

Licensing, Upgrading, and Downgrading

Oct 13, 2015

Licensing, Upgrading, and Downgrading

The following topics describe the migration instructions for setting up a new version of a NetScaler with a list of all new and deprecated commands, parameters, and SNMP OIDs.

This document includes the following information:

- [Changes in Release 10.5](#)
- [Deprecated Commands, Parameters, and SNMP OIDs](#)
- [NetScaler Licensing Overview](#)
- [NetScaler Gateway Universal License](#)
- [Upgrading or Downgrading the System Software](#)
- [Troubleshooting](#)

Changes in Release 10.5

- **SSL Renegotiation**

Issue ID 0462681: SSL renegotiation is now blocked by default. In earlier releases, the default setting was to allow SSL renegotiation.

Deprecated Commands, Parameters, and SNMP OIDs

The following commands are deprecated in release 10.5:

- add vpn epaprofile
- rm vpn epaprofile
- show vpn epaprofile

The following parameters are deprecated in release 10.5:

- unset aaa kcdAccount -keytab
- show aaa kcdAccount -principle
- show protocol httpBand -AvgBandSize
- show protocol httpBand -BandData
- show protocol httpBand -AccessRatio
- add vpn vserver -advancedEpa
- add vpn vserver -deploymentType
- set vpn vserver -advancedEpa
- bind vpn vserver -epaprofile
- unbind vpn vserver -epaprofile
- show vpn vserver -advancedEpa
- show vpn vserver -deploymentType
- show vpn vserver -epaprofile
- show vpn vserver -epaprofileoptional
- add vpn intranetApplication -clientApplication
- show vpn intranetApplication -clientApplication
- show vpn intranetApplication -spoofIIP

The following SNMP OIDs are deprecated in release 10.5:

- spdy2TotStreams,1.3.6.1.4.1.5951.4.1.1.48.72
- spdy2TotStreams,1.3.6.1.4.1.5951.4.1.1.48.72

NetScaler Licensing Overview

The process of allocating your NetScaler licenses has been greatly simplified. The new licensing framework allows you to focus on getting maximum value from Citrix products.

In the NetScaler configuration utility (GUI), you can use your hardware serial number (HSN) or your license activation code (LAC) to allocate your licenses. Alternatively, if a license is already present on your local computer, you can upload it to the appliance.

For all other functionality, such as returning or reallocating your license, you must use the licensing portal. Optionally, you can still use the licensing portal for license allocation. For more information about the licensing portal, see "<http://support.citrix.com/article/CTX131110>".

Note: You must purchase separate licenses for each appliance in a high availability (HA) pair. Make sure that the same type of licenses are installed on both the appliances. For example, if you purchase a platinum license for one appliance, you must purchase another platinum license for the other appliance.

This document includes the following information:

- Prerequisites
- Allocating your License by using the Configuration Utility
- Installing the License
- Verifying the Licensed Features
- Enabling or Disabling a Feature

Prerequisites

Updated: 2014-06-24

To use the hardware serial number or license activation code to allocate your licenses:

- You must be able to access public domains through the appliance. The license allocation software internally accesses the Citrix licensing portal for your license. To access a public domain, you must configure a NetScaler IP (NSIP) address, or a subnet IP (SNIP) address, and set up a DNS server.
- Your license must be linked to your hardware, or you must have a valid license activation code (LAC). Citrix sends your LAC by email when you purchase a license.

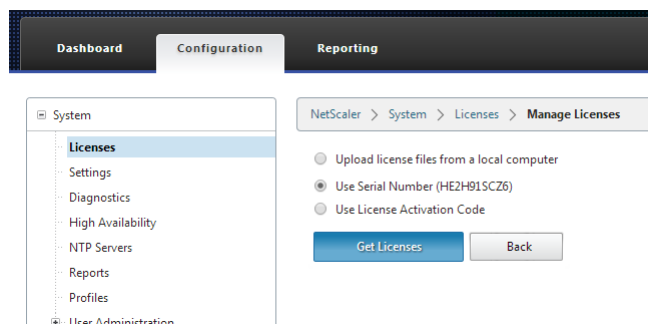
Allocating your License by using the Configuration Utility

Updated: 2014-06-25

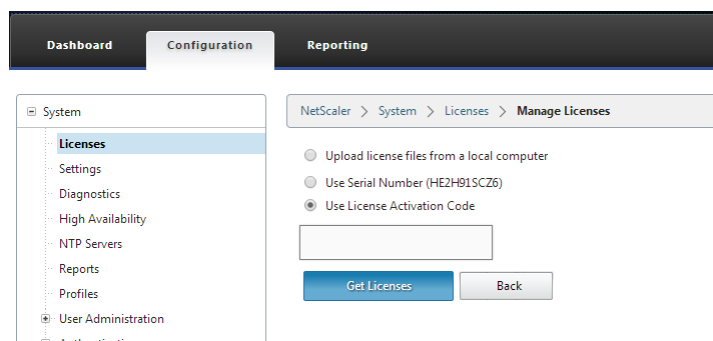
If your license is already linked to your hardware, the license allocation process can use the hardware serial number. Otherwise, you must type the license activation code (LAC).

