Upgrading and Downgrading a NetScaler Appliance

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NetScaler 11.1 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.

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:

Note

For best practices for upgrading NetScaler appliances, read the article CTX126793.

New and Deprecated Commands, Parameters, and SNMP OIDs

This section lists the new and deprecated commands, parameters, and SNMP OIDS. It includes the following topics:

New Commands

The following table lists the new commands in release 11.1.

Command Group	Command
Appflow	set appflow collector
Network	set vrID6 set netbridge bind netProfile unbind netProfile
NS	flush ns sourceroutecachetable
Protocol	clear protocol httpBand
Router	config router dynamicRouting
SSL	stat ssl vserver
Reputation	set reputation settings show reputation settings

New Parameters

The following table lists the new parameters in release 11.1.

Command Group	Command
Basic	rm server [-removeGSLBSvcOnly] add service [-monConnectionClose] show service [-monConnectionClose] add serviceGroup [-monConnectionClose] show serviceGroup [-monConnectionClose] start nstrace [-skipLocalSSH] start nstrace [-capsslkeys] show nstrace [-skipLocalSSH]

	show nstrace [-capsslkeys]
AAA	show aaa session [-aaaUserConnInfo] set aaa radiusParams [-authservRetry] show aaa radiusParams [-authservRetry] set aaa parameter [-aaaSessionLoglevel] show aaa parameter [-aaaSessionLoglevel]
AppFlow	add appflow action [-pageTracking] add appflow action [-securityInsight] set appflow action [-pageTracking] set appflow action [-securityInsight] show appflow action [-pageTracking] show appflow action [-securityInsight] set appflow param [-SecurityInsightRecordInterval] set appflow param [-subscriberAwareness] set appflow param [-SecurityInsightTraffic] set appflow param [-cacheInsight] show appflow param [-SecurityInsightRecordInterval] show appflow param [-SecurityInsightTraffic] show appflow param [-subscriberAwareness] show appflow param [-cacheInsight]
Audit	add audit syslogAction [-serverDomainName] set audit syslogAction [-serverDomainName] set audit syslogAction [-domainResolveRetry] set audit syslogAction [-domainResolveNow] show audit syslogAction [-serverDomainName] show audit syslogAction [-IP] show audit syslogAction [-domainResolveRetry] add audit nslogAction [-serverDomainName] set audit nslogAction [-serverDomainName] set audit nslogAction [-domainResolveRetry] set audit nslogAction [-domainResolveNow] show audit nslogAction [-serverDomainName] show audit nslogAction [-domainResolveRetry] show audit nslogAction [-IP]

Authentication	add authentication radiusAction [-authservRetry] set authentication radiusAction [-authservRetry] show authentication radiusAction [-authservRetry] add authentication negotiateAction [-NTLMPath] set authentication negotiateAction [-NTLMPath] show authentication negotiateAction [-NTLMPath] add authentication samlAction [-skewTime] set authentication samlAction [-skewTime] show authentication samlAction [-skewTime] bind authentication vserver [-portaltheme] unbind authentication vserver [-portaltheme] show authentication vserver [-portaltheme] add authentication samlIdPProfile [-samlBinding] add authentication samlIdPProfile [-skewTime] add authentication samlIdPProfile [-signAssertion] add authentication samlIdPProfile [-keyTransportAlg] set authentication samlIdPProfile [-samlBinding] set authentication samlIdPProfile [-skewTime] set authentication samlIdPProfile [-signAssertion] set authentication samlIdPProfile [-keyTransportAlg] show authentication samlIdPProfile [-samlBinding] show authentication samlIdPProfile [-skewTime] show authentication samlIdPProfile [-signAssertion] show authentication samlIdPProfile [-keyTransportAlg] add authentication loginSchema [-builtin] show authentication loginSchema [-builtin]
Cluster	show cluster instance [-validMtu] show cluster node [-routeMonitor] show cluster node [-routeMonState] show cluster node [-netmask] bind cluster node [-routeMonitor] unbind cluster node [-routeMonitor]
DNS	show dns naptrRec [-vServerName]
	add gslb site [-naptrReplacementSuffix]

