

## How to Configure Revision Control System Monitoring (RCS)

<https://campus.barracuda.com/doc/96026542/>

The Revision Control System (RCS) provides information on all configuration changes to your system and is available to be operated both on the box and CC levels. On a Control Center, it is possible to configure and run the RCS separately both on the box and/or the CC level for the configuration of the managed appliances.

Once activated, the RCS puts a copy of every configuration set into its own storage. Because the number of created copies increases with each configuration change, the RCS provides the option to restore an earlier version of already stored configurations on request. The RCS can also generate reports to help monitor configuration changes.

Note that operating the RCS on the CC level can take a lot of memory and storage if the Control Center manages a large number of appliances. This can also slow down your Control Center accordingly.

In the case of a Control Center, it is recommended to check the log file for progress.

### Functioning and Limitations of the RCS System

The RCS system is disabled by default. If you want to use the RCS system, you first must enable and configure it to match your requirements. After disconnecting and reconnecting to your appliance via Firewall Admin, you can then create RCS reports selectively for any configuration node. When activated, RCS logs all configuration changes on a configuration tree node or service with the exception of:

- **DNS Service**
- **VPN > VPN Settings**
- **VPN > Client-to-site VPN**
- **VPN > Site-to-Site VPN**

### How to Configure and Use the Revision Control System

The Revision Control System provides the following options:

1. [Activating and configuring the RCS.](#)

2. [Viewing RCS content versions.](#)
3. [How to create a report based on the changes.](#)
4. [Reverting a configuration to a specific version.](#)

## 1. Activating and Configuring the RCS

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1. Log into your firewall / Control Center.
2. (On the box level): Go to **CONFIGURATION > Box > Administrative Settings**.
3. (On the CC level): Go to **CONFIGURATION > Configuration Tree > Multi-Range > Global Settings > CC Parameters**.
4. In the left menu, select **RCS Setup**.
5. Click **Lock**.
6. From the **Version Control System** list, select **Enable**.
7. Define the following RCS settings:
  - **Log Change Differences** – Enables or disables the RCS log (file name: *servicename\_changes*) of all configuration changes.
  - **Log Creation Differences** – Specifies how configuration changes are logged. You can select one of the following settings:
    - **Disable** – Log change differences will be ignored.
    - **Difference-to-Default** – Only differences to the default settings are listed.
    - **Full-Info** – Every configuration option is listed.
    - **None** – Only changes are listed.
  - **Log Removal Differences** – Specifies how to log file removals. You can select one of the following settings:
    - **Difference-to-Default** – Only differences to the default settings are listed.
    - **Full-Info** – Every action is listed.
    - **None** – The removal of files is not listed.
  - **Report Processing Script** – You can enter a script to automate the transmission of change reports to other destinations. The shell script can invoke Secure Copy (scp) or email delivery. See the table in the following paragraph for some scripting examples.
  - **Force RCS Change Message** – To enter a comment for every RCS check-in, select **yes**.
8. Click **Send Changes** and **Activate**.

**RCS Setup**

Version Control System	Enable	
Log Change Differences	Disable	
Log Creation Differences	Difference-to-Default	
Log Removal Differences	Difference-to-Default	
Report Processing Script		
Force RCS Change Message	No	

Report Processing Script Examples

The following table displays examples of scripts that you can enter in the **Report Processing Script** table for transmitting your change reports via scp or mailclt. In your script, use the \$REPORT variable. The name of the report file is stored in \$REPORT.

Scripts are triggered for execution each time a change is made to a configuration setting.	
Method	Example Script
scp	scp "\$REPORT" <a href="#">root@recipient.com</a>
mailclt Note that the SMTP server must be entered as an IP address. Entering host names is not allowed.	/opt/phion/bin/mailclt -f <a href="#">sender@sender.com</a> -r <a href="#">recipient@recipient.com</a> -s "change" -m 192.168.0.1 -a "\$REPORT"

