TransAct Packager Release 5.4

Software Installation and Upgrade Guide

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CHAPTER 1

Introduction

RGB's TransAct *Packager* (TAP) segments video and audio content using adaptive streaming technology for delivery to PCs, mobile devices, and set-top boxes. *Packager* ingests H.264 encoded video streams carried in an MPEG-2 transport stream (TS) and produces fragmented output in several popular end-device protocols. Additionally, *Packager* can encrypt content using a variety of methods and integrated with leading DRM vendors and key exchange servers.

RGB Networks offers the TransAct *Packager* as either a software license or an appliance. The software-only solution allows customers to deploy on their choice of server-based hardware platform, including virtual machines. Note that performance will be impacted by the hardware platform running the software.

When running on an RGB supported appliance – the Application Media Server (AMS) – TransAct *Packager* provides a minimum mean time between failure (MTBF) of 100,000 hours, as the AMS is an extremely durable hardware appliance requiring minimal ongoing maintenance. Refer to *TransAct AMS Hardware Setup Guide* for instructions on installing the RGB Application Media Server.

Figure 1. RGB Application Media Server

In This Chapter

- "About the TransAct *Packager Application,*" next.
- "This Document" on page 6.
- "Document Organization" on page 7.
- "Document Audience" on page 7.
- "Document Conventions" on page 7.
- "Graphics Used" on page 8.
- "Contacting RGB Customer Support" on page 8.

About the TransAct *Packager* Application

Packager is a software application that is installed over a Linux-based operating system (OS) — Community Enterprise Operating System (CentOS)[1]. When installing *Packager* for the first time, the correct OS version and required RGB-based Linux packages will first need to be installed. When upgrading *Packager* from a previous version, an OS upgrade may or may not be required, depending on which version of *Packager* is installed.

1. RHEL can also be used.

This Document

The *TransAct Packager Software Installation and Upgrade Guide, Release 5.4* provides instructions for installing and upgrading to the TAP 5.4 software for both AMS[2] and non-AMS[3] platforms.

Note: *TransAct Packagers that are running on version 4.9 or lower require an operating system upgrade to CentOS 6.5 in order to run Packager 5.4; this requires an additional data migration procedure. See the section titled, "Determine The Type of Upgrade Needed" on page 24 for more details.*

The following table explains the differences between an appliance and a software-only installation.

Table 1. Differences between appliance and software-only installation

Appliance Installation	Software-Only Installation
TransAct *Packager* is self-contained on a 1RU server appliance—the Application Media Server.	Customer must provide hardware and an operating system that meets requirements for running TransAct *Packager* software.
Default users are created for root, admin, and oper.	Customer is responsible for creating all non-root users[a].
Operating system packages are updated to the version specified in a manifest file as part of the update.	Operating system packages are never updated as part of a software update. Customer is responsible for maintenance of operating system packages[b].
System configuration can be performed using the Management Console (Web GUI).	System configuration can be performed using the Web-based Management Console (GUI) by default. Customer has the option to disable configuration commands in the GUI. In this case, system configuration can only be displayed from the Management Console; changes to system configuration must be made using Linux tools manually by the customer.
	TransAct *Packager* software can be executed from within a virtual machine.

a. This does not apply for RGB-supplied OSDVDs, available for download as an .iso file group upon request from RGB Customer Support.
b. Ibid.

2. In the context of this manual, the AMS platform refers to *Packager* software that is installed only on the RGB appliance-based hardware server (Dell Enterprise *r610* or *r620*).
3. In the context of this manual, the non-AMS platform refers to *Packager* software that is installed on any other third party device, including virtual machines.

Document Organization

This guide is organized as follows:

- Chapter 1, *Introduction* – (this chapter) describes the contents and conventions used in the *TransAct Packager Software Installation and Upgrade Guide*, *Release 5.4*.
- Chapter 2, *Installing Packager Software* – provides steps for a software-only installation of the TransAct *Packager* software.
- Chapter 3, *Installing TAP on a Virtual Machine* – explains how to create a virtual machine within which TransAct *Packager* can be installed and executed.
- Chapter 4, *Upgrading Packager Software* – describes how to upgrade your existing *Packager* software and/or migrate data from prior versions of software to the new 5.4 version.
- Chapter 5, *Downgrading Packager Software* – describes how to downgrade your existing *Packager* software from Release 5.4 to an earlier version.

Document Audience

This guide is for system administrators and operators who are responsible for installation and maintenance of TransAct software. You should be familiar with general video and networking terminology. You should also be familiar with CentOS operating systems and commands.

Document Conventions

Table 2 provides an easy way to recognize important information in the text.

Table 2. Document Conventions

When you see:	It means:
	**Notes** are indicated by the icon shown at left, and point out information that may not be part of the text but provide tips and other helpful advice.
	**Cautions** are indicated by the icon on the left, and let you know that an action may have undesirable consequences if the instructions are not followed correctly. Cautions also indicate that failure to follow guidelines could cause damage to equipment or loss of data.
	**Warnings** are indicated by the icon on the left, and indicate that failure to take the necessary precautions or to follow guidelines could cause harm to equipment and personnel.
	**Navigation tip:** follow the path next to the pointer to navigate a specific GUI menu.
Clicking any blue link takes you to the item to which the link refers.	

Graphics Used

In some cases, the screens shown in this manual may have been slightly modified after the manual was released, or may appear slightly different on different browsers.

All efforts have been made to ensure that the latest images are used. In all cases, the functionality described is current at the time of writing.

Contacting RGB Customer Support

RGB Customer Support is available 24x7. If, after reviewing this installation and upgrade guide, you require assistance, please contact RGB Customer Support via any of the following methods:

Table 3. Contacting RGB Customer Support

Method	Contact Information
E-mail	support@rgbnetworks.com
Internet	http://www.rgbnetworks.com/support/rgb-customer-portal.php
Inside North America	1.877.RGB.NETW // (1.877.742.6389)
Outside the North America	+1.408.701.2800

CHAPTER 2

Installing Packager Software

This chapter covers steps for performing a *software-only* installation of *Packager* on a non-AMS[1] device on which *Packager* software has never been installed. For instructions on upgrading and migrating from a prior version of *Packager* software, see Chapter 4, "Upgrading *Packager Software*."

In This Chapter:

- "Overview," next.
- "Operating System Requirements" on page 10.
- "CentOS Installation with RGB-customized OS" on page 10.
- "CentOS Installation with Non-RGB OS" on page 11.
- "Installing *Packager Software" on page 13*.
- "Initial System Configuration" on page 14.
- "Disabling GUI System Configuration in Favor of Linux Tools (Optional)" on page 16.

Overview

A clean[2] software-only installation of *Packager* requires the appropriate operating system, Linux packages, and partitioning configuration as described in the subsequent sections. After installing the *Packager* software on your device, you may optionally change its initial IP configuration, also described in this chapter.

Basic Steps

1. Obtain the correct Linux operating system version[3];
2. Confirm or obtain the correct operating system packages;
3. Confirm or set up the correct hard disk partitions;
4. Obtain the *Packager* software installation executable;
5. Install the *Packager* software application over the operating system;
6. Optionally reconfigure from DHCP to static IP address;
7. Proceed to configure system parameters in the web-based management GUI.

These steps are explained in detail in the sections that follow.

1. Any third party hardware or virtualized device not provided by RGB.
2. A clean install is defined as a first-time software installation of Packager on an OS. The only method of software installation is via the Linux command line; no management GUI has yet been installed.
3. You can use your own version of OS (see Operating System Requirements section) or you may obtain the pre-packaged OSDVD from RGB.

Operating System Requirements

TransAct *Packager Release 5.4* software is supported on the following operating system(s):

- CentOS[4] version 6.5

Note: *If you are using an OS installation not obtained from RGB, you must ensure it meets the requirements set forth in the section titled, "CentOS Installation with Non-RGB OS" on page 11. If you have obtained the OSDVD from RGB, all required Linux packages will be present and the partitioning is performed automatically.*

CentOS Installation with RGB-customized OS

If you are using an RGB-customized OS with pre-installed Linux packages and automatic partitioning, install the OS as follows:

1. Obtain the CentOS ISO[5] image file from RGB Customer Support, labeled as follows:

   `osdvd-5.0-CENTOS65-23781.iso`

2. Either burn the ISO image to a DVD or otherwise load the ISO to a location accessible by the target server.

   Installation automatically begins when the DVD is inserted or the system otherwise detects the ISO.

3. Follow the prompts to install the OS.

Caution: *Do not configure the system to use DHCP[6].*

4. When prompted, use Linux tools to statically enter the hostname, IP address, subnet mask, default gateway, and DNS. Repeat **steps 2-4** for each instance of TAP you wish to install.

   For example, if you are installing 2 instances of TAP, you will need 2 separate instances of the OS.

5. Proceed to the *Installing Packager Software* section. Since the RGB OSDVD performs the appropriate partitioning automatically, you do not need to perform any additional OS installation steps.

4. RHEL 6.5 can also be installed (instead of CentOS), however CentOS is the RGB-recommended OS.
5. An ISO image file is an archive or group of files that represents the entire contents of an optical disc. It can be burned to a DVD or it can be copied to network drive and mounted to a system to run as if it were a DVD.
6. When using the RGB-supplied OS, DHCP will automatically be configured under the following conditions:
   —First Condition: For multiple drives: If the OS installation detects multiple drives, it prompts for a primary drive selection and waits 1 minute before moving to the Second Condition. For single drive: OS detects a single drive, therefore the selection is not relevant and the system immediately proceeds to the Second Condition.
   —Second Condition: Installation prompts for hostname entry. If there is no entry within 4 minutes or hostname is an empty string (such as when tapping [enter] instead of a value), DHCP is automatically configured,
   —Third Condition: If a hostname was entered, the installation prompts for a static IP address entry. If, after 5 minutes, no IP address entry is made, the system times out and DHCP is automatically configured.
   There is a maximum timeout of 5 minutes for the system installation; which means if the installation is started and left unattended for longer than 5 minutes after the First Condition prompt, DHCP will be used.

CentOS Installation with Non-RGB OS

If you wish to use your own (non-RGB) version of CentOS 6.5 for OS installation, you must install the Linux packages required for running *Packager*, manually partition the target server's hard drive, and perform a few extra pre- and post-installation steps as described in this section.

Required Linux Packages

Table 4 below lists the Linux packages required in order to install *Packager*. When you are using a non-RGB OS for installation, you must obtain these packages from either the original operating system installation media or from Internet repositories.