To allocate your license

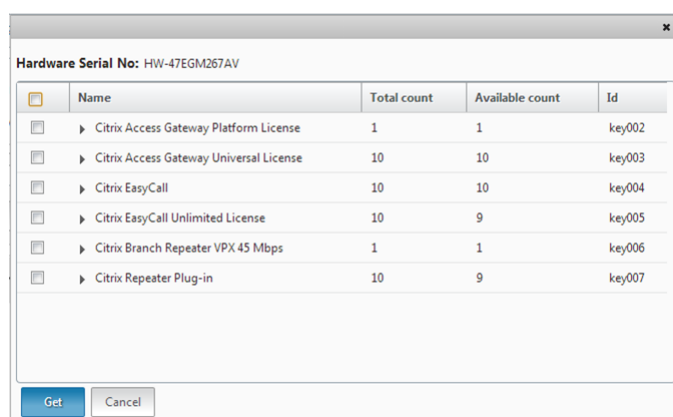
1. In a web browser, type the IP address of the NetScaler (for example, <http://192.168.100.1>).
2. In User Name and Password, type the administrator credentials.
3. On the Configuration tab, navigate to System > Licenses.
4. In the details pane, click Manage Licenses, click Add New License, and then select one of the following options:
 - **Use Serial Number**—The software internally fetches the serial number of your appliance and uses this number to display your license(s).



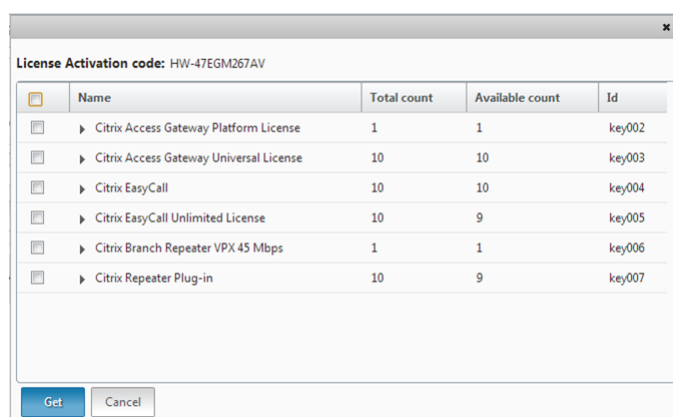
- **Use License Activation Code**—Citrix emails the LAC for the license that you purchased. Enter the LAC in the text box.



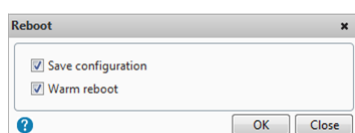
5. Click Get Licenses. Depending on the option that you selected, one of the following dialog boxes appears.
 - o The following dialog box appears if you selected Hardware Serial Number.



- o The following dialog box appears if you selected License Activation Code.



6. Select the license that you want to allocate, and then click Get.
7. Click Reboot for the license to take effect.
8. In the Reboot dialog box, click OK to proceed with the changes, or click Close to cancel the changes.



Installing the License

Updated: 2014-06-24

If you downloaded your license file to your local computer by accessing the licensing portal, you must upload the license to the appliance.

To install a license file by using the configuration utility

1. In a web browser, type the IP address of the NetScaler (for example, <http://192.168.100.1>).
2. In User Name and Password, type the administrator credentials.
3. On the Configuration tab, navigate to System > Licenses .
4. In the details pane, click Manage Licenses.
5. Click Add New License, then select **Upload license files from a local computer**.

6. Click Browse. Navigate to the location of the license files, select the license file, and then click Open.
7. Click Reboot to apply the license.
8. In the Reboot dialog box, click OK to proceed with the changes, or click Close to cancel the changes.

See also

To install the licenses by using the command line interface

1. Open an SSH connection to the NetScaler by using an SSH client, such as PuTTY.
2. Log on to the NetScaler by using the administrator credentials.
3. Switch to the shell prompt, create a license subdirectory in the nsconfig directory, if it does not exist, and copy the new license file(s) to this directory.

Example

```
login: nsroot
Password: nsroot
Last login: Mon Aug  4 03:37:27 2008 from 10.102.29.9
Done
> shell
Last login: Mon Aug  4 03:51:42 from 10.103.25.64
root@ns# mkdir /nsconfig/license
root@ns# cd /nsconfig/license
```

Copy the new license file(s) to this directory.

Note: The NetScaler appliance does not prompt for a reboot option when you use the command line interface to install the licenses. Run the reboot -w command to warm reboot the system, or run the reboot command to reboot the system normally.

Verifying the Licensed Features

Updated: 2014-06-24

Before using a feature, make sure that your license supports the feature.

To verify the licensed features by using the command line interface

1. Open an SSH connection to the NetScaler by using an SSH client, such as PuTTY.
2. Log on to the NetScaler by using the administrator credentials.
3. At the command prompt, enter the sh ns license command to display the features supported by the license.

Example

```
sh ns license
License status:
                Web Logging: YES
                Surge Protection: YES
                .....
                HTML Injection: YES
Done
```

To verify the licensed features by using the configuration utility

1. In a Web browser, type the IP address of the NetScaler, such as `http://192.168.100.1`.
2. In User Name and Password, type the administrator credentials.
3. Provide the User name and Password and click Login.
4. In the navigation pane, expand System, and then click Licenses. You will see a green check mark next to the licensed features.

Enabling or Disabling a Feature

Updated: 2014-07-01

When you use the NetScaler appliance for the first time, you need to enable a feature before you can use its functionality. If you configure a feature before it is enabled, a warning message appears. The configuration is saved but it will apply only after the feature is enabled.