GSLB	set gslb site [-naptrReplacementSuffix] show gslb site [-naptrReplacementSuffix] add gslb service [-naptrReplacement] add gslb service [-naptrOrder] add gslb service [-naptrServices] add gslb service [-naptrDomainTTL] add gslb service [-naptrPreference] set gslb service [-naptrOrder] set gslb service [-naptrPreference] set gslb service [-naptrServices] set gslb service [-naptrReplacement] show gslb service [-lastresponse] show gslb service [-naptrOrder] show gslb service [-naptrPreference] show gslb service [-naptrServices] show gslb service [-naptrReplacement] show gslb service [-naptrDomainTTL] add gslb vserver [-ECS] add gslb vserver [-ecsAddrValidation] set gslb vserver [-ECS] set gslb vserver [-ecsAddrValidation] show gslb vserver [-ECS] show gslb vserver [-ecsAddrValidation]
HA	show HA node [-haHeartbeatifaces]
ICA	add ica action [-latencyprofileName] set ica action [-latencyprofileName] show ica action [-latencyprofileName]
IPsec	add ipsec profile [-responderOnly] show ipsec profile [-responderOnly] set ipsec parameter [-responderOnly] unset ipsec parameter [-responderOnly] show ipsec parameter [-responderOnly]
	add lb monitor [-builtin] add lb monitor [-sslProfile]

Load Balancing	set lb monitor [-sslProfile] unset lb monitor [-sslProfile] bind lb monitor [-certkeyName] unbind lb monitor [-certkeyName] show lb monitor [-builtin] show lb monitor [-sslProfile] show lb monitor [-certkeyName] show lb monitor [-CA] show lb monitor [-crlCheck] show lb monitor [-ocspCheck] add lb vserver [-lbprofilename] add lb vserver [-redirectFromPort] add lb vserver [-httpsRedirectUrl] set lb vserver [-lbprofilename] set lb vserver [-redirectFromPort] set lb vserver [-httpsRedirectUrl] unset lb vserver [-lbprofilename] unset lb vserver [-redirectFromPort] unset lb vserver [-httpsRedirectUrl] show lb vserver [-backupLBMethod] show lb vserver [-preferredLocation] show lb vserver [-lbprofilename] show lb vserver [-redirectFromPort] show lb vserver [-httpsRedirectUrl] set lb parameter [-AllowBoundSvcRemoval] set lb parameter [-retainservicestate] show lb parameter [-AllowBoundSvcRemoval] show lb parameter [-retainservicestate]
	bind lsn group [-pcpServer] bind lsn group [-logProfileName] unbind lsn group [-pcpServer] unbind lsn group [-logProfileName] show lsn group [-pcpServer] show lsn group [-logProfileName] add lsn logprofile [-logCompact]

LSN	set lsn logprofile [-logCompact] show lsn logprofile [-logCompact] set lsn parameter [-subscrSessionRemoval] show lsn parameter [-subscrSessionRemoval] show lsn session [-IPv6Address] show lsn deterministicNat [-network6] show lsn deterministicNat [-natprefix] show lsn deterministicNat [-nattype]
	add channel [-haHeartbeat] set channel [-haHeartbeat] show channel [-haHeartbeat] add vrID [-preemptiondelaytimer] show vrID [-preemptiondelaytimer] add vrID6 [-priority] add vrID6 [-preemption] add vrID6 [-sharing] add vrID6 [-preemptiondelaytimer] add vrID6 [-trackifNumPriority] bind vrID6 [-trackifNum] unbind vrID6 [-trackifNum] show vrID6 [-preemption] show vrID6 [-sharing] show vrID6 [-preemptiondelaytimer] show vrID6 [-trackifNum] show vrID6 [-trackifNumPriority] show vrID6 [-effectivePriority] add inat [-tcpproxy] add inat [-ftp] add inat [-tftp] add inat [-usip] add inat [-usnip] add inat [-proxyIP] set inat [-tcpproxy] set inat [-ftp] set inat [-tftp]