Note: *The Packager installation process checks for these packages and will post an error message if one or more of the packages are not installed. An error message will indicate which packages are missing and will provide options for resolving the issue.*

Table 4. Required Linux Packages

alsa-lib.x86_64	neon	postgresql-devel.x86_64
dejavu-sans-mono-fonts	net-snmp	postgresql-server.x86_64
gcc	ntp	rsync
glibc.i686	OpenIPMI	ruby
kernel-devel	perl-Date-Manip	SDL.x86_64
libdbi.x86_64	perl-DBI	sysstat
libicu.x86_64	perl-Digest-HMAC	tftp
libogg.x86_64	perl-libwww-perl	xorg-x11-fonts-Type1
libstdc++.i686	perl-MailTools	zlib.i686
libuuid-devel	perl-MIME-Lite	
libvorbis.x86_64	perl-XML-DOM	
libxml2.i686	postgresql.x86_64	

Partitioning

For Non-RGB OSDVD *Packager* deployments, the system where *Packager* is installed should be pre-configured with the following partitions for optimal performance:

- **/opt/localmnt**—A partition for local mounts. This partition should be at least 25 GB. If this partition does not exist, local mounts will be created using a virtual filesystem on the **root** mount. This filesystem consists of a single large file formatted and mounted as a filesystem.
- **/var**—If multiple partitions are desired to isolate log files, they should be created for: **/var/ripcode** and **/var/log/ripcode**.

Note: *The above partitions will automatically be created if you are using the RGB-configured OSDVD installation, however, you must ensure the disk size meets requirements. This installation is in the form of an ISO image which can be downloaded and burned to a DVD or mounted to a local drive. RGB Customer Support can provide you with the CentOS OSDVD ISO image upon request.*

Additional Steps During OS Installation

During the network setup portion of the Non-RGB OSDVD installation, the following actions must be performed:

1. When prompted for a name server, enter only **one** DNS server IP address in the **Name Server** field. Entering more than one IP address here (even if separated with commas) can cause the DNS configuration step to fail, thus causing the *Packager* software installation to fail.
2. When prompted to select an **Install Type**, choose the **basic server** option. Do not select "minimal" as this does not contain the needed files.

CentOS Installation Steps (Non-RGB OS)

To install CentOS using a Non-RGB OS, proceed as follows:

1. Install CentOS according to the media's installation instructions.
2. Use Linux tools to statically enter the hostname, IP address, subnet mask, default gateway, and DNS.

Caution: *Do not configure the system to use DHCP.*

3. Partition the hard disk (virtual or physical) as described in "Partitioning" on page 11.
4. After the system reboots, obtain and install the required Linux packages as shown in Table 4 on page 11.
5. Repeat **steps 1-4** for each instance of TAP you wish to install.
   For example, if you are installing 2 instances of TAP, you will need 2 separate instances of the OS.
6. Proceed to the *Installing Packager Software* section.

Additional Steps After OS Installation

After the Non-RGB OSDVD installation, the following actions must be performed:

1. The **SELinux** security module must be **disabled**. One way to do this is as follows:
   - Open the `/etc/sysconfig/selinux` file
   - Edit the file by changing the line reading, "`SELINUX=enforcing`" to "**`SELINUX=disabled`**."
2. Disable the default firewall[7] by typing the following commands:

```
service iptables save
service iptables stop
chkconfig iptables off
```

3. Reboot the OS instance from the command line in order for the changes to take effect.

7. If you need to enable corporate firewall rules, contact RGB Customer Support for a list of IP addresses and ports used by the TAP to include in the firewall rules.

Installing *Packager* Software

Caution: *Before installing Packager software, please refer to "Operating System Requirements" on page 10 for recommendations on partitioning configuration.*

Packager software installation is performed using a self-executing .rampx file. To install *Packager* as a software-only solution, proceed as follows:

1. Obtain the appropriate *Packager* software from RGB Customer Support.

   The software executable file will look similar to this:
   `ripcode-packager-5.4-23968.rgb.x86_64.rampx`

2. Copy the **.rampx** file to your system.

Caution: *Do not place the file in the* `/tmp/ramp` *or* `/tmp/ruf` *directories.*

3. Make the **.rampx** file executable by performing the following command:

   ```
   chmod +x [filename].rampx
   ```

4. Execute the **.rampx** executable by using the "**./**" command. Example:

   ```
   ./ripcode-packager-5.4-23968.rgb.x86_64.rampx.
   ```

   Several flags from the **.rampx** executable are available to aid in a software-only installation. Typically used flags are listed below.

-n	No internet access. If any system packages are required, they will only be retrieved from the DVD or **.iso** image.
-i	Mount an operating system **.iso** image instead of using a DVD in the optical drive. The **.iso** image can be copied directly to the system or remotely remounted using NFS or equivalent protocol.
-R	If required system packages are missing, let the TransAct software installation automatically install them. This requires a DVD, Internet access, or an**.iso** image. The TransAct installation will not update any system packages other than to install any missing required packages.

Note: *When using flags, ensure there is a space between each flag. For example:*

```
./ripcode-packager-5.4-23968.rgb.x86_64.rampx -n -i /root/osdvd-5.0-CENTOS65-23781.iso
```

Installation Notes

Below are some helpful notes to aid in the installation process:

- For a full list of flags, execute the **.rampx** file with the **-?** flag.
- When you first install the *Packager* application, the installation process will check for required system software and list any missing requirements. If one or more Linux packages are missing, ensure that the operating system installation media is in the optical drive, Internet repositories are accessible, or an operating system installation image (**.iso**) is mounted to the system. Follow instructions to resolve the issue.
- The install log may be reviewed at the following location: `/var/log/ripcode/swupdate.log`. See "Operating System Requirements" on page 10 for a list of required packages.

Initial System Configuration

If you did not configure the system with static IP information during the OS installation, you must do so now. Performing initial system configuration entails setting the IP address, subnet mask, host name, and default gateway for the *Packager* application. After the IP address is set, the GUI may be used for further system configuration such as network routes, licensing, NTP servers, network bonds, etc.

Note: *RGB recommends that you configure all system parameters before configuring any workflows or packaging.*

There are two methods available for initial IP address configuration: DHCP or Static. Both methods are described here.

Note: *When running Packager on an AMS appliance, the currently configured IP address will be displayed on the front panel of the AMS.*

DHCP Method

If you used the OSDVD supplied by RGB, by default *Packager* will be configured to use DHCP for obtaining its IP address, subnet mask, and gateway address (unless you modified these parameters during the installation). If you wish to continue using DHCP for initial configuration, there is no need to access the command line interface (CLI) for any system configuration. Simply open a web browser to the IP address from a remote administrative computer and use the following login credentials[8] for initial access:

Login: `admin`
Password: `ripcode!`

Once logged into the GUI, click the **System** tab to configure all system configuration parameters. See the *TransAct Packager User Guide, Release 5.4* for instructions to all GUI procedures.

Caution: *RGB highly recommends that you use static IP configuration for all TransAct products. You can configure static IP parameters from the **system >> network >> ip** menu in the management GUI.*

Static IP Method via CLI

To configure a static IP address using RGB's command line interface (CLI), proceed as follows:

1. Login to the *Packager* via a secure shell (SSH) session.

Note: *You must know the IP address that has been assigned to the Packager and you must log in to it from a routable computer.*

2. Use the following login[9] credentials to access *Packager*'s CLI:

8. The Web GUI login of `admin/ripcode!` is only created when you are using an AMS or an RGB-supplied OS-DVD for installation. If you are using a Non-RGB OSDVD, the Web GUI login uses `root` as a login and whatever password you supplied during installation.
9. Using the `admin/ripcode!` login from the shell prompt initiates RGB's CLI sub-program. For full root access to a *Packager* that has been loaded on an RGB-supplied OS, please contact RGB Customer Support.

Login: `admin`
Password: `ripcode!`

3. Change to the *system* tree of the CLI by typing **system** and pressing the [**Enter**] key.
4. Configure the IP address using the **ip address** command syntax as shown below (where the **bold** lettering is the command to enter):

   ```
   admin (system)> ip address static [IP address] mask [network mask]
   gateway [Gateway IP] iface 0
   ```

   For example, this command sets the static IP, netmask, and gateway on Interface 0[10]:

   ```
   admin (system)> ip address static 10.10.10.221 mask 255.255.255.0
   gateway 10.10.10.1 iface 0
   ```

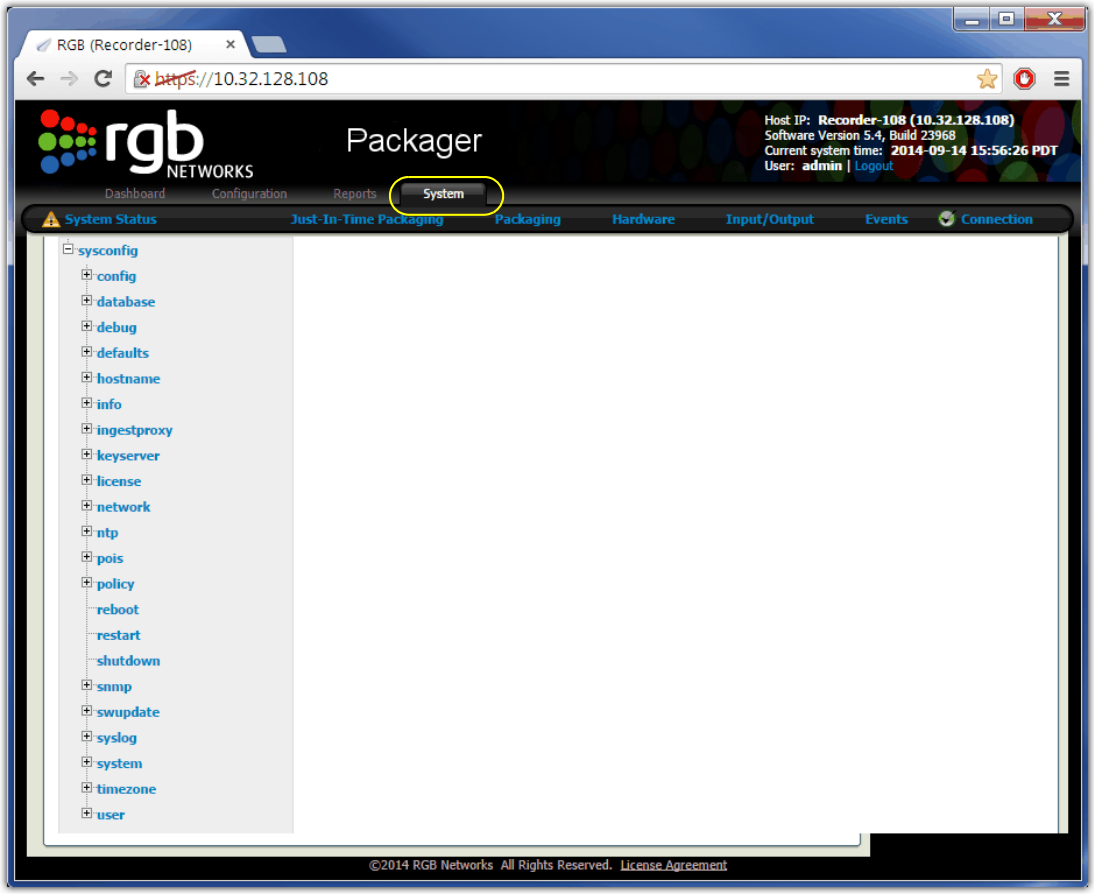
5. Press **[Enter]** to enter and save the new IP configuration.
6. Type **ip restart** to restart IP services and affect the change.