To enable a feature by using the command line interface

At the NetScaler command prompt, type the following commands to enable a feature and verify the configuration:

- enable feature <FeatureName>
- show feature

Example

```
enable feature lb cs
done
>show feature
```

	Feature	Acronym	Status
	-----	-----	-----
1)	Web Logging	WL	OFF
2)	Surge Protection	SP	ON
3)	Load Balancing	LB	ON
4)	Content Switching	CS	ON
5)	Cache Redirection	CR	ON
.			
.			
.			
24)	NetScaler Push	push	OFF
Done			

The example shows how to enable load balancing (lb) and content switching (cs).

If the license key is not available for a particular feature, the following error message appears for that feature:

```
ERROR: feature(s) not licensed
```

Note: To enable an optional feature, you need a feature-specific license. For example, if you have purchased and installed the Citrix NetScaler Enterprise Edition license and need to enable the Integrated Caching feature, you first need to purchase and install the AppCache license.

To disable a feature by using the command line interface

At the NetScaler command prompt, type the following commands to disable a feature and verify the configuration:

- disable feature <FeatureName>
- show feature

Example

The following example shows how to disable load balancing (LB).

```
> disable feature lb
Done
> show feature
```

	Feature	Acronym	Status
	-----	-----	-----
1)	Web Logging	WL	OFF
2)	Surge Protection	SP	ON
3)	Load Balancing	LB	OFF
4)	Content Switching	CS	ON
.			
.			
.			
24)	NetScaler Push	push	OFF
Done			
>			

NetScaler Gateway Universal License

The NetScaler Gateway universal license limits the number of concurrent user sessions to the number of licenses purchased. If you purchase 100 licenses, you can have 100 concurrent sessions at any time. When a user ends a session, that license is released for the next user. A user who logs on to the NetScaler Gateway from more than one computer occupies a license for each session.

If all licenses are occupied, no additional connections can be opened until a user ends a session or the administrator terminates the session using the configuration utility. When a connection is closed, the license is released and can be used for a new user.

This document includes the following information:

- [Obtaining the Universal License](#)
- [Installing the Universal License](#)
- [Verifying Installation of the Universal License](#)

Obtaining the Universal License

You need the following information before going to the Citrix Web site for the universal license.

The license code

You can find the code on the NetScaler Gateway CD, in an email you receive from Citrix, or from the Subscription Advantage Management-Renewal-Information (SAMRI) system.

Your user ID and password for My Citrix

Register at My Citrix (www.mycitrix.com) to receive your user ID and password.

Note: If you cannot locate either the license code or your user ID and password, contact Citrix Customer Service.

The host name of the NetScaler Gateway

The entry field for this name on My Citrix is case-sensitive, so make sure that you copy the host name exactly as it is configured on the NetScaler.

The number of licenses you want to include in the license file

You do not have to download all of the licenses you are entitled to at once. For example, if your company purchased 100 licenses, you can choose to download 50. You can allocate the rest in another license file at a later time. Multiple license files can be installed on the NetScaler Gateway.

Note: Before obtaining your licenses, make sure you configure the host name of the NetScaler using the Setup Wizard and then restart the NetScaler.

To obtain your universal license

1. In a Web browser, go to <http://www.citrix.com/> and click My Citrix.
2. Enter your user name and password. If this is the first time you are logging on to the site, you are asked for additional background information.
3. Under My Tools, point to Choose a toolbox, and click Activation System/Manage Assets.
4. In the Current Tool drop-down menu, select Activate/Allocate and follow the directions to obtain your license file.

Installing the Universal License

Updated: 2013-08-22

To install the license, see ["Installing the License"](#). After installation, verify that the license was installed correctly.

Verifying Installation of the Universal License

Updated: 2013-08-21

Before proceeding, verify that your universal license is installed correctly.

To verify installation of the universal license by using the command line interface

1. Open an SSH connection to the NetScaler by using an SSH client, such as PuTTY.
2. Log on to the NetScaler by using the administrator credentials.
3. Use the show license command to verify that `SSL VPN = YES` and that Maximum Users has increased from 5 to the expected number of concurrent users.

To verify installation of the universal license by using the configuration utility

1. In a Web browser, type the IP address of the NetScaler, such as `http://192.168.100.1`.
2. In User Name and Password, type the administrator credentials.

3. In the navigation pane, expand System, and then click Licenses.
4. In the Licenses pane, you will see a green check mark next to Access Gateway. The field Maximum Access Gateway Users Allowed displays the number of concurrent user sessions licensed on the NetScaler.

Upgrading or Downgrading the System Software

NetScaler 10.5 offers new and updated features with increased functionality. A comprehensive list of enhancements is listed in the release notes accompanying the release announcement. Take a moment to read this document before you upgrade your software.

It is important to understand the licensing framework and types of licenses before you upgrade your software. A software edition upgrade may require new licenses, such as upgrading from the standard edition to the enterprise edition, the standard edition to the platinum edition, or the enterprise edition to the platinum edition.

Note: For upgrading or downgrading the nodes in a cluster setup, see ["Upgrading or Downgrading the Cluster Software"](#).

Upgrading from release 10.1 build 121.10 or any earlier releases to release 10.1 build 122.17 and later involves some location changes of user monitor script files. For details, see [Directory Locations of Script Files for User Monitors](#).