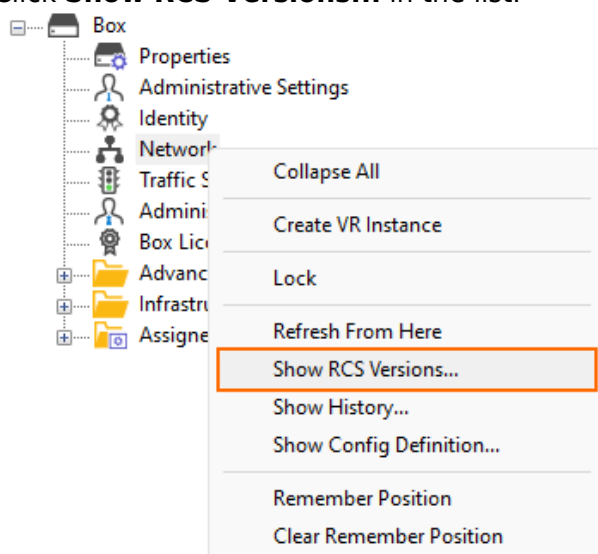
Activate the RCS by disconnecting and then reconnecting to the Barracuda CloudGen Firewall. Click **Disconnect** and then click **Connect**. After configuring and activating RCS, you can view change reports for each configuration tree node.

2. Viewing RCS Content Versions

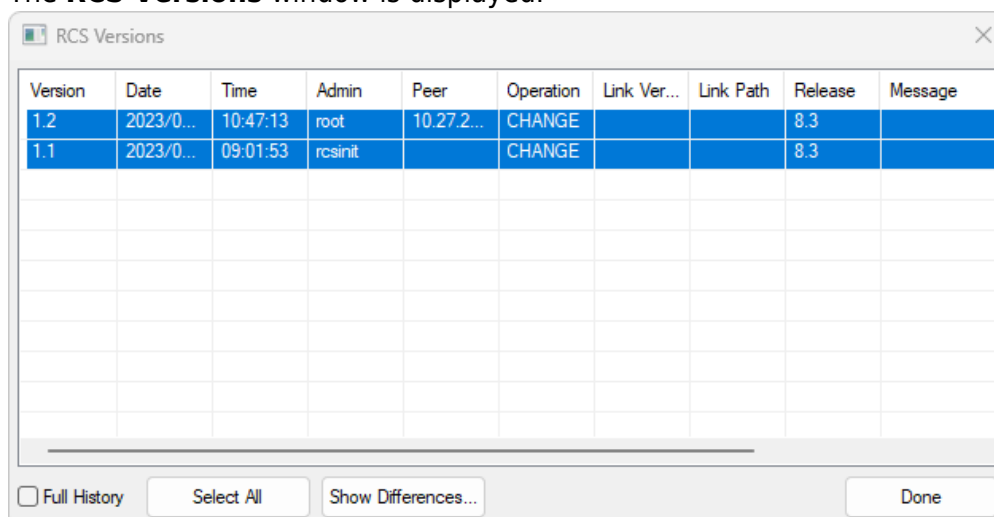
After a change has been made to a certain node, the new configuration set will replace its preceding version. You can inspect all revisions that the RCS has stored.

This example assumes that you have made changes to the **Network** node.

1. Log into your firewall if not already done.
2. (On the box level): Go to **CONFIGURATION > Configuration Tree > Box > Network**.
3. (On the CC level): Go to **CONFIGURATION > Configuration Tree > Multi-Range > your range > your cluster > Boxes > your box > Network**.
4. Right-click the **Network** node.
5. A popup menu list is displayed that shows all valid options associated with the node.
6. Click **Show RCS Versions...** in the list.



7. The **RCS Versions** window is displayed.



Note that the last two versions are always pre-selected for your convenience. However, if you want to compare other versions, you can always modify your selection by clicking on the preferred two versions in the list.

8. The **RCS Versions** window displays a list of all versions of a configuration page. It displays the following information:

Column	Description
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<b>Version</b>	The version numbers of activated (by clicking <b>Activate</b> ) changes. If a configuration has only been sent (by clicking Send Changes), this column displays, "session." If a linked file is edited, the file version and complete path to the link target are also displayed.
<b>Date</b>	The date when the configuration version was activated. Dates are formatted as follows: <b>yyyy/mm/dd</b>
<b>Time</b>	The time when the configuration version was activated. Unless you have changed the time settings for the system, the UTC time format is used.
<b>Admin</b>	The login name of the administrator who made changes to the configuration version.
<b>Peer</b>	The IP address of the administrator who made changes for the configuration version.
<b>Operation</b>	Displays the type of change made by the administrator: <ul style="list-style-type: none"> <li>◦ <b>CHANGE</b> - Indicates a modification.</li> <li>◦ <b>ADD</b> - Indicates an added configuration entry (for example a newly introduced firewall rule).</li> <li>◦ <b>REMOVE</b> - Indicates a removed configuration entry (for example removing a CloudGen F rule).</li> <li>◦ <b>LINK</b> - Indicates a link to a repository entry.</li> <li>◦ <b>UNLINK</b> - Indicates that a link to a repository entry was removed.</li> </ul>
<b>Link Version</b>	If the configuration page is linked to a repository, the version of the link target is displayed.
<b>Link Path</b>	If the configuration page is linked to a repository, the complete path of the link target is displayed.
<b>Release</b>	The product release number.
<b>Message</b>	Displays a message if configured.

