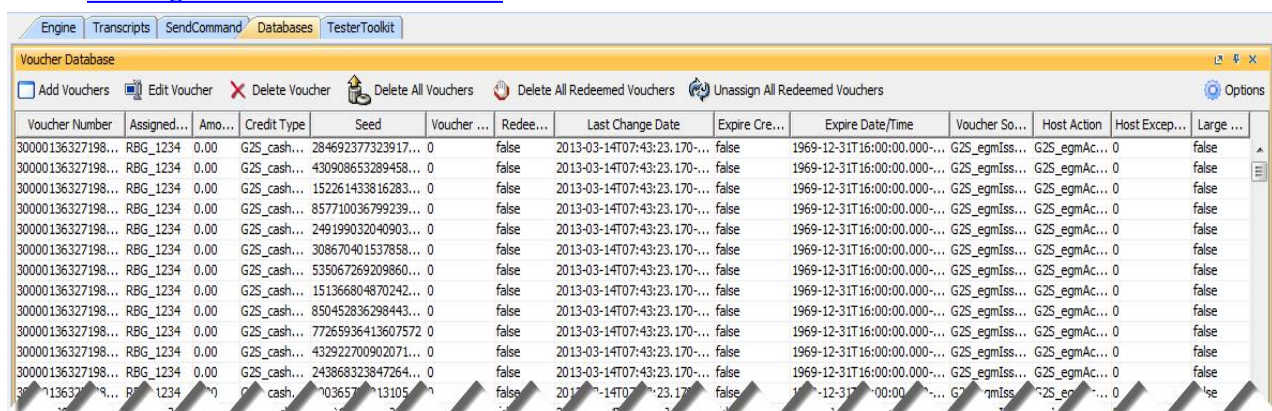
4. Click **Yes** to delete the selected level.

Using the Voucher Database

The Voucher Database object displays all records in the RGS voucher database. You can add voucher numbers to specific EGMs, edit voucher records, and delete voucher records. If an EGM sends a `getValidationData` command, RGS creates the voucher block automatically. However, you can manually create vouchers and change each voucher's characteristics as required for testing.

From the Voucher Database object, you can:

- [Add Voucher Number to the Voucher Database](#)
- [Modify a Voucher Record](#)
- [Delete a Voucher](#)
- [Delete All Voucher Records](#)
- [Delete All Redeemed Vouchers](#)
- [Unassign All Redeemed Vouchers](#)



The screenshot shows the 'Voucher Database' application window. It has a menu bar with 'Engine', 'Transcripts', 'SendCommand', 'Databases', and 'TesterToolkit'. Below the menu bar is a toolbar with icons for 'Add Vouchers', 'Edit Voucher', 'Delete Voucher', 'Delete All Vouchers', 'Delete All Redeemed Vouchers', and 'Unassign All Redeemed Vouchers'. The main area contains a table with the following columns: Voucher Number, Assigned..., Amo..., Credit Type, Seed, Voucher..., Redee..., Last Change Date, Expire Cre..., Expire Date/Time, Voucher So..., Host Action, Host Excep..., and Large ... The table displays multiple rows of voucher records, each with a unique 18-digit number and associated data.

Voucher Number	Assigned...	Amo...	Credit Type	Seed	Voucher ...	Redee...	Last Change Date	Expire Cre...	Expire Date/Time	Voucher So...	Host Action	Host Excep...	Large ...
30000136327198...	RBG_1234	0.00	G2S_cash...	284692377323917...	0	false	2013-03-14T07:43:23.170...	false	1969-12-31T16:00:00.000...	G2S_egmIss...	G2S_egmAc...	0	false
30000136327198...	RBG_1234	0.00	G2S_cash...	430908653289458...	0	false	2013-03-14T07:43:23.170...	false	1969-12-31T16:00:00.000...	G2S_egmIss...	G2S_egmAc...	0	false
30000136327198...	RBG_1234	0.00	G2S_cash...	152261433816283...	0	false	2013-03-14T07:43:23.170...	false	1969-12-31T16:00:00.000...	G2S_egmIss...	G2S_egmAc...	0	false
30000136327198...	RBG_1234	0.00	G2S_cash...	857710036799239...	0	false	2013-03-14T07:43:23.170...	false	1969-12-31T16:00:00.000...	G2S_egmIss...	G2S_egmAc...	0	false
30000136327198...	RBG_1234	0.00	G2S_cash...	249199032040903...	0	false	2013-03-14T07:43:23.170...	false	1969-12-31T16:00:00.000...	G2S_egmIss...	G2S_egmAc...	0	false
30000136327198...	RBG_1234	0.00	G2S_cash...	308670401537858...	0	false	2013-03-14T07:43:23.170...	false	1969-12-31T16:00:00.000...	G2S_egmIss...	G2S_egmAc...	0	false
30000136327198...	RBG_1234	0.00	G2S_cash...	535067269209860...	0	false	2013-03-14T07:43:23.170...	false	1969-12-31T16:00:00.000...	G2S_egmIss...	G2S_egmAc...	0	false
30000136327198...	RBG_1234	0.00	G2S_cash...	151366804870242...	0	false	2013-03-14T07:43:23.170...	false	1969-12-31T16:00:00.000...	G2S_egmIss...	G2S_egmAc...	0	false
30000136327198...	RBG_1234	0.00	G2S_cash...	850452836298443...	0	false	2013-03-14T07:43:23.170...	false	1969-12-31T16:00:00.000...	G2S_egmIss...	G2S_egmAc...	0	false
30000136327198...	RBG_1234	0.00	G2S_cash...	77265936413607572	0	false	2013-03-14T07:43:23.170...	false	1969-12-31T16:00:00.000...	G2S_egmIss...	G2S_egmAc...	0	false
30000136327198...	RBG_1234	0.00	G2S_cash...	439222700902071...	0	false	2013-03-14T07:43:23.170...	false	1969-12-31T16:00:00.000...	G2S_egmIss...	G2S_egmAc...	0	false
30000136327198...	RBG_1234	0.00	G2S_cash...	243868323847264...	0	false	2013-03-14T07:43:23.170...	false	1969-12-31T16:00:00.000...	G2S_egmIss...	G2S_egmAc...	0	false
30000136327198...	RBG_1234	0.00	G2S_cash...	003657000113105...	0	false	2013-03-14T07:43:23.170...	false	1969-12-31T16:00:00.000...	G2S_egmIss...	G2S_egmAc...	0	false

Each voucher record contains the following fields:

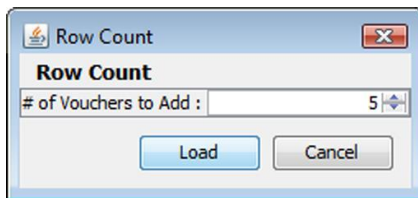
- **Voucher Number** - Unique 18-digit voucher identification number.
- **Assigned To** - Identification number of the EGM that has been assigned the specified voucher number.
“Undefined” means that the voucher number has not been assigned to an EGM. A voucher remains undefined until you assign an EGM to it or until it is allocated to an EGM through a `getValidationData` command.
- **Amount** - Dollar amount of voucher.
- **Credit Type** - Cashable, non-cashable or promotional.
- **Seed** - Number sent to the EGM for manual voucher validation.

- **Redeemed** - Indicates whether the specified voucher has been redeemed. **True** indicates that the voucher has been redeemed. **False** indicates that the voucher is in a state other than redeemed.
- **Last Change Date** - Date and time the voucher record was changed (for example, from active to pending or any time the voucher record is edited).
- **Expire Credits** - Indicates whether the voucher expires at the date and time provided when the non-cashable credits were transferred to the EGM (true) or after the default number of days (false).

Add Voucher Numbers to the Voucher Database

Use the Add Vouchers option to add one or more voucher records to the voucher database. New records are appended to the end of the voucher list. Once added you can modify voucher attributes as needed.

1. From the Database layout, select the **Voucher Database** tab.
2. Click **Add Voucher**.



3. Type or select the number of vouchers you want to add.
4. Click **Load**.

The new vouchers are appended the end of the voucher list. Note that the Assigned To field is "undefined."

Modify a Voucher Record

Use the Edit Voucher option to modify voucher values. Note that the voucher number, whether or not the voucher has been assigned and the date of the last record change are all read-only.

1. From the Database layout, select the **Voucher Database** tab.
2. Select a voucher record to edit.
3. Click **Edit Voucher**.

Edit Voucher

Voucher Number: 300001363271987227

Assigned To: RBG_1234

Amount: 0.00

Credit Type: G2S_cashable

Seed: 3086704015378584657

Sequence: 0

Redeemed: false

Assigned: true

Last Change Date: 2013-03-14T07:43:23.170-07:00

Expire Credits: false

Expire Date/Time: 1969-12-31T16:00:00.000-08:00

Voucher Source: G2S_egmIssued

Host Action: G2S_egmAction

Host Exception: 0

Large Win: false

Save Cancel

4. Modify the voucher record as required. Note that the Voucher Number, Is Assigned and Last Change Date fields cannot be modified.
 - **Voucher Number** - Unique 18-digit voucher identification number. This field is read-only.
 - **Assigned To** - Type the identification number of the EGM that has been assigned the specified voucher number.
“Undefined” means that the voucher number has not been assigned to an EGM. A voucher remains undefined until you assign an EGM to it or until it is allocated to an EGM through a `getValidationData` command.
 - **Amount** - Type the dollar amount of voucher.
 - **Credit Type** - Click the drop-down arrow, and select the credit type for the voucher (cashable, non-cashable or promotional).

- **Seed** - Type the number sent to the EGM for manual voucher validation.
 - **Sequence** - Type the sequence number of the voucher assigned by the EGM at issuance. This number is printed on the voucher.
 - **Redeemed** - Click the drop-down arrow, and select true to indicate that the voucher has been redeemed or false to indicate the voucher is in a state other than redeemed.
 - **Assigned** - Indicates whether the voucher has been assigned to an EGM. This field is read-only.
 - **Last Change Date** - Enter the date and time the voucher record was changed (for example, from active to pending or any time the voucher record is edited). This field is read-only.
 - **Expire Credits** - Click the drop-down arrow, and select whether the voucher expires at the date and time provided when the non-cashable credits were transferred to the EGM (**true**) or after the default number of days (**false**).
 - **Expire Date/Time** - Type the voucher expiration data and time.
 - **Voucher Source** - Click the drop-down arrow, and indicate whether the voucher was issued by an EGM (`G2S_egmIssued`) or by a host system (`G2S_system`).
 - **Host Action** - Click the drop-down arrow, and select the host-defined stacker action.
 - **Host Exception** - Type the host transfer exception code, which indicates the system status of the transaction. See the [G2S Message Protocol](#) document for more information.
 - **Large Win** - Click the drop-down arrow, and select whether the voucher was the result of a large win (**true**) or not (**false**).
5. Click **Save** to save your changes, or click **Cancel** to exit the Edit Voucher screen without saving your changes.

Delete a Voucher Record

Use the Delete Voucher option to delete one or more selected vouchers from the voucher database.

1. From the Database layout, select the **Voucher Database** tab.
2. Highlight the voucher record you want to delete.

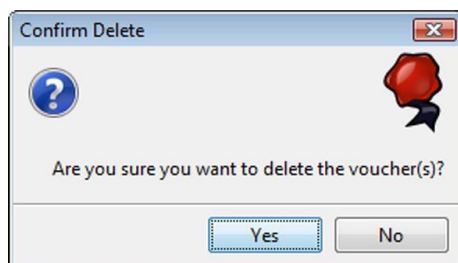
or

To delete a block of voucher records, select the first and last voucher records to be deleted while holding down the SHIFT key.

or

To delete multiple, non-consecutive voucher records, select the voucher records to be deleted while holding down the CTRL key.

3. Click **Delete Voucher**.

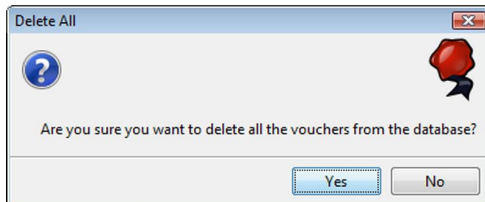


4. Click **Yes** to delete the highlighted voucher record(s).

Delete All Voucher Records

Use the Delete All Vouchers option to delete all vouchers in the voucher database.

1. From the Database layout, select the **Voucher Database** tab.
2. Click **Delete All Vouchers**.

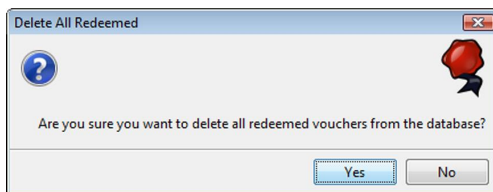


3. Click **Yes** to delete all voucher records in the voucher database.

Delete All Redeemed Vouchers

Use the Delete All Redeemed Vouchers option to delete all vouchers that are marked as redeemed in the voucher database.

1. From the Database layout, select the **Voucher Database** tab.
2. Click **Delete All Redeemed Vouchers**.

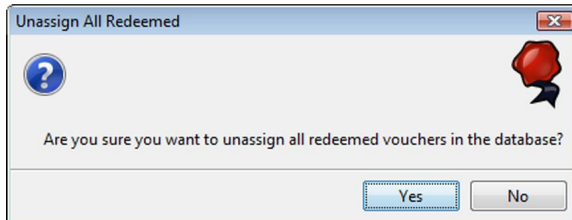


3. Click **Yes** to delete all redeemed voucher records in the voucher database.

Unassign All Redeemed Vouchers

Use the Unassign All Redeemed Vouchers option to reset all redeemed vouchers in the voucher database. Once you have unassigned a redeemed voucher, it is again available for redemption.

1. From the Database layout, select the **Voucher Database** tab.
2. Click **Unassign All Redeemed Vouchers**.

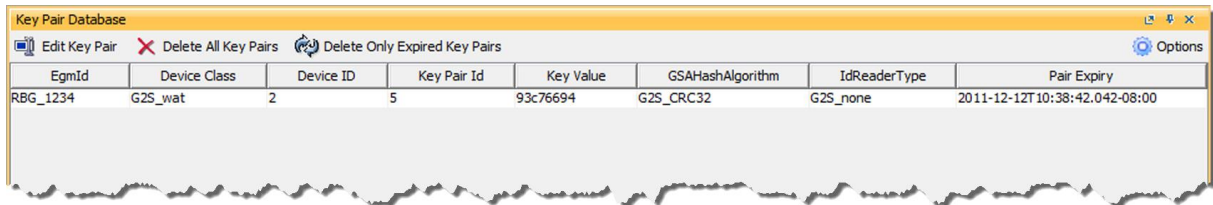


3. Click **Yes** to unassign all redeemed voucher records in the voucher database.

Using the Key Pair Database

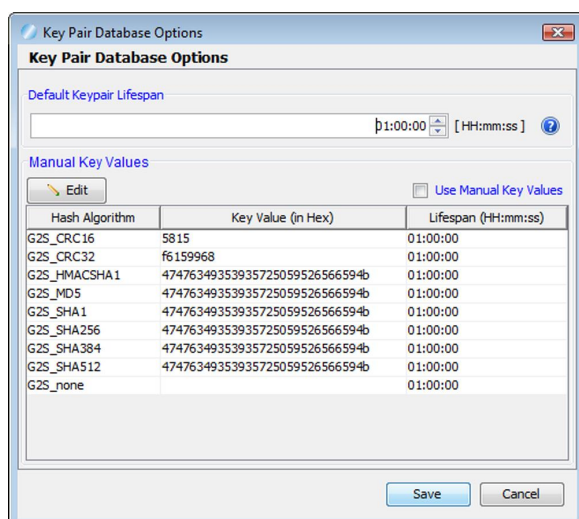
The Key Pair Database allows you to view the key pairs stored by RGS. You can delete all key pairs or only expired key pairs. In addition, you can modify the length of time a key pair is valid, define manual key values and select whether to use those manual key values.

1. From the **Databases** layout, select the **Key Pair Database** tab.



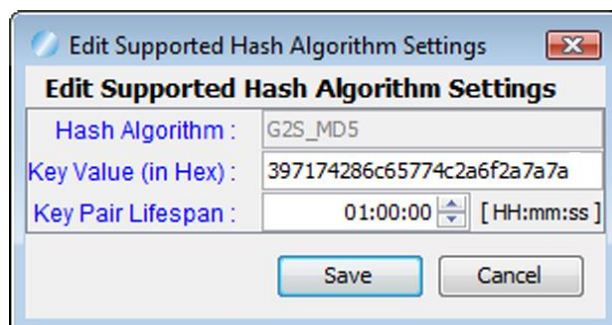
2. To edit a key pair, click to select the key pair you want to edit and click **Edit Key Pair**.

- **EGM ID** - Identifier of EGM associated with the selected key pair. This field is *read-only*.
 - **Device Class** - Device class associated with the selected key pair. This field is *read-only*.
 - **Device ID** - Device identifier associated with the selected key pair. This field is *read-only*.
 - **Key Pair ID** - Identifier of selected key pair.
 - **Key Value (in Hex)** - Type a new hexadecimal key pair value, as needed.
 - **Hash Type** - Select the algorithm used by the selected key pair.
 - **ID Reader Type** - Select the type of ID reader associated with the selected key pair.
 - **Key Pair Expiry** - Select a new expire date and time.
3. Click **Save**.
 4. To edit the default key pair lifespan and manual key pair values, click **Options**.



- **Default Key Pair Lifespan** - Select or type the length of time that the key pair is valid. This value is used *only* if the Use Manual Key Values option is not selected.
- **Manual Key Values** - The Manual Key Values list defines key pair values used by RGS for various algorithms.

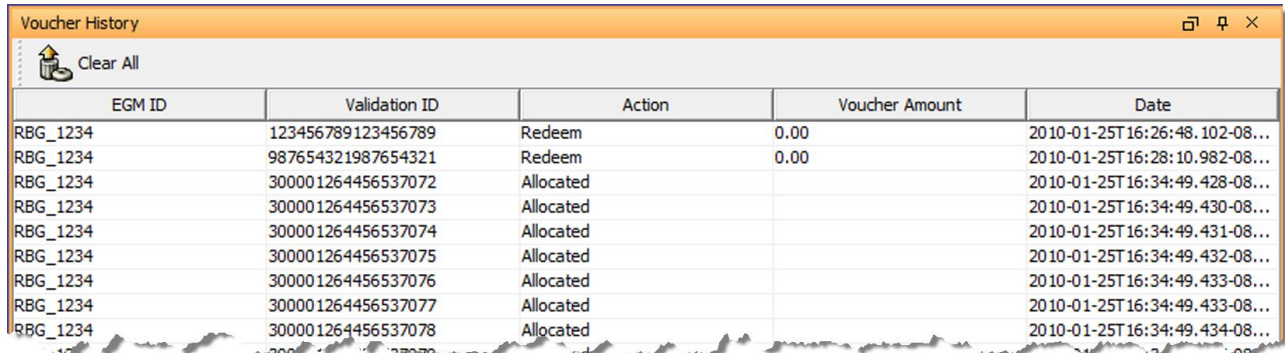
Warning! To modify a key value, click to highlight the value you want to change and then click **Edit**.



- **Hash Algorithm** - The algorithm selected for editing.
 - **Key Value (in Hex)** - The hexadecimal value for the selected algorithm.
 - **Key Pair Lifespan** - Select or type amount of time that the key pair will be valid.
 - **Use Manual Key Values** - Select this option to use the key pair values defined in the **Manual Key Values** list.
5. To remove key pairs that have expired, click **Delete All Key Pairs**.
 6. To remove key pairs that have expired *only*, click **Delete Only Expired Key Pairs**.

Viewing Voucher History

The Voucher History tab on the Databases tab displays vouchers as they are allocated, issued, redeemed and committed by RGS. This screen is useful for testing the voucher sequence on an EGM.



The screenshot shows a window titled "Voucher History" with a "Clear All" button and a table of transactions. The table has five columns: EGM ID, Validation ID, Action, Voucher Amount, and Date. The data shows a sequence of allocations and redemptions for EGM ID RBG_1234.

EGM ID	Validation ID	Action	Voucher Amount	Date
RBG_1234	123456789123456789	Redeem	0.00	2010-01-25T16:26:48.102-08...
RBG_1234	987654321987654321	Redeem	0.00	2010-01-25T16:28:10.982-08...
RBG_1234	300001264456537072	Allocated		2010-01-25T16:34:49.428-08...
RBG_1234	300001264456537073	Allocated		2010-01-25T16:34:49.430-08...
RBG_1234	300001264456537074	Allocated		2010-01-25T16:34:49.431-08...
RBG_1234	300001264456537075	Allocated		2010-01-25T16:34:49.432-08...
RBG_1234	300001264456537076	Allocated		2010-01-25T16:34:49.433-08...
RBG_1234	300001264456537077	Allocated		2010-01-25T16:34:49.433-08...
RBG_1234	300001264456537078	Allocated		2010-01-25T16:34:49.434-08...

A line is inserted into the Voucher History for each action taken on a voucher, reflecting each step in the voucher sequence.

- **EGM ID** - Unique identifier for EGM.
- **Validation ID** - Unique voucher identifier.
- **Action** - Action taken on voucher. Possible actions include:
 - **Allocated** - Indicates a `voucher.validationData` command was sent by RGS that included the specified voucher.
 - **Issue** - Indicates that a `voucher.issueVoucher` command received by RGS for the specified voucher.
 - **Redeem** - Indicates that a `voucher.redeemVoucher` command was received by RGS for the specified voucher.
 - **Commit** - Indicates that a `voucher.commitVoucher` command was received by RGS for the specified voucher.
- **Voucher Amount** - Current amount of voucher.
- **Date** - Date and time the action occurred.

About Schema Validation

By default, the tool validates all received G2S commands. There may be times, however, especially during the testing process, that you want the tool to reject or accept specific commands - whether they are valid or not - or disable schema validation completely.

[Schema validation management](#) is useful when you want to ignore specific commands, but continue with testing, or when you want to do regression testing.

To modify how specific commands are handled, you must first save the sample G2S validation manager XML file, which resides in the tool's installation directory, as a new **g2s-validation-manager.xml** file. This allows the file to be saved when the tool is uninstalled.

You can also [disable validation](#) completely. You may want to disable validation if:

- validation is affecting the tool's performance by using too much CPU.
- your EGM or host is in violation, but you cannot correct the issues immediately.

Second Validation

This attribute is designed to give you a second validation pass. G2S validator attribute (**second-pass-validation**) has been added to the **[install directory] >schemas > g2s > 2.1.0 >g2s-schema-metadata.xml**.

- True - (default) enables the G2S message to undergo a second validation pass - designed to detect syntax errors that are not found in the first validation pass attribute.
- False - disables the second validation pass. Disable if this process takes up CPU resources, or the EGM/host is in violation of the G2S schema and you are unable to fix your code.

```
<?xml version="1.0" encoding="UTF-8"?>
- <schema second-pass-validation="true" validation="true" nice="true" version="2.1.0">
  <loader classname="com.radblue.gsa.g2s.core.types.SchemaLoader"/>
  <source root-package="com.radblue.gsa.g2s"/>
  - <command-classpath>
    <classpath value="com.radblue.cvt.commands"/>
  </command-classpath>
  - <namespaces>
```

Customizing Schema Validation

When you customize the command validation for the tool's current schema, you are defining exceptions to the tool's default of validating all commands. To define these exceptions, you must edit the validation manager file, and save the file without the "-sample" extension into the schema directory used by the tool.

1. Go to: **[installation directory] > schemas > g2s > [schema directory]**
2. Right-click the **g2s-validation-manager-sample.xml** file, and select **Edit**.
3. Go to: **File > Save As**, and navigate to the directory of the schema you'll be using with the tool.
4. Change the file name to **g2s-validation-manager.xml**, and click **Save**.
5. Modify the command name, and add new command name attributes, as needed.

In the G2S validation manager file, there are two attributes:

- **command name**

The class and command name of the command you want to affect, using the notation: [class]. [command]

To affect all commands in a specific class, use an asterisk (*) to denote all commands. For example, the line

```
<command name=download.* state="ACCEPT" />
```

would instruct the tool to accept all download commands without validating them.

- **state**

The state attribute lets you define the action you want the tool to take for the specified command(s). Since the tool, by default, validates all commands, you want to define the exceptions. Your choices are:

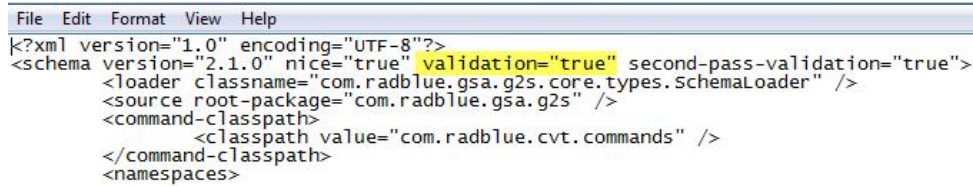
- **Accept** - The tool accepts the specified command without validating it. When a command is accepted without validation, the tool returns a `g2sAck` response command. Note that, if the command is not valid, the tool will take no further action.
- **Reject** - The tool rejects the specified command without validating it. When a command is rejected, the tool sends an `MSX004` (Incomplete/Malformed XML) error in the `g2sAck` response command.

6. Select **File**, and click **Save** to save your changes.
7. If the tool is running, stop it.
8. Start the tool. The tool now responds to the commands specified in the validation manager file as defined.