Network	set inat [-usip] set inat [-usnip] set inat [-proxyIP] show inat [-proxyIP] show inat [-tcpproxy] show inat [-ftp] show inat [-tftp] show inat [-usip] show inat [-usnip] show bridgegroup [-ownerGroup] add netbridge [-vxlanVlanMap] show netbridge [-vxlanVlanMap] show netProfile [-srcPortRange] show netProfile [-stateflag] show netProfile [-flags] show netProfile [-natRule] show netProfile [-netmask] set interface [-haHeartbeat] set interface [-trunkmode] set interface [-trunkAllowedVlan] show interface [-haHeartbeat] show interface [-trunkmode] show interface [-trunkAllowedVlan] set rnat [-connfailover] unset rnat [-connfailover] show rnat [-connfailover] set L2Param [-stopMacMoveUpdate] show L2Param [-stopMacMoveUpdate] set L3Param [-ipv6DynamicRouting] show L3Param [-ipv6DynamicRouting] add forwardingSession [-sourceroutecache] set forwardingSession [-sourceroutecache] show forwardingSession [-sourceroutecache] add vxlan [-type is introduced] add vxlan [-innerVlanTagging] set vxlan [-innerVlanTagging]

	show vxlan [-innerVlanTagging] show vxlan [-type] show vxlan [-protocol]
NS	show ns acl [-aclassociate] show ns acl6 [-aclassociate] add ns ip6 [-vrID6] set ns ip6 [-vrID6] show ns ip6 [-vrID6] add ns tcpProfile [-tcpFastOpen] add ns tcpProfile [-Hystart] add ns tcpProfile [-dupackthresh] set ns tcpProfile [-tcpFastOpen] set ns tcpProfile [-Hystart] set ns tcpProfile [-dupackthresh] unset ns tcpProfile [-tcpFastOpen] unset ns tcpProfile [-Hystart] unset ns tcpProfile [-dupackthresh] show ns tcpProfile [-tcpFastOpen] show ns tcpProfile [-Hystart] show ns tcpProfile [-dupackthresh] show ns license [-isSGwyLic] show ns license [-Rep] clear ns config [-RBAconfig] show ns connectiontable [-maxRcvbuf] show ns connectiontable [-linkmaxRcvbuf] show ns connectiontable [-RxQsize] show ns connectiontable [-linkRxQsize] show ns connectiontable [-maxSndbuf] show ns connectiontable [-linkmaxSndbuf] show ns connectiontable [-TxQsize] show ns connectiontable [-linkTxQsize] show ns connectiontable [-flavor] show ns connectiontable [-linkflavor] show ns connectiontable [-bwEstimate] show ns connectiontable [-linkbwEstimate] show ns connectiontable [-rttMin]

	show ns connectiontable [-linkrttMin] show ns connectiontable [-name] show ns connectiontable [-linkName] show ns connectiontable [-tcpmode] show ns connectiontable [-linktcpmode] show ns connectiontable [-realTimeRtt] show ns connectiontable [-linkrealTimeRtt] show ns connectiontable [-sndBuf] show ns connectiontable [-linksndBuf] show ns connectiontable [-nsbTcpwaitQ] show ns connectiontable [-linknsbTcpwaitQ] show ns connectiontable [-nsbRetxQ] show ns connectiontable [-linknsbRetxQ] show ns connectiontable [-sackblocks] show ns connectiontable [-linksackblocks] show ns connectiontable [-congstate] show ns connectiontable [-linkcongstate] show ns connectiontable [-sndrecoverle] show ns connectiontable [-linksndrecoverle] show ns feature [-Rep] show ns mode [-ULFD] set ns tcpParam [-tcpFastOpenCookieTimeout] show ns tcpParam [-tcpFastOpenCookieTimeout] unset ns pbr6 [-vxlanVlanMap] show ns pbr6 [-vxlanVlanMap] add ns partition [-pmacInternal] show ns partition [-pmacInternal]
Protocol	show protocol httpBand [-reqBandSize] show protocol httpBand [-respBandSize]
RDP	add rdp clientprofile [-redirectComPorts] add rdp clientprofile [-redirectPnpDevices] add rdp clientprofile [-rdpListener] set rdp clientprofile [-redirectComPorts] set rdp clientprofile [-redirectPnpDevices] set rdp clientprofile [-rdpListener] show rdp clientprofile [-redirectComPorts]