Note: *When this command is issued, the IP address change is stored and will take effect when you execute the **ip restart** command, or reboot Packager. Once you reboot, you must use the new IP address for subsequent access.*

7. Log in to *Packager*'s Web-based Management Console (GUI) from a browser on a remote administrative computer using the new static IP address.

10. The iface parameter requires an index value rather than the interface name. To obtain a list of current index-to-interface mappings, use the **show netiface** command from the CLI *system* tree.

8. Once logged into the GUI, click the **System** tab to configure all system configuration parameters. See the *TransAct Packager User Guide, Release 5.4* for instructions to all GUI procedures.



Disabling GUI System Configuration in Favor of Linux Tools (Optional)

Once you have installed *Packager*, there are two ways to perform system configuration for *software-only* based systems (i.e., systems that are not running on an RGB-manufactured AMS):

- Using the GUI;
- Using standard Linux tools (or customer-supplied tools). In this case, the configuration and management function of the *Packager* should be disabled.

Warning! *Since commands issued from the GUI may perform additional internal configuration, do **not** use the GUI combined with Linux tools to make system configuration changes. Doing so may render the system inoperable. Either use **only** the GUI, or **only** Linux tools, never a mixture of both.*

To perform remote configuration of a software-only installation using Linux tools, disable GUI system configuration so that users cannot perform configurations via the GUI. Users will still be able to display system settings from the GUI, however, modification of these settings (which could alter the installation process from Linux) will be disabled.

To Disable GUI System Configuration:

1. Use your preferred editor to open the **ripcode.conf** file (stored in the **/etc/ripcode/** directory).
2. Search for the key `RCSystemConfigDisabled` and change its value to `true` (case-sensitive).
3. Save changes and restart the GUI service by executing `service ripcode restart` from a command prompt.
4. Force the Web browser to reload the GUI and verify that the set/configure aspects of system configuration (IP, DNS, syslog, SNMP, etc.) are not visible.

To Re-enable GUI System Configuration

1. Use your favorite editor to open the **ripcode.conf** file (stored in the **/etc/ripcode/** directory).
2. Search for the key `RCSystemConfigDisabled` and change its value to `false` (case-sensitive).
3. Save changes and restart the GUI service by executing `service ripcode restart` from a command prompt.
4. Force the Web browser to reload the GUI and verify that the set/configure aspects of system configuration (IP, DNS, syslog, SNMP, etc.) are now visible.

CHAPTER 3

Installing TAP on a Virtual Machine

This chapter provides guidelines for installing the *Packager* application on a virtual machine (VM) rather than a single dedicated server.

In This Chapter:

- "Overview," next.
- "System Requirements and Partitions" on page 18.
- "Configuring the Virtual Machine" on page 19.
- "Special Note When Upgrading *Packager Software on a VM" on page 20*.

Overview

A virtual machine (VM) is a software application that is installed on a computer with an existing operating system (Host OS) so another operating system (Guest OS) can run concurrently. With a VM you can use the same hardware device to run multiple instances of operating systems rather than a dedicated server for each OS.

Note: *The primary benefit of a VM is hardware flexibility; the drawback is the potential for reduced performance. For maximum performance, consider running Packager on RGB's 1RU Application Media Server (AMS).*

This chapter provides step by step instructions for installing and configuring the *Packager* software on a VM. Provided the VM software supports the appropriate host/guest pairing, you may use any VM application you choose.

Note: *Installation steps on your specific VM may vary. RGB recommends consulting your IT department for assistance with the installation.*

System Requirements and Partitions

When installing *Packager* on a VM, you must provide the same system resources and configure the same partitions for the VM as you would to a dedicated server. See "Operating System Requirements" on page 10, "CentOS Installation with RGB-customized OS" on page 11, and "CentOS Installation with Non-RGB OS" on page 11.

Configuring the Virtual Machine

This section describes how to install CentOS and the *Packager* application on a host operating system. When you have completed the OS installation, your VM will be ready to run TransAct *Packager*.

What You Will Need:

1. A computer that has at least 70 GB of free hard disk space and 24 GB of RAM.
2. A Host OS on the computer (Windows 7, for example);
3. A Linux-based Guest OS (CentOS version 6.5)

Note: *To obtain a CentOS OSDVD from RGB Networks in the form of a downloadable .iso file, please contact RGB Customer Support.*

4. An installation medium for the Guest OS (DVD, .ISO image, directory mount, USB, etc.);
5. A VM software application that allows the Host OS and the Guest OS to co-exist (VMware, for example);
6. An unused static IP address;
7. The *Packager* **.rampx** executable.

These Instructions

These instructions provide the basic steps for configuring a VM. RGB does not recommend one VM application over another.

Configuration Steps

1. Install your preferred VM application on your server.
2. Using the VM program, create a new VM instance for the Linux-installation.
3. Install CentOS version 6.5 via one of two methods (depending on your use):
   - Follow the instructions in "CentOS Installation with RGB-customized OS" on page 10.
     -or-
   - Follow the instructions in "CentOS Installation with Non-RGB OS" on page 11.
4. Boot / Play the VM.
5. Obtain the appropriate *Packager* software executable from RGB Customer Support.

   The software executable file will look similar to this:
   `ripcode-packager-5.4-23968.rgb.x86_64.rampx`

6. Copy the **.rampx** file to your system.

Caution: *Do not place the file in the* `/tmp/ramp` *or* `/tmp/ruf` *directories.*

7. Make the **.rampx** file executable by performing the following command:
   `chmod +x [filename].rampx`

8. Execute the **.rampx** executable by using the "**./**" command. Example:

   `./ripcode-packager-5.4-23968.rgb.x86_64.rampx.`

9. If applicable, change the IP address of the *Packager* VM to static (optional, but highly recommended). See "Static IP Method via CLI" on page 14

10. Log in to the *Packager* management GUI by navigating to its IP address from a web browser and proceed to manage and/or configure the system.

Special Note When Upgrading *Packager* Software on a VM

This section applies only to *Packager upgrades* on a VM, and *not* to clean installs.

Caution: *TransAct Packager license keys are tied to the MAC address of the device acting as the license server. If you are using the localhost as your license server, this device will be the VM running the Packager. In this case, if you are upgrading Packager from one version to another* ***and*** *the upgrade requires that you reinstall the OS running on the VM, you must ensure that the same MAC address is used for the upgraded OS on the VM as was used on the prior OS version. If a new MAC address is used for the upgraded OS, your Packager license key will not work and you will need to obtain a new license lock code.*

For example[1]*, if you decide to re-image the OS on a VM whose MAC address is:* `bb-a4-b3-c2-dd-ee`*, it is as if a new hardware device is installed. Therefore, a new MAC address of, for example,* `aa-b0-1c-2f-ee-45` *is assigned to the virtual eth0 interface, the Packager lock code changes, and the license key for the originally installed OS on the VM no longer applies.*

RGB recommends that the VM MAC address be cloned prior to the OS upgrade, and that the same MAC address be reapplied after the OS upgrade. See Chapter 4, "Upgrading *Packager Software*" for detailed upgrade instructions.

1. MAC address numbers here are fictitious.

CHAPTER 4

Upgrading Packager Software

This chapter covers steps for upgrading *Packager* to *Release 5.4* for all devices including AMS, non-AMS, and Virtual Machines.

In This Chapter:

- "Prior to Performing Any Upgrade," next.
- "Determine The Type of Upgrade Needed" on page 24.
- "Direct Upgrade" on page 24.
- "Migration Overview" on page 28.
- "Migration Steps" on page 30.

Prior to Performing Any Upgrade

Before you upgrade *Packager*, it is highly recommended that you backup the configuration databases of your system as a fail safe procedure, regardless of which type of upgrade you perform.

Note: *Beginning with Release 5.2, backup via HTTP is supported. However, if you are upgrading from a version prior to this 5.2-22268 release, only TFTP backup is supported.*

Backup Configuration Databases

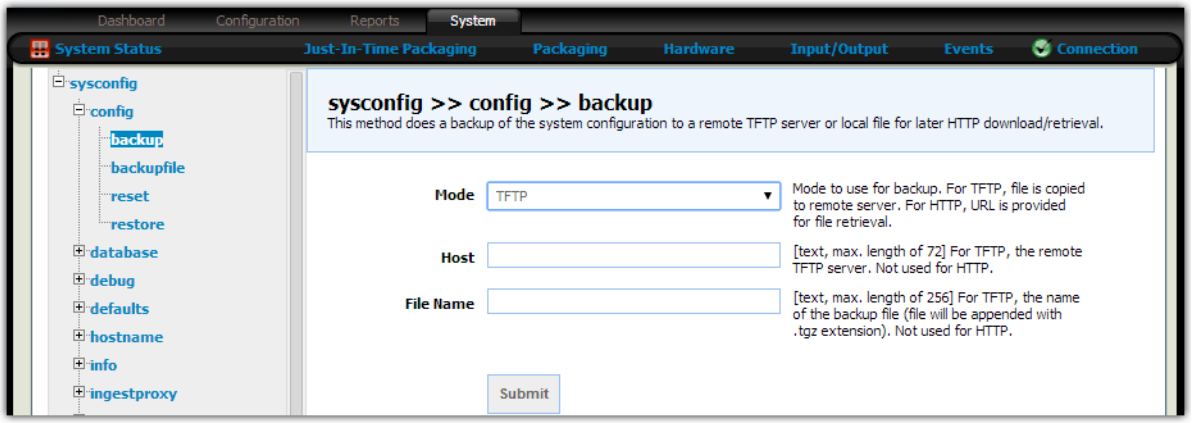
To backup the *Packager*'s databases, proceed as follows:

1. From the **System** tab, click through to **sysconfig >> config >> backup**.
2. Determine whether to use TFTP or HTTP as the method of backup. If you are using TFTP, ensure that a valid TFTP server (or service) is running on the desired TFTP host[1].