Disable Schema Validation

You can disable schema validation by changing an attribute in the **g2s-schema-metadata.xml** file.

1. Go to: **[installation directory] > schemas > g2s > [schema directory]**
2. Right-click the **g2s-schema-metadata.xml** file, and select **Edit**.



```
File Edit Format View Help
<?xml version="1.0" encoding="UTF-8"?>
<schema version="2.1.0" nice="true" validation="true" second-pass-validation="true">
  <loader classname="com.radblue.gsa.g2s.core.types.SchemaLoader" />
  <source root-package="com.radblue.gsa.g2s" />
  <command-classpath>
    <classpath value="com.radblue.cvt.commands" />
  </command-classpath>
</schema>
```

3. Change the *validation* attribute to **false** to disable validation.
4. Select **File**, and click **Save** to save your changes.
5. If the tool is running, stop it.
6. Start the tool. The tool no longer validates G2S commands as they are received.

About IGT Extensions

International Game Technologies (IGT) extensions are IGT-specific enhancements to the GSA protocols. If you are using version 1.1.0 of the G2S message protocol, see [extension document 1a2](#). If you are using version 2.1 of the G2S message protocol, IGT extensions are included in the main document set.

RGS supports IGT-specific protocol changes in the following classes:

- [Bonus](#)
- [Media Display](#)
- Player

This section explains how IGT protocol enhancements have been incorporated into RGS, allowing you to test functionality in your application specific to those enhancements.

About IGT Bonus Extensions

IGT bonus class extensions add Multiple Jackpot Timer (MJT) and Wager Match bonusing capability. You can send these awards through the IGT version of the `setBonusAward` command, using the RGS Send Command. This functionality is also available in the Multicast version of `setBonusAward`.

RGS supports the following bonus class commands with IGT extensions:

Bonus Command	Direction
<code>bonusAwardAck</code>	EGM-to-RGS
<code>bonusCommitStatus</code>	EGM-to-RGS
<code>bonusLogList</code>	EGM-to-RGS
<code>bonusProfile</code>	EGM-to-RGS
<code>bonusStatus</code>	EGM-to-RGS
<code>setBonusAward</code>	RGS-to-EGM
<code>setBonusAwardMulticast</code>	RGS-to-EGM

If a `setBonusAward` is received during a game cycle, it is used for the game in progress.

The bonus award is always paid at `gameEnd`.

If the `setBonusAward` amount exceeds the *displayLimit*, the bonus is rejected and:

- the EGM sends a `commitBonus` with a *bonusException* equal to 9 (Bonus Limit Exceeded).
- the EGM generates a `G2S_BNE105` (Bonus Award Failed) event.

Multiple Jackpot Timer (MJT)

The following events have been modified or created for MJT extensions:

- `G2S_BNE104`, Bonus Award Paid - Affected Device, Meters and Logs
- `G2S_BNE106`, Bonus Award Canceled - Affected Device, Logs
- `IGT_BNE001`, Bonus Mode Started - Affected Device, none
- The `G2S_BNE_103` event payload now includes Log Transaction instead of status.

Two meters have been added to the `G2S_BNE_104` event:

- `G2S_handPaidBonusNonWonAmt`
- `G2S_egmPaidBonusNonWonAmt`

Using IGT Bonus Extensions

The following instructions apply to both the **Bonus - Set Bonus Award (IGT)** and **Bonus - Set Bonus Award via Multicast (IGT)**.

1. From the **Send Command** layout, select **G2S_bonus** and double-click **Bonus- Set Bonus Award (IGT)** or **Bonus - Set Bonus Award via Multicast (IGT)**.

Send Command bonus.setBonusAward to G2S_bonus[1]

Send Command bonus.setBonusAward to G2S_bonus[1]

Basic MJT WM

Bonus Mode IGT_wagerMatchMode

Bonus ID 12,345,678

Bonus Award Amount 0

Credit Type G2S_cashable

Pay Method G2S_payCredit

Expire Credits false

Expire Date/Time Oct 31, 2011 4:41:11 PM

ID Restriction G2S_none

ID Reader Type G2S_none

ID Number 11111111

Player ID

Text Message Bonus Awarded!

Message Duration 00:01 [mm:ss]

Override Eligible Timer true

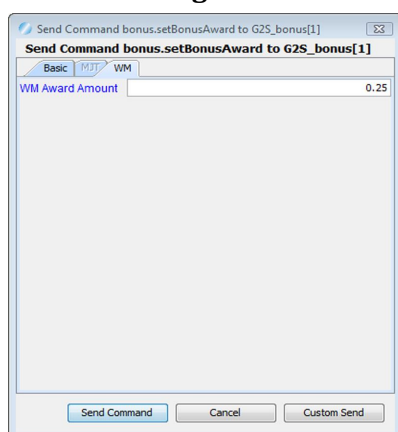
Send Command Cancel Custom Send

2. Set the **GSA bonus attributes** on the **Basic** tab.

Regardless of bonus award type, be sure to define the **Bonus ID**. Fields are **optional** unless otherwise noted. If you select **G2S_thisId** in the **ID Restriction** field, you must also enter either a **Player ID** or an **ID Number**.

- **Bonus Mode** - Click the drop-down arrow, and select the type of bonus you want to configure.
- **Bonus ID** - Enter a unique bonus identifier. *This field is required.*
- **Bonus Award Amount** - Enter the dollar amount of the bonus to be awarded. *This field is required.*
- **Credit Type** - Click the drop-down arrow to select whether the bonus will be awarded in cashable, non-cashable or promotional credits. If you choose non-cashable credits, you can optionally define an expiration for those credits through the **Expire Credits** and **Expire Date/Time** fields. *This field is required.*

- **Pay Method** - Click the drop-down arrow to select how the bonus will be paid. Select **G2S_payAny** if you want to allow the EGM to decide how to pay bonuses that cannot go to the credit meter or exceeds the defined large win amount.
 - **Expire Credits** - Click the drop-down arrow to select whether non-cashable bonus credits expire. The default is **false**.
 - **Expire Date/Time** - Enter the date and time that the non-cashable bonus award expires, or click the drop-down arrow and use the calendar to select a date and time. Note that the **Expire Credits** field must be set to **true** for this field to take effect.
 - **ID Restriction** - Click the drop-down arrow to select the player ID associated with the bonus award: no player ID (**G2S_none**), any player ID (**G2S_anyId**), or the identification number defined in the ID Number field (**G2S_thisId**).
 - **ID Reader Type** - Click the drop-down arrow to select the player identification reader type.
 - **ID Number** - Enter the player identification number.
 - **Player ID** - Enter the player account number.
 - **Text Message** - Enter the text message displayed on the player display when the bonus is awarded.
 - **Message Duration** - Enter the amount of time the message defined in the **Text Message** field will display on the player display.
 - **Override Eligible Timer** - Click the drop-down arrow, and select **false** to expire the *eligibleTimer* attribute. The bonus payment will fail in this case.
4. Click the **Bonus Mode** drop-down arrow to select the type of bonus you want to send.
 - a. To send a **Wager Match** award, select **IGT_wagerMatchMode** and then click the **WM** tab.



Enter the Wager Match award amount (**WM Award Amount**).

- b. To send a **Multiple Jackpot Timer (MJT)** award, select **IGT_mjtMode** and then click the **MJT** tab.

The screenshot shows a dialog box titled "Send Command bonus.setBonusAward to G2S_bonus[1]". It has four tabs: "Mode", "Basic", "W/M", and "MJT". The "MJT" tab is selected. The dialog contains the following fields and controls:

- Start Date/Time**: Mar 31, 2011 1:14:22 PM (dropdown)
- Stop Date/Time**: Mar 31, 2011 1:24:22 PM (dropdown)
- Number Of Games**: 5 (spin box)
- Timeout**: 00:00 [mm:ss] (spin box)
- Timeout Rule**: IGT_ignoreTimeout (dropdown)
- Win Multiplier**: 3 (spin box)
- Min Multi Win**: 0 (text field)
- Max Multi Win**: 10000000 (text field)
- Wager Restriction**: IGT_useCurrentBet (dropdown)
- Low Credit Reject**: false (dropdown)
- Card Out End**: false (dropdown)
- Cash Out End**: false (dropdown)
- Auto Play**: false (dropdown)

At the bottom, there are three buttons: "Send Command", "Cancel", and "Custom Send".

- **Start Date/Time** - Enter the date and time to start the MJT bonus period. If the start time is specified, the EGM delays entering bonus mode until the system time reaches the start time. If the specified start time has passed the EGM enters bonus mode immediately. The default is the date and time that the MJT tab becomes active.
- **Stop Date/Time** - Enter the date and time that the MJT bonus period ends. If this field is empty, it is ignored. Note that either **Stop Date/Time** or **Number Of Games** are required. By default, the **Stop Date/Time** is set to 10 minutes into the future from the start time.
- **Number Of Games** - Enter the number of games played to which the defined MJT applies.
- **Timeout** - Select the length of time to wait after the defined **Start Date/Time** before the MJT times out.
- **Timeout Rule** - Enter action EGM takes when a time-out occurs (for example, **IGT_ignoreTimeout**).
- **Win Multiplier** - Enter the number by which wins are multiplied. Note that the multiplier calculates the number entered minus one because the base award is counted as part of the multiplier number. For example, if the payable awards is \$5 for an MJT session, and the *winMultiplier* is 2, the *bonusPaidAmt* will be \$5 (not \$10 plus the base award).
- **Min Multi Win** - Select the minimum win that is eligible to be multiplied. A win less than this amount is not included in the bonus.

- **Max Multi Win** - Select the maximum win that is eligible to be multiplied. A win over this amount is not included in the bonus.
- **Wager Restriction** - Enter player wager limitations (for example, **IGT_useMaxBet**).
- **Low Credit Reject** - If set to **true**, the EGM rejects the MJT session if there is not enough credits on the credit meter to play the specified number of games.
- **Card Out End** - If set to **true**, the EGM ends the MJT session when the player card is removed.
- **Cash Out End** - If set to **true**, the EGM ends the MJT session when the credit meter reaches zero (0).
- **Auto Play** - If set to **true**, the EGM must auto-play for the specified time period or number of game plays.

5. Click **Send Command**.

About IGT Media Display Extensions

The `mediaDisplay` class allows host servers to access user interfaces (display windows) on an EGM.

The following commands are available on the Send Command tab, under `IGT_mediaDisplay`:

- Set Media Display State
- Load Content
- Release Content
- Set Media Display Lock Out
- Set Active Content Get Media Display Profile
- Get Media Display Status
- Show Media Display
- Get Content Log Status
- Get Content Status
- Hide Media Display
- Get Content Log

About the Media Display Content Files

RadBlue has configured two media files in RGS: both are installed with RGS:

- **PPmain_test-2.swf** - a sample SWF file
- **Asteroid_blaster.swf** - an asteroid blaster game

Both files are available for use with the [`mediaDisplay.loadContent`](#) command.

Using Media Player

From the Send Command layout, you can access all `mediaDisplay` class commands to send to RST or an EGM.

Display Content on the EGM's Media Display Device

1. Instruct the EGM to load a media display content file.

- From RGS, go to the **Send Command** object, and select **Current Devices > IGT_mediaDisplay**.
- From **Available Commands**, double-click **loadContent**.

General Options

- **Content ID** - Specify the ID that is used by the host to refer to a content file.
- **Media URI** - Click the drop-down arrow, and select a media file.
- **Media Display Access Token** - Specify the token value used by the EGM to refer to a content file.
- **Commands** - Commands between the EGM and media display device that are supported by the device. This information is from the device profile, defined in **smartegm-config.xml** (for the SmartEGM).
- **Events** - Events between the EGM and media display device that are supported by the device. This information is from the device profile, defined in **smartegm-config.xml**.
- Select which commands and events are available.
- Click **Send Command**.

2. Instruct the EGM to activate a content file.

- From **Available Commands**, double-click **setActiveContent**.
- Enter the **Transaction ID** and **Content ID** of the content you want to activate on the media display.

Note: The Transaction ID and the Content ID from the last content status response are the default value. If you are using the SmartEGM, a button is provided on the Flash player tab so you can easily discover the Transaction ID and Content ID of any loaded content file.

- Click **Send Command**.

3. Show the active content file on the EGM media display.

- From **Available Commands**, double-click **showMediaDisplay**.
- Click **Send Command**.

Hide Media Display Content on the EGM

1. From **Available Commands**, double-click **showMediaDisplay**.
2. Click **Send Command**.

Remove a Content File from the EGM's Loaded Content List

1. From **Available Commands**, double-click **releaseContent**.
2. Click **Send Command**.

About Informed Player

Informed Player is a messaging extension of the G2S message protocol. The intent of the informed Player class is to provide a mechanism for enforcing Informed Player regulations at an EGM.

The Informed Player message protocol, *G2S Message Protocol Extension 1G1 Game To System*, is available on the [GSA website](#).

From the Send Command layout, you can send five Informed Player commands:

- [getIpProfile](#)
- [getIpStatus](#)
- [setIpGameDelay](#)
- [setIpMessage](#)
- [setIpState](#)

To use Informed Player in RGS:

1. [Configure Informed Player in RGS](#).
2. [Configure Player Accounts for Informed Player](#).
3. [Send Informed Player commands](#).
4. [Review messages in the Transcript](#).

Configure Informed Player

You can modify Informed Player behavior through the Informed Player Options screen. Note that the default settings allow you to use Informed Player. Additional changes are optional, depending on your testing requirements.

1. From the toolbar, go to: **Tools > Configure > Engine Options> Message> Informed Player**
2. Modify the following options as required.
 - **No PINs Message** - Type the message to appear on the player display if there is no Personal Identification Number (PIN) associated with the player account.
 - **No ID Readers Message** - Type the message to appear in the player display if the EGM is not equipped with an ID reader device.
 - **Keep Alive Command** - Click the drop-down arrow, and select the command that is sent periodically to the EGM to keep the connection alive.
 - **Keep Alive Interval** - Type, in milliseconds, how often the Informed Player keep alive command is sent to the EGM. The default is **30000** milliseconds (30 seconds).
 - **Host Algorithm** - Click the drop-down arrow, and select one of the following algorithms to control the Informed Player class behavior. All of the algorithms act on the information sent in the `playerLog` element of the `G2S_IPE113 - Informed Player Session Update` command, which is sent whenever `wageredCashableAmt` reaches a multiple of the `sessionLimit`.
 - **Games Played** - This algorithm limits game play by monitoring the total number of games played during the session.
 - **Minimal** - In this minimal algorithm, the user must manually send all of the Informed Player messages through the Send Command (except the keep alive command).
 - **Money Lost** - This algorithm limits game play by monitoring the amount of money lost during the session. Money Lost is `wageredCashableAmt` minus all EGM paid and Hand paid Wins.
 - **Money Wagered** - This algorithm limits game play by monitoring money wagered during the session (`wageredCashableAmt`).
 - **Set State Percentage** - When the player's balance (based on the selected algorithm) reaches this percentage of the Balance Limit for the player, a `setIpState` command is sent to the EGM to adjust the session limit to the value in the next parameter. Type **0** to disable this option. The default is **75**.
 - **Set State Session Limit** - Type the new session limit amount to send in the `setIpState` command, when the player's balance reaches the value defined above. This is used to increase

the frequency of the `IPe113` events to more carefully monitor the player as they get close to their limit.

- **Set Game Delay Percentage** - When the player's balance (based on the selected algorithm) reaches this percentage of the balance limit for the player, a `setIpGameDelay` command is sent to slow the rate of game play, using the values in the player's database record. Type **0** to disable this option. The default is **90**.
2. Click **Apply**.
 3. Click **OK** to close the Configuration screen.

Configure Informed Player for a Player Account

An Informed Player tab on the Player Editor lets you configure Informed Player attributes for player accounts. To add Informed Player to a player account:

1. Go to: **Databases > Player Database**.
2. Click to select a player account.
3. Click **Edit Player**.
4. Click **Informed Player**.
5. Modify the following Informed Player **General** attributes as needed.
 - **ID Number** - Identifier for player account.
 - **Required Devices** - Type the number of required authentication devices to allow game play for this player. The default is **1**.
 - **Player Message** - Type the message that appears on the player display when a session starts. An empty field disables the player message.
 - **Excluded?** - Click the drop-down arrow, and select true to exclude the player from playing any games or false to allow the player to play games on the EGM. The default is **false**.
 - **Game Play Enabled?** - Click the drop-down arrow, and select whether game play is enabled for the player (**true**) or not (**false**).
 - **Money In Enabled?** - Click the drop-down arrow, and select whether the EGM can accept money from this player (**true**) or not (**false**).
 - **Current Session Limit** - Type, in dollars, the initial session limit for the player. The *sessionLimit* attribute is sent in the `setIpState` command and determines the frequency with which the `G2S_IPE113 - Informed Player Session Update` event is sent to the EGM. If set to 0, no `G2S_IPE113` events are sent. The default is **\$10.00**, meaning the `G2S_IPE113` event is sent whenever the `wageredCashableAmt` increases by ten dollars.
 - **Balance Limit** - Type, in dollars, the total value the player can achieve during a session. For the **Money Lost** and **Money Wagered** Host Algorithms, this value is in dollars; for the **Games Played** Host Algorithm, this value represents the total number of games that can be played. The default value is **100.00**.
 - **Game Delay Value** - Type, in milliseconds, the amount of time game play is delayed when the Set Game Delay percentage is reached. This value is not used when the Host Algorithm option is **Minimal**. The default is **500**.
 - **Game Delay Count** - Type the number of games to delay once the delay period has started. A value of **zero (0)** disables the game delay count. The default is **3**.

- **Is PIN Required?** - Click the drop-down arrow, and select whether a Personal Identification Number (PIN) is required for game play, for this player. The default is **true**.
6. Change the card reader password by selecting **G2S_magCard** from the **Required Device List** and clicking **Edit**.
 7. Type a new password, and click **Save**.
 8. Add a new ID reader device by going to the **Required Device List** and clicking **Add**.
 9. Click the **ID Reader Type** drop-down arrow, and select the ID reader type you want to add.
 10. Type a password for the new ID reader.
 11. Click **Save**.

Send Informed Player Commands

All host-initiated Informed Player commands can be sent from the Send Command layout. The Send Command layout contains the Send Command object and the Transcript object so you can see the dialogue between RGS and an EGM when a selected message is sent to the EGM.

You can configure command attributes where applicable through the command dialog or you can customize any command in one of three ways:

1. [Send a Command with Custom Content](#) - Use the Send Custom options, located on each command dialog box, to edit command XML through a text viewer before sending.
2. [Send a Custom Command](#) - Use the Send My Command option to send a custom command that is automatically wrapped with valid G2S information.
3. [Send Raw XML to an EGM](#) - Use the Send Raw XML option to send any content over a G2S connection.

getIpProfile

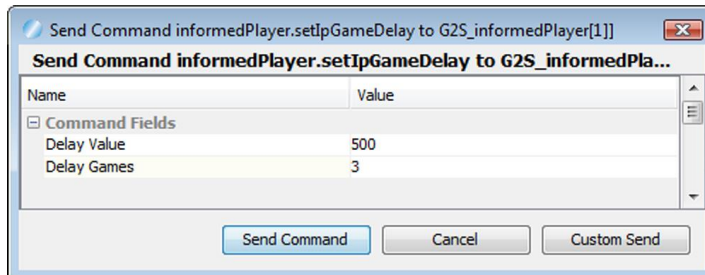
The `getIpProfile` command requests current Informed Player option settings from the EGM. Since there are no configurable attributes for this command, click **Send Command** to send the request.

getIpStatus

The `getIpStatus` command requests the current Informed Player status (for example, *hostEnable*, *moneyInEnabled* and *gamePlayEnabled*) from the EGM. Since there are no configurable attributes for this command, click **Send Command** to send the request.

setIpGameDelay

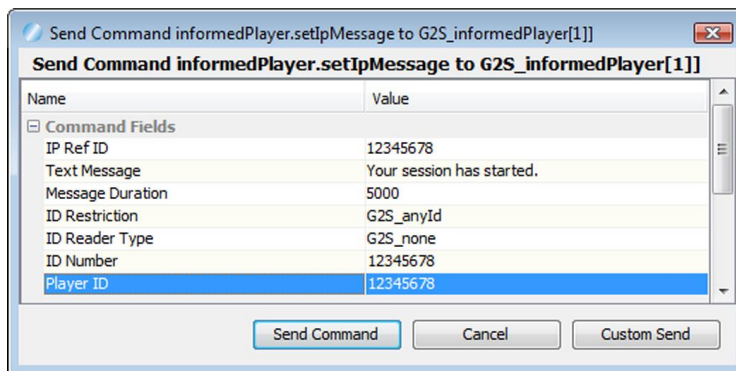
The `setIpGameDelay` command requests that the EGM initiate game delay.



1. Configure the `setIpGameDelay` command attributes as required.
 - **Delay Value** - Type the delay, in milliseconds, before a game cycle ends. The default is **500**.
 - **Delay Games** - Type the number games that the delay is in effect. The default is **5**.
2. Click **Send Command**.

setIpMessage

The `setIpMessage` command lets you send a message to an EGM player display. You can choose to send the message to any player or a specific player.



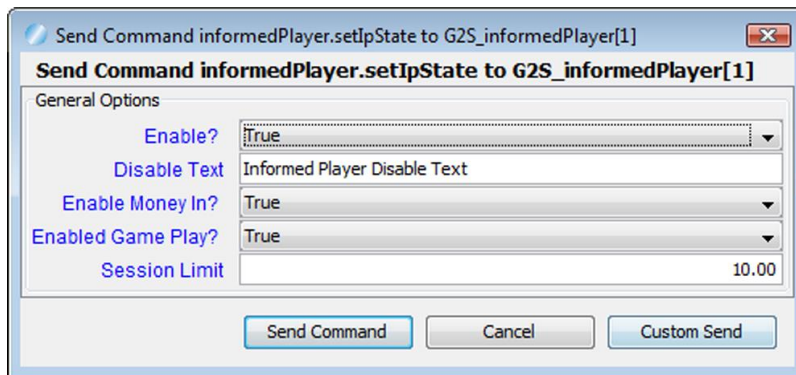
1. Configure the `setIpMessage` command attributes as required.
 - **IP Ref ID** - Informed Player reference identifier. A reference number is automatically generated by RGS. However, you can use any number for this *required* field.
 - **Text Message** - Type the message to be sent to the player.
 - **Message Duration** - Type the amount of time, in milliseconds, the message displays to the player.
 - **ID Restriction** - Type **G2S_none** if no ID required, **G2S_anyId** if a non-specific ID is required or **G2S_thisId** if a specific ID is required. The default is **G2S_none**.

- **ID Reader Type** - Type the ID reader identifier. Your choices are: G2S_magCard, G2S_proxCard, G2S_fingerScan, G2S_retinaScan, G2S_smartCard, G2S_barCode, G2S_keypad, G2S_hollerith and G2S_none. The default is **G2S_none**.
- **ID Number** - Type an identifier for the player that is zero (0) to 32 characters in length.
- **Player ID** - Type the host-assigned player identifier (0-16 characters), which is associated with the ID number and ID reader type.

2. Click **Send Command**.

setIpState

The `setIpState` command enables and disables the Informed Player device on the EGM.



1. Configure the `setIpState` command attributes as required.
 - **Enable?** - Click the drop-down arrow, and select whether the Informed Player device on the EGM is enabled (**true**) or disabled (**false**).
 - **Disable Text** - Type the text that displays to the player on the player interface when Informed Player is disabled.
 - **Enable Money In?** - Click the drop-down arrow, and select whether the EGM should allow money in (**true**) or not (**false**).
 - **Enable Game Play?** - Click the drop-down arrow, and select whether the EGM allows the player to initiate new games (**true**) or not (**false**).
 - **Session Limit** - Type, in dollars, the initial session limit for the player. The *sessionLimit* attribute determines the frequency with which the `G2S_IPE113 - Informed Player Session Update` event is sent to the EGM. If set to **0**, no `G2S_IPE113` events are sent. The default is **\$10.00**.
2. Click **Send Command**.

About the RadBlue Smart Card Implementation

Since implementation of the smart card class requires the use of a proprietary Smart Card Application Protocol (SCAP), RadBlue has implemented the smart card class with its own version of a SCAP. This implementation demonstrates the smart card class between RST and RGS. Also, depending on your host or EGM implementation, there are three ways that you can use the RadBlue smart card:

1. RGS can be the smart card device owner if the EGM does not support SCAP.
2. RGS can be a guest of the smart card device if the EGM supports a proprietary SCAP implementation.*
3. If the host supports no SCAP, RST can be used as the EGM.

Your proprietary SCAP can be implemented in the tools as a custom project. [Contact RadBlue](#) for more information.

If you do not have RGS or RST, you can [request a free student license](#). These two products communicate with each other by default, so set up and configuration is minimal.

*The Smart Card Editor in RGS (accessed through **Send Command > hostmsg**) can only be used when RGS is communicating with RST. Otherwise, when you send the `hostMsg` command, you are prompted for the ID number, hint and message data.

Smart Card in the Tester Toolkit

Smart card commands are available in Custom Scripting, the Startup Algorithm, the Response Manager and the Event Subscriptions component.

Track Changes to the Smart Card Device

The Data Model Viewer lets you view changes to the smart card device as well as compare smart card device options and meters at different points in a test.