	show rdp clientprofile [-redirectPnpDevices] show rdp clientprofile [-rdpListener]
Rewrite	set rewrite param [-timeout] unset rewrite param [-timeout] show rewrite param [-timeout]
SNMP	set snmp option [-snmpTrapLoggingLevel] show snmp option [-snmpTrapLoggingLevel]
SSL	show ssl certKey [-CertificateType] create ssl certReq [-digestMethod] show ssl profile [-sslpfobjecttype]
System	add system user [-maxsession] set system user [-maxsession] show system user [-maxsession] set system parameter [-totalAuthTimeout] set system parameter [-cliLoglevel] show system parameter [-totalAuthTimeout] show system parameter [-cliLoglevel] restore system backup [-skipbackup] show system file [-filesize]
Subscriber	set subscriber param [-idleTTL] set subscriber param [-idleAction] set subscriber param [-ipv6PrefixLookupList] set subscriber param [-builtin] show subscriber param [-idleTTL] show subscriber param [-idleAction] show subscriber param [-ipv6PrefixLookupList] show subscriber param [-builtin] set subscriber gxInterface [-revalidationTimeout] show subscriber gxInterface [-revalidationTimeout]
TM	add tm sessionPolicy [-expressionType] show tm sessionPolicy [-stateflag] show tm sessionPolicy [-expressionType] show tm sessionPolicy [-hits] show tm sessionPolicy [-gotoPriorityExpression]

	add tm samlSSOProfile [-skewTime] set tm samlSSOProfile [-skewTime] show tm samlSSOProfile [-skewTime] show tm global [-gotoPriorityExpression]
Utility	show callhome [-proxyAuthService] set callhome [-proxyAuthService]
VPN	add vpn vserver [-authnProfile] add vpn vserver [-vserverFqdn] set vpn vserver [-authnProfile] set vpn vserver [-vserverFqdn] show vpn vserver [-authnProfile] show vpn vserver [-vserverFqdn] add vpn samlSSOProfile [-skewTime] set vpn samlSSOProfile [-skewTime] show vpn samlSSOProfile [-skewTime] add vpn sessionAction [-sfGatewayAuthType] add vpn sessionAction [-alwaysONProfileName] set vpn sessionAction [-sfGatewayAuthType] set vpn sessionAction [-alwaysONProfileName] show vpn sessionAction [-sfGatewayAuthType] show vpn sessionAction [-alwaysONProfileName] set vpn parameter [-alwaysONProfileName] unset vpn parameter [-alwaysONProfileName] show vpn parameter [-alwaysONProfileName] add vpn alwaysONProfile [-internetAccess] add vpn alwaysONProfile [-clientControl] add vpn alwaysONProfile [-locationBasedVPN] set vpn alwaysONProfile [-internetAccess] set vpn alwaysONProfile [-clientControl] set vpn alwaysONProfile [-locationBasedVPN] show vpn alwaysONProfile [-internetAccess] show vpn alwaysONProfile [-clientControl] show vpn alwaysONProfile [-locationBasedVPN]
Application Firewall	show appfw fieldType [-all]

Deprecated Commands

The following table lists the commands that are deprecated in version 11.1.

Command Group	Command
Network	add vpath rm vpath show vpath stat vpath set vPathParam show vPathParam

Deprecated Parameters

The following table lists the parameters that are deprecated in version 11.1.