1. If a search path has not been configured in the *sysconfig* >> *network* >> *dns* >> *search* menu, a fully qualified domain name must be used for *Host* name entries. For example: `server.domain.com`

3. Provide the information in Table 5 and click **Submit**.

TFTP Backup



HTTP Backup

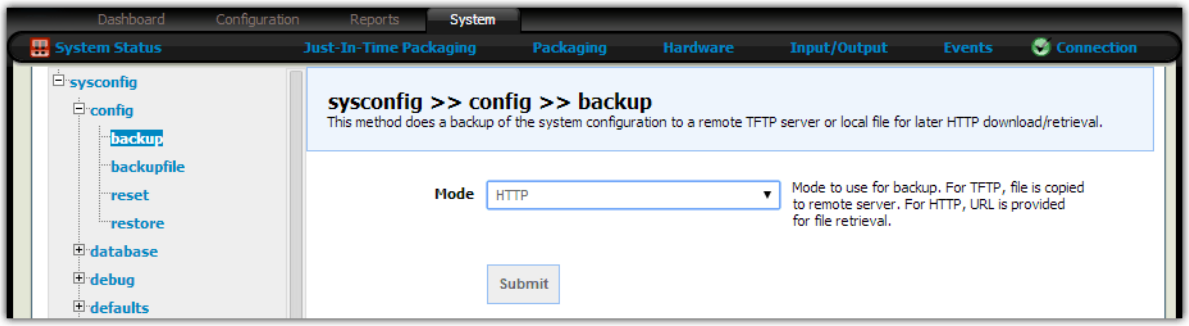


Table 5. Backup the *Packager*'s system configuration.

Field	Description
Mode	Select the mode to use for the database backup. Choices are: TFTP or HTTP. If you select **TFTP**, the backup files will be saved to the host and directory location you specify in the Host and File Name fields. If you select **HTTP**, there are no options for location or file name as the backup files will automatically be saved to *Packager*'s hard drive.
Host	**Required for TFTP.** The remote Trivial File Transfer Protocol (TFTP) server hostname or IP address to which the backup file should be sent.
File Name	**Required for TFTP.** The name to assign to the backup file. The file will automatically be appended with **.tgz**.

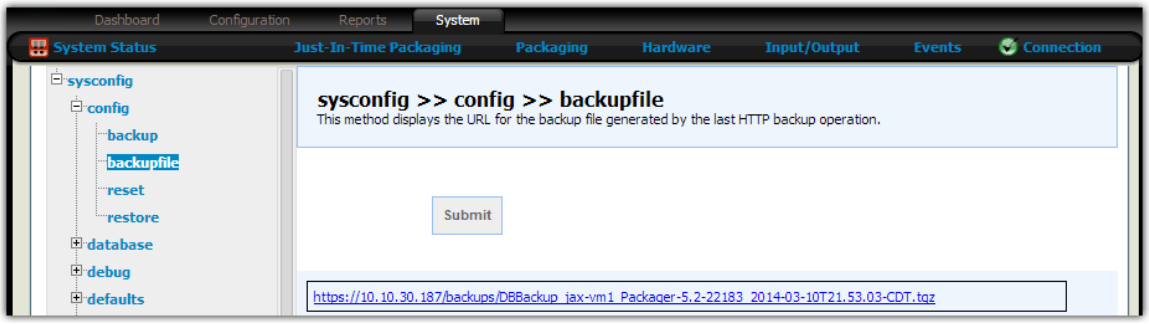
View HTTP Backup File Location

If you used HTTP as the mode of backup, you can view where the last backed up file was stored on *Packager*. To do so, proceed as follows:

1. From the **System** tab, click through to **sysconfig >> config >> backupfile**.

2. Click **Submit**.

   The backup file location will look similar to the following:



Note: *The backup file which you create here is for your protection only and not a file that is used by any of the upgrade procedures described in this chapter. However, it is possible you may need this backup file if you wish to perform a downgrade from this 5.4-23968 release to the release from which this backup was made.*

Determine The Type of Upgrade Needed

Depending on which version of software you are upgrading from, your upgrade path will be one of the following two methods:

- **Direct Upgrade** — OS does not require an upgrade and *Packager* databases are compatible between the running version and the upgrade version. This upgrade may be performed through the management GUI or using Linux tools. Upgrade time is short and only minimal downtime is expected.
- **Migration Upgrade** — OS requires an upgrade and the device on which *Packager* is running must be re-imaged with the new OS, or some other factor requires that the current *Packager* databases must be erased and restored. Upgrade time is longer due to database backup, OS installation, and data migration.

Table 6 below provides a quick reference for determining the type of upgrade needed for your system..

Table 6. Upgrade Path — Quick reference

If you are running:	Your upgrade path Is:	System upgrade time will be:	For instructions, see:
Pre-release Version of 5.4 with OS 6.5 already installed	*Direct* → TAP 5.4	Minimal	"Direct Upgrade" on page 24.
Pre-release Version of 5.4 with OS 6.4 or under	*Direct* → OS 6.5[a] → TAP 5.4	Minimal	"Direct Upgrade" on page 24...
TAP 5.0.1p1 and above, OS 6.4	*Direct* → OS 6.5[b] → TAP 5.4	Minimal	"Direct Upgrade" on page 24.
TAP 4.9 - TAP 4.6.x, OS 5.8	*Migration* → OS 6.4 → TAP 5.0.1p1 → *Direct* → OS 6.5[c] → TAP 5.4	Longer	"Migration Overview" on page 28, then "Direct Upgrade" on page 24.
Under TAP 4.6.x, OS 5.6	*Migration* → OS 6.4 → TAP 5.0.1p1 → *Direct* → OS 6.5[d] → TAP 5.4 • Contact CS to obtain **.ramp** file (instead of .rampx)	Longer	"Migration Overview" on page 28, then "Direct Upgrade" on page 24.

a. When upgrading CentOS from 6.3 or 6.4 to 6.5, you are not required to re-image the system. You can simply upgrade the OS, then proceed with the TAP 5.4 upgrade.
b. Ibid.
c. Ibid.
d. Ibid.

Direct Upgrade

This section provides steps for upgrading a *Packager* from *Release 5.0.1p1* and up for either a *Packager* operating in standalone mode or a *Packager* operating in package- or record-level peer redundancy. If your current software version supports a direct upgrade, you can upgrade the *Packager* software to *Release 5.4* via the management GUI. See the section titled, "Determine The Type of Upgrade Needed" on page 24 to confirm your upgrade path.

Note: *This procedure applies to all devices running Packager, including AMS, non-AMS, and VMs.*

What This Version Upgrades

- All RGB applications.
- Kernel modules and OS software packages to the latest or required versions.

Redundancy Upgrades

Beginning with *Release 5.4*, it is no longer necessary to remove the peer redundancy relationship between two *Packager*s operating in package-level or record-level redundancy, regardless of the version from which you are upgrading (as long as a direct upgrade is supported).

When upgrading a redundant pair of *Packager*s (or *Packager*s operating in nDVR *Recorder* mode) you must upgrade each node one at a time, rather than all at once. Follow the steps below for upgrade instructions.

Upgrade Steps

1. Create a fail safe backup file Prior to Performing Any Upgrade.
2. Obtain the appropriate *Packager* **.rampx** software from RGB Customer Support.

   The software executable file will look similar to this:

   `ripcode-packager-5.4-23968.rgb.x86_64.rampx`

3. Place the **.rampx** file on a network-accessible directory running either the Trivial File Transfer Protocol (TFTP) or Hypertext Transfer Protocol (HTTP).
4. Use a web browser to navigate to *Packager*'s IP address.
5. Log in to the *Packager* management GUI with the following login credentials:

   ```
   Login:    admin
   Password:ripcode!
   ```

6. If you are upgrading a *Packager* running package redundancy, follow these additional steps in order to reduce outage time:

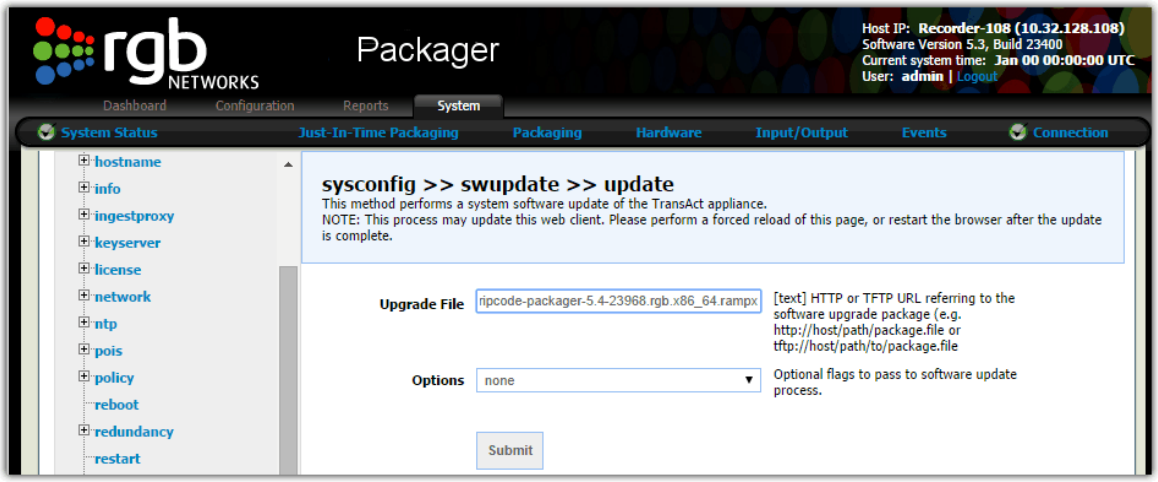
   a) From the *Packager* you wish to upgrade first, click through to **configuration >> package >> stop**.

   b) Select all packages, and click **Submit**.

   c) Proceed to the next step.

Note: *Once you have stopped all packages on one redundant Packager (e.g. Packager A) and you have upgraded it, you do **not** need to stop packages on the other redundant Packager (e.g. Packager B) before upgrading Packager B.*

4. From the **System** tab, click through to **sysconfig >> swupdate >> update.**



5. In the **Upgrade File** field, enter the URL[2] to the location of the **.rampx** file on your network. For example:

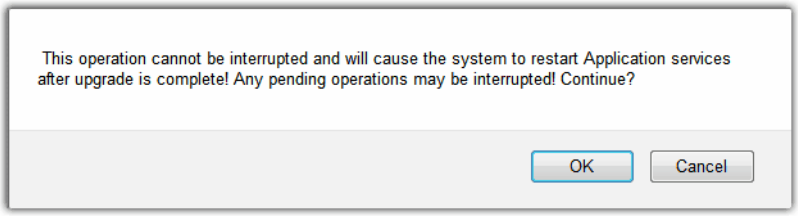
   `http://10.10.165.23/rgb-update/pkg/ripcode-packager-5.4-23968.rgb.x86_64.rampx`

   `tftp://10.10.165.23/rgb-update/pkg/ripcode-packager-5.4-23968.rgb.x86_64.rampx`

6. Select whether to allow Internet connection during the update from the **options** field. RGB recommends leaving this option as **none**.