Smart Card in the SmartEGM Configuration File

The SmartEGM configuration file in RST supports the smart card class. You can use the `smartegm-config-smart-card.xml` file that is installed with RST by default or you can add smart card information to a custom configuration file.

To change the SCAP used by RST, you must edit the **IGT_smartCardAppProtocol** value to the SCAP of your choice. The default value for the RadBlue SCAP implementation is **RBG_scap_v1**.

Finally, you can configure the ID reader device in the SmartEGM configuration file to self-validate an ID. If the `G2S_idValidMethod` parameter value for the ID reader device is `G2S_self`, the ID reader self-validates the ID and a `G2S_IDE101 Valid ID Presented` event is sent to the host. The SmartEGM validates the ID with the following information:

- **idFullName:** " "
- **idGender:** UNKNOWN
- **idLossLimit:** 0
- **idNumber:** card ID number
- **idPreferName:** " "
- **idValidSource:** SELF
- **localeId:** cabinetProfile.localId
- **playerId:** card ID number

Get RST and RGS Talking

1. Install RGS and RST on the same computer.
2. Launch both products from their respective desktop icons.
3. In RST, go to the SmartEGM layout, and click **Change SmartEGM Configuration**.
4. Select [smartegm-config-smart-card](#), and click **Open**.
5. Click the **Devices** subtab on the Main tab, and verify that the **IGT_smartcard** device is present.
6. Click **Start SmartEGM** in the SmartEGM Control section at the top of the layout.
7. Go to RGS, click the **Engine** layout, and verify that the **RBG** EGM is listed under **Connected EGM(s)**. This means that RGS and RST have established communications.

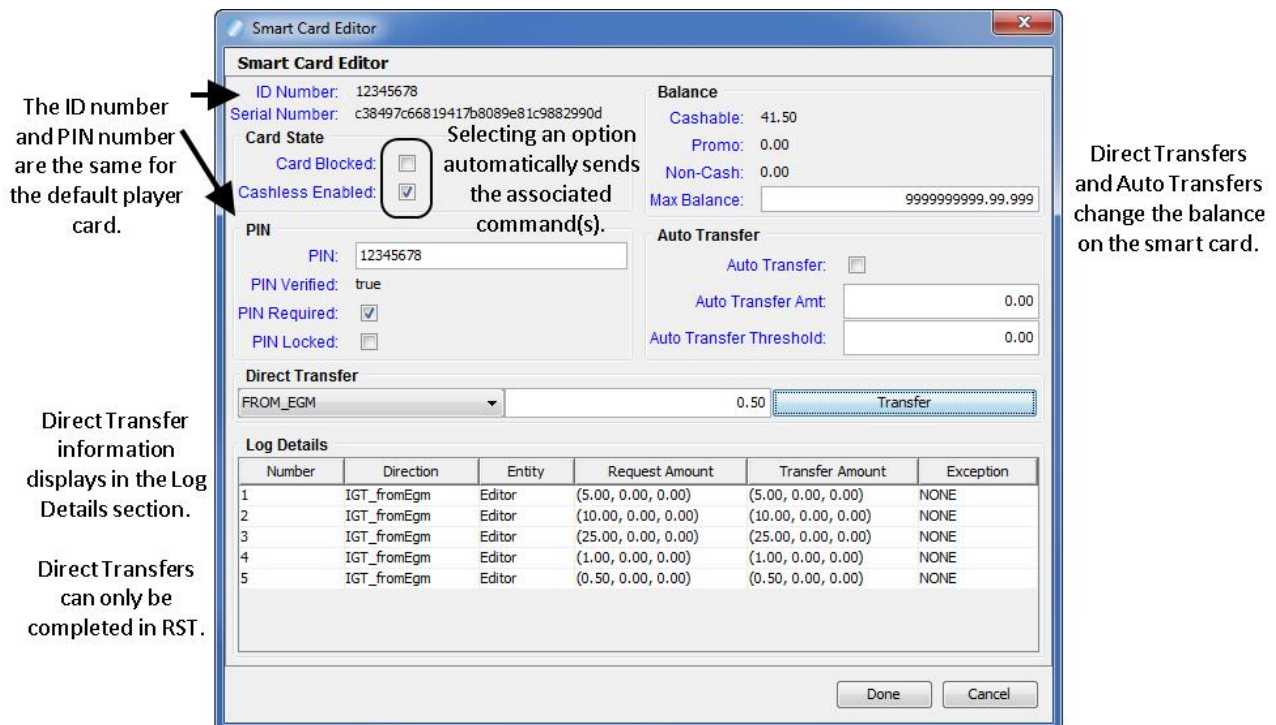
Insert the Smart Card

1. In RST, go to the **SmartEGM** layout, and select the **Player Verbs** tab.
2. Click the **Smart Card** bar to view smart card options.
3. Click **Insert ID**.
4. Type ID Number **12345678**, and click **Insert ID**.
5. Look at the Message Transcript in either RST or RGS. *RST generates IGT_SCE101 Smart Card Validated.*
6. Click **Enter PIN**.
7. Type Auth Code **12345678**, and click **Enter PIN**. By default, the PIN is the same as the card ID number.
 - *RST generates IGT_SCE104 Smart Card PIN Verified.*

How to Use the Smart Card Editor

The Smart Card Editor options let you generate smart card commands from either RST or RGS. In RST, the Smart Card Editor can be accessed from the **Smart Card** bar on the **Player Verbs** tab. In RGS, the Smart Card Editor can be accessed by going to **Send Command > IGT_smartCard > hostMsg**.

Note that the RGS Smart Card Editor can be used only when RGS is communicating with RST. If RST (or the EGM) is not using the default RadBlue SCAP, you do not see the RGS Smart Card Editor when you select the `hostMsg` command. Instead, you are prompted for the ID number, hint and message data.



Note the following when working with the editor:

1. **Actions on the Smart Card Editor panel are dynamic.**

There is no need to press **OK** to complete an action. For example, if you select **Card Blocked**, you immediately see the following commands in the Message Transcript:

Date Received	Message ID	From Location	To Location	Session Type	Session ID	Command ID	Summary
2013-11-25T10:57:21.114-08:00	31797	RBG_1234	Host ID 1	G2S_notification	4000340	67946	smartCard.smartCardMsg
2013-11-25T10:57:21.103-08:00	31795	Host ID 1	RBG_1234	G2S_notification	200179	491	smartCard.hostMsg
2013-11-25T10:57:21.095-08:00	31793	RBG_1234	Host ID 1	G2S_notification	4000339	67945	smartCard.smartCardMsg
2013-11-25T10:57:21.089-08:00	31791	Host ID 1	RBG_1234	G2S_notification	200178	490	smartCard.hostMsg
2013-11-25T10:57:21.060-08:00	31789	Host ID 1	RBG_1234	G2S_response	4000338	489	eventHandler.eventAck
2013-11-25T10:57:21.044-08:00	31787	RBG_1234	Host ID 1	G2S_request	4000338	67944	eventReport: IGT_SCE105 - Smart Card Blocked
2013-11-25T10:57:21.025-08:00	31785	RBG_1234	Host ID 1	G2S_notification	4000337	67943	smartCard.smartCardMsg
2013-11-25T10:57:21.014-08:00	31783	Host ID 1	RBG_1234	G2S_notification	200177	488	smartCard.hostMsg

2. **You *must* press "Enter" after you type information into some text input fields.**

This includes the PIN, Auto Transfer Amt and Auto Transfer Threshold fields. For example, from the RGS Smart Card Editor, select **Auto Transfer**. Then, type **20.00** in the **Auto Transfer Amt** field, and press **Enter**. You see the following commands in the Message Transcript:

Date Received	Message...	From Locat...	To Locat...	Session Type	Session...	Command...	Device	Summary
2013-11-25T11:23:16.638-0...	32097	RBG_1234	Host ID 1	G2S_notificat...	4000416	68022	smartCard[1]	smartCard.smartCardMsg
2013-11-25T11:23:16.628-0...	32095	Host ID 1	RBG_1234	G2S_notificat...	200199	565	smartCard[1]	smartCard.hostMsg
2013-11-25T11:23:16.621-0...	32093	RBG_1234	Host ID 1	G2S_notificat...	4000415	68021	smartCard[1]	smartCard.smartCardMsg
2013-11-25T11:23:16.613-0...	32091	Host ID 1	RBG_1234	G2S_notificat...	200198	564	smartCard[1]	smartCard.hostMsg
2013-11-25T11:23:16.598-0...	32089	Host ID 1	RBG_1234	G2S_response	4000414	563	eventHandler...	eventHandler.eventAck
2013-11-25T11:23:16.577-0...	32087	RBG_1234	Host ID 1	G2S_request	4000414	68020	eventHandler...	eventReport: IGT_SCE113 - Smart Card Status Changed
2013-11-25T11:23:16.544-0...	32085	RBG_1234	Host ID 1	G2S_notificat...	4000413	68019	smartCard[1]	smartCard.smartCardMsg
2013-11-25T11:23:16.531-0...	32083	Host ID 1	RBG_1234	G2S_notificat...	200197	562	smartCard[1]	smartCard.hostMsg
2013-11-25T11:23:07.582-0...	32081	RBG_1234	Host ID 1	G2S_notificat...	4000412	68018	smartCard[1]	smartCard.smartCardMsg
2013-11-25T11:23:07.573-0...	32079	Host ID 1	RBG_1234	G2S_notificat...	200196	561	smartCard[1]	smartCard.hostMsg
2013-11-25T11:23:07.565-0...	32077	RBG_1234	Host ID 1	G2S_notificat...	4000411	68017	smartCard[1]	smartCard.smartCardMsg
2013-11-25T11:23:07.557-0...	32075	Host ID 1	RBG_1234	G2S_notificat...	200195	560	smartCard[1]	smartCard.hostMsg
2013-11-25T11:23:07.530-0...	32073	Host ID 1	RBG_1234	G2S_response	4000410	559	eventHandler...	eventHandler.eventAck
2013-11-25T11:23:07.511-0...	32071	RBG_1234	Host ID 1	G2S_request	4000410	68016	eventHandler...	eventReport: IGT_SCE113 - Smart Card Status Changed
2013-11-25T11:23:07.498-0...	32069	RBG_1234	Host ID 1	G2S_notificat...	4000409	68015	smartCard[1]	smartCard.smartCardMsg
2013-11-25T11:23:07.483-0...	32067	Host ID 1	RBG_1234	G2S_notificat...	200194	558	smartCard[1]	smartCard.hostMsg

Notice that the Smart Card Editor in RST now reflects an **Auto Transfer Amt** of **20.00**.

3. **After you change the PIN, remove the smart card and re-insert it to use the new PIN.**
4. **If a PIN is required, the "PIN Verified" field must be "true" to transfer funds.**
5. **The Log Details section provides information on direct transfers *only*.**

Pre-Load Funds onto a Smart Card

You can pre-load funds onto the smart card through the Smart Card Editor in RST.

Note: While the fields described below are also available on the RGS Smart Card Editor, they are not functioning. **You cannot perform a direct transfer from RGS.**

1. In RST, go to **SmartEGM > Player Verbs > Smart Card > Modify Smart Card**.
2. If **PIN Required** is selected, verify that the **PIN Verified** value is **true**.
3. Click the **Direct Transfer** drop-down, and select **FROM_EGM**.
4. Type the dollar amount to be transferred onto the smart card. For this example, we typed **5.00**.
5. Click **Transfer**.

Smart Card Editor

ID Number: 12345678
Serial Number: f1ed9c5c95d94b4f005742024478b411

Card State
Card Blocked: ☐
Cashless Enabled: ☒

PIN
PIN: 12345678
PIN Verified: true
PIN Required: ☒
PIN Locked: ☐

Balance
Cashable: 35.00
Promo: 0.00
Non-Cash: 0.00
Max Balance: 999999999.99.999

Auto Transfer
Auto Transfer: ☐
Auto Transfer Amt: 0.00
Auto Transfer Threshold: 0.00

Direct Transfer
FROM_EGM 5.00 **Transfer**

Log Details

Number	Direction	Entity	Request Amount	Transfer Amount	Exception
1	IGT_fromEgm	Editor	(10.00, 0.00, 0.00)	(10.00, 0.00, 0.00)	NONE
2	IGT_fromEgm	Editor	(10.00, 0.00, 0.00)	(0.00, 0.00, 0.00)	CARD_NOT_NEGOTIABLE
3	IGT_toEgm	Editor	(10.00, 0.00, 0.00)	(0.00, 0.00, 0.00)	CARD_NOT_NEGOTIABLE
4	IGT_fromEgm	Editor	(10.00, 0.00, 0.00)	(10.00, 0.00, 0.00)	NONE
5	IGT_fromEgm	Editor	(10.00, 0.00, 0.00)	(10.00, 0.00, 0.00)	NONE
6	IGT_fromEgm	Editor	(5.00, 0.00, 0.00)	(5.00, 0.00, 0.00)	NONE

(Cashable, Promotional, Non-Cashable) Done Cancel

The amount transferred (in this case, 5.00) is added to the smart card balance and the transfer is recorded in the Log Details. Note that if a PIN is required, but has not been authenticated, a **Card Not Negotiable** error is logged and the transfer does not occur.

Auto-Transfer Smart Card Funds

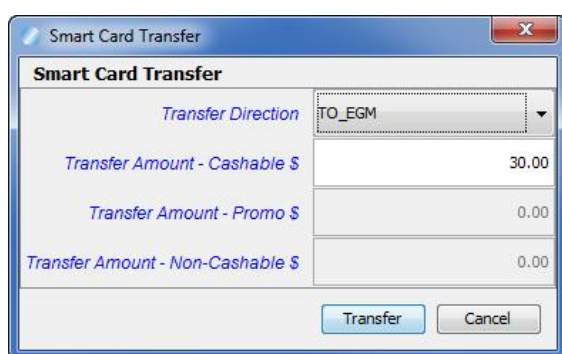
Generate the commands for an auto-transfer of funds by setting the amount and threshold through either RGS or RST. Then, simulate game play in RST.

1. In RST, go to **SmartEGM > Player Verbs > Smart Card**.
2. [Insert the smart card](#).
3. Add money to the RST credit meter.
 - a. Click **Insert Note(s)**.
 - b. Verify that the **Note Count** is **1**.
 - c. Click the **Note To Insert** drop-down, and select **\$10.00 USD**.
 - d. Notice that the Credit Meter's **Cashable** field now displays **10.00**.
4. Click **Modify Smart Card**.
5. Select **Auto Transfer** to enable the auto-transfer functionality.
6. Type the amount that you want to transfer (**Auto Transfer Amt**). For this example, we typed **10.00**.
7. Type the credit meter amount that triggers the auto-transfer (**Auto Transfer Threshold**). For this example, we typed **10.00**.
8. Click **Done** to close the editor.
9. Click **Play Simple Game**.
10. Set the following fields:
 - **Denom ID** - \$1.00 USD
 - **Cashable Wager** - 2
 - **Primary Win** - 1
11. Click **Play Game**.
12. Look at the Credit Meter's Cashable field. It should increment to **19.00** if the auto-transfer was successful.
13. Look at the [Message Transcript](#) to see the smart card commands for auto-transfers.

Transfer Smart Card Funds

The Transfer Funds option lets you move funds from the smart card to the EGM or from the EGM to the smart card.

1. In RST, go to the **SmartEGM** layout, and select the **Player Verbs** tab.
2. Click the **Smart Card** bar to view smart card options.
3. [Add \\$10.00 to the RST credit meter.](#)
4. [Add \\$30.00 to the smart card.](#)
4. Click **Transfer Funds**.



The image shows a 'Smart Card Transfer' dialog box. It has a title bar with a close button. Inside, there's a section titled 'Smart Card Transfer'. Below this, there's a 'Transfer Direction' label next to a drop-down menu showing 'TO_EGM'. Below that, there are three rows of input fields: 'Transfer Amount - Cashable \$' with a value of 30.00, 'Transfer Amount - Promo \$' with a value of 0.00, and 'Transfer Amount - Non-Cashable \$' with a value of 0.00. At the bottom, there are two buttons: 'Transfer' and 'Cancel'.

5. Click the **Transfer Direction** drop-down, and select to transfer smart card funds to the EGM (**TO EGM**) or to transfer EGM funds to the smart card (**FROM EGM**). For this example, we chose **TO EGM**.
6. The **Transfer Amount - Cashable \$** is the dollar amount of cashable funds available on either the smart card (if you select TO EGM) or the EGM (if you select FROM EGM). We chose **TO EGM**, so this field reflects the **Current Balance** of the smart card.
7. Click **Transfer**. The **Credit Meter** now displays a **Cashable** amount of **40.00**.

Add a Player Card with a Smart Card ID Reader Type

You can add a player card through the RGS Player Database with a `G2S_smartcard` ID reader type. Note that once you save the new player card record, you **cannot** edit the ID Reader Type value.

To add a player card with a Smart Card ID reader type:

1. In RGS, go to **Databases > Player Database**.
2. Click **Add Player**.
3. Click **ID Reader Type** the drop-down, and select **G2S_smartcard**.
4. Configure the player card as needed.
5. Click **Save**.

Run a Tiger Script with Smart Card

A Tiger script that uses smart card features is installed with RST. You can modify this script, if needed, but the default script does the following:

1. Inserts an ID (a smart card).
2. Inserts a \$1 note.
3. If the smart card is not negotiable, enters the smart card's PIN.
4. Transfers the player funds from the EGM to the smart card.
5. Removes the ID.

To load and run the smart card Tiger script:

1. In RST, select the **SmartEGM** layout.
2. Click the **Tiger Script** tab.
3. Click **Select Script**.
4. Select **smartegm-example-smart-card-001**, and click **Open**. The script loads into the script runner.
5. Click **Start Script**.

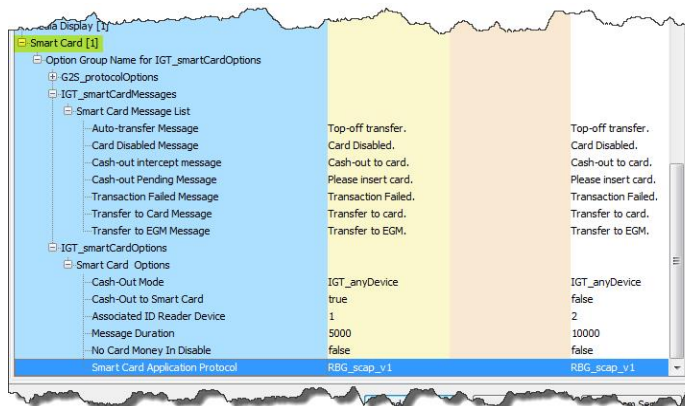
When the script completes, status information is displayed.

Change Smart Card Configuration Options

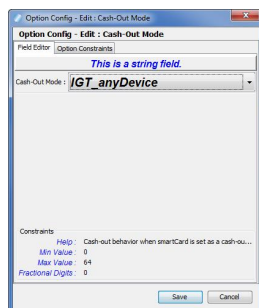
Edit smart card configuration options through the `optionConfig.setOptionChange` command in RGS. Note that some options, including the Smart Card Application Protocol option, are read-only. If RGS is communicating with RST, you can change the SCAP through the SmartEGM configuration file.

To modify smart card configuration options:

1. Go to the **Send Command** layout.
2. Select **G2S_optionConfig** from the Current Devices list, and double click the **setOptionChange** command.
3. Scroll to the **Smart Card** device you want to modify, and click the plus icon (+) to expand it.
4. Continue to drill down to the smart card configuration option(s) you want to change.



5. Double-click an option to edit it. For this example, we selected **Cash-Out Mode** under **Option Group Name for IGT_smartCardOptions > IGT_smartCardOptions > Smart Card Options**.



6. Click the **Cash-Out Mode** drop-down, and select **IGT_smartCardOnly**.
7. Click **Save**.
8. Click **Send Command**.

Send Smart Card Commands from RGS

You can send smart card commands from the RGS Send Command layout. The Message Transcript, located at the bottom of the Send Command layout, displays each message and the response from the RST.

The following smart card commands are available in RGS:

- `getSmartCardLog`
- `getSmartCardLogStatus`
- `getSmartCardProfile`
- `getSmartCardStatus`
- [`hostMsg`](#)
- `setSmartCardLockOut`
- `setSmartCardState`

See the [G2S Protocol document](#) for additional information on each of these commands.

Working with the Message Transcript

The Message Transcript lets you examine individual commands sent from, or received by, the tool. The data displayed is extracted directly from received G2S or S2S messages (depending on the protocol you are using).

Filtering options offer you a variety of ways to view information. Each instance of the transcript within the tool can be filtered differently.

At the top of the Transcript screen are several options:

- **EGM Selector** - Click the drop-down arrow, and select to view the transcript information for a specific EGM, all EGMs or multiple EGMs (CTRL+click).
- **[Load](#)** - Load transcript messages from the database so you can work with them through the user interface.
- **[Compare](#)** - View the details of any two messages side-by-side.
- **[Filters](#)** - This control allows you to select which commands are to be included on the display. Make any changes, and then press **OK** to have the tool update the display. This control currently resets when a new data set is loaded.
- **[Search Content](#)** - Search through the contents of all displayed messages in this transcript instance for the entered text pattern (case sensitive). Clicking on a row in the returned list gives you access to the HTTP header and message contents of the selected message.
- **[Set Comment](#)** - Adds a comment to the Comment column of the selected message.
- **[Clear Display](#)** - Clears the displayed messages in this instance of the transcript control.
- **[Clear Database](#)** - Clears all records of this type in the database for this instance of the tool.
- **[Analyze](#)** - *Available for G2S messaging only.* Provides a user-friendly summary of transcript messages.

The size limit of the Message Transcript file is 1 GB. Once the limit is reached, older records are purged.

A Note on Converting Time in the Message Transcript

If the tool receives a date/time with the seconds parsed greater than milliseconds, the time/date is truncated to milliseconds in the transcripts. For example:

The date/time `2013-04-30T08:03:46.1234567890-07:00`

displays as `2013-04-30T08:03:46.123-07:00` in the transcript.

You can view the longer date/time format on the **XML** tab of the [command object](#). To access the command object, double-click any message in the transcript.

Transcript Column Headers

The following columns are available in the transcript:

- **Command ID** - Command ID associated with message.
- **Comment** - Information entered by the user about a specific message. This field is *not* part of the actual message. Comments exist *only* in the tool in which they are entered.
- **Date Received** - Date and time message was received by the tool.
- **Device** - Class and identifier of device where the message is being sent to or from.
- **Event Code** - Code for associated event.
- **Event Date/Time** - Date and time that event was sent.
- **Event ID** - Identifier for associated event.
- **Event Text** - Description of associated event.
- **From Location** - Identifier of entity (for example, EGM or host) that sent the message.
- **Message ID** - Unique identifier associated with the message.
- **Session ID** - Session ID associated with message.
- **Session Type** - Indicates how the message should be processed: as a request, response or notification.
- **Summary** - Actual G2S or S2S command within the message. If more than one command is sent in a message, only the first command appears in the transcript. However, all commands with the message are displayed in the detail view, which you can access by double-clicking the message. For G2S_GPE112 (Game Ended) events, the outcome of game play (the *playResult* attribute) is shown in the Summary column in brackets (for example, **eventReport:G2S_GPE112 - Game Ended [Lost]**).
- **To Location** - Identifier of the intended target of the message.

You can slide the columns around to rearrange their order. To move a column header, left-click and hold while you move the column to its new location. You can also click any column to re-sort it, or use CTRL + left-click to sort on multiple columns.

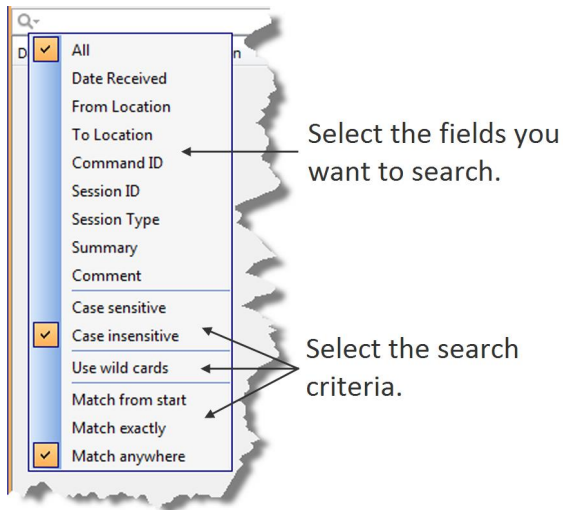
If you right-click on a column header, a menu displays that allows you to automatically resize one or all columns (based on the displayed data in the columns), as well as to indicate which columns you would like to display.

Clicking on any column header causes the data to be sorted using that header. Click once to sort the column in ascending order. Click a again to sort the column in descending order. The third click clears the sort.

If you want to sort on multiple columns, use the CTRL key when clicking the column headers.

Filter Transcript Messages Using the Quick Filter

Just below the Transcript options is a magnifying glass and entry field that allows you to filter messages based on entered data. To filter the displayed data, click inside the entry field and start typing. The displayed data is automatically filtered as you type.



Clicking on the magnifying glass gives you a menu that you can use to provide additional selection criteria.

This powerful tool allows you to immediately view any set of messages that you can imagine, limited only by the data displayed in the columns.

What Are You Looking for in the Transcript?