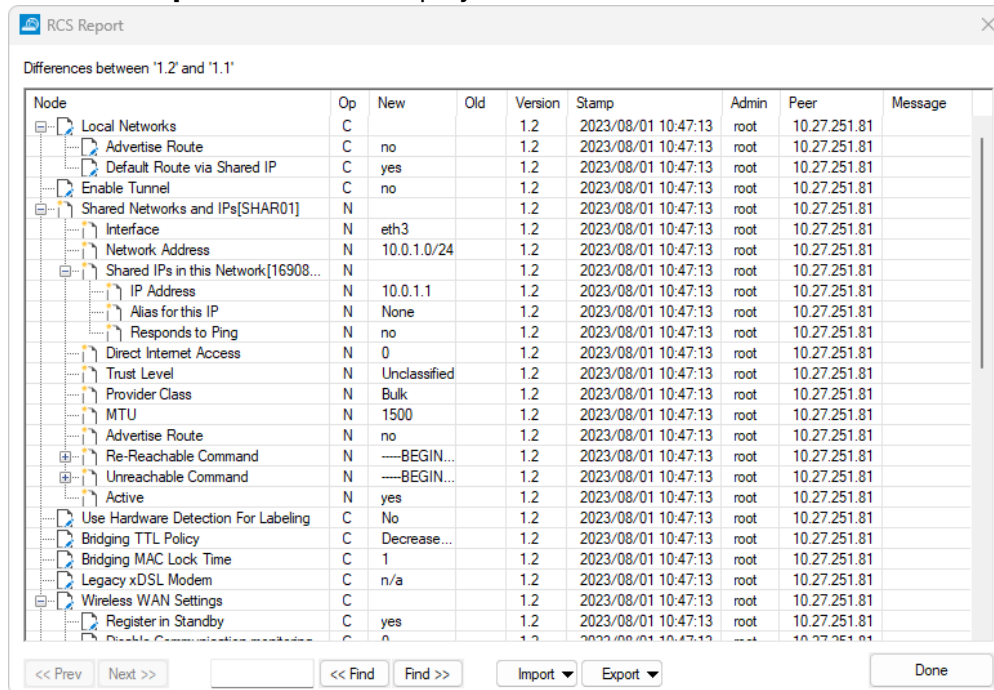
9. If you want to close the window, click **Done**.
10. Alternatively, if you want to create a report, perform the steps following next.

### 3. How to Create a Report Based on the Changes

In the **RCS Versions** window, you can generate an RCS report to compare and view information for specific configuration versions. For configuration objects that contain at least one sub-node, you can also filter RCS reports for specific time periods and administrator IP addresses.

1. Open the **RCS versions** page.
2. Select the versions that you want to include in the report. To select a range of versions, click the first version and last version in the range of interest. Then select the **Full History** check box. To select all versions, click **Select All**.
3. Click the button **Show Differences...**

The **RCS Report** window is displayed.