7. Click **Submit**.

   A confirmation message will prompt you to continue:



8. Click **OK** to proceed.

9. When the upgrade has completed, reload the browser page in order to view the upgraded GUI menus and version number.

10. If you are upgrading a *Packager* that is employing package-level or record-level peer redundancy, repeat **step 1** - **step 9** for each *Packager* in the redundancy cluster.

2. If using a host name instead of an IP address for this field, and if a search path has not been configured in the *sysconfig >> network >> dns >> search* menu, a fully qualified domain name must be used for *Host* name entries. For example: `server.domain.com`

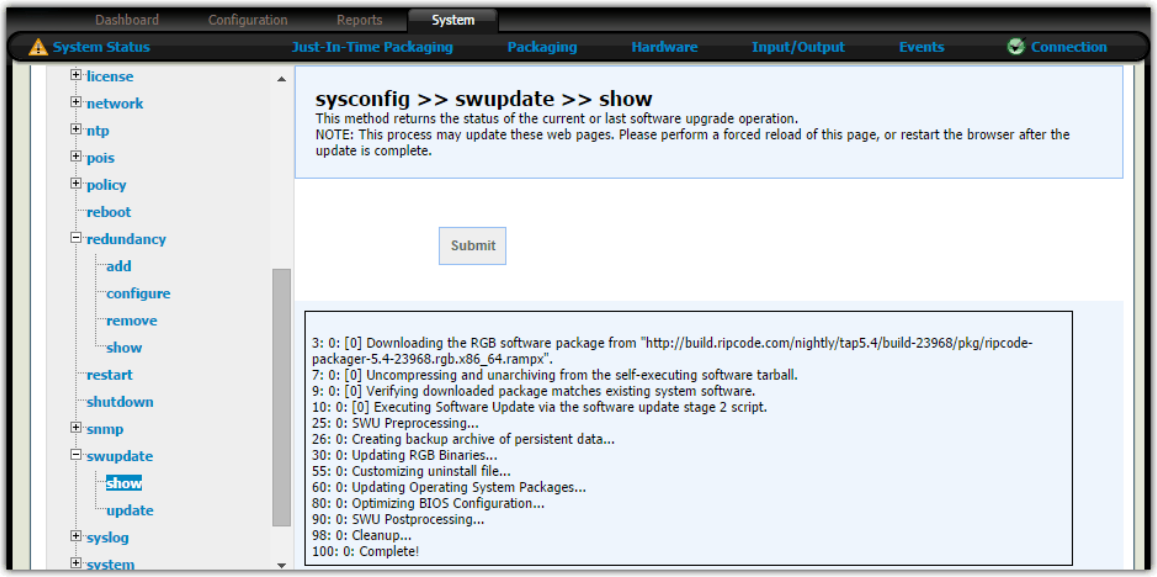
Viewing the Results of a Software Upgrade

To view the results of a software update, proceed as follows:

1. From the **System** tab, click through to **sysconfig >> swupdate >> show**.
2. Click **Submit**.

Note: *This page does not auto-update. To view real time status, click **Submit** periodically.*

Results appear similar to the following:



Migration Overview

If your current software version requires a migration upgrade, you must perform an OS upgrade to CentOS version 6.5, which entails re-imaging the device currently running *Packager*. Consequently, all existing data on *Packager*, including the application itself will be erased. Before proceeding further, see the section titled, "Determine The Type of Upgrade Needed" on page 24 to confirm your upgrade path.

Note: *This procedure applies to all devices running Packager, including AMS, non-AMS, and VMs.*

This Section

This section consists of the following sub-sections:

- "Migration Tool," next.
- "What is Exported and Restored" on page 28.
- "What is Not Exported and Restored" on page 29.
- "Important Notes on Migration" on page 29.

Migration Tool

RGB provides a *migration tool* that exports *Packager*'s system and packaging configurations to a remote destination, then re-imports the data back to *Packager* after software installation. This tool is available from RGB Customer Support.

Both the *migration export* file and the *migration restore*[3] file are packaged as standard **.ramp** or **.rampx** objects.

Note: *If you are migrating from a release prior to 4.6.x, you must use the **.ramp** version of the tool. If you are migrating from 4.6.x and above, you can use the **.rampx** version (recommended if your software supports it).*

The migration tools are executed from the management GUI's **sysconfig >> swupdate >> update** menu. Future releases of *Packager* will incorporate a dedicated data migration menu.

What is Exported and Restored

Table 7 lists the application and configuration settings that the *migration tool* will save and restore.

Table 7. Migration tool data that is saved and restored

GUI Tab	Function	Menu Path
Configuration	All configuration stored in this tab.	configuration >> audiomap configuration >> input configuration >> jitp configuration >>output configuration >> package configuration >> session

3. The *migration restore* file is generated by the export migration tool.

Table 7. Migration tool data that is saved and restored

GUI Tab	Function	Menu Path
System	DNS	sysconfig >> network >> dns
	Network interface assignment	sysconfig >> config >> network >> interface
	NTP	sysconfig >> ntp
	SNMP	sysconfig >> snmp
	Syslog	sysconfig >> syslog
	License servers	sysconfig >> license >> server
	Locally installed licenses	sysconfig >> license >> server
	Remote user authentication *server* configuration (Radius, TACACS+)	sysconfig >> user >> authentication

What is Not Exported and Restored

Table 8 lists the settings that *cannot* be restored by the migration tool as the settings are unique to a system. Importing these settings automatically to multiple systems will cause conflicts..

Table 8. Migration tool data that is not saved or restored

GUI Tab	Function	Menu Path
Dashboard	All events listed in the Events section	Dashboard tab → Events
Reports	Event log, system log, packaging statistics, system status statistics	reports >> event reports >> log reports >> packages reports >> systemstatus
System	Hostname	sysconfig >> hostname
	Network bonds	sysconfig >> network >> bond
	IP address, Subnet mask, Gateway	sysconfig >> network >> ip
	Routes — static, unicast, multicast	sysconfig >> network >> route
	Timezone settings	sysconfig >> timezone
	Local users beyond default *admin* and *oper* logins	sysconfig >> user
	Remote user authentication *users* (Radius, TACACS+)	sysconfig >> user >> authentication

Caution: *Events from the **Dashboard** of the Packager GUI will not be restored. Be sure to review these events prior to migration.*

Note: *If you wish to use the same migration data file for restoring multiple Packagers, you must first **pre-configure** each appliance/application with its own unique settings as described above.*

Important Notes on Migration

If the *migration tool* does not have enough information to determine whether a value was changed by the user, if the value was updated as part of the new software build, or both, some settings that would normally be re-imported may need to be manually updated. This may happen as a result of the

migration tool being unable to account for the differential between existing data at the time of export and new data at the time of import, either due to user-initiated changes or software upgrade changes.

Note: *In order to minimize the possibility of data loss during migration, RGB recommends that once the migration tool has exported data, no additional changes be made to Packager until after the data has been re-imported and the software has been updated.*

Settings That May Need to be Updated

Table 9 lists the settings that may need to be manually updated after migration.

Table 9. Migration tool data that is saved and restored

GUI Tab	Function	Menu Path
System	Default CIFS and NFS mount options	sysconfig >> defaults >> mount >> options
CIFS and NFS mount defaults are listed here:		
CIFS	`rsize=4096, wsize=4096, atime`	
NFS v1-3	`soft,vers=3,acdirmin=1,acdirmax=1,acregmin=3,acregmax=60,atime,timeo=5,retrans=3,tcp`	
NFS v4:	`soft,acdirmin=1,acdirmax=1,acregmin=3,acregmax=60,atime,timeo=5,retrans=3`	

Migration Steps

This section outlines the procedure for saving and restoring data on a *Packager*; it consists of the following steps:

1. Create a Backup File
2. Capture Configurations
3. Export Data
4. Install New OS and *Packager Software*
5. Reconfigure Settings
6. Restore Data
7. Confirm Successful Migration

Create a Backup File

1. Create a fail safe backup file Prior to Performing Any Upgrade.

Caution: *While this backup file will not be used for the migration to the 5.4-23968 release, it will be useful in the event you wish to downgrade to your current operating version for any reason.*

Capture Configurations

1. Log in to the *Packager*'s management GUI and note or capture the current settings from the **System** tab as defined in Table 8 by initiating the following commands:
   - **sysconfig >> hostname >> show**
   - **sysconfig >> network >> bond >> show**
   - **sysconfig >> network >> interface >> show**

- **sysconfig >> network >> interface >> assignment >> show**[4]
- **sysconfig >> network >> ip >> show**
- **sysconfig >> network >> route >> show**
- **sysconfig >> timezone >> show**
- **sysconfig >> user >> show**
- **sysconfig >> user >> authentication >> show**

2. Place the migration tool's executable file on an HTTP or TFTP server that is separate from but accessible by the device running *Packager*.

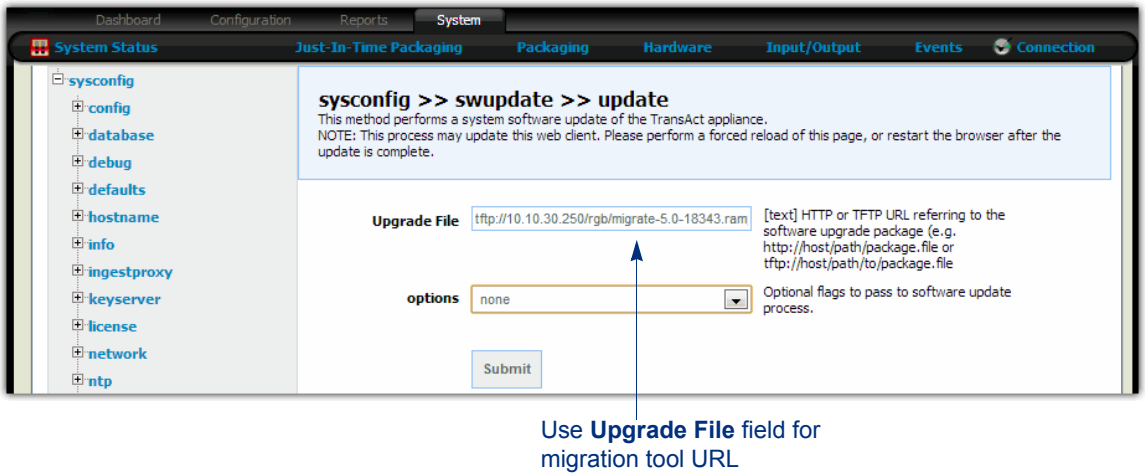
   The name of the migration tool's file[5] will be one of the following:

   `migrate-5.0-18343.rampx -or- migrate-5.0-18343.ramp`

Export Data

3. From the **System** tab, click through to **sysconfig >> swupdate >> update**.
4. In the **Upgrade File** field, enter the URL[6] to the *migration tool's* .ramp or .rampx file.