- *Are the correct commands being sent?*
For example, is the `commsOnline` command being sent during startup?
- *Are messages being acknowledged* (for example, with a `g2sAck` as well as a message acknowledgements?
- *Are there correct request-response pairs?*
For example, if a `communications.getDescriptor` command is sent (outbound), a corresponding `communications.descriptorList` command should be received (inbound). Note that the Session ID is the same for the request and response.

About Transcript Markers and Automated Comments in RGS

If you are using the RadBlue G2S Scope (RGS), Transcript markers and automated comments can help you quickly find specific types of information.

Automated comments are descriptions inserted into the Comments column of the Transcript when specific commands are sent from RGS. Commands that generate automated comments include:

- startup commands (Startup Command)
- Multicast Transport Protocol (MTP) Service commands (MTP Service)
- commands sent from the Tester Toolkit Custom Scripting feature (Custom Script: [script name])
- commands sent through the Send Command (Via Send Panel)

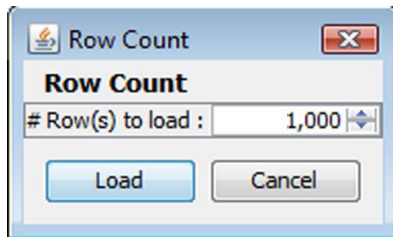
Transcript markers are Transcript entries that give you an exact date and time for a specific action. If you are using the optional Tester Toolkit module, Transcript markers are generated when a custom script is started and ended.

Load Messages into the Transcript

The Load option lets you display a pre-defined number of messages in the transcript.

If you are using RGS, be sure the EGM for which you want to view information is selected.

1. Click the **Transcript** tab on the **Transcripts** layout.
2. From the Transcript object, click **Load**.



3. Type the number of messages you want to display, and click **Load**.
The Transcript display populates with the requested number of messages.

Compare Messages in the Transcript

The Compare option lets you view the details of two messages, side-by-side. You can choose to view the message content in three different formats: in a user-friendly format, XML format, and XML format with the differences between the two messages highlighted in **red**.

The Compare option is available when you view the [Event Report](#) as well as in the main Message Transcript.

1. While holding down the CTRL key, click the two messages you want to compare.
2. Click **Compare**.

The selected messages display side-by-side, allowing you to scroll through the details of each message to compare them.

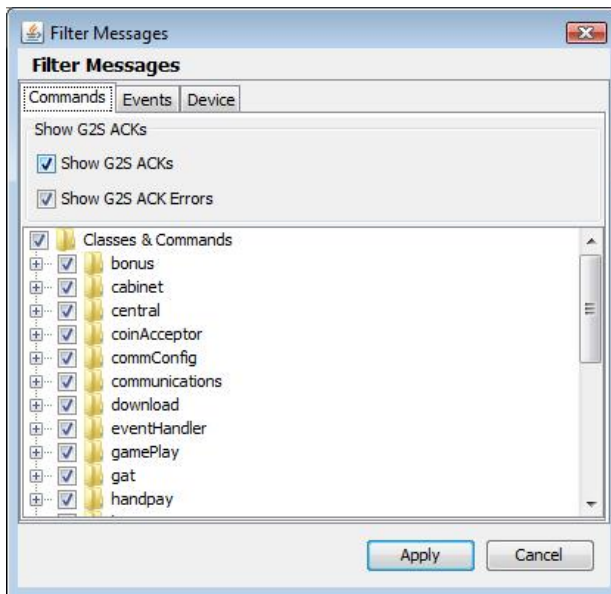
The **Command** tab displays command information in an easy-to-read format along with any meters.

4. Click **View XML** to view the XML for the messages.
5. Click **Diff** to view the XML with the changes highlighted in red.
6. Click **OK** to close the compare view.

Filter Messages in the Transcript

The Filters option in the Transcript lets you select the commands, events or devices you want to display in the transcript window. Use this option to narrow the transcript view to just the messages that interest you. The excluded data is not deleted from the transcript database; it is just not displayed and can always be included again.

1. Click the **Transcript** tab on the **Transcripts** layout.
2. Click **Filters**. The Filter Messages screen displays with three tabs: Commands, Events and Device.

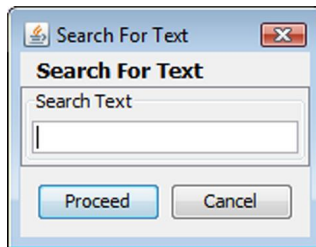


3. On each tab, select the check box of the commands, events and devices you want to display in the Transcript, and clear the check box of the commands, events and devices you want to hide.
By default, the `g2sAck` command is cleared (does not display).
4. Click **OK**.
Your changes take effect immediately.

Search the Content of Transcript Messages

The Search Content option lets you search transcript message content for keywords.

1. Click the **Transcript** tab on the **Transcripts** layout.
2. Click **Search Content**.



3. Type the keywords for your search, and click **Proceed**.
The **Transcript Search Results** screen displays all conforming messages.
4. To view the details of a message, double-click the message.
5. Click **Back** to close the Transcript Search Results window.

View Command Objects through the Transcript

A command object is a graphical representation of a command (as opposed to viewing the command in XML format). You can view command objects on the message details screen. List information for complex commands displays in tabs to the right of the command attributes. From the message details screen you can link to the `g2sAck` message, corresponding request-response pair command or to the associated SOAP message for any command. Attributes that are deprecated in G2S 2.1 display in a strike-through font (for example, ~~Enable Money Out~~). Comments associated with the message are displayed next to the Command and View XML tabs.

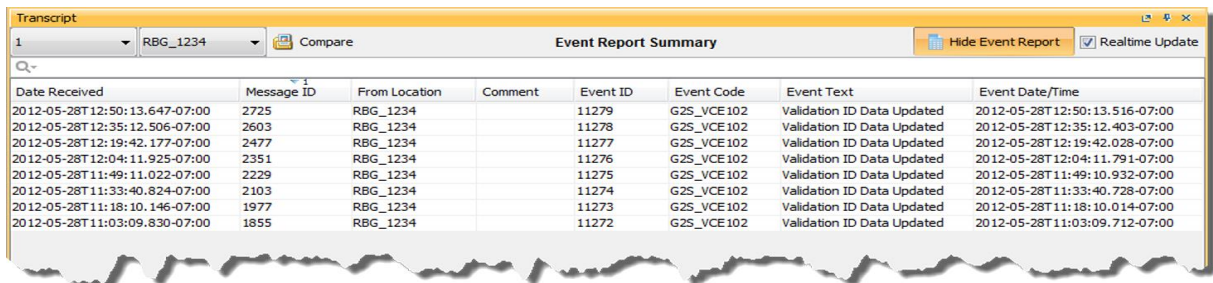
To display a message's command object:

1. Double-click the command you want to view.
2. Click the **Command** tab.
3. Click **Previous** and **Next** to navigate through the transcript list while in the message detail view.
4. Click **g2sAck** to view the corresponding acknowledgment to the selected command.
5. Click **Req-Resp** to view the corresponding command in the request-response pair.
6. Click **Transport Message** to view the command's associated SOAP message.
7. Click **OK** to return to the transcript.

View the Event Report

The Event Report displays all events sent and received by the tool. You can toggle between the Transcript view and the event view by clicking **Show/Hide Event Report**. The [Compare](#) option lets you compare two event messages.

1. Click the **Transcript** tab on the **Transcripts** layout.
2. Click **Show Event Report**.



The screenshot shows a window titled "Transcript" with a tab labeled "RBG_1234" and a "Compare" button. The main area is titled "Event Report Summary" and contains a table with the following data:

Date Received	Message ID	From Location	Comment	Event ID	Event Code	Event Text	Event Date/Time
2012-05-28T12:50:13.647-07:00	2725	RBG_1234		11279	G2S_VCE102	Validation ID Data Updated	2012-05-28T12:50:13.516-07:00
2012-05-28T12:35:12.506-07:00	2603	RBG_1234		11278	G2S_VCE102	Validation ID Data Updated	2012-05-28T12:35:12.403-07:00
2012-05-28T12:19:42.177-07:00	2477	RBG_1234		11277	G2S_VCE102	Validation ID Data Updated	2012-05-28T12:19:42.028-07:00
2012-05-28T12:04:11.925-07:00	2351	RBG_1234		11276	G2S_VCE102	Validation ID Data Updated	2012-05-28T12:04:11.791-07:00
2012-05-28T11:49:11.022-07:00	2229	RBG_1234		11275	G2S_VCE102	Validation ID Data Updated	2012-05-28T11:49:10.932-07:00
2012-05-28T11:33:40.824-07:00	2103	RBG_1234		11274	G2S_VCE102	Validation ID Data Updated	2012-05-28T11:33:40.728-07:00
2012-05-28T11:18:10.146-07:00	1977	RBG_1234		11273	G2S_VCE102	Validation ID Data Updated	2012-05-28T11:18:10.014-07:00
2012-05-28T11:03:09.830-07:00	1855	RBG_1234		11272	G2S_VCE102	Validation ID Data Updated	2012-05-28T11:03:09.712-07:00

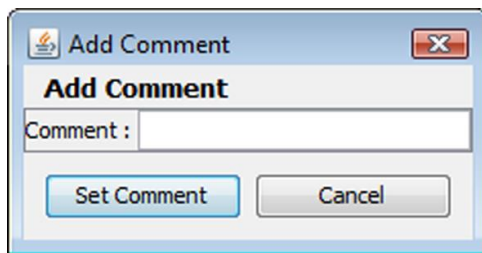
- **Date Received** - Date and time message was received by the tool.
 - **Event Code** - Code associated with event (for example, G2S_VCE102).
 - **Event Date/Time** - Date and time message was received by the tool.
 - **Event ID** - Event identifier.
 - **Event Text** - Text of associated event code (for example, Validation ID Data Updated).
 - **From Location** - Identifier of entity (for example, EGM or host) that sent the event.
 - **Message ID** - Message identifier.
3. Double-click any record to view the details of the message in which the event was sent.
 4. Click **OK** to close the message detail screen.
 5. Click **Hide Event Report** to return to the Transcript view.

Add a Comment to a Transcript Message

The Set Comment option lets you add a comment to any message in the transcript. Comments are part of the transcript only. Messages are not modified by comments.

Note: Comments associated with a message are displayed next to the Command and View XML tabs when you view the message details.

1. Single-click the message to highlight it.
2. Click **Set Comment**.



3. Type your comment, and click **Set Comment**.
The message is highlighted in blue, and the comment appears in the Comment field.

Export Message Content to Excel

The Export to Excel File right-click option lets you quickly export the content of a G2S command to a Microsoft Excel spreadsheet. The following G2S commands can be exported to Excel:

- **`communications.descriptorList`**

Exports all attributes for each supported device, sorted by device class and device ID.

- **`eventHandler.eventSubList`**

- **`eventHandler.setEventSub`**

- **`eventHandler.supportedEvents`**

If an event in the `eventHandler.supportedEvents` command does not contain the event text, the event text is added automatically if it is not included in the original message.

- **`meters.meterInfo`**

- **`optionConfig.optionList`**

To export message content to an Excel spreadsheet:

1. Click the **Transcript** tab on the **Transcripts** layout.
2. Click to highlight the command you want to export.
3. Right-click inside the selected record, and select **Export to Excel File**.
4. Type a name for the file.
5. Click **Save**.

A confirmation message displays with the number of records saved in the file.

6. Click **OK**.

Export Transcript Entries

The Export to Transcript File option lets you quickly export all or select Transcript entries for review. This file can then be imported into the RadBlue Analysis Suite (RAS) for further analysis.

This option is useful when an issue has been narrowed down to a limited set of commands. Rather than exporting a large set of troubleshooting data using the Export Debug option on the Debug tab, you can send only the specific command(s) involved in the issue.

You can import the Transcript file directly into RAS by using the Import option.

1. Click the **Transcript** tab on the **Transcripts** layout.
2. Select the Transcript records you want to export.
There are several ways to select records:
 - a. Click to select a single record.
 - b. CTRL+click to select multiple records.
 - c. SHIFT+click to select a block of records. Click once on the first record and once on the last record to highlight the entire block.
 - d. For another way to select a block of records, right-click and hold on the first row. Then, drag the cursor down the screen, highlighting each row as you go, until you come to the last row you want to export.
 - e. CTRL+a to select all Transcript records.
3. Right-click inside the Transcript, and select **Export to Transcript File**.
4. Type a name for the file.
5. Click the Files of Type drop-down arrow, and select either a **S2S Transcript (*.s2t)** or a **G2S Transcript (*.g2)** file extension. Your selection corresponds to the protocol you are using with the tool (either G2S or S2S).
6. Click **Save**.
A confirmation message displays with the number of records saved in the file.
7. Click **OK**.

Clear the Transcript Display

The Clear Display option lets you clear all transcript messages from the table. This option *does not* remove messages from the transcript database.

Click **Clear > Display** to remove all messages from the current view.

Clear the Transcript Database

The Clear Database option lets you remove all transcript records from the transcript database, clears transcript messages from the table and clears the EGM selector list. Note that this action cannot be undone.

1. Click **Clear > Database**.
2. Click **Yes** to remove all data from the transcript database, or click **No** to return to the transcript without clearing the database.

About the EGM Transcript Analysis Report

The EGM Transcript Analysis report provides information about messages that were sent from and received by the application for the period requested. The purpose of this report is to provide the user with a user-friendly summary of G2S messages.

The report is divided into several sections to assist your analysis of the information:

- [Transcript Summary](#) - Information related to the computer running the installed application.
- [Transcript](#) - Transaction log of sent and received G2S and S2S messages. G2S acknowledgements and, optionally, keepAlive messages are filtered out.
- [Sessions](#) - Transcript messages grouped by session ID.
- [Device Commands](#) - Transcript messages grouped by affected G2S device.
- [Device States](#) - Status of each device and any device status changes for the requested time period.
- [Events](#) - Events generated by the EGM.
- [G2S ACK Errors](#) - G2S acknowledgement messages containing errors.
- [Meters](#) - Meter values.
- [Messages](#) - G2S XML messages from the transcript.

The EGM Transcript Analysis report can be output to an HTML page or to an XML file.

Generate the Transcript Analysis Report

1. Click **Analyze**. If you are using the Advanced Transcript Analyzer feature, click the **Analyze** drop-down arrow and select **General**.
 - **EGM ID** (required) - *RGS only*. Type the identifier of the EGM on which you want to report. If you are using a RadBlue product other than RGS, this field does not display.
 - **Start Date** - Click the drop-down arrow to select the beginning date and time of the reporting period.
 - **End Date** - Click the drop-down arrow to select the ending date and time of the reporting period.
 - **Ignore keepAlives** - Select if you do not want to see `keepAlive` and `keepAliveAck` commands on your report.
 - **OutPut Options** - Select **Produce Transcript Report** to export the Transcript Analysis report directly to HTML, or select **Produce Transcript File** to export the Transcript Analysis report to an XML file. If you export the report to an XML file, you can accept the default output location or browse to the location of your choice.
2. Click **Start Analysis Process**.

Navigating the Transcript Analysis Report File

The top of the report contains links to each section.

- Click a link to move through the file.
- Click the browser's **Back** button to return to the previous location in the file.

Sample Transcript Report

Device Commands

The Device Commands section contains sent and received transcript messages grouped by individual G2S devices.

If Session ID numbers are reused, each row will contain all of the messages with the same Session ID. Currently, the report does not display legal pairs.

[bonus\[1\]](#)

Serial Number	Date/Time	Date/Time Sent	Direction	Command ID	Session ID	Session Type	Retry?	Device ID	Summary
42	2008-04-24T09:18:56:557-07:00	2008-04-24T09:18:56:542-07:00	INBOUND	831	711	G2S_request		bonus[1]	bonus.arknetStatus
43	2008-04-24T09:18:56:625-07:00	2008-04-24T09:18:56:625-07:00	OUTBOUND	2247	711	G2S_response		bonus[1]	bonus.bonusStatus
46	2008-04-24T09:18:56:732-07:00	2008-04-24T09:18:56:732-07:00	INBOUND	832	720	G2S_request		bonus[1]	bonus.arknetStatus
47	2008-04-24T09:18:56:760-07:00	2008-04-24T09:18:56:760-07:00	OUTBOUND	2248	720	G2S_response		bonus[1]	bonus.bonusStatus
50	2008-04-24T09:18:56:838-07:00	2008-04-24T09:18:56:838-07:00	INBOUND	833	722	G2S_request		bonus[1]	bonus.arknetStatus
51	2008-04-24T09:18:56:900-07:00	2008-04-24T09:18:56:900-07:00	OUTBOUND	2249	722	G2S_response		bonus[1]	bonus.bonusStatus

[cabinett528059076](#)

Serial Number	Date/Time	Date/Time Sent	Direction	Command ID	Session ID	Session Type	Retry?	Device ID	Summary
299	2008-04-24T09:19:09:007-07:00	2008-04-24T09:19:09:007-07:00	INBOUND	895	798	G2S_request		cabinett528059076	cabinett528059076
301	2008-04-24T09:19:09:069-07:00	2008-04-24T09:19:09:069-07:00	OUTBOUND	2312	798	G2S_response		cabinett528059076	cabinett528059076
303	2008-04-24T09:19:09:083-07:00	2008-04-24T09:19:09:083-07:00	INBOUND	896	799	G2S_request		cabinett528059076	cabinett528059076
305	2008-04-24T09:19:09:063-07:00	2008-04-24T09:19:09:063-07:00	OUTBOUND	2313	799	G2S_response		cabinett528059076	cabinett528059076
309	2008-04-24T09:19:10:135-07:00	2008-04-24T09:19:10:135-07:00	INBOUND	898	797	G2S_request		cabinett528059076	cabinett528059076
311	2008-04-24T09:19:10:197-07:00	2008-04-24T09:19:10:197-07:00	OUTBOUND	2314	797	G2S_response		cabinett528059076	cabinett528059076

Device States

Status of each device and any device status changes for the requested time period.

Events

The Events section displays information about events generated by the EGM.

Serial Number	Date Sent	Session ID	Event ID	Transaction ID	Event Device	Event Code	Event Text
1695	2008-04-25T12:05:13.759-07:00	400000	78	1	eventSubscriber[1]	G2S_EHE101	Event Subscription Changed

G2S ACKs That Have Errors

The G2S ACKs That Have Errors section shows G2S acknowledgement messages containing errors.

Serial Number	Error Code	Error Message
123	G2S_MSX003	Communications Not Online
125	G2S_MSX003	Communications Not Online
144	G2S_MSX003	Communications Not Online
146	G2S_MSX003	Communications Not Online
148	G2S_MSX003	Communications Not Online
150	G2S_MSX003	Communications Not Online
152	G2S_MSX003	Communications Not Online
154	G2S_MSX003	Communications Not Online

Messages

The Messages section displays the actual XML code for messages that appear in the transcript.

The report may rewrite the XML content while formatting this section of the report. In particular, the report may change the XML namespace prefix. However, the XML namespace URI is maintained. Note that unused namespace declarations may not be displayed.

[Message #1](#) communications commsOnLine

```
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<gls:glsMessage xmlns:gls="http://www.gamingstandards.com/gls/schemas/v1.0.3">
  <gls:glsBody gls:dateTimeSent="2008-04-24T09:18:52.853-07:00" gls:egmId="PBG_1234"
    gls:hostId="1">
    <gls:communications gls:commandId="1117" gls:dateTime="2008-04-24T09:18:52.853-07:00"
      gls:deviceId="1"
      gls:errorCode="G2S_none"
      gls:errorMessage=""
      gls:sessionId="4000001"
      gls:sessionNote="false"
      gls:sessionRetry="false"
      gls:sessionType="G2S_request"
      gls:timeToLive="30000">
      <gls:commsOnLine gls:deviceChanged="true" gls:deviceReset="true"
        gls:regLocation="http://localhost:38101/RST/api-services/G2SAPI"
        gls:equipmentType="G2S_ega"
        gls:metersReset="true"
        gls:subscriptionLost="true"/>
      </gls:communications>
    </gls:glsBody>
  </gls:glsMessage>
```

Meters

The Meters section shows the values of the following meters:

- PCA - Player Cashable Amount (G2S_playerCashableAmt)
- PPA - Player Promo Amount (G2S_playerPromoAmt)
- PNCA - Player Non-Cashable Amount (G2S_playerNonCashAmt)
- GSI - Games Since Initialization (G2S_gamesSinceInitCnt)

Note that this is not a comprehensive list of all possible meters.

Serial Number	Date Sent	Session ID	PCA	PPA	PNCA	GSI	
395	2008-04-25T13:15:17.131-07:00	1006	20.00.000	0.00.000	0.00.000	0	View Message
401	2008-04-25T13:16:18.165-07:00	1007	13.00.000	0.00.000	0.00.000	1	View Message

Sessions

The Sessions section groups sent and received messages. Messages appear in ascending order, by **Session ID**.

A Session ID is a number that is set by the sender of a request, which allows the response to be tied to the original request. While session ID numbers should increase, they don't have to - they must be unique for the number of outstanding messages.

Entries in red indicate incomplete sessions (either no response or too many responses) and are often errors.

Session ID	Messages
723	communications.getDescriptor communications.descriptorList
724	eventHandler.getEventHandlerStatus eventHandler.eventHandlerStatus
725	eventHandler.getSupportedEvents eventHandler.supportedEvents
726	eventHandler.getEventHandlerProfile eventHandler.eventHandlerProfile
727	eventHandler.getEventSub eventHandler.eventSubList
728	eventHandler.setEventHandlerState eventHandler.eventHandlerStatus
729	meters.getMeterSub meters.meterSubList
730	meters.getMeterSub meters.meterSubList
731	bonus.getBonusStatus bonus.bonusStatus

Transcript

The Transcript section shows sent and received messages. Note that since the date is from the G2S message (sent either by the EGM or the host), the date may be incorrect. There are a number of reasons why this occurs. For example:

- the PC clock is incorrect.
- the Network Time Protocol (NTP) is not functioning correctly.
- there are programming errors.