This document includes the following information:

- [Upgrading to Release 10.5](#)
- [Downgrading from Release 10.5](#)
- [Auto Cleanup](#)

Directory locations of script files for user monitors

Updated: 2014-06-24

In release 10.1 build 122.17, the script files for user monitors are at a new location. If you upgrade an appliance or virtual appliance to release 10.1 build 122.17 or later, the changes are as follows:

- A new directory named `conflicts` is created in `/nsconfig/monitors/` and all the built-in scripts of the previous builds are moved to this directory.
- All new built-in scripts are available in the `/netscaler/monitors/` directory. All custom scripts are available in the `/nsconfig/monitors/` directory.
- You must save a new custom script in the `/nsconfig/monitors/` directory.
- After the upgrade is completed, if a custom script is created and saved in the `/nsconfig/monitors/` directory with the same name as that of a built-in script, the script in the `/netscaler/monitors/` directory takes priority. That is, the custom script is not run.

If you provision a virtual appliance running release 10.1 build 122.17 or later, the changes are as follows:

- All built-in scripts are available in the `/netscaler/monitors/` directory
- The directory `/nsconfig/monitors/` is empty.
- If you create a new custom script, you must save it in the `/nsconfig/monitors/` directory.

For more information about user monitors, see ["Understanding User Monitors."](#)

Upgrading to Release 10.5

You can use the configuration utility to upgrade most older releases to 10.5. For others, you must use the command line interface. You follow the same basic procedure to upgrade either a standalone appliance or each appliance in a high availability pair, although additional considerations apply to upgrading a high availability pair.

This document includes the following information:

- [Upgrading a Standalone NetScaler](#)
- [Upgrading a High Availability Pair](#)

Upgrading a Standalone NetScaler

Updated: 2014-12-10

Before upgrading the system software, make sure that you have the required licenses. For more information, see "[NetScaler Licensing Overview](#)." You do not need a new license for the following upgrades:

- 8.x to 9.x
- 8.x or 9.x to 10.x
- 8.x, 9.x, or 10.x to 10.y

Note: When upgrading from release 8.0, 8.1, 9.0, 9.1, 9.2, 9.3, 10, or 10.1, you have the option to use the configuration utility or the command line interface. Citrix recommends to perform the upgrade by using the command line interface. When using the upgrade wizard in the configuration utility to upgrade from release 8.0, do not use the Device option to upload your software.

In the following procedure, <release> and <releasenumber> represent the release version you are upgrading to, and <targetbuildnumber> represents the build number that you are upgrading to. See the table below for specific values. The procedure includes optional steps to avoid losing any updates that are pushed to the /etc directory during the upgrade.

Table 1. Release Version Values

Release Version	<release>	<releasenumber>
10.5	10.5	10.5
10.1	10.1	10.1
10	10	10
9.3	9.3	9.3
9.2	9.2	9.2
9.1	9.1	9.1
9.0	9.0	9.0
8.1	rhodes	8.1
8.0	andes	8.0

To upgrade a standalone NetScaler appliance running release 8.0, 8.1, 9.0, 9.1, 9.2, 9.3, 10, or 10.1 by using the command line interface

1. Use an SSH client, such as PuTTY, to open an SSH connection to the appliance.
2. Log on to the appliance by using the administrator credentials. Save the running configuration. At the prompt, type:
`save config`

3. Create a copy of the ns.conf file. At the shell prompt, type:
 - a. `cd /nsconfig`
 - b. `cp ns.conf ns.conf.NS<currentreleasenum><currentbuildnum>`
 You should backup the configuration file to another computer.
4. (Optional) If you have modified some of the following files in the /etc directory, and copied them to /nsconfig to maintain persistency, any updates that are pushed to the /etc directory during the upgrade might be lost:
 - o ttys
 - o resolv.conf
 - o sshd_config
 - o host.conf
 - o newsyslog.conf
 - o host.conf
 - o httpd.conf
 - o rc.conf
 - o syslog.conf
 - o crontab
 - o monitrc

To avoid losing these updates, create a /var/nsconfig_backup directory, and move the customized files to this directory. That is, move any files that you modified in /etc directory and copied to /nsconfig by running the following command:

```
mv /nsconfig/<filename> /var/nsconfig_backup
```

Example:

```
mv /nsconfig/syslog.conf /var/nsconfig_backup
```

5. Create a location for the installation package. At the shell prompt type
 - a. `cd /var/nsinstall`
 - b. `mkdir <releasenum>nsinstall`
 - c. `cd <releasenum>nsinstall`
 - d. `mkdir build_<targetbuildnum>`
 - e. `cd build_<targetbuildnum>`
6. Download or copy the installation package (build-<release>-<targetbuildnum>_nc.tgz) to the directory that you created for it. To download the installation package from the Citrix Web site, do the following:
 - a. Go to MyCitrix.com, log on with your credentials, and click Downloads.
 - b. In Select a Product, select NetScaler ADC.
 - c. Under Firmware, click the release and build number to download.
 - d. Click Get Firmware.

Note: Documentation is not available as part of the build in NetScaler release 10.1, build 118.7 or later. See [Citrix NetScaler](#) for the documentation.

7. Extract the contents of the installation package. Example:

```
tar -xvzf build_10.1-49.3_nc.tgz
```

8. Run the installns script to install the new version of the system software. The script updates the /etc directory. Example:

```
./installns
```

Note:

To install a FIPS appliance, run the installns script with the -F option. To automatically clean up the flash, run the installns script with the -c option.

Warning: When upgrading to the NetScaler nCore build, the installation script prompts you to delete the /var directory if the swap partition is smaller than 32 gigabytes (GB). If this prompt appears, type N, save any important files located in /var to a backup location, and then re-run the installation script.