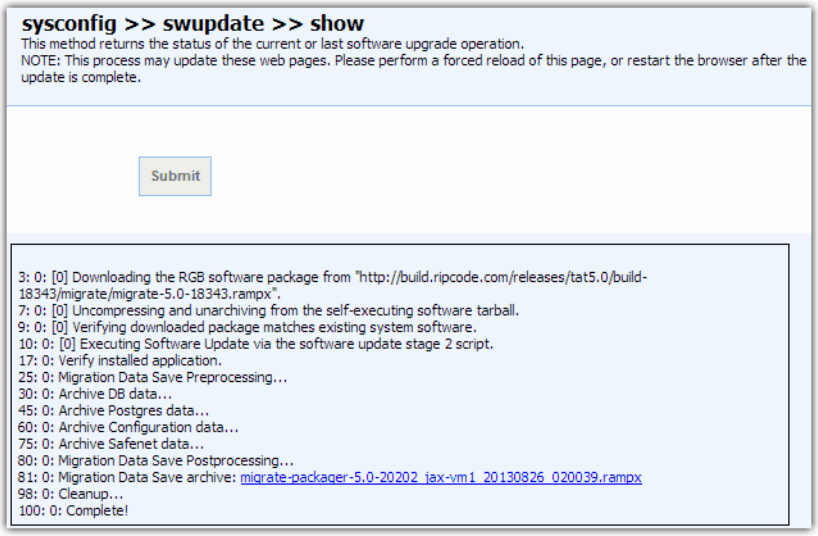
   For example:
   `tftp://10.10.30.250/rgb/migrate-5.0-18343.rampx`
   -or-
   `http://10.10.30.250/rgb/migrate-5.0-18343.rampx`
5. Click **Submit**.



4. These values are restored, but may be needed during initial re-configuration.
5. To obtain the migration executable file, please contact RGB Customer Support.
6. If using a host name instead of an IP address for this field, and if a search path has not been configured in the *sysconfig >> network >> dns >> search* menu, a fully qualified domain name must be used for this entry. For example: `server.domain.com`

6. Check the **sysconfig >> swupdate >> show** command for progress and results.

   Results will appear similar to this:



7. When complete, click on the link displayed in the **sysconfig >> swupdate >> show** menu to download the migration data executable to your local host[7].

8. The default output filename uses the following naming convention:

   `migrate-[application]-[version]-[build]_[hostname]_[date]_[time].rampx.`

   Example:

   `migrate-packager-5.0-12345_v63_20130826_143341.rampx`

Install New OS and *Packager* Software

9. Install the new operating system as required. (See "Determine The Type of Upgrade Needed" on page 24 to confirm you require an OS upgrade)

Caution: ***If you are installing the OS on a Virtual Machine****, you must ensure that the MAC address of the VM does* ***not*** *change when re-imaging the VM, otherwise a new license for Packager will be required. See "Special Note When Upgrading Packager Software on a VM" on page 20 for additional information.*

Note: *RGB Customer Support can provide a customized CentOS installation package as an .ISO image on request. If you are using an OS installation that is different from the one provided by RGB, ensure you have the packages and partitions as described in Chapter 2, "CentOS Installation with Non-RGB OS."*

10. Install the new *Packager* application software as described in Chapter 2, "Installing *Packager Software*" on page 13.

7. This should not be the same device as *Packager*.

Reconfigure Settings

11. Log in to the *Packager* GUI using the `admin` login and `ripcode!` password.
12. Configure network interfaces, bonds, routes, host name, users, and user authentication using the values collected in step 1 on page 30.

Restore Data

13. Place the migrate output file (as described in step 8 on page 32) on an HTTP or TFTP server separate from but accessible to the *Packager*.

14. From the **System** tab, click through to **sysconfig >> swupdate >> update**.
15. Enter the URL[8] that points to the migration output file on the HTTP or TFTP server (step 13 on page 33). An example is shown below:

    ```
    http://10.10.30.250/migrate-packager-5.0-12345_v63_20130826_143341.rampx
    -or-
    tftp://10.10.30.250/migrate-packager-5.0-12345_v63_20130826_143341.rampx
    ```

16. Click **Submit**.

Confirm Successful Migration

17. Use the **sysconfig >> swupdate >> show** command to see progress and results.
    As part of the data restore process, all *Packager* services are restarted with the new configuration.
18. In the **sysconfig >> defaults >> mount >> options** menu, confirm the settings as described in the previous section, "Settings That May Need to be Updated" on page 30.

Restore Unsaved Data

19. Since the migration procedure does not restore all data to your system, you will need to manually perform these tasks again. See "What is Not Exported and Restored" on page 29 for a list of settings that are not restored.

8. If using a host name instead of an IP address for this field, and if a search path has not been configured in the *sysconfig* >> *network* >> *dns* >> *search* menu, a fully qualified domain name must be used for this entry. For example: `server.domain.com`

CHAPTER 5

Downgrading Packager Software

This chapter covers steps for downgrading *Packager* from Release 5.4 for all devices including AMS, non-AMS, and Virtual Machines.

In This Chapter:

- "Purpose of a Downgrade," next.
- "Prior to Performing Any Downgrade" on page 34.
- "Determine The Type of Downgrade Needed" on page 35
- "Direct Downgrade" on page 37.
- "Migration Downgrade" on page 42.

Purpose of a Downgrade

A system downgrade entails loading an earlier version of software than is currently running on *Packager* in order to restore the system to a prior operating condition. In some cases you may wish to downgrade the software to a prior version with a clean database and default system settings. In this case, you would not restore any prior configuration data. In other cases, however, you may wish to downgrade software to a prior version with a prior database and system settings. In this case, you must have a database backup file from when the system was running on the targeted downgrade version (or before). However, the database backup file can *not* be from a higher version than the targeted downgrade.

Caution: *Before proceeding any further, determine whether you wish to downgrade to a clean database and default system settings or if you wish to downgrade to an earlier database and system settings. If you wish to downgrade to an earlier database, ensure that you have a historical backup file that is equal to or less than the targeted downgrade version.*

Prior to Performing Any Downgrade

Before you downgrade *Packager*, it is highly recommended that you backup the configuration databases of your system as a fail safe procedure, regardless of which type of downgrade you perform.

To backup the databases, proceed as follows:

1. From the **System** tab, click through to **sysconfig >> config >> backup**.
2. In the **Host** field, enter the IP address or host name[1] of a TFTP or HTTP[2] server where the backup will be saved.

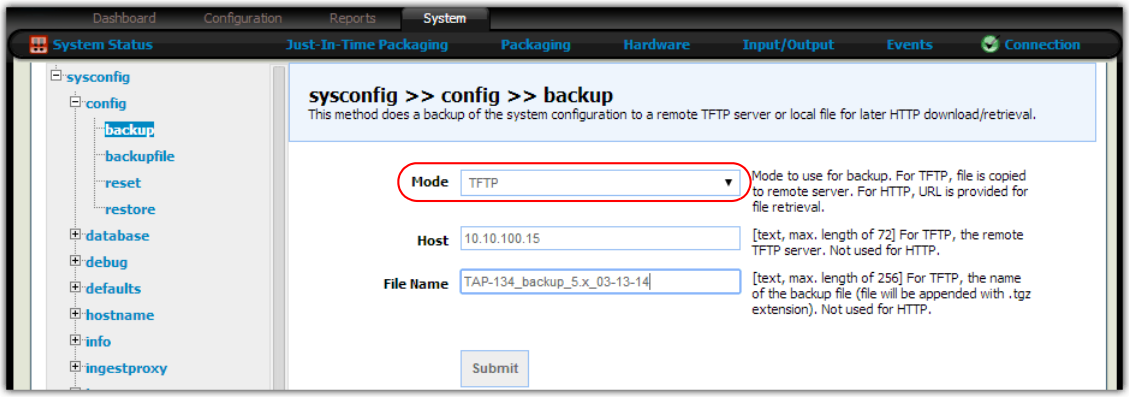
1. If using a host name instead of an IP address for this field, and if a search path has not been configured in the *sysconfig* >> *network* >> *dns* >> *search* menu, a fully qualified domain name must be used for the *Host* name entry. For example: `server.domain.com`
2. As of Release 5.2, HTTP backup and restore is available.

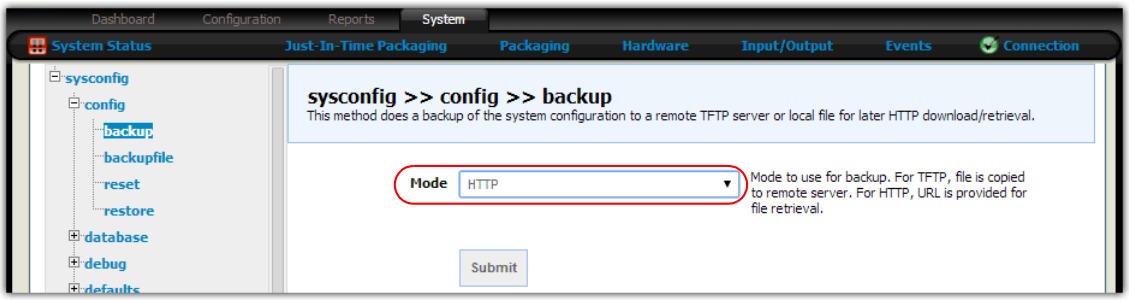
3. If you are using ***TFTP*** to backup, in the **File Name** field, enter the desired name of the backup file.

   A `.tgz` extension will be appended to the backup file at the time of creation.

   If you are using ***HTTP*** to backup, there is no need to specify a file or location as *Packager* will automatically back up via HTTP to a local path and will automatically create the file name.

4. Click **Submit**.





The GUI will return a confirmation message upon successful backup.

Note: *The backup file created here from this version of software is for your protection only and not a file that is used by any of the downgrade procedures described in this chapter. See the warning in the previous section for information on which type of historical backup file you will need for* ***this*** *downgrade.*

Determine The Type of Downgrade Needed

Depending on which version of software you are downgrading from, your downgrade path will be one of the following two methods:

- **Direct Downgrade** — OS does not require a downgrade, but *Packager* databases are not compatible between the running version and the downgrade version, requiring that the configuration databases be erased and restored. This downgrade may be performed through the management GUI or using Linux tools. Depending on the version of software, downgrade time is fairly short with minimal to medium downtime expected.
- **Migration Downgrade** — OS requires a downgrade requiring that the device on which *Packager* is running be re-imaged with the old OS. As with a direct downgrade, current *Packager* databases must be erased and restored. Downgrade time is longer due to OS installation and data restoration.