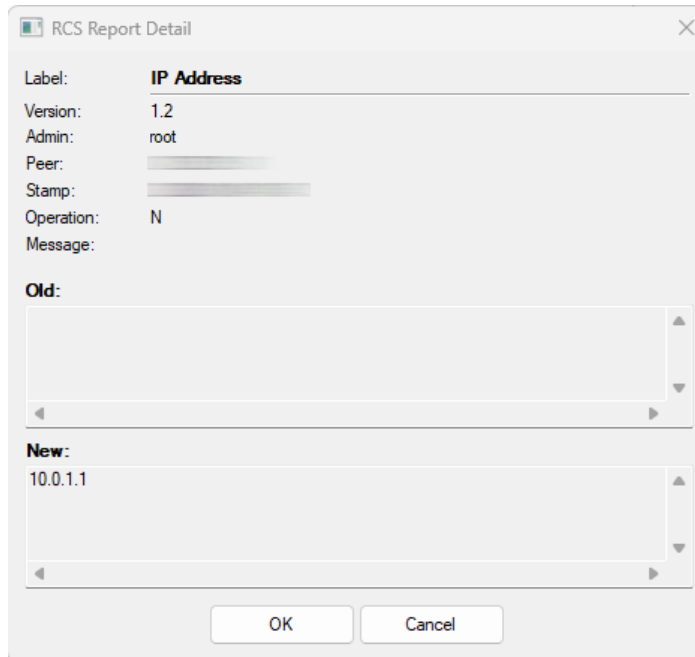
The **RCS Report** window displays the following information:

Options	Description
<b>Node</b>	Displays change in a tree structure. The first level specifies the name of the configuration entity, the second level specifies the name of the data set, the third level specifies the position in the configuration dialog, and the fourth level specifies the object of editing.
<b>Operation</b>	The type of change made: <b>Move</b> - The position of the configuration entry was moved in the hierarchy (for example moving a rule up or down in a rule set). * - Indicates that multiple changes were made to the configuration entry.
<b>New</b>	The new value of the configuration entity.
<b>Old</b>	The old value of the configuration entity. The New and Old columns may contain multiple lines. To view all the lines, expand the nodes in the <b>Node</b> column or right-click the Details... from the context menu.
<b>Version</b>	Displays the version number when editing is displayed. If there are multiple version numbers within this node, the column displays: *
<b>Stamp</b>	The date and time when the configuration was modified. Unless you have changed the time settings for the system, the UTC time format is used. The date and time are formatted as follows: <b>yyyy/mm/dd hh:mm:ss</b>
<b>Admin</b>	The name of the administrator who made changes to the configuration version.
<b>Peer</b>	The IP address of the administrator who made changes for the configuration version. If the same IP address is entered multiple times within a firewall rule, the RCS Report window may display incorrect change history even if the change was correctly deployed.

## Querying Details from the Report

1. At this point, you have the option to get more detailed information from the report:
  1. You can right-click the **RCS Report** columns and select any of the following options to modify the column view or print the report:

- **Details** – Opens the **RCS Report Detail** window, which displays the column information in a more readable format (recommended for multi-line entries).



- **Expand and Expand All** – Expands a selected node or all nodes.
- **Collapse and Collapse (All)** – Collapses a selected node or all nodes.
- **Print (Visible Only, Landscape/Portrait)** – Prints the display as it is displayed. You can print the report in landscape or portrait orientation. The landscape orientation is recommended.
- **Print (All, Landscape/Portrait)** – Prints all the information in the report. You can print the report in landscape or portrait orientation. The landscape orientation is recommended.

The toolbar at the bottom of the RCS Report window offers the following functionalities:

- **Search String** – In this empty field, you can enter the string you want to search for. Wildcards are not supported.
- **<< Find / Find >>** – Navigate up and down the report to find the specified search string.
- **Import ... / Export ...** – Export the report into a \*.prp file for archiving purposes or import an archived prp file.
- **<< Prev / Next >>** – Navigate between the selected configuration versions.

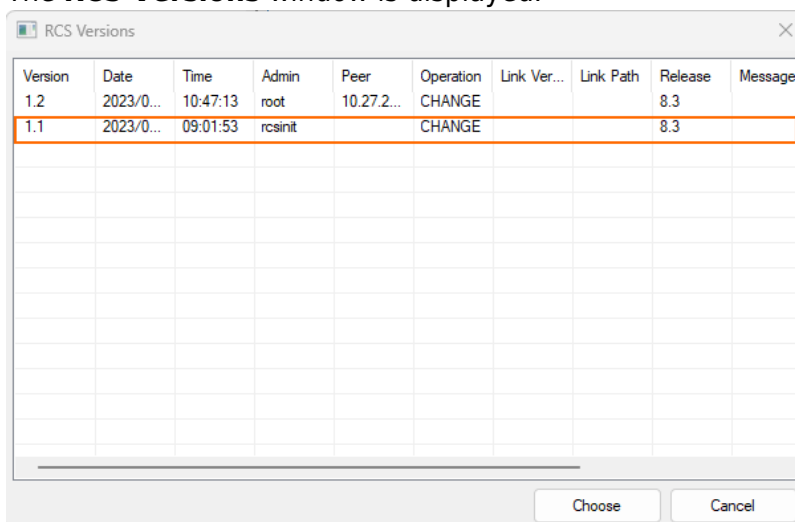
2. If you want to export the list of changes, click **Export**.
3. Enter a filename in the file creation window and click **Save**.
4. If you want to close the window, click **Done**.