If the free space available on the flash drive is insufficient to install the new build, the appliance prompts you to initiate a cleanup of the flash drive. For more information, see "Auto Cleanup".

9. When prompted, restart the NetScaler.
10. (Optional) If you performed [step 4](#), do the following:
 - a. Manually compare the files in /var/nsconfig_backup and /etc and make appropriate changes in /etc.
 - b. To maintain persistency, move the updated files in /etc to /nsconfig.
 - c. Restart the appliance to put the changes into effect.

Example

```
login: nsroot
Password: nsroot
Last login: Mon Apr 19 03:37:27 2014 from 10.102.29.9
```

```

Done
> save config
> shell
Last login: Mon Apr 10 03:51:42 from 10.103.25.64
root@NSnnn# cd /var/nsinstall
root@NSnnn# cd 10_5nsinstall
root@NSnnn# mkdir build_49
root@NSnnn# cd build_49
root@NSnnn# ftp ... get build-10.5-49_nc.tgz
root@NSnnn# tar xzvf build-10.5-49_nc.tgz
root@NSnnn# ./installns
installns version (10.5-49) kernel (ns-10.5-49_nc.gz)
...
...
...
Copying ns-10.5-49_nc.gz to /flash/ns-10.5-49_nc.gz ...

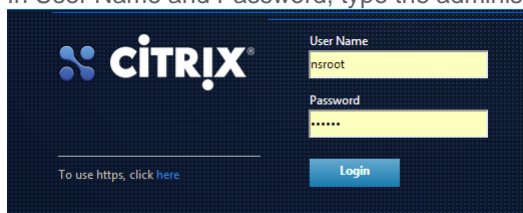
...
Installation has completed.

Reboot NOW? [Y/N] Y

```

To upgrade a standalone NetScaler running release 8.0, 8.1, 9.0, 9.1, 9.2, 9.3, 10, or 10.1 by using the configuration utility

1. In a Web browser, type the IP address of the NetScaler, such as `http://10.102.29.50`.
2. In User Name and Password, type the administrator credentials and then click **Login**, as shown in the following figure



3. In the configuration utility, in the navigation pane, click System.
4. In the System Overview page, click System Upgrade.
5. Follow the instructions to upgrade the software.
6. When prompted, select Reboot.

Note: After the upgrade, close all browser instances and clear your computer's cache before accessing the appliance.

Upgrading a High Availability Pair

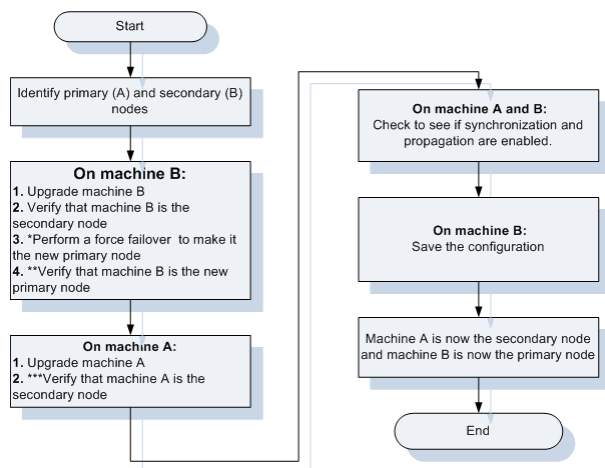
Updated: 2015-04-1

To upgrade the system software on NetScaler units in a high availability (HA) pair, first upgrade the secondary node, and then the primary node.

Note: If the two nodes in an HA configuration are running different NetScaler software releases, the following information does not get synchronized on the primary and secondary nodes:

- States of the services
- Connection failover sessions
- Persistence sessions

Figure 1. Upgrading a High Availability Pair



*After upgrading machine B, it becomes the primary node. If machine B does not function as expected, enter the force failover command on the new primary node (machine B) forcing it to again become the secondary node, and contact Citrix Customer Service before proceeding. After you test that machine B properly functions as the new primary node, proceed with upgrading the former primary node (machine A).

**After machine B is upgraded successfully, both synchronization and propagation are automatically disabled until you upgrade machine A.

***After both the nodes are upgraded successfully, synchronization and propagation are automatically enabled.

In the following procedure, machine A is the primary node and machine B is the secondary node before the upgrade.

To upgrade NetScaler units in a high availability pair running release 8.0, 8.1, 9.0, 9.1, 9.2, 9.3, 10, or 10.1 by using the command line interface

On machine B (original secondary node)

1. Follow the procedure for upgrading a standalone node as described in "Upgrading a Standalone NetScaler Appliance". The procedure includes optional steps to avoid losing any updates that are pushed to the /etc directory during the upgrade.
2. After the appliance restarts, log on with the administrator credentials and enter the show ha node command to verify that the appliance is a secondary node.
3. Test the new build by entering the force failover command on the secondary node (machine B). At the command prompt type force failover.

When you do so, machine B becomes the primary node. If machine B does not function as expected, enter the force failover command on the new primary node (machine B) forcing it to again become the secondary node, and contact Citrix Customer Service before proceeding.

4. Enter the show ha node command to verify that machine B is the new primary node.

Example

```

login: nsroot
Password: nsroot
Last login: Mon Mar 26 08:37:26 2008 from 10.102.29.9
Done
show ha node
2 nodes:
1) Node ID: 0
   IP: 10.0.4.2
   Node State: UP
   Master State: Primary
   ...
   Sync State: AUTO DISABLED
   Propagation: AUTO DISABLED
   ...
Done
  
```

Note: After machine B is upgraded successfully, both synchronization and propagation are automatically disabled until you upgrade machine A.