Caution: *When performing any type of downgrade, whether it is a direct downgrade or migration downgrade, the configuration database does* ***not*** *convert down from a higher version of software to a lower one. The only way to restore data from a higher version is to restore a previously captured backup file from the same or lower version of software to which you are downgrading.*

Direct downgrade example: *Suppose you have installed version 5.4.20123 on your system and you wish to downgrade to version 5.4.18123*[3]*. You would need to have already backed up a database version from 5.4.18123 or under (for example: 5.4.10123) prior to downgrading to this version. The 5.4.20123 database will NOT convert down to 5.4.18123.*

Migration downgrade example: *Suppose you have installed version 5.4.20123 on your system and you wish to downgrade to version 4.9.18676, which requires a different OS. You would need to have already backed up the database from version 4.9.18676 or under (for example: 4.7.10123) prior to downgrading to this version. The 5.4.20123 database will NOT convert down to 4.9.18676.*

Table 10 below provides a quick reference for determining the type of downgrade needed for your system.

Table 10. Downgrade Path — Quick reference

If downgrading from TAP 5.4 to:	Your downgrade path is:	System downgrade time will be:	For instructions, see:
TAP 5.4.[lower build], OS 6.5	*Direct* → TAP 5.4.[lower build] Database backup & restore required.	Minimal to medium	"Direct Downgrade" on page 37.
TAP 5.3.x, OS 6.5	*Direct* → TAP 5.3.x Database backup & restore required.	Minimal to medium	"Direct Downgrade" on page 37.
TAP 5.2.x down to TAP 5.0.x, OS 6.4	*Migration* → OS 6.4 → TAP 5.1.x down to TAP 5.0.x Database backup & restore required	Longer	"Migration Downgrade" on page 42.
TAP 4.9.x down to TAP 4.6.x, OS 5.8	*Migration* → OS 5.8 → TAP 4.9 down to TAP 4.6 Database backup & restore required	Longer	"Migration Downgrade" on page 42.
TAP 4.5.x, OS 5.8	*Contact RGB Customer Support*	Longer	"Migration Downgrade" on page 42.

3. If you wish to downgrade to a *prerelease* version of 5.4, you cannot use the Direct Download path; you must use the Migration path.

Direct Downgrade

If your current software version supports a direct downgrade, you can downgrade the *Packager* software to the desired release via the management GUI. See the section titled, "Determine The Type of Downgrade Needed" on page 35 to confirm your downgrade path.

Note: *This procedure applies to all devices running Packager, including AMS, non-AMS, and VMs.*

This section contains the following sub-sections:

- What This Version Downgrades
- Software Downgrade Steps
- Restoring Data From a Prior Backup

What This Version Downgrades

- All RGB applications.
- Kernel modules and Operating System software packages to the required versions.

Software Downgrade Steps

The steps below describe how to perform a direct software downgrade; it contains the following steps:

1. Capture Configurations
2. Use GUI to Downgrade
3. Viewing the Results of a Software Downgrade
4. Reconfigure Settings

Capture Configurations

1. Log in to the *Packager*'s management GUI and note or capture the current settings from the **System** tab by initiating the following commands:
   - **sysconfig >> hostname >> show**
   - **sysconfig >> network >> bond >> show**
   - **sysconfig >> network >> interface >> show**
   - **sysconfig >> network >> interface >> assignment >> show**[4]
   - **sysconfig >> network >> ip >> show**
   - **sysconfig >> network >> route >> show**
   - **sysconfig >> timezone >> show**
   - **sysconfig >> user >> show**
   - **sysconfig >> user >> authentication >> show**

Use GUI to Downgrade

1. Prior to performing a downgrade, create a fail-safe backup of the database as defined in, "Prior to Performing Any Downgrade" on page 34.

4. These values are restored if using a backup file to restore, but may be needed during initial re-configuration.

2. Obtain the appropriate *Packager* **.rampx** software from RGB Customer Support.

   The software executable file will look similar to this (where the x's represent the desired earlier version):

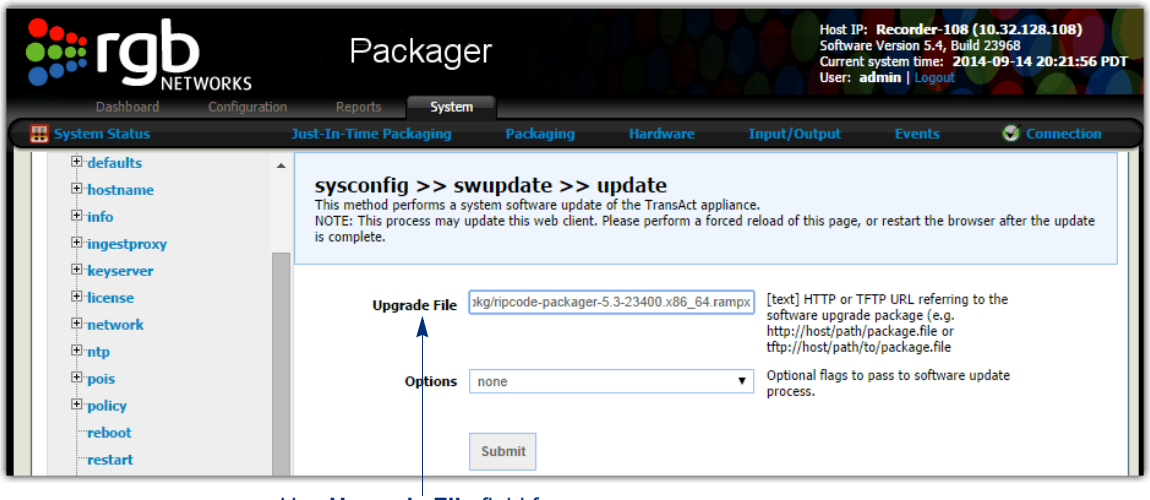
   ```
   ripcode-packager-5.3.x-xxxxx.x86_64.rampx
   -OR-
   ripcode-packager-5.3.x-xxxxx.x86_64.rampx
   ```

3. Place the **.rampx** file on a network-accessible directory running either the Trivial File Transfer Protocol (TFTP) or Hypertext Transfer Protocol (HTTP).
4. Use a web browser to navigate to *Packager*'s IP address.
5. Log in to the *Packager* management GUI with the following login credentials:

   ```
   Login:    admin
   Password:ripcode!
   ```

6. Reset the database: From the **System** tab, click through to **sysconfig >> config >> reset**, and click **Submit**.

7. From the **System** tab, click through to **sysconfig >> swupdate >> update.**



Use **Upgrade File** field for *downgrade* file location

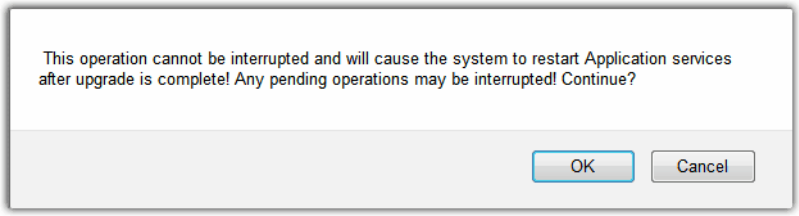
8. In the **Upgrade File** field, enter the URL[5] to the location of the *downgrade* **.rampx** file on your network. For example:

   ```
   http://10.10.165.23/rgb-update/pkg/ripcode-packager-5.3.x-xxxxx.x86_64.rampx

   tftp://10.10.165.23/rgb-update/pkg/ripcode-packager-5.3.x-xxxxx.x86_64.rampx
   ```

9. Select whether to allow internet connection during the downgrade from the **options** field.
10. Click **Submit**.

    A confirmation message will prompt you to continue:



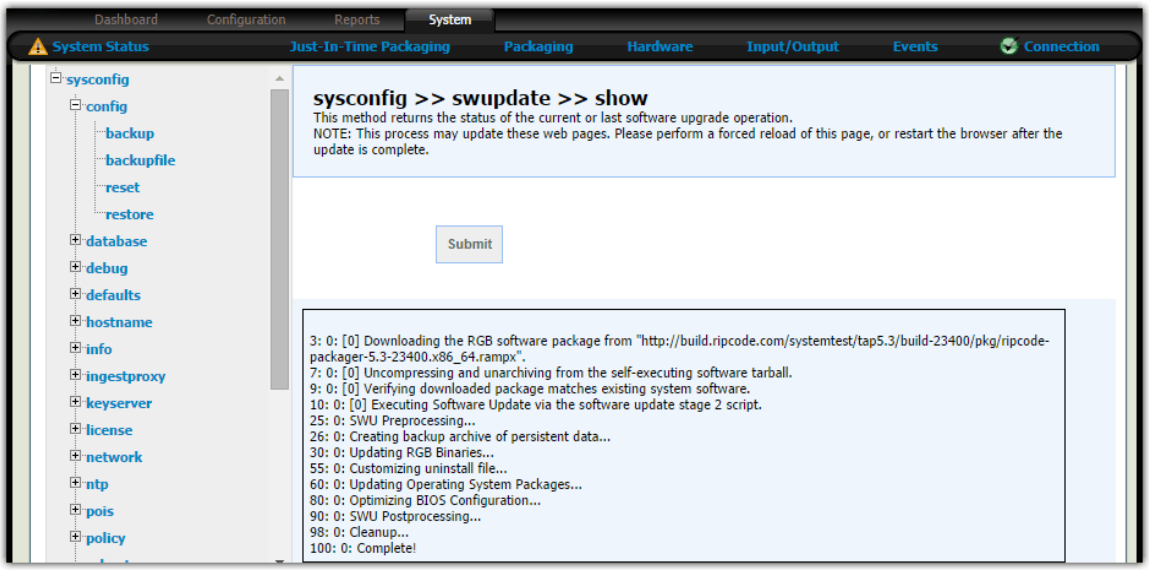
11. Click **OK** to proceed.

Viewing the Results of a Software Downgrade

To view the results of a software downgrade, proceed as follows:

1. From the **System** tab, click through to **sysconfig >> swupdate >> show**.
2. Click **Submit**.

   Results appear similar to the following:



Note: *If you were using package-level redundancy prior to the downgrade and you are downgrading to a version that supports redundancy (Version 5.1 and under do NOT support redundancy), you will need to recreate the redundancy relationship between Packagers. Depending on the*

5. If using a host name instead of an IP address for this field, and if a search path has not been configured in the *sysconfig >> network >> dns >> search* menu, a fully qualified domain name must be used for this entry. For example: `server.domain.com`

redundancy-supported to which you downgraded, redundancy recreation steps are different. Refer to the TransAct Packager User Guide for the downgraded release for instructions.