Serial Number	State: Time	State: Time Sent	Direction	Command ID	Session ID	Session Type: Reply?	Device ID	Summary
1	2008-04-24T09:18:52.853-07:00	2008-04-24T09:18:52.853-07:00	OUTBOUND	2007	8000000	G2S_request	communications.getDescriptor	communications.getDescriptor
2	2008-04-24T09:18:54.975-07:00	2008-04-24T09:18:54.963-07:00	INBOUND	821	8000001	G2S_response	communications.getDescriptor	communications.descriptorList
3	2008-04-24T09:18:55.403-07:00	2008-04-24T09:18:55.403-07:00	OUTBOUND	2008	8000002	G2S_request	communications.getDescriptor	communications.descriptorList
4	2008-04-24T09:18:55.525-07:00	2008-04-24T09:18:55.525-07:00	INBOUND	822	8000003	G2S_response	communications.getDescriptor	communications.descriptorList
5	2008-04-24T09:18:55.545-07:00	2008-04-24T09:18:55.545-07:00	INBOUND	823	8000004	G2S_request	communications.getDescriptor	communications.descriptorList
6	2008-04-24T09:18:55.565-07:00	2008-04-24T09:18:55.565-07:00	INBOUND	824	8000005	G2S_request	communications.getDescriptor	communications.descriptorList
7	2008-04-24T09:18:55.585-07:00	2008-04-24T09:18:55.585-07:00	INBOUND	825	8000006	G2S_request	communications.getDescriptor	communications.descriptorList
8	2008-04-24T09:18:55.605-07:00	2008-04-24T09:18:55.605-07:00	INBOUND	826	8000007	G2S_request	communications.getDescriptor	communications.descriptorList
9	2008-04-24T09:18:55.625-07:00	2008-04-24T09:18:55.625-07:00	INBOUND	827	8000008	G2S_request	communications.getDescriptor	communications.descriptorList
10	2008-04-24T09:18:55.645-07:00	2008-04-24T09:18:55.645-07:00	INBOUND	828	8000009	G2S_request	communications.getDescriptor	communications.descriptorList
11	2008-04-24T09:18:55.665-07:00	2008-04-24T09:18:55.665-07:00	INBOUND	829	8000010	G2S_request	communications.getDescriptor	communications.descriptorList
12	2008-04-24T09:18:55.685-07:00	2008-04-24T09:18:55.685-07:00	INBOUND	830	8000011	G2S_request	communications.getDescriptor	communications.descriptorList
13	2008-04-24T09:18:55.705-07:00	2008-04-24T09:18:55.705-07:00	INBOUND	831	8000012	G2S_request	communications.getDescriptor	communications.descriptorList
14	2008-04-24T09:18:55.725-07:00	2008-04-24T09:18:55.725-07:00	INBOUND	832	8000013	G2S_request	communications.getDescriptor	communications.descriptorList
15	2008-04-24T09:18:55.745-07:00	2008-04-24T09:18:55.745-07:00	INBOUND	833	8000014	G2S_request	communications.getDescriptor	communications.descriptorList
16	2008-04-24T09:18:55.765-07:00	2008-04-24T09:18:55.765-07:00	INBOUND	834	8000015	G2S_request	communications.getDescriptor	communications.descriptorList
17	2008-04-24T09:18:55.785-07:00	2008-04-24T09:18:55.785-07:00	INBOUND	835	8000016	G2S_request	communications.getDescriptor	communications.descriptorList
18	2008-04-24T09:18:55.805-07:00	2008-04-24T09:18:55.805-07:00	INBOUND	836	8000017	G2S_request	communications.getDescriptor	communications.descriptorList
19	2008-04-24T09:18:55.825-07:00	2008-04-24T09:18:55.825-07:00	INBOUND	837	8000018	G2S_request	communications.getDescriptor	communications.descriptorList
20	2008-04-24T09:18:55.845-07:00	2008-04-24T09:18:55.845-07:00	INBOUND	838	8000019	G2S_request	communications.getDescriptor	communications.descriptorList
21	2008-04-24T09:18:55.865-07:00	2008-04-24T09:18:55.865-07:00	INBOUND	839	8000020	G2S_request	communications.getDescriptor	communications.descriptorList
22	2008-04-24T09:18:55.885-07:00	2008-04-24T09:18:55.885-07:00	INBOUND	840	8000021	G2S_request	communications.getDescriptor	communications.descriptorList
23	2008-04-24T09:18:55.905-07:00	2008-04-24T09:18:55.905-07:00	INBOUND	841	8000022	G2S_request	communications.getDescriptor	communications.descriptorList
24	2008-04-24T09:18:55.925-07:00	2008-04-24T09:18:55.925-07:00	INBOUND	842	8000023	G2S_request	communications.getDescriptor	communications.descriptorList
25	2008-04-24T09:18:55.945-07:00	2008-04-24T09:18:55.945-07:00	INBOUND	843	8000024	G2S_request	communications.getDescriptor	communications.descriptorList
26	2008-04-24T09:18:55.965-07:00	2008-04-24T09:18:55.965-07:00	INBOUND	844	8000025	G2S_request	communications.getDescriptor	communications.descriptorList
27	2008-04-24T09:18:55.985-07:00	2008-04-24T09:18:55.985-07:00	INBOUND	845	8000026	G2S_request	communications.getDescriptor	communications.descriptorList
28	2008-04-24T09:18:56.005-07:00	2008-04-24T09:18:56.005-07:00	INBOUND	846	8000027	G2S_request	communications.getDescriptor	communications.descriptorList
29	2008-04-24T09:18:56.025-07:00	2008-04-24T09:18:56.025-07:00	INBOUND	847	8000028	G2S_request	communications.getDescriptor	communications.descriptorList
30	2008-04-24T09:18:56.045-07:00	2008-04-24T09:18:56.045-07:00	INBOUND	848	8000029	G2S_request	communications.getDescriptor	communications.descriptorList
31	2008-04-24T09:18:56.065-07:00	2008-04-24T09:18:56.065-07:00	INBOUND	849	8000030	G2S_request	communications.getDescriptor	communications.descriptorList
32	2008-04-24T09:18:56.085-07:00	2008-04-24T09:18:56.085-07:00	INBOUND	850	8000031	G2S_request	communications.getDescriptor	communications.descriptorList
33	2008-04-24T09:18:56.105-07:00	2008-04-24T09:18:56.105-07:00	INBOUND	851	8000032	G2S_request	communications.getDescriptor	communications.descriptorList
34	2008-04-24T09:18:56.125-07:00	2008-04-24T09:18:56.125-07:00	INBOUND	852	8000033	G2S_request	communications.getDescriptor	communications.descriptorList
35	2008-04-24T09:18:56.145-07:00	2008-04-24T09:18:56.145-07:00	INBOUND	853	8000034	G2S_request	communications.getDescriptor	communications.descriptorList

The **Serial Number** is assigned by the tool. This number corresponds to the order in which the message was received by the application. Use this value to compare the arrival order between any two messages.

The **Date/Time Sent** field is the date and time message that is sent to the host or EGM.

The **Date/Time** field is the date and time message was constructed.

The **Direction** is relative to the application. *Inbound* means a message that came from the other end. *Outbound* is a message that was generated by the application you ran the report from.

The **Retry?** column is blank for first attempts and filled in for retries. This column corresponds to the *sessionRetry* attribute in the G2S message.

Transcript Summary

The Transcript Summary section shows information related to the computer running the installed application.

EGM ID	
OS Architecture	x86
OS Name	Windows XP
OS Version	5.1
OS Patch Level	Service Pack 2
CPU List	pentium_pro+mmx pentium_pro pentium+mmx pentium 486 386 i86
MAC Addresses	• 00-0F-FE-95-8C-2C
Java Version	1.6.0
JVM Version	1.6.0-b105
Java Home	C:\Program Files\JST-1.1.14-igt\radblue\jre\jre
Username	radblue
Started On	2008-04-24T16:09:07.572-07:00

About the Advanced Transcript Analyzer

The Advanced Transcript Analyzer lets you easily verify that commands being sent by the EGM are semantically valid. Visual cues let you easily discern which events have errors. You can then quickly drill down to the message content level to view the issue.

The Advanced Transcript Analyzer validates:

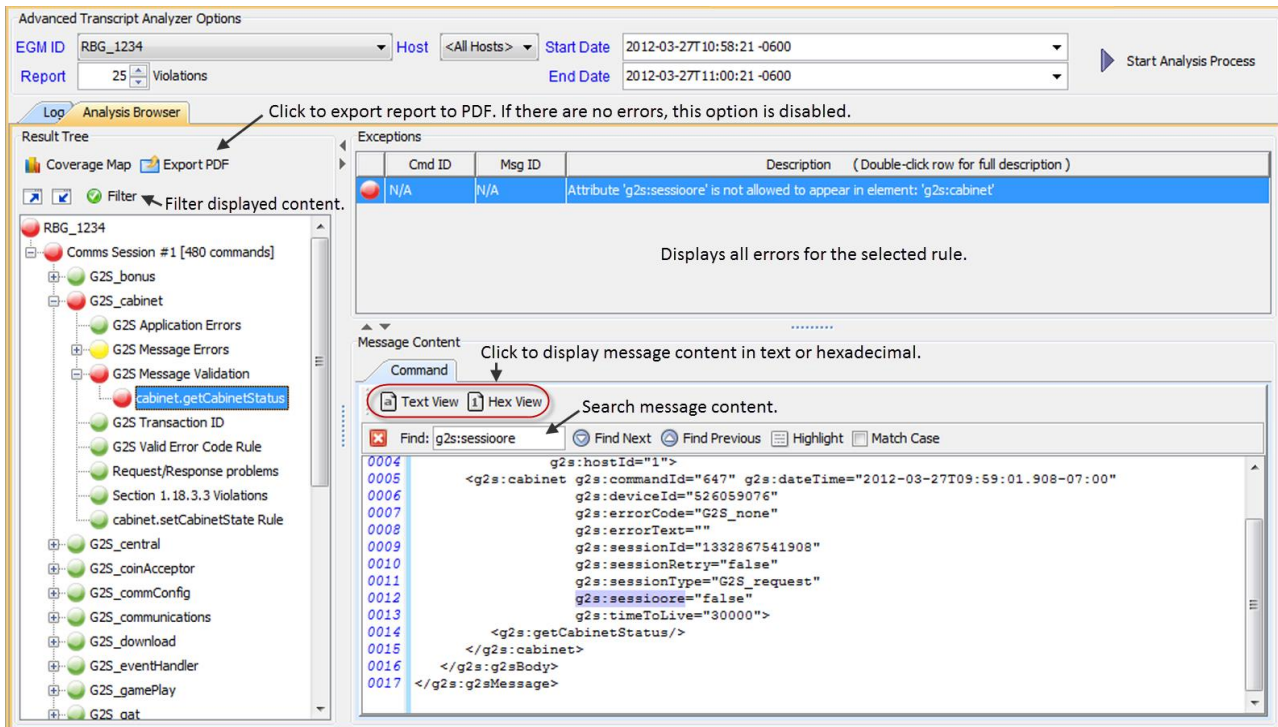
- the event subscription set by the EGM is accurate when compared to the subscription requested by the host.
- every `eventReport` command sent by the EGM to ensure that the EGM has included the associated data agreed upon in the event subscription phase.
- selected attributes in the `eventReport` command to ensure that they properly indicate state transitions as identified by the G2S protocol document.

The Advanced Transcript Analyzer makes it easy for EGM developers and testers to deliver high-quality G2S implementations - and we're continuing to add new areas of investigation (more "rules" to run against your G2S application) to give you the most comprehensive testing possible.

Note: The Advanced Transcript Analyzer is a separate RGS module and requires a special license. If you have purchased the Advanced Transcript Analyzer, but it does not appear on the Transcript layout (**Analyze > Advanced**), [contact us](#).

Review the Advanced Transcript Analyzer Layout

The Advanced Transcript Analyzer can be accessed by clicking **Analyze > Advanced** on the Transcript layout.



Errors and warnings are displayed in the **Results Tree** on the left-hand side of the screen. Click the plus sign to drill down to warnings and errors. To narrow the displayed results, click the **Filter** option and choose to display warnings and errors only or specific classes only.

When you click on a command with an error or warning, all violations associated with the command are displayed under **Exceptions**. Click an exception to display the message content, with the violation highlighted, in the **Message Content** section. The **Find** option lets you search the message content. Simply click inside the Find field and start typing.

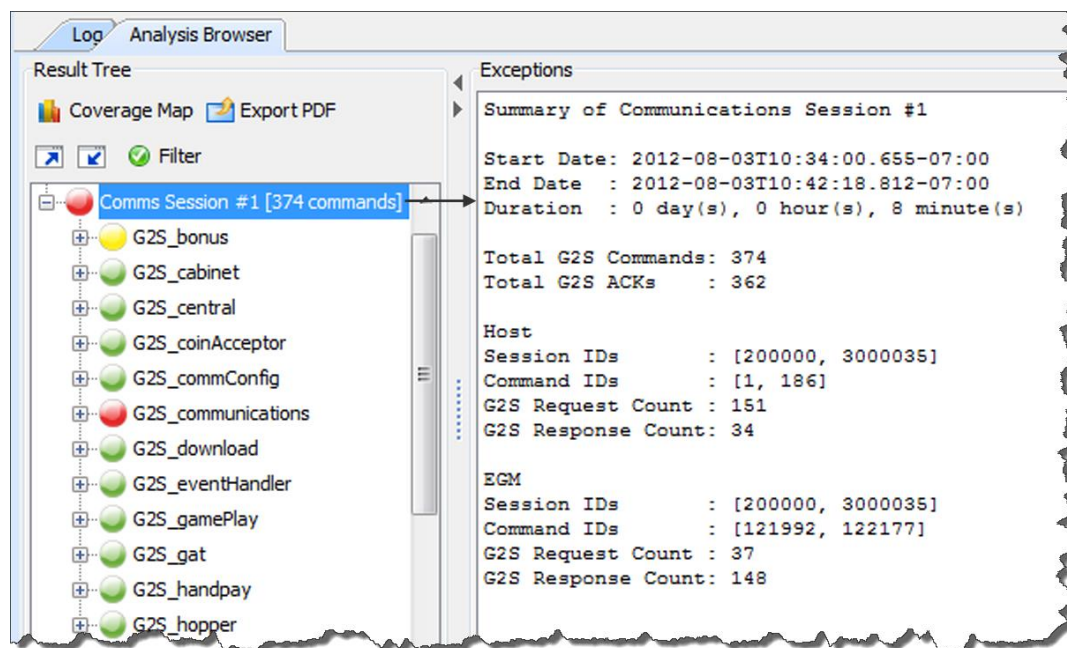
Get Started Analyzing Command Data

From the Transcript layout, click the **Analyze** drop-down arrow, and select **Advanced**.

1. Click the **EGM ID** drop-down arrow, and select the EGM data you want to analyze.
2. Click the Host drop-down arrow, and select the host data you want to analyze or select **All Hosts** to view all host data.
3. Click in the **Report** dialog box, and type or select the number of rule violations you want to view.
4. Select **Ignore keepAlives** if you do not want to include `keepAlive` commands in your analysis.
5. Enter the reporting period date and time in the **Start Date** and **End Date** fields. You can access a calendar to select the date and time by clicking the drop-down arrow. By default, the dates reflect the start and end of the Transcript. If you are using an older version of the Advanced Transcript Analyzer, the default will reflect the current date and time.
6. Click **Start Analysis Process**.

Errors are organized by communication sessions (**Comms Session**). A Comms Session is the period of time between two `commsOnline` commands. Comms Sessions that do not have any significant data do not appear in the Advanced Transcript Analyzer.

When you click to highlight a Comms Session, a summary of that Comms Session displays under Exceptions.



Under each **Comms Session**, errors are grouped by class and then by rules.

A colored status icon appears in front of each grouping to let you know if there are any errors in that group. The colors are defined as follows:

- **Green** - No errors or warnings. You're good to go.
- **Yellow** - Warning. One or more issues that are permissible in the schema, but may cause problems in your implementation.
- **Red** - Error. One or more G2S schema violations.
Look for red and yellow status icons. (If you only see green - Congratulations! Close the tool and take a well-deserved break.)

6. Double-click a red- or yellow-status **Comms Session** to expand it.

7. Double-click a red- or yellow-status class to expand it.

Note: The same error may appear more than once if it violates more than one rule.

8. Click a command to display those errors in the **Exceptions** section.

9. [Resize the Exceptions list](#) as needed by clicking and dragging the sizing bar at the bottom of the list.

10. Click any error in the **Exceptions** section.

The message in which the error occurs is displayed in the **Message Content** section directly below the Exceptions section. The issue within the message (for example, an invalid attribute value) is highlighted.

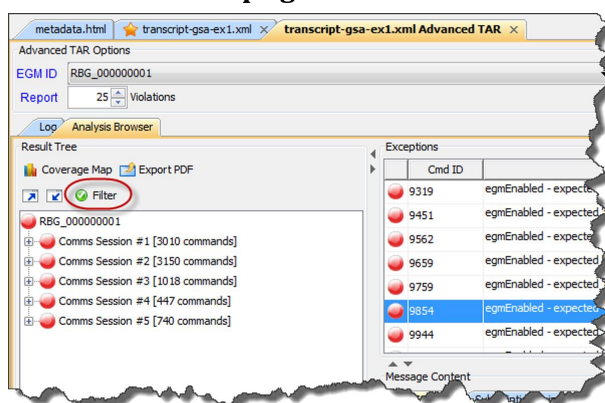
You can use the **Find** option to search for keywords and character strings in the message content. To use the Find option, click inside the **Find** text box, and start typing. Characters in the first matching instance are highlighted in the message content as you type.

- Click **Highlight** to highlight all matching characters.
- Use **Find Next** and **Find Previous** to move from match to match within the message content.
- Select **Match Case** to view only matches in title case as well as character.

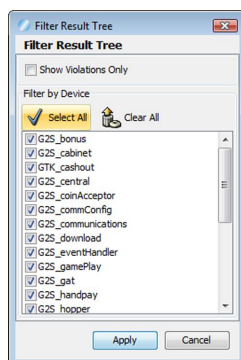
Filter Advanced Transcript Analysis Report

You can filter debug log data from the Advanced Transcript Analysis Report user interface through the Filter option. Choose to view only violations (errors and warnings) or all data for a specific class.

1. From the **transcript-gsa-ex1.xml Advanced TAR** tab, select the **Analysis Browser** tab.



2. Click **Filter**.

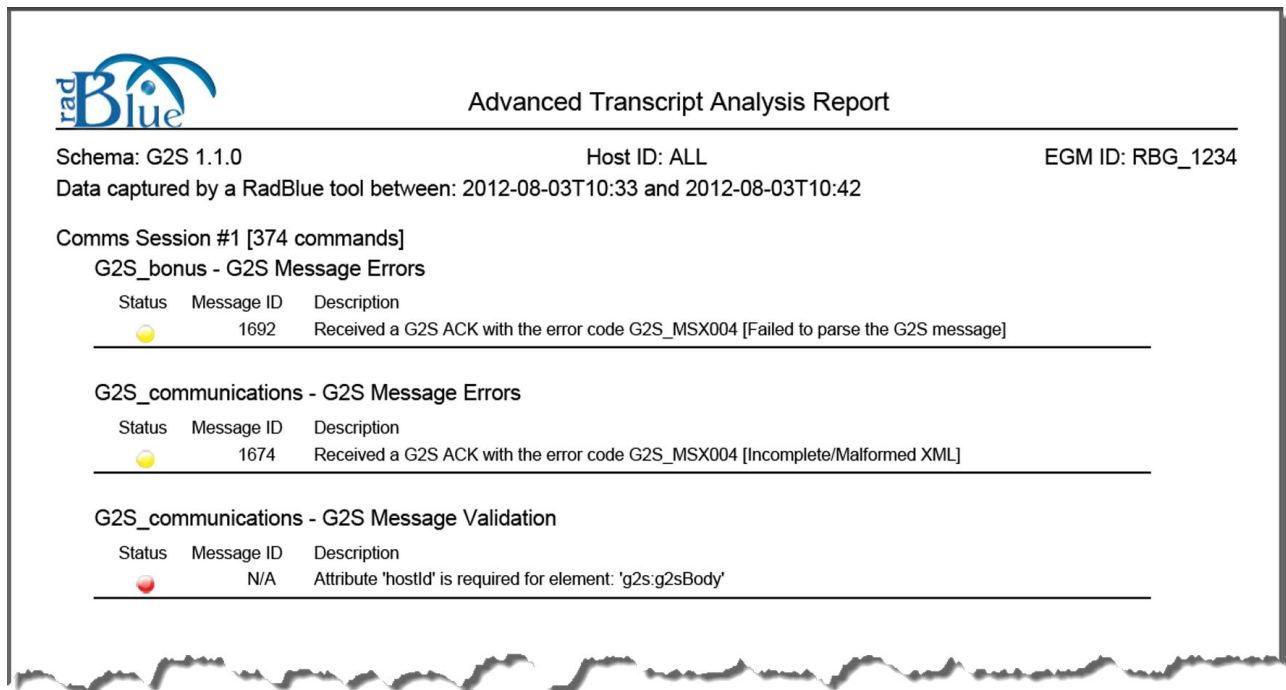





3. Modify the displayed data as required.
 - **Show Violations Only** - Select to display errors and warnings *only*.
 - **Filter by Device** - Select any class to display its data. To omit a class from display, clear its checkbox. By default, all classes are selected. Click **Select All** to select all classes or **Clear All** to clear all classes.
4. Click **Apply** to save and automatically apply your changes.

Generate a PDF of the Advanced Transcript Analysis Report

You can quickly generate a PDF file of all errors and warnings from the currently loaded debug log through the Advanced Transcript Analyzer interface. This option gives you a succinct overview of all issues and allows you to easily share your findings with others. You can choose to generate a report with all errors (complete) or a report that excludes duplicate errors (summary).

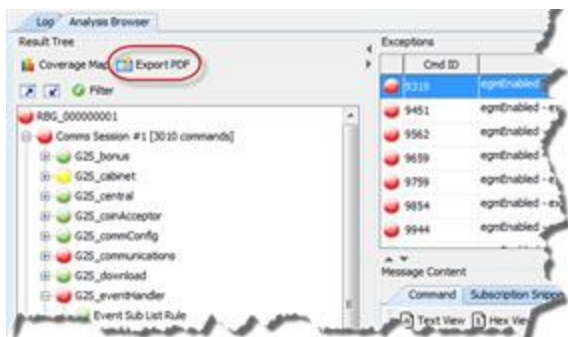
Note that any filters you apply to the Advanced Transcript Analyzer interface are reflected in the report.

A sample PDF report titled "Advanced Transcript Analysis Report" from RadBlue. The report includes metadata such as Schema (G2S 1.1.0), Host ID (ALL), and EGM ID (RBG_1234). It details data captured between 2012-08-03T10:33 and 2012-08-03T10:42. The report is organized into sections: "Comms Session #1 [374 commands]", "G2S_bonus - G2S Message Errors", "G2S_communications - G2S Message Errors", and "G2S_communications - G2S Message Validation". Each section contains a table with columns for Status, Message ID, and Description. The first two sections show error messages with yellow status icons, while the third shows a validation warning with a red status icon.

Advanced Transcript Analysis Report		
Schema: G2S 1.1.0	Host ID: ALL	EGM ID: RBG_1234
Data captured by a RadBlue tool between: 2012-08-03T10:33 and 2012-08-03T10:42		
Comms Session #1 [374 commands]		
G2S_bonus - G2S Message Errors		
Status	Message ID	Description
	1692	Received a G2S ACK with the error code G2S_MSX004 [Failed to parse the G2S message]
G2S_communications - G2S Message Errors		
Status	Message ID	Description
	1674	Received a G2S ACK with the error code G2S_MSX004 [Incomplete/Malformed XML]
G2S_communications - G2S Message Validation		
Status	Message ID	Description
	N/A	Attribute 'hostId' is required for element: 'g2s:g2sBody'

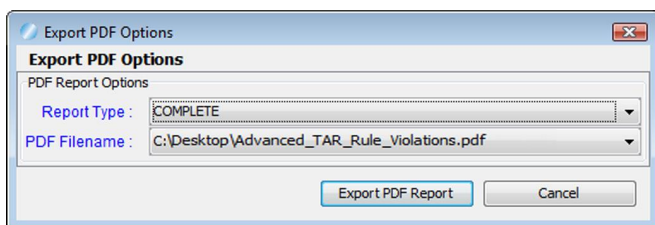
Sample Summary Report

1. From the Advanced Transcript Analyzer screen, select the **Analysis Browser** tab.

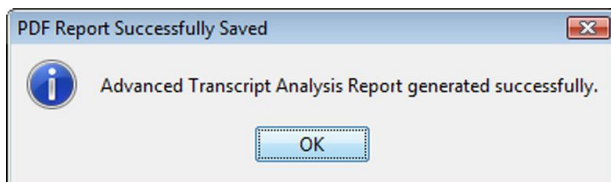


2. Under the **Result Tree**, click **Export PDF**.

Note: If there are no errors in the imported debug log, the **Export PDF** option is disabled.



3. Click the **Report Type** drop-down arrow, and choose whether to generate all errors, including duplicate errors (**COMPLETE**), or one incident, of each error type, per comms session (**SUMMARY**).
4. Click the **PDF Filename** drop-down arrow.
5. Navigate to the location you want the file output to, and type a new file name as needed.
6. Click **Open**.
7. Click **Export PDF Report**.

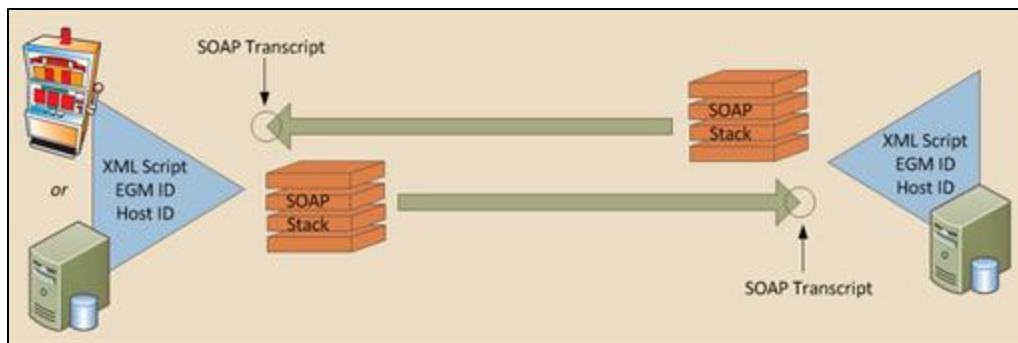


8. Click **OK**.

A PDF file with the name you entered is created in the specified location.

About SOAP Messages

Simple Object Access Protocol (SOAP) is an XML-based protocol for transporting information in a decentralized, distributed environment. A SOAP message consists of a mandatory SOAP envelope, an optional SOAP header, and a mandatory SOAP body. G2S or S2S message content is contained within the body.



SOAP message flow.

- **Envelope** - Top element of the XML document representing the message.
- **Header** - Generic mechanism for adding features to a SOAP message in a decentralized manner without prior agreement between the communicating parties. SOAP defines a few attributes that can be used to indicate who should deal with a feature and whether it is optional or mandatory.
- **Body** - Container for mandatory information intended for the ultimate recipient of the message. SOAP defines one element for the body, which is the Fault element used for reporting errors.

The SOAP Transcript lets you view SOAP-encapsulated messages as they come off the SOAP stack.

Working with the SOAP Transcript

The SOAP Transcript lets you view inbound SOAP-encapsulated messages as they come off the SOAP stack. Here, you can see details of the SOAP wrapper around the messages plus the messages themselves. Primarily, this transcript shows you how the endpoint (for example, an EGM or host) constructed the SOAP around the message. It is used to debug connection issues at startup. SOAP faults display in the SOAP Transcript and are noted in the Summary column as *SOAP Exceptions*.

The SOAP Transcript has several options that allow you to view SOAP information. Use the detail view to see the SOAP wrapper and the message it contains.

At the top of the SOAP Transcript screen are several options:

- **EGM Selector** - Click the drop-down and select the EGM for which you want to view SOAP Transcript information.
- **Search Content** - Search through the contents of all displayed messages in this transcript instance for the entered text pattern (case sensitive). Clicking on a row in the returned list gives you access to the HTTP header and message contents of the selected message. See [Search the Content of a SOAP Message](#).
- **Clear Display** - Clears the displayed messages in this instance of the Transcript. See [Clear the SOAP Transcript Display](#).
- **Clear DB** - Clears all records of this type in the database for this instance of the tool. See [Clear the SOAP Transcript Database](#).