On machine A (original primary node)

5. Follow the procedure for upgrading a standalone node as described in "Upgrading a Standalone NetScaler Appliance". The procedure includes optional steps to avoid losing any updates that are pushed to the /etc directory during the upgrade.

6. After the appliance restarts, log on by using the administrator credentials, and enter the show ha node command to verify that the appliance is a secondary node and that synchronization is disabled.

Note: After both nodes are upgraded successfully, synchronization and propagation are automatically enabled.

On machine A and machine B

7. After successfully upgrading both the nodes, run the show ha node command to verify that synchronization and propagation are enabled on the primary node and synchronization is successful and propagation is enabled on the secondary node.

Example

On Primary node (Machine B)

```
show ha node
Node ID:      0
IP:    10.0.4.2
Node State: UP
Master State: Primary

...

INC State: DISABLED
Sync State: ENABLED
Propagation: ENABLED
Enabled Interfaces : 1/1
Disabled Interfaces : None
HA MON ON Interfaces : 1/1

...

Local node information
Critical Interfaces: 1/1
Done
```

On Secondary node (Machine A)

```
Show ha node
Node ID:      0
IP:    10.0.4.11
Node State: UP
Master State: Secondary
..
..
INC State: DISABLED
Sync State: SUCCESS
Propagation: ENABLED
Enabled Interfaces : 1/1
Disabled Interfaces : None
HA MON ON Interfaces : 1/1
. . .
. . .
Local node information:
Critical Interfaces: 1/1
Done
```

On machine B (new primary node)

8. Enter the save ns config command to save the configuration.

Machine B (original secondary node) is now the primary node and machine A (original primary node) is now the secondary node.

Note: You can enter the force failover command again to make machine A (original primary node) as the primary node and machine B (original secondary node) as the secondary node.

To upgrade NetScaler units in a high availability pair running release 8.0, 8.1, 9.0, 9.1, 9.2, 9.3, or 10 by using the configuration utility

1. Log on to the secondary node and perform the upgrade as described in ["To upgrade a standalone NetScaler running release 8.0, 8.1, 9.0, 9.1, 9.2, or 9.3 by using the configuration utility."](#)

Note: Before upgrading the primary node (machine A), you have the option to test the new release by entering the force failover command at the command line interface on the secondary node (machine B). When you do so, machine B becomes the primary node. If machine B does not function as expected, enter the force failover command at the

command line interface on the new primary node (machine B) forcing it to again become the secondary node, and contact Citrix Customer Service before proceeding. If machine B properly assumes the role of primary node, proceed with upgrading the former primary node (machine A).

2. Log on to the primary node and perform the upgrade as described in "To upgrade a standalone NetScaler running release 8.0, 8.1, 9.0, 9.1, 9.2, or 9.3 by using the configuration utility".

Downgrading from Release 10.5

You can downgrade to any release on a standalone NetScaler or a high availability pair by using the command line interface.

Caution: Loss in configuration may occur when downgrading. You should compare the configurations before and after the downgrade, and then manually reenter any missing entries.

This procedure provides steps to downgrade from release 10.5 to an earlier release.

Note: Downgrading using the configuration utility is not supported.

This document includes the following information:

- [Downgrading a Standalone NetScaler](#)
- [Downgrading a High Availability Pair](#)

Downgrading a Standalone NetScaler

Updated: 2015-01-09

In the following procedure, <release> and <releasenum> represent the release version you are downgrading to, and <targetbuildnumber> represents the build number that you are downgrading to. Refer to the table below for specific values.

Table 1. Release Version Values

Release Version	<release>	<releasenum>
10.1	10.1	10.1
10	10	10
9.3	9.3	9.3
9.2	9.2	9.2
9.1	9.1	9.1
8.1	rhodes	8.1
8.0	andes	8.0
7.0	sierra	7.0

To downgrade a standalone NetScaler

1. Open an SSH connection to the NetScaler by using an SSH client, such as PuTTY.
2. Log on to the NetScaler by using the administrator credentials. Save the running configuration. At the prompt, type:

```
save config
```

3. Create a copy of the ns.conf file. At the shell prompt, type:
 - a. `cd /nsconfig`
 - b. `cp ns.conf ns.conf.NS10.5<currentbuildnumber>`

You should backup a copy of the configuration file on another computer.

4. Copy the <releasenum> configuration file (ns.conf.NS<releasenum>) to ns.conf. At the shell prompt, type:

```
cp ns.conf.NS<releasenum> ns.conf
```

Note: ns.conf.NS<releasenum> is the backup configuration file that is automatically created when the system software is upgraded from release version <releasenum> to the current release version. There may be some loss in configuration when downgrading. After the appliance restarts, compare the configuration saved in step 3 with the running configuration, and make any adjustments for features and entities configured before the downgrade. Save the running configuration after making the changes.

Important: If routing is enabled, perform step 5. Otherwise, skip to step 6.