Command Group	Command
VPN	add vpn vserver [-userDomains] set vpn vserver [-userDomains] show vpn vserver [-userDomains] add vpn sessionAction [-clientOptions] add vpn sessionAction [-clientDebug] set vpn sessionAction [-clientOptions] set vpn sessionAction [-clientDebug] show vpn sessionAction [-clientOptions] show vpn sessionAction [-clientDebug] set vpn parameter [-clientOptions] set vpn parameter [-clientDebug] set vpn parameter [-userDomains] unset vpn parameter [-clientOptions] unset vpn parameter [-userDomains] show vpn parameter [-clientOptions] show vpn parameter [-clientDebug] show vpn parameter [-userDomains]

NEW SNMP OIDs

pbrTotNullDrop,1.3.6.1.4.1.5951.4.1.1.22.5.25
pbr6TotNullDrop,1.3.6.1.4.1.5951.4.1.1.22.7.25
tcpOptimizationEnabled,1.3.6.1.4.1.5951.4.1.1.46.131
tcpOptimizationBypassed,1.3.6.1.4.1.5951.4.1.1.46.132
sslTotECDSAAuthorizations,1.3.6.1.4.1.5951.4.1.1.47.366

nsLsnNAT64GlobalStatsGroup,1.3.6.1.4.1.5951.4.1.1.83.6
lsnTotNAT64RxPkts,1.3.6.1.4.1.5951.4.1.1.83.6.1
lsnTotNAT64RxBytes,1.3.6.1.4.1.5951.4.1.1.83.6.2
lsnTotNAT64TxPkts,1.3.6.1.4.1.5951.4.1.1.83.6.3
lsnTotNAT64TxBytes,1.3.6.1.4.1.5951.4.1.1.83.6.4
lsnCurNAT64sessions,1.3.6.1.4.1.5951.4.1.1.83.6.5
lsnNAT64CurSubscribers,1.3.6.1.4.1.5951.4.1.1.83.6.6
lsnTotNAT64TcpRxPkts,1.3.6.1.4.1.5951.4.1.1.83.6.7
lsnTotNAT64TcpTxPkts,1.3.6.1.4.1.5951.4.1.1.83.6.8
lsnTotNAT64UdpRxPkts,1.3.6.1.4.1.5951.4.1.1.83.6.9
lsnTotNAT64UdpTxPkts,1.3.6.1.4.1.5951.4.1.1.83.6.10
lsnTotNAT64IcmpRxPkts,1.3.6.1.4.1.5951.4.1.1.83.6.11
lsnTotNAT64IcmpTxPkts,1.3.6.1.4.1.5951.4.1.1.83.6.12
lsnTotNAT64TcpRxBytes,1.3.6.1.4.1.5951.4.1.1.83.6.13
lsnTotNAT64TcpTxBytes,1.3.6.1.4.1.5951.4.1.1.83.6.14
lsnTotNAT64UdpRxBytes,1.3.6.1.4.1.5951.4.1.1.83.6.15
lsnTotNAT64UdpTxBytes,1.3.6.1.4.1.5951.4.1.1.83.6.16
lsnTotNAT64IcmpRxBytes,1.3.6.1.4.1.5951.4.1.1.83.6.17
lsnTotNAT64IcmpTxBytes,1.3.6.1.4.1.5951.4.1.1.83.6.18
lsnTotNAT64TcpDrpPkts,1.3.6.1.4.1.5951.4.1.1.83.6.19
lsnTotNAT64UdpDrpPkts,1.3.6.1.4.1.5951.4.1.1.83.6.20
lsnTotnat64IcmpDrpPkts,1.3.6.1.4.1.5951.4.1.1.83.6.21
lsnCurNAT64TcpSessions,1.3.6.1.4.1.5951.4.1.1.83.6.22
lsnCurNAT64UdpSessions,1.3.6.1.4.1.5951.4.1.1.83.6.23
lsnCurNAT64IcmpSessions,1.3.6.1.4.1.5951.4.1.1.83.6.24
lsnNAT64SessionsRate,1.3.6.1.4.1.5951.4.1.1.83.6.25
lsnNAT64TcpSessionsRate,1.3.6.1.4.1.5951.4.1.1.83.6.26
lsnNAT64UdpSessionsRate,1.3.6.1.4.1.5951.4.1.1.83.6.27
lsnNAT64IcmpSessionsRate,1.3.6.1.4.1.5951.4.1.1.83.6.28
ipConflictMacAddr,1.3.6.1.4.1.5951.4.1.10.2.66
gslbSite,1.3.6.1.4.1.5951.4.1.10.2.67
siteIP,1.3.6.1.4.1.5951.4.1.10.2.68
lsnNAT64SubscrIPV6,1.3.6.1.4.1.5951.4.1.10.2.69