Reconfigure Settings

3. Reload the GUI web page.
4. Configure network interfaces, bonds, routes, host name, users, and user authentication using the values collected in step 1 on page 37.

Restoring Data From a Prior Backup

When restoring a database from a backup file, *any changes made from the time of the historical backup file to the time in which you initiate the restore command will be lost*.

For example, suppose that on June 25, 2014 you upgraded your system from 5.4.18123 to 5.4.20202. Prior to doing so you created a backup file of the 5.4.18123 system (on 6/25/2014). Now, on September 22, 2014 you have decided to downgrade back to 5.4.18123. Since a 5.4.20202 backup file will not convert down to a 5.4.18123 system, you must use the backup from the 5.4.18123 system made on 6/25/2014. Therefore, all changes made to the system between 6/25/2014 and 9/22/14 will not be preserved.

What is Backed Up and Restored

All packaging configuration and some system settings are backed up and restored with the **sysconfig >> config >> backup / restore** menu.

Table 11 lists the application and configuration settings that the backup process will save and restore.

Table 11. Backup data that is saved and restored

GUI Tab	Function	Menu Path
Configuration	All configuration stored in this tab.	configuration >> audiomap[a] configuration >> input configuration >> jitp[b] configuration >>output configuration >> package configuration >> session
System	DNS	sysconfig >> network >> dns
	NTP	sysconfig >> ntp
	SNMP	sysconfig >> snmp
	Syslog	sysconfig >> syslog
	License servers	sysconfig >> license >> server
	Remote user authentication *server* configuration (Radius, TACACS+)	sysconfig >> user >> authentication

a. Depending on version, this menu may or may not be present.
b. Depending on version, this menu may or may not be present.

What is Not Backed Up and Restored

Reports and some system settings are *not* backed up or restored with the **sysconfig >> config >> backup / restore** menu.

Table 12 lists the settings that *cannot* be restored by the backup file as the settings are unique to a system. Importing these settings automatically to multiple systems will cause conflicts.

Table 12. Data that backup file does not save or restore

GUI Tab	Function	Menu Path
Dashboard	All events listed in the Events section	Dashboard tab → Events
System	Network interface assignment	sysconfig >> config >> network >> interface
	Hostname	sysconfig >> hostname
	Locally installed licenses	sysconfig >> license >> server
	Network bonds	sysconfig >> network >> bond
	IP address, Subnet mask, Gateway	sysconfig >> network >> ip
	Routes — static, unicast, multicast	sysconfig >> network >> route
	Timezone settings	sysconfig >> timezone
	Local users beyond default *admin* and *oper* logins	sysconfig >> user
	Remote user authentication servers (Radius, TACACS+)	sysconfig >> user >> authentication

Warning! *Events from the **Dashboard** of the Packager GUI will not be restored. Be sure to review these events prior to downgrade.*

Note: *If you wish to use the same backup file for restoring multiple Packagers, you must first **pre-configure** each appliance/application with its own unique settings as described above.*

Steps For Restoring Data to Downgraded Version

If you have a historical backup file from the same or lower version to which you have just downgraded, and you wish to restore the data from the historical backup, proceed as follows:

Warning! *Any changes that you have made between the time of the historical backup and the time of the downgrade are not preserved.*

1. From the **System** tab, click through to **sysconfig >> config >> restore**.
2. In the **Host** field, enter the IP address or host name[6] of the TFTP server from which the backup file will be restored. For example: `10.10.100.200` or `server.domain.com`
3. In the **File Name** field, enter the name of the backup file to use for restoring data.

   Do not include the .tgz extension as the restore process automatically appends the file with this extension. For example: `TAP-187_backup_5.4.18123_10-02-2013.`
4. Click **Submit**.

   Upon successful database restore, a confirmation message will be returned.

6. If using a host name instead of an IP address for this field, and if a search path has not been configured in the *sysconfig >> network >> dns >> search* menu, a fully qualified domain name must be used for the *Host* name entry. For example: `server.domain.com`

Migration Downgrade

If downgrading from this release requires a migration downgrade, you must perform an OS downgrade to the specified CentOS version listed in Table 10 on page 36, which entails re-imaging the device currently running *Packager*. Consequently, all existing data on *Packager*, including the application itself will be erased. Before proceeding further, see the section titled, "Determine The Type of Downgrade Needed" on page 35 to confirm your downgrade path.

Note: *This procedure applies to all devices running Packager, including AMS, non-AMS, and VMs.*

This section contains the following sub-sections:

- Migration Downgrade Steps
- Restoring Data From a Prior Backup

Migration Downgrade Steps

This section outlines the procedure for downgrading *Packager* to a lower version of software that requires a different OS. The following steps are covered:

1. Capture Configurations
2. Install Older OS and *Packager Software*
3. Reconfigure Settings

Capture Configurations

1. Log in to the *Packager*'s management GUI and note or capture the current settings from the **System** tab by initiating the following commands:
   - **sysconfig >> hostname >> show**
   - **sysconfig >> network >> bond >> show**
   - **sysconfig >> network >> interface >> show**
   - **sysconfig >> network >> interface >> assignment >> show**[7]
   - **sysconfig >> network >> ip >> show**
   - **sysconfig >> network >> route >> show**
   - **sysconfig >> timezone >> show**
   - **sysconfig >> user >> show**
   - **sysconfig >> user >> authentication >> show**

Install Older OS and *Packager* Software

2. Install the operating system as required (older OS or same version of OS based on the release to which you desire to downgrade).

Warning! ***If you are installing the OS on a Virtual Machine****, you must ensure that the MAC address of the VM does* ***not*** *change when re-imaging the VM, otherwise you will need to obtain a new license for Packager. See "Special Note When Upgrading Packager Software on a VM" on page 20 for additional information.*

7. These values are restored if using a backup file to restore, but may be needed during initial re-configuration.

Note: *RGB Customer Support can provide a customized CentOS OSDVD installation package as an .ISO image on request. If you are using an OS installation that is different from the one provided by RGB, ensure you have the packages and partitions as described in Chapter 2, "CentOS Installation with Non-RGB OS."*

3. Install the older *Packager* application software as described in Chapter 2, "Installing *Packager Software*" on page 13.

   Instead of using the 5.4-23968 **.rampx,** you will use whichever **.rampx** is applicable to your downgrade.

Reconfigure Settings

4. Login to the *Packager* GUI using the `admin` login and `ripcode!` password.
5. Configure network interfaces, bonds, routes, host name, users, and user authentication using the values collected in step 1 on page 42.

Restoring Data From a Prior Backup

When restoring a database from a historical backup file, *any changes made from the time of the backup file to the time in which you initiate the restore command will be lost*.

For example, suppose that on August 10 you upgraded your system from 4.9.1 to 5.4-23968. Prior to doing so you created a backup file of the 4.9.1 system (on 8/10). Now, on August 30 you have decided to downgrade back to 4.9.1. Since the 5.4-23968 backup file will not convert down to a 4.9.1 system, you must use the backup from the 4.9.1 system made on August 10. Therefore, all changes made to the system between 8/10 and 8/30 will not be preserved.

What is Backed Up and Restored

All packaging configuration and some system settings are backed up and restored with the **sysconfig >> config >> backup / restore** menu.

Table 13 lists the application and configuration settings that the *migration tool* will save and restore.

Table 13. Backup data that is saved and restored

GUI Tab	Function	Menu Path
Configuration	All configuration stored in this tab.	configuration >> audiomap[a] configuration >> input configuration >> jitp[b] configuration >>output configuration >> package configuration >> session
System	DNS	sysconfig >> network >> dns
	NTP	sysconfig >> ntp
	SNMP	sysconfig >> snmp
	Syslog	sysconfig >> syslog
	License servers	sysconfig >> license >> server
	Remote user authentication *server* configuration (Radius, TACACS+)	sysconfig >> user >> authentication

a. Depending on version, this menu may or may not be present.

b. Depending on version, this menu may or may not be present.

What is Not Backed Up and Restored

Reports and some system settings are *not* backed up or restored with the **sysconfig >> config >> backup / restore** menu.

Table 14 lists the settings that *cannot* be restored by the backup file as the settings are unique to a system. Importing these settings automatically to multiple systems will cause conflicts..

Table 14. Data that backup file does not save or restore

GUI Tab	Function	Menu Path
Dashboard	All events listed in the Events section	Dashboard tab → Events
	Network interface assignment	sysconfig >> config >> network >> interface
System	Hostname	sysconfig >> hostname
	Locally installed licenses	sysconfig >> license >> server
	Network bonds	sysconfig >> network >> bond
	IP address, Subnet mask, Gateway	sysconfig >> network >> ip
	Routes — static, unicast, multicast	sysconfig >> network >> route
	Timezone settings	sysconfig >> timezone
	Local users beyond default *admin* and *oper* logins	sysconfig >> user
	Remote user authentication servers (Radius, TACACS+)	sysconfig >> user >> authentication

Warning! *Events from the **Dashboard** of the Packager GUI will not be restored. Be sure to review these events prior to downgrade.*

Note: *If you wish to use the same backup file for restoring multiple Packagers, you must first **pre-configure** each appliance/application with its own unique settings as described above.*

Steps For Restoring Data to Downgraded Version

If you have a historical backup file from the same or lower version to which you have just downgraded, and you wish to restore the data from the historical backup, proceed as follows:

Warning! *Any changes that you have made between the time of the historical backup and the time of the downgrade are not preserved.*

1. From the **System** tab, click through to **sysconfig >> config >> restore**.
2. In the **Host** field, enter the IP address or host name[8] of the TFTP server from which the backup file will be restored. For example: `10.10.100.200` or `server.domain.com`
3. In the **File Name** field, enter the name of the backup file to use for restoring data.

   Do not include the .tgz extension as the restore process automatically appends the file with this extension. For example: `TAP-187_backup_5.0.1.20644_10-02-2013.`

8. If using a host name instead of an IP address for this field, and if a search path has not been configured in the *sysconfig >> network >> dns >> search* menu, a fully qualified domain name must be used for the *Host* name entry. For example: `server.domain.com`

4. Click **Submit**.

   Upon successful database restore, a confirmation message will be returned.

Confirm Successful Downgrade

5. Use the **sysconfig >> swupdate >> show** command to see progress and results.
   As part of the data restore process, all *Packager* services are restarted with the new configuration.
6. In the **sysconfig >> defaults >> mount >> options** menu, confirm or re-enter the settings as described in the section, "Migration Downgrade Steps" on page 42.

Restore Unsaved Data

7. Since the migration procedure does not restore all data to your system, you will need to manually perform these tasks again. See "What is Not Backed Up and Restored" on page 44 for a list of settings that are not restored.