5. If routing is enabled, the ZebOS.conf file will contain the configuration. At the shell prompt, type:

- a. `cd /nsconfig`
- b. `cp ZebOS.conf ZebOS.conf.NS`
- c. `cp ZebOS.conf.NS<targetreleasenum> ZebOS.conf`
6. Change directory to `/var/nsinstall/<releasenum>nsinstall`, or create one if it does not exist.
7. Change directory to `build_<targetbuildnum>`, or create one if it does not exist.
8. Download or copy the installation package (`build-<release>-<targetbuildnum>.tgz`) and the documentation bundle (`ns-<releasenum>-<targetbuildnum>-doc.tgz`) to this directory and extract the contents of the installation package.
9. Run the `installns` script to install the new version of the system software. The script updates the `/etc` directory.

If the configuration file for the build that you are downgrading to exists on the appliance, you are prompted to load that configuration, as shown in the following figure.

Figure 1. Downgrade menu if configuration file exists

```

version build      size last modified file name
Copied to ns.conf  72545 Jun 18 04:42 ns.conf.NS10.1-112.13
NS10.1 112.13     72545 Jun 18 04:42 ns.conf.NS10.1
NS10.1 112.13     72545 Jun 18 04:42 ns.conf.4
NS10.1 109.1      87219 Jun 18 04:42 ns.conf.NS10.1-109.1
NS10.1 93.051     74443 Jun 18 04:42 ns.conf.NS10.1-93.051
NS10.0 29.1       62849 Jun 18 04:42 ns.conf.NS10.0-29.1

Listed above are 5 configuration files, found in /nsconfig, that are
appropriate for use with build 112.13.

Use the arrow keys to select an item in the menu above, then type:
'c' - copy file over ns.conf
'v' - view file (with vi; type ':q!' to exit vi)
'>' - more files
'<' - fewer files
'd' - done

```

If the free space available on the flash drive is insufficient to install the new build, the NetScaler prompts you to initiate a cleanup of the flash drive. For more information, see ["Auto Cleanup"](#).

10. When prompted, restart the NetScaler.

Example

```

login: nsroot
Password: nsroot
Last login: Tue Mar 27 01:38:25 2014 from 10.102.29.9
Done
> save config
> shell
Last login: Tue Mar 27 02:07:06 from 10.103.25.64
root@NSnnn# cp ns.conf.NS10.1 ns.conf
root@NSnnn# cd /var/nsinstall
root@NSnnn# mkdir 10.1nsinstall
root@NSnnn# cd 10.1nsinstall
root@NSnnn# mkdir build_125
root@NSnnn# cd build_125
root@NSnnn# ftp 10.102.1.1
ftp> mget build-10.1-125_nc.tgz
ftp> mget get ns-10.1-125-doc.tgz
ftp> bye
root@NSnnn# tar xzvf build-10.1-125_nc.tgz
root@NSnnn# ./installns
installns version (10.1-125) kernel (ns-10.1-125.gz)
...
...

```

```
...  
Copying ns-10.1-125.gz to /flash/ns-10.1-125_nc.gz ...  
Changing /flash/boot/loader.conf for ns-10.1-125 ...  
Installing documentation...
```

Installation has completed.

Reboot NOW? [Y/N] Y

Downgrading a High Availability Pair

Updated: 2013-08-21

To downgrade the system software on NetScaler units in a high availability pair, you need to downgrade the software first on the secondary node and then on the primary node. For instructions on downgrading each node separately, see "[Downgrading a Standalone NetScaler](#)".

Auto Cleanup

The cleanup procedure has been simplified in the later versions of release 7.0 (build 48 and later) and in releases 8.0, 8.1, 9.0, 9.1, 9.2, 9.3, 10, 10.1, and 10.5. You no longer have to manually delete build files from the flash drive. During the installation process, if the free space on the flash drive is found to be insufficient, the NetScaler prompts you to initiate the cleanup process.

Note: To automatically clean up the flash, run the installns script with the -c option.

When downgrading to release 7.0, the prompt looks like this:

```
Installation path for kernel will be /flash
Size of kernel ns-7.0-21.7.gz is 58003.323 kilobytes
Available space on /flash/ filesystem is 25075 kilobytes
Available space on /flash/ filesystem is insufficient to install ns-7.0-21.7.gz
Do you want Auto Cleanup [Y/N] ?
```

When upgrading to release 8.1, the prompt looks like this:

```
Installation path for kernel is /flash
Size of kernel ns-8.1-32.2.gz is 61062.235 kilobytes
Available space on /flash/ filesystem is 59108 kilobytes
Available space on /flash/ filesystem is insufficient to install ns-8.1-32.2.gz
Do you want installns to free space by archiving older releases? [Y/ N]
```

To initiate the cleanup process, press Y. Messages similar to the following appear:

```
Archiving older releases ...
  Creating the archive directory /var/nsbackup/ns_2007_2_16_1_6_26 ...
    Move //flash//ns-6.1-97.4.m.gz /var/nsbackup/ ns_2007_2_16_1_6_26ns-6.1-97.4.m.gz ...
    Move //flash//ns-8.1-32.2.gz /var/nsbackup/ns_2007_2_16_1_6_26ns-8.1-32.2.gz ...
Archive operation completed, free space is 156452, required space is 61062.235
```

The installation process automatically continues after successful completion of the cleanup.

Troubleshooting

If the appliance does not work as expected after you complete the installation, upgrade, or downgrade process, the first thing to do is to check for the most common causes of the problem.