The size limit of the SOAP Transcript is 4MB. If this limit is reached, messages beyond the limit are not stored in the transcript database, and an informational message displays in the [debug log](#).

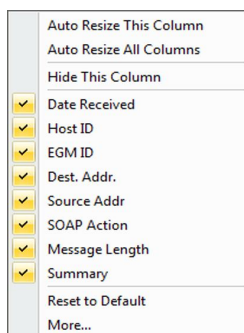
For more information on SOAP messages, see [About SOAP Messages](#).

SOAP Transcript Column Headers

The following columns are available in the SOAP Transcript:

- **Date Received** - Date and time message was received by the tool.
- **Host ID** - Unique identifier of the host.
- **EGM ID** - Unique identifier of the EGM.
- **Dest. Addr.** - Destination Address. URL of the application that the message is sent to.
- **Source Addr** - Source Address. URL of the application that the message was sent from.
- **SOAP Action** - HTTP header value from the SOAP message. If you are having an issue with the SOAP connection, look at the SOAP Action column and verify that the values are consistent with GSA guidelines.
- **Message Length** - Number of bytes in the SOAP message.
- **Summary** - Actual G2S or S2S command within the SOAP message. If more than one command is sent in a message, only the first command appears in the transcript. However, all commands with the message are displayed in the detail view, which you can access by double-clicking the message.

You can slide the columns around to rearrange their order. To move a column header, left-click and hold while you move the column to its new location. You can also click any column to re-sort it, or use CTRL + left-click to sort on multiple columns.



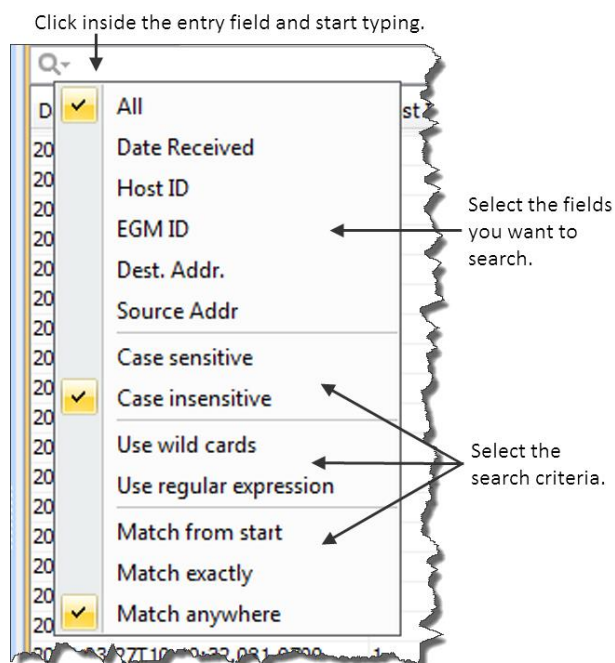
If you right-click on a column header, a menu displays that allows you to automatically resize one or all columns (based on the displayed data in the columns), as well as to indicate which columns you would like to display.

Clicking on any column header causes the data to be sorted using that header. Click once to sort the column in ascending order. Click a again to sort the column in descending order. The third click clears the sort.

If you want to sort on multiple columns, use the CTRL key when clicking the column headers.

Filter SOAP Transcript Messages Using the Quick Filter

Just below the SOAP Transcript options is a magnifying glass and entry field that allows you to filter messages based on entered data. To filter the displayed data, click inside the entry field and start typing. The displayed data is automatically filtered as you type.



Clicking on the magnifying glass gives you a menu that you can use to provide additional selection criteria.

This powerful tool allows you to immediately view any set of messages that you can imagine, limited only by the data displayed in the columns.

What Are You Looking for in the SOAP Transcript?

The SOAP Transcript lets you view SOAP-encapsulated messages, as they come off the SOAP stack. Primarily, this transcript shows you how the EGM, Central server or Edge server constructs the SOAP around the message. Use the detail view to see the SOAP wrapper and the message it contains.

Receive Real-Time Data in the SOAP Transcript

If you select Realtime Update, the screen updates dynamically as messages are processed by the tool. However, real-time updating may cause application slowdown.

View the Content of a SOAP Message

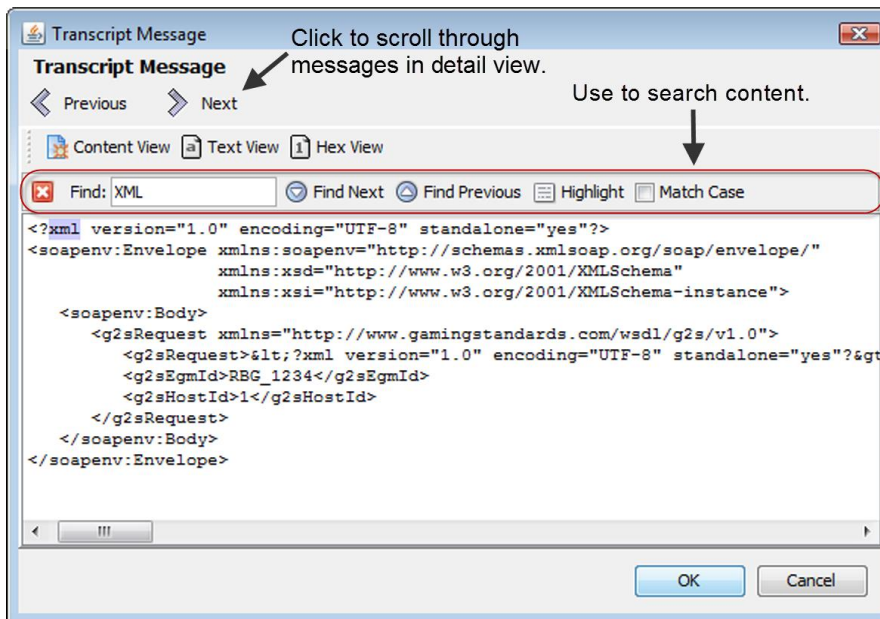
By double-clicking on any row, you can examine the details of the SOAP message. The SOAP message detail view lets you switch between a text view of the SOAP wrapper, a hexadecimal view of the SOAP wrapper and the message's XML content. You can also browse through the SOAP transcript list while in detail view.

The Find option lets you search for text strings and keywords within the message. Simply click in the Find text box and start typing. The tool instantly jumps to the first match of the entered string. This feature becomes very handy when you want to find data in large XML messages.

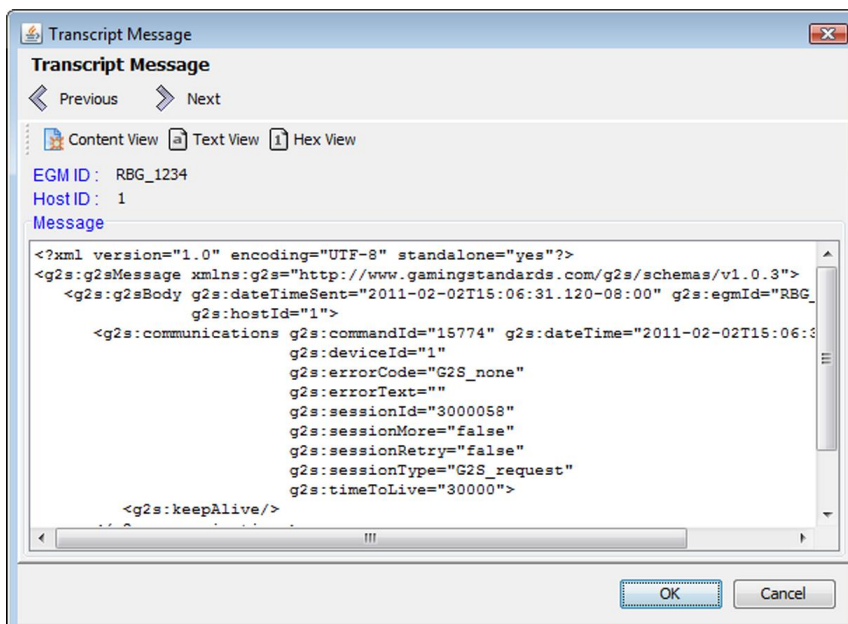
- Use **Find Next** and **Find Previous** to move to the next or previous match of the entered string.
- Click **Highlight** to highlight all instances of the text string or keyword in the message.
- Select **Match Case** if you want to find only a text string or keyword with a specific case (capital or lower case letters).

To view the content of a SOAP message:

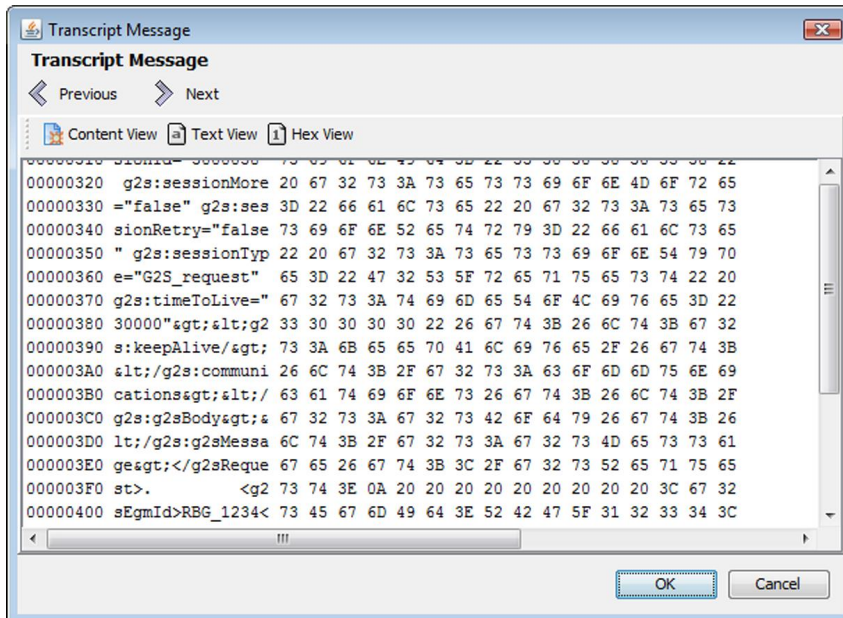
1. Double-click the message you want to view.
2. Click **Text View** to see the SOAP message details as text.



3. Click **Content View** to view the message content.



4. Click **Hex View** to see the SOAP message details as hexadecimal.

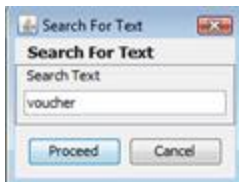


5. Click **OK** to return to the SOAP Transcript. Click **Previous** and **Next** to navigate through the SOAP transcript list while in message detail view.
6. Click **OK** to return to the SOAP transcript.

Search the Content of a SOAP Message

The Search Content option lets you search for keywords within all messages currently displayed in the SOAP transcript.

1. Type the information you want to search on.



2. Click **Proceed**, or click **Cancel** to return to the SOAP Transcript. A pop-up window displays all messages containing the text you entered.

Date Received	SOAP Type	Dest. Addr.	Source Addr.	Message Length
2009-08-06T20:14:28.9...	Request	127.0.0.1:31301	127.0.0.1:50327	14065
2009-08-06T20:14:32.5...	Request	127.0.0.1:31301	127.0.0.1:50327	9690
2009-08-06T20:14:34.3...	Request	127.0.0.1:31301	127.0.0.1:50327	57568
2009-08-06T20:14:38.7...	Request	127.0.0.1:31301	127.0.0.1:50327	37130
2009-08-06T20:14:39.0...	Request	127.0.0.1:31301	127.0.0.1:50327	1799
2009-08-06T20:14:40.3...	Request	127.0.0.1:31301	127.0.0.1:50327	185783
2009-08-06T20:14:42.4...	Request	127.0.0.1:31301	127.0.0.1:50327	1002
2009-08-06T20:14:42.4...	Request	127.0.0.1:31301	127.0.0.1:50327	1046
2009-08-06T20:14:42.4...	Request	127.0.0.1:31301	127.0.0.1:50327	1884
2009-08-06T20:14:42.5...	Request	127.0.0.1:31301	127.0.0.1:50327	1118
2009-08-06T20:14:42.6...	Request	127.0.0.1:31301	127.0.0.1:50327	1118
2009-08-06T20:14:43.2...	Request	127.0.0.1:31301	127.0.0.1:50327	37130
2009-08-06T20:14:47.6...	Request	127.0.0.1:31301	127.0.0.1:50327	1113
2009-08-06T20:24:47.7...	Request	127.0.0.1:31301	127.0.0.1:50327	1124
2009-08-06T20:34:47.8...	Request	127.0.0.1:31301	127.0.0.1:50327	1124
2009-08-06T20:44:47.9...	Request	127.0.0.1:31301	127.0.0.1:50327	1124
2009-08-06T20:54:48.1...	Request	127.0.0.1:31301	127.0.0.1:50327	1124
2009-08-06T11:04:48.3...	Request	127.0.0.1:31301	127.0.0.1:50327	1124
2009-08-06T11:14:48.4...	Request	127.0.0.1:31301	127.0.0.1:50327	1124
2009-08-06T11:24:48.6...	Request	127.0.0.1:31301	127.0.0.1:50327	1124
2009-08-06T11:34:48.7...	Request	127.0.0.1:31301	127.0.0.1:50327	1124
2009-08-06T11:44:48.9...	Request	127.0.0.1:31301	127.0.0.1:50327	1124
2009-08-06T11:54:49.0...	Request	127.0.0.1:31301	127.0.0.1:50327	1124
2009-08-06T12:04:49.1...	Request	127.0.0.1:31301	127.0.0.1:50327	1124

3. Click any message to display the SOAP envelope along with the XML message text.
4. Click **Back** to return to the SOAP Transcript.

Clear the SOAP Transcript Display

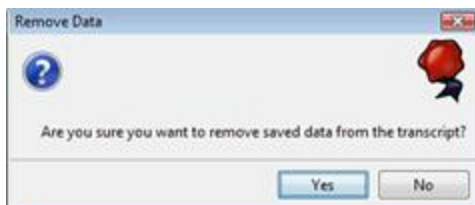
The Clear Display option lets you clear all messages from the SOAP transcript. This option does not remove messages from the SOAP Transcript database.

Click **Clear Display** to remove all messages from the current view.

Clear the SOAP Transcript Database

The Clear DB option lets you remove all messages from the SOAP Transcript database. Note that this action cannot be undone.

1. Click **Clear DB**.



2. Click **Yes** to remove all data from the SOAP Transcript database, or click **No** to return to the Transcript without clearing the database.

Working with the Multicast Transcript

The Multicast Transcript displays multicast messages that are sent between the host and EGM. Note that G2S commands contained in multicast messages can also be viewed through the Transcript. However, the Transcript does not display multicast wrapper information.

At the top of the Multicast Transcript Control screen are several options:

- **Search Content** - Search through the contents of all displayed messages in this transcript instance for the entered text pattern (case sensitive). Clicking on a row in the returned list gives you access to the HTTP header and message contents of the selected message. See [Search the Content of a Multicast Message](#).
- **Clear Display** - Clears the displayed messages in this instance of the transcript control. See [Clear the Multicast Transcript Display](#).
- **Clear DB** - Clears all records of this type in the database for this instance of the tool. See [Clear the Multicast Transcript Database](#).
- **Clear Multicast Listeners** - *RPA only*. Clears all endpoint multicast listeners, which are persisted in RPA. See [Clear the Multicast Listeners](#).

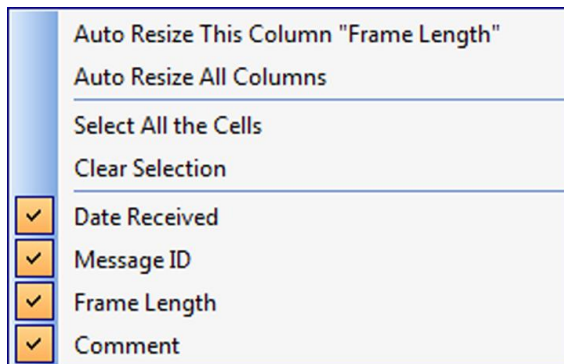
The size limit of the multicast transcript is 4MB. If this limit is reached, messages beyond the limit are not stored in the transcript database, and an informational message displays in the [debug log](#).

Multicast Transcript Column Headers

The following columns are available in the Multicast Transcript:

- **Date Received** - Date and time message is received by the tool.
- **Message ID** - Identification number of the message.
- **Frame Length** - Length of the frame contents.
- **Comment** - Indicates an invalid UMAC (Message Authentication Code using Universal Hashing) or an invalid frame length if an error occurs. If the message is valid, this field is blank.

You can slide the columns around to rearrange their order. To move a column header, left-click and hold while you move the column to its new location. You can also click any column to re-sort it, or use CTRL + left-click to sort on multiple columns.



If you right-click on a column header, a menu displays that allows you to automatically resize one or all columns (based on the displayed data in the columns), as well as to indicate which columns you would like to display.

Clicking on any column header causes the data to be sorted using that header. Click once to sort the column in ascending order. Click a again to sort the column in descending order. The third click clears the sort.

If you want to sort on multiple columns, use the CTRL key when clicking the column headers.

Receive Real-Time Data in the Multicast Transcript

If you select **Realtime Update**, the screen updates dynamically as messages are processed by the tool. However, real-time updating can cause application slowdown.

Filter Multicast Transcript Records Quickly

Just below the transcript options is a magnifying glass and entry field that allows you to filter messages based on entered data.

Clicking on the magnifying glass gives you a menu that you can use to provide additional selection criteria.

This powerful tool allows you to immediately view any set of messages that you can imagine, limited only by the data displayed in the columns.

View the Content of a Multicast Message

By double-clicking on any row, you can examine the details of the multicast message. The multicast message detail view lets you switch between a text and a hexadecimal view. You can also browse through the multicast transcript list while in detail view.

A "secret" search utility helps you find keywords within the message. Simply click in the window where the XML is displayed and start typing. The tool instantly jumps to the first match of the entered string. The up and down arrows will move you to the next or previous match of the entered string. This feature becomes very handy when you want to find data in large XML messages. The search utility works whether you are displaying hexadecimal or text.

To view the content of a multicast message:

1. Double-click the message you want to view.
Several fields provide you with information about the selected message.
 - **Date Received** - Date and time message is received by the tool.
 - **Multicast Location** - Multicast address or other transport-specific parameters.
 - **Current Key** - Key used to authenticate message.
 - **UMAC** - Message Authentication Code using Universal hashing.
 - **UMAC Nonces** - The core security requirement of the UMAC is the notion of the nonce. MTP nonces are a combination of (Message ID + Frame Index + 0x0 + 0x0).
 - **Message ID** - Identification number of the message.
 - **Frame Index** - Index number of the frame.
 - **Total Frame Count** - Total number of frames in message.
 - **Frame Length** - Length of the frame contents.
 - **Comment** - Indicates an invalid UMAC or an invalid frame length. If the message is valid, this field is blank
2. On the Message tab, click **Text View** to view the message in either text format, or click Hex View to view the message in hexadecimal format.
3. Click **Ciphertext** to view the message payload. If the message is encrypted, the information displays in hexadecimal format.
4. Click **Previous** and **Next** to navigate through the Multicast transcript list while in message detail view.
5. Click **OK** to return to the multicast transcript.

Search the Content of a Multicast Message

The Search Content option lets you search for keywords within all messages currently displayed in the Multicast transcript.

1. Click **Search Content**.
2. Type the information you want to search on.

3. Click **Proceed**, or click **Cancel** to return to the Multicast Transcript Control. A pop-up window displays all messages containing the text you entered.
4. Click any message to display the Multicast message details along with the XML message text and frame payload.
5. Click **Back** to return to the Multicast Transcript Control.

Clear the Multicast Transcript Display

The Clear Display option lets you clear all messages from the Multicast transcript. This option does not remove messages from the Multicast transcript database.

1. Click **Clear Display** to remove all messages from the current view.

Clear the Multicast Transcript Database

The Clear DB option lets you remove all messages from the Multicast transcript database. Note that this action cannot be undone.

1. Click **Clear DB**.
2. Click **Yes** to remove all data from the transcript database, or click **No** to return to the transcript without clearing the database.

Clear the Multicast Listeners

The Clear Multicast Listeners option lets you remove all endpoint multicast listeners from the Multicast transcript database. Note that this action cannot be undone.

1. Click **Clear Multicast Listeners**.
2. Click **Yes** to remove all endpoint multicast listeners, or click **No** to return to the transcript without removing the listeners.

Configuring Desktop Options

Desktop Options define default application views, which are comprised of one or more available objects. This screen also allows you to define the amount of data displayed in specific transcripts and views.

Default Desktop

This section lets you choose the *desktop* loaded at startup (Default Desktop). A desktop is a collection of layouts (for example, the Transcripts layout), with each layout containing one or more objects. Each desktop contains layouts specific to the specified protocol and license features.

To change the desktop:

1. Go to: **Tools > Configure > Desktop Options**
2. At **Default Desktop** select the desktop you want to use.
3. Click **OK**.
4. Restart the tool.

Transcript and Log Messages Displayed

This section allows you to specify the amount of data used for various transcripts and views. Note that increasing data size increases the memory used by the tool.

- **Max G2S Transcript Messages** - Maximum number of Message Transcript messages displayed.
- **Max Soap Transcript Messages** - Maximum number of SOAP Transcript messages displayed.
- **Max Logger Lines** - Maximum number of lines in the Debug Console stored in the database.

Configure RGS Engine Options

Engine Options allow you to automate some functions of the RGS engine. Engine options are grouped functionally: [General](#), [Transport](#), [Message](#), [Multicast](#), [Filters](#) and [Database](#). Click any tab to view the options for that group.

The screenshot shows the 'Engine Options' configuration window with the 'General' tab selected. The window has a dark blue header with the title 'Engine Options'. Below the header is a tab bar with six tabs: 'General' (selected), 'Transport', 'Message', 'Multicast', 'Filters', and 'Database'. The main area contains several configuration fields, each with a blue question mark icon to its right:

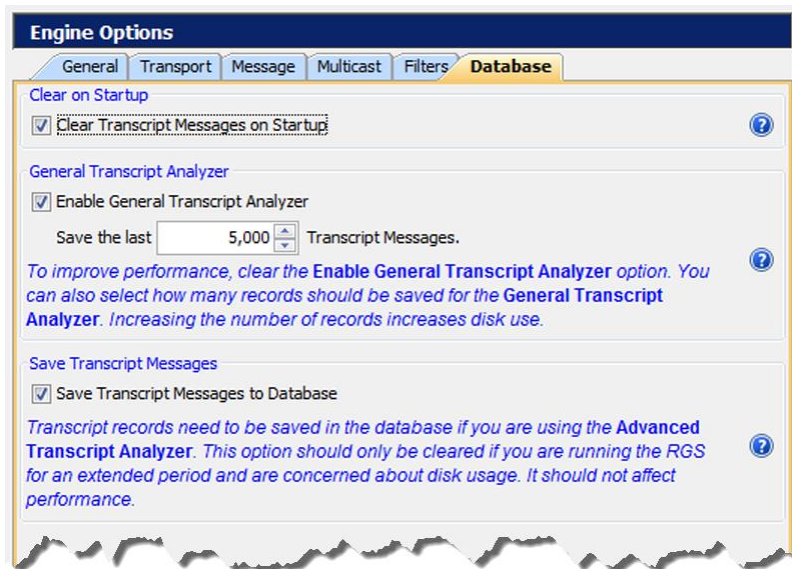
- Host ID:** A text box containing the value '1'.
- Host Path:** A text box containing the value '/RGS/api-services/G2SAPI'.
- Schema Version:** A dropdown menu showing '2.1.0-atr'.
- Default Format for Milliseconds Value:** A dropdown menu showing 'Minutes:Seconds (mm:ss)'.
- Default TimeZone:** A dropdown menu showing 'Zulu' and a checkbox labeled 'Display Z as 00:00' which is checked.
- Command ID Reset Mode:** A dropdown menu showing 'CONTINUOUS'.
- Command ID Reset Value:** A text box containing the value '1'.
- Enable Public Facing Transcript:** A checkbox labeled 'Enable Public Facing Transcript' which is unchecked.

The bottom of the window features a decorative border with a repeating sawtooth pattern.

Engine Options screen.

Database

From the Database tab on the Engine Options configuration screen, you can define settings for RGS databases.



- **Clear Transcript Messages on Startup** - Select to clear the transcript database on startup.
- **Enable General Transcript Analyzer** - Select to enable the EGM Transcript Analysis Report (**Transcripts > Analyze > General**).
Once selected, configure the number of records to save for use with the EGM Transcript Analysis Report.
Increasing the number of records, increases disk use. Clear this option to improve RGS performance,
- **Save Transcript Messages to Database** - Select this option to save the defined number of messages in the Message, SOAP and Multicast transcripts to the transcript database. Save transcript records in the database if you want them to remain between runs of the tool or after you clear the transcript display.
Saving a large number of transcript messages affects performance. By default, this option is disabled.

Filters

From the Filters tab on the Engine Options configuration screen, you can define settings for filtering data collected by RGS.

- **Filter G2S ACKs from Transcript** - Select to filter G2S `g2sAck` commands from the Transcript database.
- **Filter G2S Keep Alives from Transcript** - Select to filter `keepAlive` commands from the Transcript database.
- **Filter G2S Set Progressive Values from Transcript** - Select to filter `setProgressiveValue` commands from the Transcript database.
- **Filter Multicast G2S Bonus Activities from Transcript** - Select to filter multicast bonus commands from the Transcript database.