## 4. Reverting a Configuration to a Specific Version

With the exception of the nodes and services mentioned at the beginning of this article, you can revert any specific configuration to an earlier stored configuration.

This example assumes that you want to revert the **Network** node.

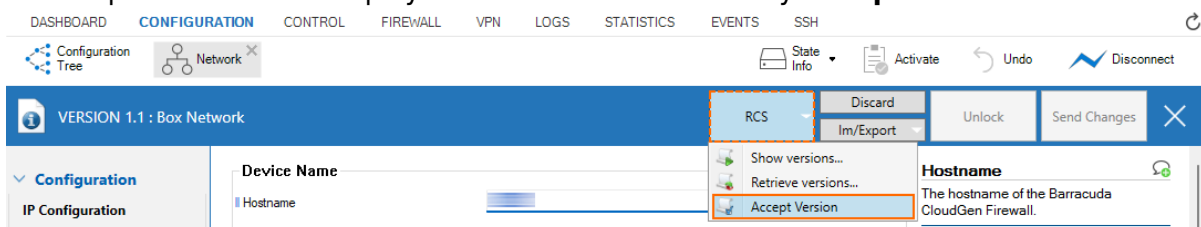
1. Go to **CONFIGURATION > Configuration Tree > Box > Network**.
2. Click **Lock**.
3. Click **RCS** in the blue ribbon bar.
4. A drop-down menu list is displayed.
5. In the list, click **Retrieve versions...**.
6. The **RCS Versions** window is displayed.



The image shows a dialog box titled "RCS Versions" with a table of configuration versions. The table has columns for Version, Date, Time, Admin, Peer, Operation, Link Ver..., Link Path, Release, and Message. Two rows are visible: Version 1.2 and Version 1.1. The row for Version 1.1 is highlighted with an orange border.

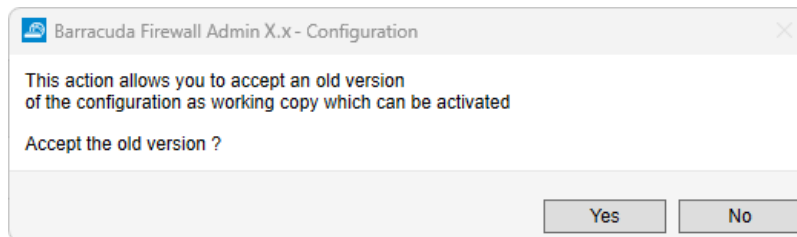
Version	Date	Time	Admin	Peer	Operation	Link Ver...	Link Path	Release	Message
1.2	2023/0...	10:47:13	root	10.27.2...	CHANGE			8.3	
1.1	2023/0...	09:01:53	rcsinit		CHANGE			8.3	

7. Select the required line of the version for which you want to restore the configuration.
8. Click **Choose**.
9. The configuration page now displays all values that were stored under the selected version.
10. Click **RCS**.
11. The drop-down menu is displayed and now shows the entry **Accept Version**.



12. Select **Accept Version**.
13. A dialog window opens and asks if you want to accept using an old version of the configuration.





14. Click the **Yes** button to accept your selected old version.
15. Click **Send Changes**.
16. Click **Activate**.

## Figures

1. rcs\_improvements\_rcs\_setup.png
2. rcs\_improvement\_menu\_list\_show\_rcs\_versions.png
3. rcs\_improvements\_rcs\_versions\_selected.png
4. rcs\_improvements\_rcs\_report\_list.png
5. rcs\_improvement\_show\_details\_from\_report.png
6. rcs\_improvements\_RCS\_window\_for\_selecting\_version\_to\_revert.png
7. rcs\_improvement\_accept\_version.png
8. rcs\_improvements\_dialog\_accept\_old\_version.png

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