This document includes the following information:

- [Resources for Troubleshooting](#)
- [Troubleshooting Issues Related to the Installation, Upgrade, and Downgrade processes](#)

Resources for Troubleshooting

Updated: 2013-08-13

For best results, use the following resources to troubleshoot an issue related to installing, upgrading, or downgrading a NetScaler appliance:

- The configuration files from the appliance. In case of a High Availability pair, the configuration files from both appliances.
- The following files from the appliance(s):
 - The relevant newslog files.
 - The ns.log file.
 - The messages file.
- A network topology diagram.

Troubleshooting Issues Related to the Installation, Upgrade, and Downgrade processes

Updated: 2013-11-22

Following are the most common installation, upgrade, and downgrade issues, and tips for resolving them:

◦ Issue

The NetScaler appliance is not accessible after the software downgrade

Cause

During the software downgrade process, if the configuration file of the existing release and build does not match the configuration file of the earlier release and build, the appliance cannot load the configuration, and the default IP address is assigned to the appliance.

Resolution

Verify that the appliance is accessible from the console.

Verify the NSIP address and the routes on the appliance.

- If the IP address has changed to the default 192.168.100.1 IP address, change the IP address as required.
- Verify that the appliance is accessible.

◦ Issue

Configuration of the appliance is lost after you upgrade the software across multiple releases.

Cause

Some migration commands are built in for upgrading to the next release. Such commands might not be available across releases.

Resolution

- Verify the path of the upgrade process. Citrix recommends upgrading by one release at a time. For example, if the softer needs to be upgraded from NetScaler release 9.2 to NetScaler release 10.1, the following is the recommended path for the upgrade:
 - NetScaler release 9.2 to NetScaler release 9.3
 - NetScaler release 9.3 to NetScaler release 10
 - NetScaler release 10 to NetScaler release 10.1

Verify that the appliance has appropriate license files.

Verifying the configuration at each step of the upgrade process can give you pointers to the issue.

- o **Issue**

During an upgrade, if I run the command for synchronizing, the following message appears:

```
Command failed on the secondary node but succeeded on the primary node.
```

Resolution

Do not run any dependent commands (set /unset /bind /unbind) when High Availability (HA) synchronization is in progress.

- o **Issue**

During an upgrade process, traffic does not pass through the new primary node when you run the force failover command.

Resolution

Check for problems with the network topology and the switch configurations.

Run the set L2param -garpreply ENABLED command to enable the GARP reply.

Try using VMAC if not already used.

Run the sendarp -a command from the primary node.

- o **Issue**

In an HA pair, after you run the force HA failover command the devices keep rebooting. The secondary device does not come up after an upgrade.

Resolution

Check to see if the /var directory is full. If so, remove the old installation files. Run the df -h command to show the available disk space.

- o **Issue**

After upgrading an HA pair, one of the nodes is listed as state UNKNOWN.

Resolution

Check to see if both nodes are running the same build. If the builds are not same and HA nodes have a version mismatch, some of the fields are shown as UNKNOWN when you run the show ha node command.

Check to see if the secondary appliance is reachable.

- o **Issue**

After you upgrade the NetScaler appliance, the interface shows most of the load balancing virtual servers and services are DOWN.

Resolution

Verify that the SNIP address is active on the secondary appliance. Also, type the show service command to see if the service is running.

- o **Issue**

After performing an upgrade, all virtual servers are down on the secondary appliance.

Resolution

Enable the HA state and HA synchronization by running the following commands:

```
set node hastate enable
```

```
set node hasync enable
```

Disabling HA is not recommended.

- o **Issue**

After performing a downgrade, the NetScaler appliance does not boot up properly.

Resolution

Check to see if the correct license has been installed.

- o **Issue**

In an HA pair, some features do not get synchronized after an upgrade is performed.

Resolution

Run the `sync ha file misc` command to synchronize the configurations files from the primary node to secondary node.

- o **Issue**

During reboot, the following error message appears:

```
One or more commands in ns.conf failedWhat should I do?
```

Resolution

Make sure that no command in the `ns.conf` file exceeds the 255 byte limit. In commands that create policies that are too long for the 255-byte limit, you can use pattern sets to shorten the policies.

Example:

```
add cs policy p11 -rule 'HTTP.REQ.URL.ENDSWITH_ANY("ctx_file_extensions")'  
Done
```

`ctx_file_extensions` is a default patset that covers a large number of extensions. In addition to the default pattern sets, you can create user-defined pattern sets. Add a patset by running the following command:

```
add patset <name>
```

Note: Patsets are supported only in release 9.3 or later.

- o **Issue**

When upgrading a NetScaler VPX appliance, I am told to free up space in `/var`. What files do I remove?

Resolution

Remove the old installation files from `/var/tmp/` directory. Also remove unwanted files from `/flash`.

- o **Issue**

There is no connectivity to the graphical user interface (GUI) when you run the force HA failover command on the secondary appliance.

Resolution

Log on to the secondary appliance using the command line interface and enable the access to GUI by running the `set ns ip <IP> -gui enabled` command.

- o **Issue**

After performing an upgrade, and when I click on any link on the GUI that has to load a java applet (Upgrade Wizard or license Wizard), the following error message appears: **GUI version does not match with the kernel version. Please close this instance, clear java plug-in cache and reopen.**

Resolution

- Log on to the NetScaler appliance using the GUI.
- Navigate to NetScaler Gateway > Global Settings.
- Click Change Global Settings under Settings.
- In the details pane, under Client Experience, select Default from the UI theme list.
- Click OK.

Note: These troubleshooting steps also apply to issues with configuration loss when downgrading the software across multiple releases.

For any other issue, see the release notes, Knowledge Center articles, and FAQs.

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