General

From the General tab on the Engine Options configuration screen, you can define the host identifier, host path, the schema version used by RGS and how time values display.

- **Host ID** - Enter the RGS host identifier. The ID must be an integer greater than zero (0). The default is **1**.
Note: The current host identifier displays in the top-left corner of the RGS screen. When you change the Host ID field, the screen value is updated when RGS is restarted. A restart is required for this change to take effect.
- **Host Path** - Type the path portion of the host URL.
- **Schema Version** - Select the version of the G2S protocol you are using.
- **Default Format for Milliseconds Value** - Select how you want time displayed in the user interface:
 - Hours:Minutes
 - Hours:Minutes:Seconds
 - Hours:Minutes:Seconds:Milliseconds
 - **Minutes:Seconds** (default)
 - Minutes:Seconds.Milliseconds
- **Default TimeZone** - Select the appropriate time zone for your area by country/city or by Coordinated Universal Time (UTC)/ Zulu/ Greenwich Mean Time (GMT).

- You can select the timezones in the following ways:
 - **Scroll** through the list and select your country/city, or timezone preference — UTC / Zulu / GMT.
 - **Type** in the country/city or timezone.
 - **Type a portion** of the country and select the rest, for example, If you want the time for *Los Angeles, California*, you can type: **America/L** and this option finds Los Angeles.
- Select the *Display Z* checkbox if you *do not* want to see a "Z" at the end of the date/time stamp in the Transcript when selecting UTC / Zulu / GMT. Selecting a new time zone requires a restart.
- **Current RST Offset[HH:MM:SS.MMM]** - Set the RST time offset from the system clock, which is part of the *dateTime* calculation applied to all messages sent by RST. The calculation for the *dateTime* stamp is:
PC time + configured offset [Current RST Offset value] + setDateTime offset
Use this option if you want to test an incorrect *dateTime* value.
- **Command ID Reset Mode** - Controls the command ID sequence when the `commsOnline` command is received. This option lets you simulate real-world conditions.
 - **Continuous** starts at **1** and never repeats.
 - **Reset** starts with the **Command ID Reset Value** and goes up. This value is updated each time RGS receives a `commsOnline` command.
- **Command ID Reset Value** - Command ID starts with this value and goes up when the **Command ID Reset Mode** is set to **Reset**. The command ID is set to this value each time RGS receives a `commsOnline` command.
- **Enable Public Facing Transcript** - The RGS generates a file of Message Transcript data in the logs directory (`public-facing-transcript.PFT`) that can be imported into the program of your choice for further analysis. You must restart the RGS for this option to take effect. By default, this option is **cleared**.

Message

From the Message tab on the Engine Options configuration screen, you can define how certain messages are handled in RGS.

- **Include Optional Attributes in G2S Messages** - Select to include optional attributes with their default values. Optional attributes include: `g2s:errorCode="G2S_none"`, `g2s:errorMessage=""`, `g2s:sessionMore="false"`, `g2s:sessionRetry="false"`, `g2s:syncTimer="30000"`.

Communications

- **Communications - Sync Timer** - An attribute in `commsOnLineAck` and `commsDisabledAck`. The value in milliseconds for EGM to send sync message. A way of staggering reboot of floor.
- **Default Time To Live** - Type the time, in milliseconds, RGS waits for a command before disregarding it. The default is **30 seconds** (30000 milliseconds).
- **Keep Alive Interval** - Type the time (in milliseconds) between RGS sending `keepAlive` commands. If you enter zero (0), RGS does not send `keepAlive` commands. The default is **30 seconds**. This option is only used with RGS versions that *do not* use the optional Tester Toolkit module.
- **Negotiate Namespace Behavior** - Select how RGS sets the `negotiateNamespaces` attribute in the `communications.commsOnLineAck` command. You can choose to **Never Negotiate** namespaces, **Always Negotiate** namespaces, or select **G2S 2.1 Behavior**, which uses namespace negotiation *only if* it is supported by the EGM. The default is **G2S 2.1 Behavior**.

Bonus

- **Automatic Bonus Updates Interval** - Type, in milliseconds, how often to send `bonusActivity` commands to the EGM.
- **Automatic Bonus Updates Using Multicast** - Select to send broadcast messages using multicast messaging. Clear this option to send broadcast messages using point-to-point messaging.
- **Set bonusActive Attribute** - When the **Automatic Bonus Updates Using Multicast** option is selected, set the `bonusActive` attribute, in the `bonusActivity` command, to **true**.

GAT

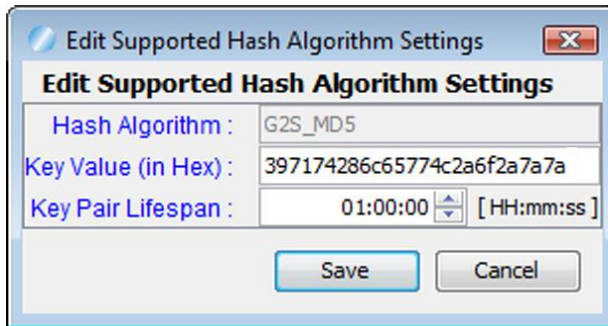
- **Fail All GAT Verification Results?** - Select this option to control the `gat.verificationResultAck` response. If this option is selected, the passed attribute in all `gat.verificationResultAck` responses will be “false” for each component ID from the `gat.verificationResult` command.

Informed Player

- **No PINs Message** - Type the message to appear on the player display if there is no Personal Identification Number (PIN) associated with the player account.
- **No ID Readers Message** - Type the message to appear in the player display if the EGM is not equipped with an ID reader device.
- **Keep Alive Command** - Click the drop-down arrow, and select the command that is sent periodically to the EGM to keep the connection alive.
- **Keep Alive Interval** - Type, in milliseconds, how often the Informed Player keep alive command is sent to the EGM. The default is **30000 milliseconds** (30 seconds).
- **Host Algorithm** - Click the drop-down arrow, and select the algorithm used for the Informed Player class.
 - **Games Played** - The host algorithm limits game play by monitoring the number of games played.
 - **Minimal** - The user must send all of the Informed Player messages through the Send Command (except the keep alive command).
 - **Money Lost** - The host algorithm limits game play by monitoring the amount of money lost during game play.
 - **Money Wagered** - The host algorithm limits game play by monitoring money wagered at the EGM.
- **Set State Percentage** - Type the percentage value to send the `setIpState` command, or type **0** to disable this option. The default is **75**.
- **Set State Session Limit** - Type the session limit amount to send in the `setIpState` command.
- **Set Game Delay Percentage** - Type the balance percentage value to send the `setIpGameDelay` command, or type **0** to disable this option. The default is **90**.

Key Pair

- **Default Key Pair Lifespan** - Select or type the length of time that the key pair is valid. This value is used *only* if the Use Manual Key Values option is not selected.
- **Manual Key Values** - The Manual Key Values list defines key pair values used by RGS for various algorithms.
To modify a key value, click to highlight the value you want to change and then click **Edit**.



- **Hash Algorithm** - The algorithm selected for editing.
- **Key Value (in Hex)** - The hexadecimal value for the selected algorithm.
- **Key Pair Lifespan** - Select or type amount of time that the key pair will be valid.
- **Use Manual Key Values** - Select this option to use the key pair values defined in the Manual Key Values list.

Progressive

- **Automatic Progressive Updates Interval** - Use this option to automatically send the `setProgressiveValue` command every *x* milliseconds. Type (in milliseconds) the time at which RGS sends the `setProgressiveValue` command to the EGM. For example, a value of "15000" sends the `setProgressiveValue` command every 15 seconds. Zero disables this option. The default is 0.
- **Automatic Progressive Updates Using Multicast** - Select to deliver automatic progressive updates using multicast messaging.
- **Progressives - Win Command Pay Method** - Click the drop-down arrow, and select the payment method for progressive wins (sent in the *payMethod* attribute in the `setProgressiveWin` command).
- **setProgressiveWin Message Duration** - Type, in milliseconds, the Progressive Message Duration sent in the `setProgressiveWin` command.

Voucher

- **Mark Vouchers as Redeemed** - Select this option to test a double voucher redemption scenario. Clear this option to allow vouchers to be redeemed multiple times.
- **Set deleteCurrent Attribute** - Select this option to delete an EGM's current validation IDs when it requests new validation IDs.
- **Validation ID Pattern** - Type the starting pattern for generated validation identifiers.

Multicast

From the Multicast tab on the Engine Options configuration screen, you can define RGS settings related to multicast messages.

Note: You can find additional multicast-related options on the [Message](#) tab.

- **Automate Multicast Host Behavior** - Select to automate multicast behavior in RGS. If this option is selected, multicast messaging is controlled through the MTP Management Control on the Send Command layout.

Transport

From the Transport tab on the Engine Options configuration screen, you can define RGS settings related to message transport.

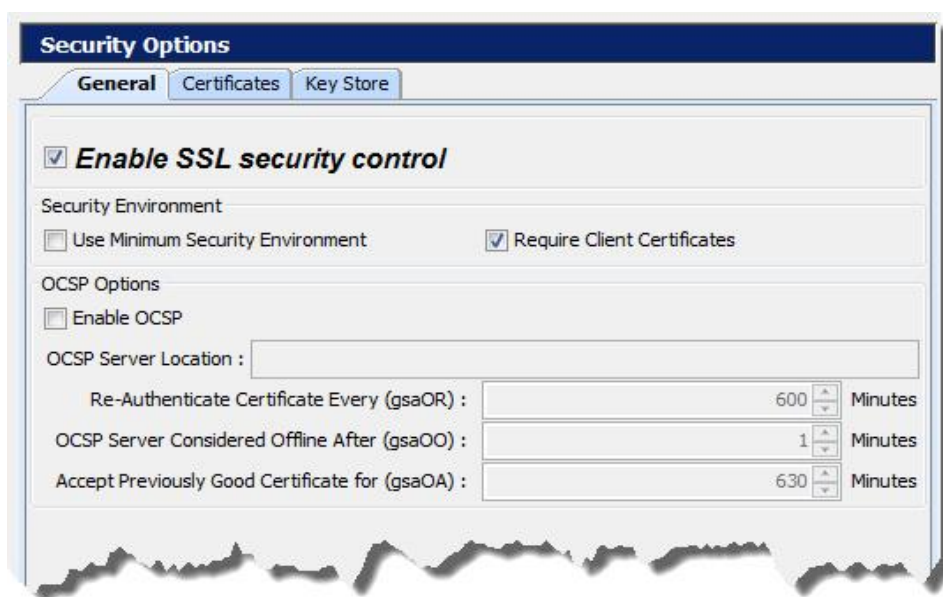
- **Default G2S Timeout** - Type the time, in milliseconds, RGS waits for the `g2sAck` response from the EGM. The default is **30 seconds** (30000 milliseconds).
- **Enable GZIP_IN_HTTP_STACK** - Select to enable GZIP in HTTP-stack compression for all requests.
- **Enable GZIP_PAYLOAD** - Select to enable GZIP payload compression for all requests.
- **HTTP Receive Timeout** - Type the maximum time, in milliseconds, for the G2S ACK to be received. The default is **five seconds** (5000 milliseconds).
- **SOAP Port** - Type the port number that you want RGS to use for communications. We recommend that you do not change the SOAP port unless you have a port conflict.
- **SSL Port** - Type the port number that you want RGS to use for SSL-enabled communications.

Configure Security Options

From Security Options, you can enable and configure Secure Socket Layer (SSL) encryption information.

- [Enable and configure Online Certificate Status Protocol \(OCSP\) options](#)
- [Create and import signed certificates into the tool](#)
- [Manage installed keystore files](#)

Note: SSL configuration, including the Security Options screen, is not available in the Student Edition of the tool.



To use SSL security, you must select Enable SSL security control. You then have the option to select **Approve All Certificates** if you want to use SSL encryption, but are not concerned with the validity of the certificate authority.

If this option is cleared, the tool performs validity checking when an entity (for example, an EGM) initiates communications. The validity check includes:

- *Signed by trusted certificate authority?*
- *Is current time/date within the period of validity (effective and expired date)?*
- *Is issuer signature correct?*

When you make a change to the Security Options screen, you are prompted to restart the tool before your changes take effect.

Configure General Security Options

From the General tab, you can enable SSL in the tool, choose to approve all certificates, and [configure OCSP options](#).

1. From **Tools > Configure > Security Options**.
2. Click **General**.



3. Select **Enable SSL security control** to use SSL encryption with the tool. This option must be selected to configure all additional security options.
4. Select **Use Minimum Security Environment** to enable minimum security option when testing. When you enable this option:
 - The **Transport Layer Security (TLS) 1.0** is the *only* supported protocol for client-side TLS sessions. Note that host-side sessions are not restricted.
 - The only supported cipher suite is `SSL_RSA_WITH_3DES_EDE_CBC_SHA` for both client-side and host-side TLS sessions.
5. Select **Require Client Certificate** if the other endpoint must have a certificate or it fails authentication. If this option is cleared, the other endpoint is not asked to send its client certificate. By default, this option is selected.
6. [Enable and configure OCSP options](#).
7. Once all security options have been configured, click **OK**.

Enable and Configure OCSP

You can configure the Online Certificate Status Protocol (OCSP) options to check to see whether the certificate has been revoked.

If a certificate does not pass any validity check, an error is generated and the attempted connection will fail. You can view the error in the debug log.

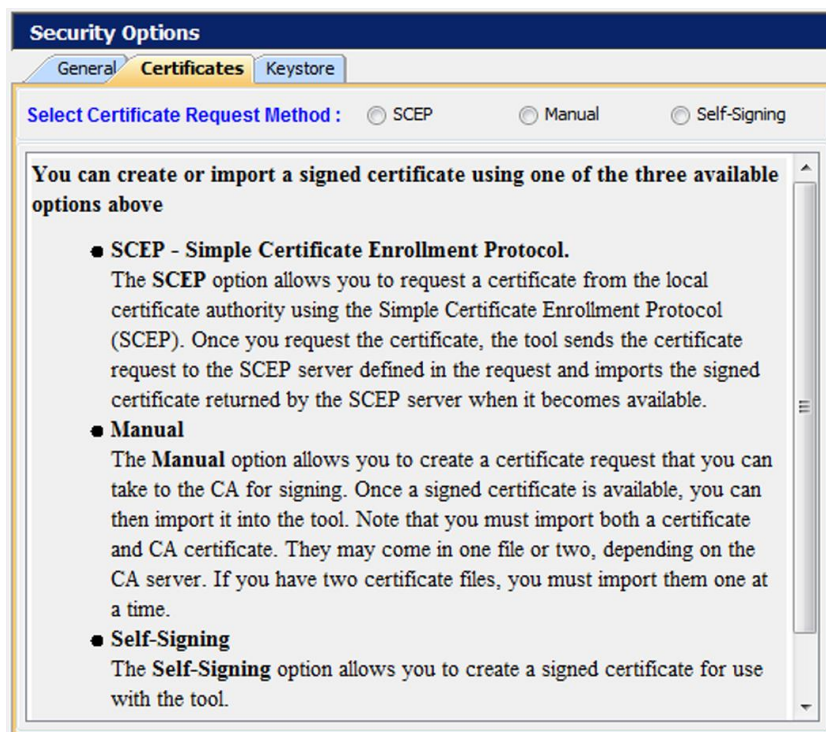
When you enable OCSP, you must configure the following options:

- **OCSP Server Location** - Type the URL location of the OCSP responder.
- **OCSP Server Considered Offline After (gsaOO) x Minutes** - Type or select the minimum period, in minutes, that the tool will attempt to authenticate a certificate from an OCSP server. Zero (0) disables this setting.
- **Re-Authenticate Certificate Every (gsaOR) x Minutes** - Type or select the maximum time, in minutes, that the tool can use a certificate without re-authenticating it.
- **Accept Previously Good Certificate for (gsaOA) x Minutes** - Type or select the maximum time, in minutes, that the tool can use a good certificate when OCSP servers are offline. Note that the gsaOA value should be greater period than the gsaOR value; The difference between gsaOR and gsaOA is the “accept offline” period.

Create or Import a Signed Certificate

You can create or import a signed certificate using one of three available options:

- [Use SCEP to Request a Certificate](#)
- [Load a Manual Certificate](#)
- [Load a Self-Signing Certificate](#)



To access the certificate options:

1. From the menu bar, click **Tools**.
2. Select **Configuration**.
3. Click **Security Options** to display the Security Options screen.
4. Click the **Certificates** tab.

Load a Self-Signing Certificate

The Certificates tab allows you to create a signed certificate for use with the tool.

1. From **Tools > Configure > Security Options**.
2. Click **Certificates**.
3. Select **Self-Signing** as the **Certificate Request Method**.

The screenshot shows the 'Security Options' window with the 'Certificates' tab selected. The 'Select Certificate Request Method' section has three radio buttons: 'SCEP', 'Manual', and 'Self-Signing', with 'Self-Signing' being the selected option. Below this, the 'Self-Signed Certificate Options' section contains a checkbox for 'Approve all certificates' which is currently unchecked. The 'Create Self-Signed Certificate' section includes four input fields: 'Entity Type' (a dropdown menu showing 'G2S EGM'), 'Common Name (CN)' (a text box containing '1'), 'Organizational Unit (OU)' (a text box containing 'G2S_host'), and 'Key Size' (a dropdown menu showing '1,024'). A 'Create Self-Signed Certificate' button is located at the bottom right of this section. At the very bottom of the window, there is a 'Certificate Status' bar showing '0%'.

4. Select **Approve all certificates** to use SSL encryption without validating the certificate authority.

If this option is cleared, the tool performs validity checking when an entity (for example, an EGM) initiates communications. The validity check includes:

- Signed by *trusted* certificate authority?
 - Is current time/date within the period of validity (effective and expired date)?
 - Is issuer signature correct?
5. Configure certificate options as required.
 - **Entity Type** - Indicates the role of the tool: G2S Host (RGS), G2S EGM Proxy (RPA), G2S EGM (RST), Other G2S, or S2S Server (RSS). This information is determined by the tool. This field is *read-only*.
 - **Common Name** - Type the tool's common name. In the case of an EGM, the common name would be the EGM identifier. The tool will attempt to set this value.

- **Organizational Unit** - Type the organizational unit (role) of the tool: G2S_host, G2S_egmProxy, G2S_egm, or Other G2S. By default, this field is populated with a value that corresponds to the Entity Type.
 - **Key Size** - Click the drop-down arrow, and select the size of the key pair supported by your network environment.
6. Click to **Create Self-Signed Certificate** to generate a self-signed certificate based on the certificate options you completed.
 7. When the **Certificate Status** bar reads **100% Done!**, you have successfully a signed certificate and can now use SSL messaging with the tool.

Use SCEP to Request a Certificate

The SCEP option lets you request a certificate from the local certificate authority using the Simple Certificate Enrollment Protocol (SCEP). Once you request the certificate, the tool sends the certificate request to the SCEP server defined in the request and imports the signed certificate returned by the SCEP server when it becomes available.

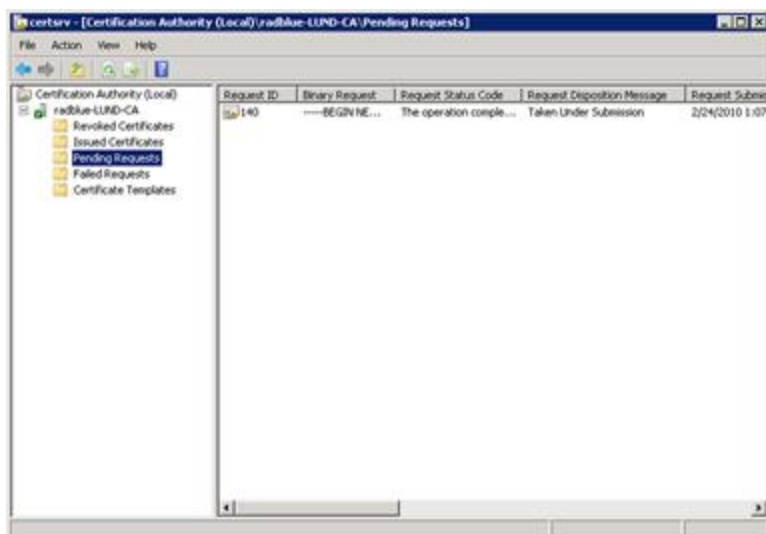
1. From **Tools > Configure > Security Options**.
2. Click **Certificates**.
3. Select **SCEP** as the **Certificate Request Method**.
4. Configure SCEP options as required. The values related to the certificate authority (CA) are available from the CA provider.
 - **SCEP Server Location** - Type the network location of the certificate authority to which you want to send your certificate request.
 - **Pre-Shared Secret Enabled?** - Select if you want to include a pre-shared secret in the certificate request.
 - **Pre-Shared Secret** - Type the pre-shared password that you want to include in the certificate request.
 - **User Name Enabled?** - Select to include the user name in the certificate authority request.
 - **User Name** - Type the user name used by the certificate manager. Depending on your SCEP implementation, the user name may be included in the transaction ID or as part of the Certificate Signing Request (CSR) as the Common Name (CN).
 - **Use User Name as Common Name?** - Select if the user name is the same as the common name.
 - **Common Name** - Type the tool's common name. In the case of an EGM, the common name would be the EGM identifier. The default is **-1**.
 - **CA Identity Enabled?** - Select to include the identifier of the certificate authority in the request.
 - **CA Identity** - Type the identifier of the certificate authority to which the request will be sent.
 - **Entity Type** - Click the drop-down arrow, and select the role of the tool: G2S Host, G2S EGM Proxy, G2S EGM, Other G2S.
 - **Organization Unit** - Type the organizational unit (role) of the tool: G2S_host, G2S_egmProxy, G2S_egm, or Other G2S. By default, this field is populated with a value that corresponds to the Entity Type.
 - **Key Size** - Click the drop-down arrow, and select the size of the key pair supported by your network environment. (1024 is generally the most commonly accepted key size.)

- **SCEP Server Polling Interval** - Type or select the interval, in milliseconds, in which the tool polls the certificate server until the tool's certificate request is approved.
 - **Request SCEP Server Capabilities** - Select to request the options supported by the certificate authority server.
 - **Request Certificate** - Click to request a certificate from the SCEP certificate authority server.
5. Click **Request Certificate**.

The request certificate is sent to the SCEP server. The tool polls the SCEP server location defined in step 4 until a signed certificate is issued.

If the CA is using Microsoft Active Directory Certificate Services, follow these steps to issue a signed certificate on the CA:

- From the computer where Microsoft Active Directory Certificate Services is installed, go to:
Start > Administrative Tools > Certification Authority



- Expand the server name, and click **Pending Requests**.
- Click to highlight the certificate request.
- Right-click the entry, and select **All Tasks > Issue**. When the certificate is issued, it disappears from the list.

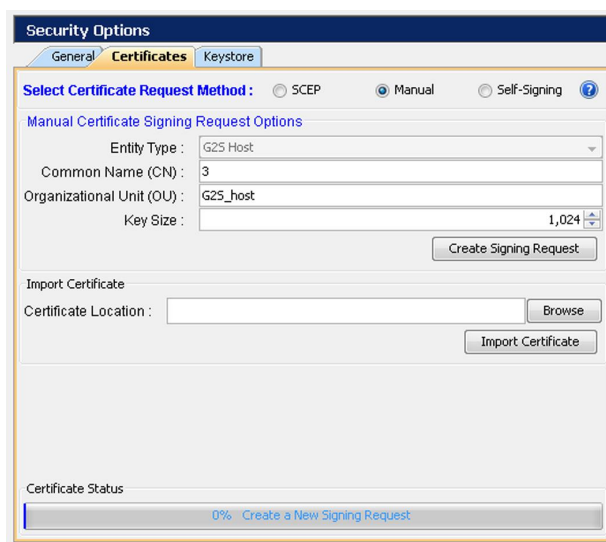
Once the certificate is signed, the RadBlue tool imports it the next time a poll is performed.

When the **Certificate Status** bar reads **100% Done!**, you have successfully imported the required certificate and can now use SSL messaging with the tool.

Load a Third-Party Certificate

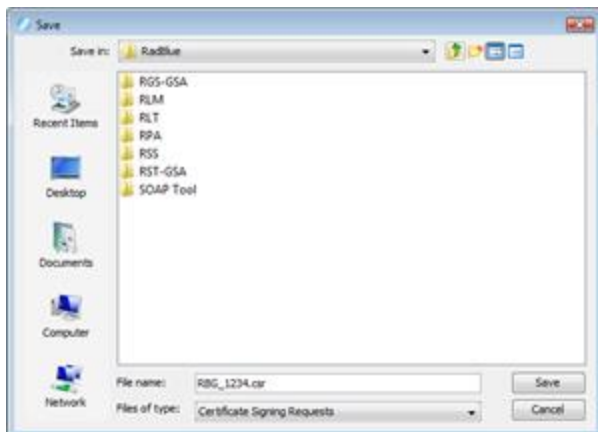
From the Certificates tab, you can create a certificate request that you can take to a certificate authority (CA) for signing. Once a signed certificate is available, you can then import it into the tool. Note that you must import both a certificate and CA certificate. They may come in one file or two, depending on the CA server. If you have two certificate files, you must import them one at a time.

1. From **Tools > Configure > Security Options**.
2. Click **Certificates**.
3. Select **Manual** as the **Certificate Request Method**.

The screenshot shows the 'Security Options' dialog box with the 'Certificates' tab selected. Under 'Select Certificate Request Method', the 'Manual' radio button is chosen. The 'Manual Certificate Signing Request Options' section contains fields for 'Entity Type' (set to 'G2S Host'), 'Common Name (CN)' (set to '3'), 'Organizational Unit (OU)' (set to 'G2S_host'), and 'Key Size' (set to '1,024'). A 'Create Signing Request' button is located below these fields. The 'Import Certificate' section has a 'Certificate Location' text box, a 'Browse' button, and an 'Import Certificate' button. At the bottom, a 'Certificate Status' bar shows '0%' and a link to 'Create a New Signing Request'.

5. Create a signing request by configuring the following fields with your request-specific information:
 - **Entity Type** - Click the drop-down arrow, and select the role of the tool: G2S Host, G2S EGM Proxy, G2S EGM, Other G2S.
 - **Common Name** - Type the tool's common name. In the case of an EGM, the common name would be the EGM identifier.
 - **Organizational Unit** - Type the organizational unit (role) of the tool: G2S_host, G2S_egmProxy, G2S_egm, or Other G2S. By default, this field is populated with a value that corresponds to the Entity Type.
 - **Key Size** - Click the drop-down arrow, and select the size of the key pair supported by your network environment.

2. Click **Create Signing Request** to generate a signing request.



3. Navigate to the location where you want to save the certificate request file.
4. Modify the file name and file type as required.
5. Click **Save**.



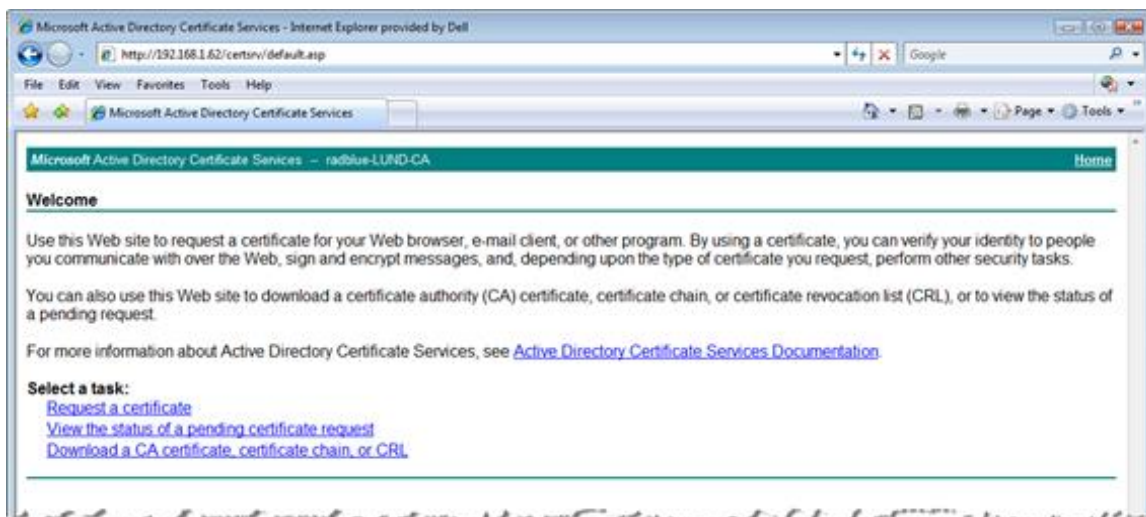
6. Click **OK**.
Notice that the Certificate Status is updated.
7. Depending on the certificate authority you are using, you must now use the certificate request you created to obtain a signed certificate from a certificate authority. For an example of how to obtain a signed certificate from Microsoft Active Directory Certificate Services, see [Obtaining a Signed Certificate Using Microsoft Active Directory Certificate Services](#).
8. Once you have a signed certificate that you can access, type the **Certificate Location** or click **Browse** to navigate to the signed certificate location.
9. Select the signed certificate file, and click **Open**.
10. Click **Import Certificate** to import the signed certificate.
11. If you have an additional certificate, repeat steps 8 through 10.
12. When the **Certificate Status** bar reads **100% Done!**, you have successfully imported the required certificate(s) and can now use SSL messaging with the tool.

Obtain a Signed Certificate Using Microsoft Active Directory Certificate Services

The following procedure is intended to provide an understanding of the process you may go through to create a signed certificate. Microsoft Active Directory Certificate Services is only one of many certificate authority programs. Your individual process may vary greatly depending on the certificate authority program you are using.

This procedure assumes that a certificate request has been created through the [Third-Party](#) tab on the Security Options screen.

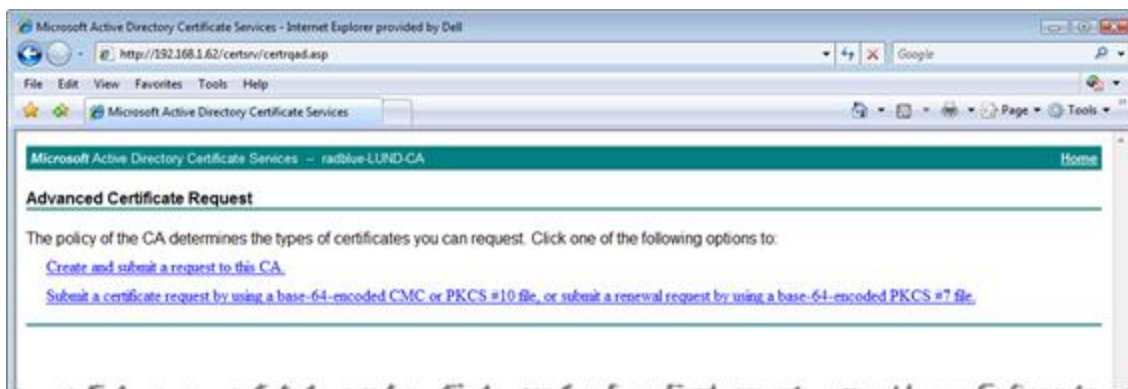
1. Open the certificate request file in Notepad or Wordpad, and click anywhere inside the content.
2. Perform a **CTRL+a** to highlight all content and a **CTRL+c** to copy the content.
3. Open an Internet browser, enter the certificate authority location, and press **Enter**.



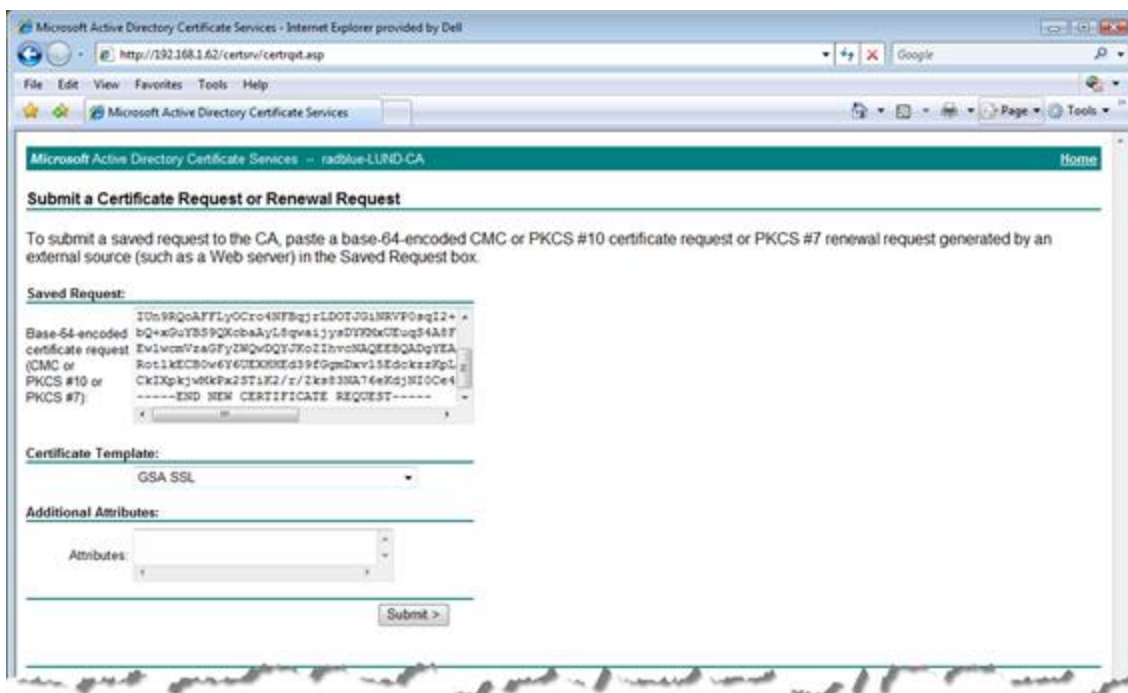
4. Click **Request a certificate**.



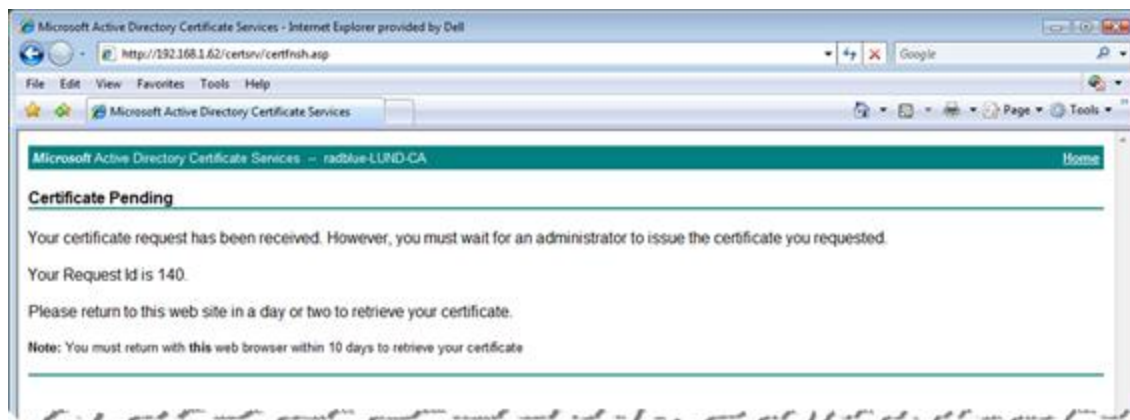
5. Click **advanced certificate request**.



6. Click **Submit a certificate request by using a base-64-encoded CMC or PKCS #10 file, or submit a renewal request by using a base-54-encoded PKC #7 file.**



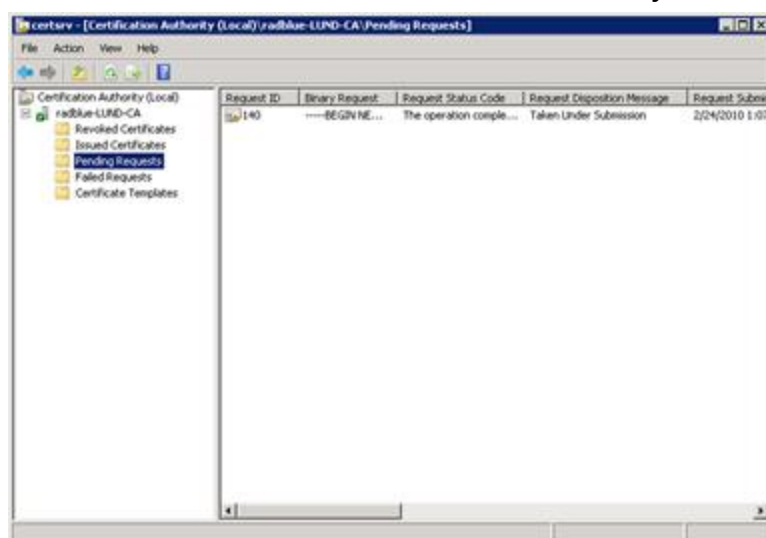
7. Click inside the **Base-64-encoded. . .** field and paste the certificate request content that you copied in step 2.
8. Click the **Certificate Template** drop-down arrow, and select the certificate template you use. In this example, we selected **GSA SSL**.

9. Click **Submit**.

10. Note the **Request ID**. In this case, the Request ID is **140**.

11. Minimize, but do not close, the browser.

12. From the computer where Microsoft Active Directory Certificate Services is installed, go to: **Start > Administrative Tools > Certification Authority**



13. Expand the server name, and click **Pending Requests**.

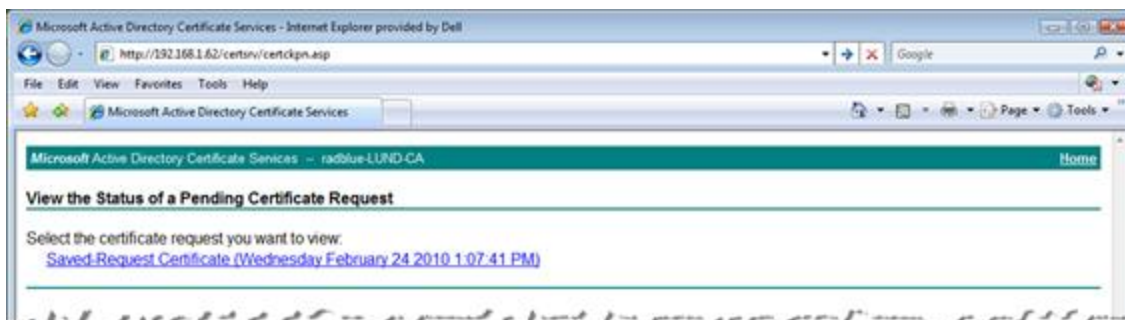
14. Click to highlight **Request ID 140**.

15. Right-click the entry, and select **All Tasks > Issue**. When the certificate is issued, it disappears from the list.

16. Maximize the browser window.

17. Click the **Home** link on the right-hand side of the page.

18. Click **View the status of a pending certificate request**.



19. Click **Saved-Request Certificate**.



20. Click **Download certificate chain** to download both parts of the signed certificate (certificate and CA certificate) as a single file. This is the recommended method because you only have one certificate to import into the tool.
If you want to create two separate files, click **Download certificate** to download the signed certificate file. Then, return to the home page and click **Download a CA certificate, certificate chain, or CRL**. Click **Download a CA certificate** to download the signed CA certificate file.
21. Once you have downloaded the certificate(s), open the tool and go to: **Configure > Security Options**
22. Select the **Third-Party** tab.
23. Click **Browse**, navigate to the signed certificate file, and click **Save**.
24. Click **Import Certificate** to import the selected certificate.
25. If you have an additional certificate, repeat steps 23 and 24.

Manage Key Store Options

From the Key Store tab, you can select the type of key store file you want to use and manage installed key store files.

1. From the menu bar, click **Tools**, and select **Configure** to launch the Configuration screen.
2. Click **Security Options**.
3. Click the **Key Store** tab.
4. Click the **Select Key Store File** drop-down arrow, and select the type of key store file you want to use with the tool.
Note: To update the available key store file types in the list, click **Refresh**.
6. To set the currently used certificate, click to highlight an installed certificate from the list and click **Set As Default**. The default value for this field is **<not set>**.
7. To remove an installed certificate, click to highlight the certificate, and click **Remove**.
8. To view the content of a certificate, click to highlight the certificate, and click **View**.

Import a PKCS #12 File

A PKCS #12 file is used to store multiple cryptography objects within a single file. The file commonly bundles a private key, with its X.509 certificate, or bundles all members of a chain of trust. The filename extension for PKCS #12 files is **P12** or **PFX**.

The **Import PKCS #12 File** option lets you quickly import the certificates stored in a P12 or PFX file into the tool's **client.jks** and **trusted.jks**. All certificates in the PKCS #12 file are imported to client.jks. Only non-key-entry certificates are imported to trusted.jks. Once the certificates are successfully imported, they can be viewed from the Key Store tab.

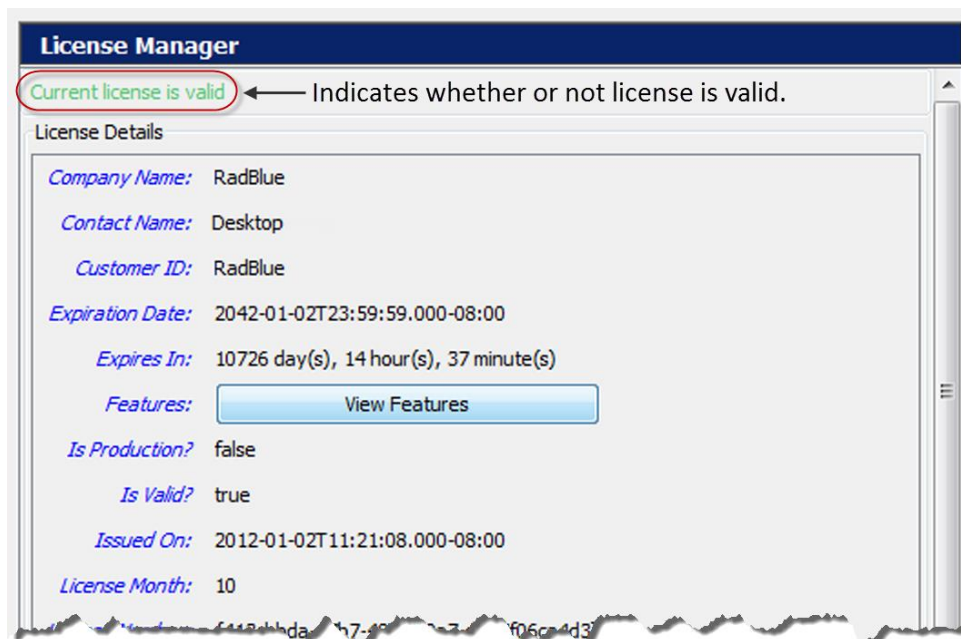
To import a PKCS #12 file:

1. Under the **Import PKCS #12 File** section on the **Key Store** tab, and click **Browse**.
2. Navigate to the **P12** or **PFX** file you want to import, and click **Open**.
3. Type the file password.
4. Click **Import**.

The imported files are added to the list of key store files on the Key Store tab. Remember to use the **Select Key Store File** drop-down to switch between Trusted Key Store files and Client Key Store files.

Configure License Manager Options

License Manager displays current licensing information, including the product features available under the license. The New License File option allows you to upload a new license file for the product.



License Details

- **Company Name** - Name of organization that purchased this license.
- **Contact Name** - Name of person license was issued to.
- **Customer ID** - Unique company identifier.
- **Expiration Date** - Date that tool becomes invalid.
- **Expires In** - Time left until license expiration.
- **Features** - Click **View Features** to see which features are enabled for your license.
- **Is Production?** - **True** indicates that the license is a fully licensed version.
- **Is Valid?** - **True** indicates that the license is valid; **False** indicates that the license is invalid.
- **Issued On** - Date of license issuance.
- **License Number** - Unique license identifier.
- **License Month** - Month that license expires.
- **License Year** - Year for which license is valid.
- **Load Message** - Status of license upload.

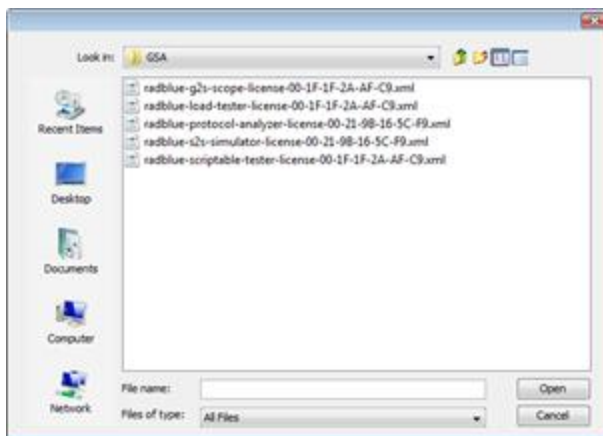
- **Location ID** - Location of purchasing organization.
- **MAC Address** - Physical address of computer on which the tool is installed.
- **Product Line Key** - Unique identifier of installed tool.
- **Product Name** - Name of licensed RadBlue product.

Load a New License File

To use the latest version of the tool, you may periodically need to update your license.

To load a new license:

1. Click the drop-down arrow.



2. Navigate to the new license file.
3. Highlight the new license file, and click **Open**.
4. Click **Apply** or **OK** to install the new license.

About the Debug Console

The Debug Console displays all informational, warning and critical errors that occur in the tool. Any of the following message types may appear in the Debug Console:

- **INFO** - Messages that do not impact the system, but may be useful to know. INFO messages appear in black type.
- **DEBUG** - Fine-grained informational events that are useful in troubleshooting. DEBUG messages appear in black.
- **ERROR** - Messages related to program errors. ERROR messages appear in red.
- **FATAL** - Designates a severe error events that will presumably lead the application to abort. FATAL messages appear in red.
- **UNKNOWN** - Messages that have not been assigned a logging designation. UNKNOWN messages appear in pink.
- **WARN** - Messages that indicate potentially harmful situations. WARN messages appear in blue.

You can clear the debug log and filter the debug log display (selectively display messages by warning level) as needed.

The information displayed in the Debug Console is written to a text file ([**tool name**].txt), located in the tool's logs directory.

You can specify the maximum number of lines included in the log through the Configure option under Tools on the menu bar.

1. Go to: **Tools > Configure > Desktop Options > Max Logger Lines**
2. Click **Desktop Options**.
3. In the **Max Logger Lines** field, type or select the maximum number of lines in the Debug Console.
4. Click **OK**.

Clear the Debug Log Display

To clear the Debug Console display, click **Clear Log**.

Note that this option clears the display only, and not the text file associated with the Debug Log ([**tool name**].txt, located in the tool's logs directory).

Filter Debug Messages

The Filter option lets you specify the type(s) of messages you want displayed in the Debug Console.

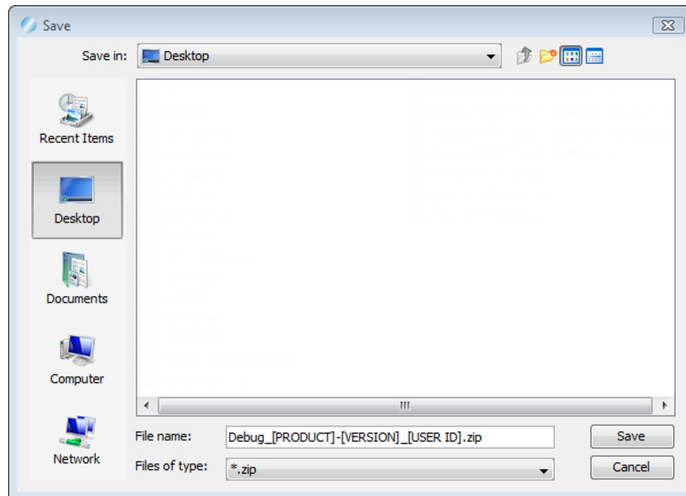
To filter Debug Console messages:

1. From the Debug Console, click **Filter**. The Logging Filter screen appears.
2. Click **Select All** to select all message types.
or
1. Click **Clear All** to clear all boxes, and select the message types you want to display.
2. Click **Apply** for your changes to take effect, or click **Cancel** to exit the Logging Filter without applying any changes.

What to Do If You Can't Resolve an Error

The Export Debug option lets you create a ZIP file containing all the files that the RadBlue support team needs to troubleshoot product issues or for use in the [RadBlue Analysis Suite \(RAS\)](#). The ZIP file includes data from the time the tool was started to the time you select the Export Debug option.

1. Go to **File > Export Debug**.



2. A **Debug-[product-x.x.x]_[user ID].zip** file is exported to your computer's desktop.
3. Attach the ZIP file to an email, along with a description of the issue, and send it to support@radblue.com.

or

Go to www.radblue.com/support, complete the support form, attach the ZIP file and send.

You will be contacted about your support issue within one business day.

About the Public Facing Transcript

The Public Facing Transcript (PFT) is a program designed to generate a file of Message Transcript data in the logs directory (`public-facing-transcript.PFT`) that can be imported into a program of your choice for further analysis.

Each record in the PFT follows a standard record format and is either a G2S message or a Transcript marker. Each Transcript record contains:

- the date and time the record was posted to the transcript file.
- a unique message ID to serialize all messages processed.
- a sub-element containing a G2S message record or a marker record that was created to record a milestone in the test run.

The PFT option is available in RadBlue's RGS and Compliance Verification Tool (CVT) products.

Record Format

Element: record - The standard record format is defined in the following tables.

Attributes	Restrictions	Description
dateTimePosted	type: dateTime use: optional	Date and time record was posted to the Transcript.
messageId	type: string use: optional	A message identifier created to serialize all records in the Transcript.

Element	Restrictions	Description
marker	The format of the marker record will be defined as the project progresses.	A Transcript marker, created to denote the start, end and result of steps within the Test Procedure (for example, Start Test Case and End Test Case).

Element	Restrictions	Description
g2sContent	type: string use: optional	A single G2S command, including message and body elements. Multi-command messages are reported as a series of G2S messages, each with a unique message identifier.

XML Data Types

RadBlue uses standard XML data types as defined by the [W3C XML Schema Definition Language \(XSD\) 1.1 Part 2: Datatypes](#) section of version 1.1 of the XML schema.

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- string

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