Deprecated SNMP OIDs

ifTxCollisions,1.3.6.1.4.1.5951.4.1.1.54.1.14
ifTxExcessCollisions,1.3.6.1.4.1.5951.4.1.1.54.1.15
ifTxLateCollisions,1.3.6.1.4.1.5951.4.1.1.54.1.16
ifTxMultiCollisionErrors,1.3.6.1.4.1.5951.4.1.1.54.1.17
ifErrTxDeferred,1.3.6.1.4.1.5951.4.1.1.54.1.37

Upgrading to Release 11.1

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

Before upgrading the system software, make sure that you have the required licenses. For more information, see NetScaler Licensing Overview. Existing NetScaler licenses continue to work when you upgrade to version 11.1.

Note

When upgrading from release 10.0, 10.1, 10.5, or 11.0 you have the option to use the configuration utility or the command line interface. We recommend that you use command line interface to upgrade, because it works smoothly with all NetScaler versions.

Note

You cannot upgrade to NetScaler 11.1 from the following builds by using the Upgrade Wizard of the NetScaler GUI:

- All builds of NetScaler 10.1
- Any build before Build 57.x of NetScaler 10.5

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. The procedure includes optional steps to avoid losing any updates that are pushed to the /etc directory during the upgrade.

Note

If your NetScaler appliance runs any 9.x or lower release, visit the Product Matrix site for more information.

To upgrade a standalone NetScaler appliance running release 10.0, 10.1, 10.5, or 11 by using the command line interface

Follow these steps to upgrade a standalone NetScaler appliance to version 11.1:

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<currentreleasenumber><currentbuildnumber>

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:
   - ttys
   - resolv.conf
   - sshd_config
   - host.conf
   - newsyslog.conf
   - host.conf
   - httpd.conf
   - rc.conf
   - syslog.conf
   - crontab
   - 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:

   cp /nsconfig/<filename> /var/nsconfig_backup

   Example:

   ```
   cp /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 <releasenumber>nsinstall
   c. cd <releasenumber>nsinstall
   d. mkdir build_<targetbuildnumber>
   e. cd build_<targetbuildnumber>
6. Download the installation package (build-<release>-<targetbuildnumber>_nc.tgz). To download the installation package from the Citrix website, 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.
7. Copy the installation package to the directory that you created for it in step 5.
8. Extract the contents of the installation package. Example:

   ```
   tar â€“xvzf build-11.1-47.1_nc.tgz
   ```

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

   ```
   ./installns
   ```

10. When prompted, restart the NetScaler.
11. (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.

Note

To install an 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.

Example

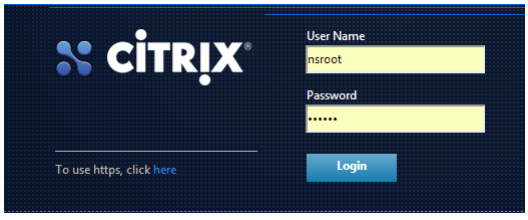
```
login: nsroot
Password: nsroot
Last login: Thu Jun 23 15:05:05 2016 from 10.252.243.134
Done
> save config
> shell
Last login: Thu Jun 23 15:05:05 2016 from 10.252.243.134
root@NSnnn# cd /var/nsinstall
root@NSnnn# cd 11.1nsinstall
root@NSnnn# mkdir build_47.10
root@NSnnn# cd build_47.10
root@NSnnn# ftp <FTP server IP address>
ftp> mget build-11.1-47.10_nc.tgz
ftp> bye
root@NSnnn# tar xzvf build-11.1-47.10_nc.tgz
root@NSnnn# ./installns
installns version (11.1-47.10) kernel (ns-11.1-47.10_nc.gz)
...
...
...
Copying ns-11.1-47.10_nc.gz to /flash/ns-11.1-47.10_nc.gz ...

...
Installation has completed.

Reboot NOW? [Y/N] Y
```

To upgrade a standalone NetScaler running release 10.0, 10.1, 10.5, and 11.0 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.

Directory Locations of Script Files for User Monitors

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."

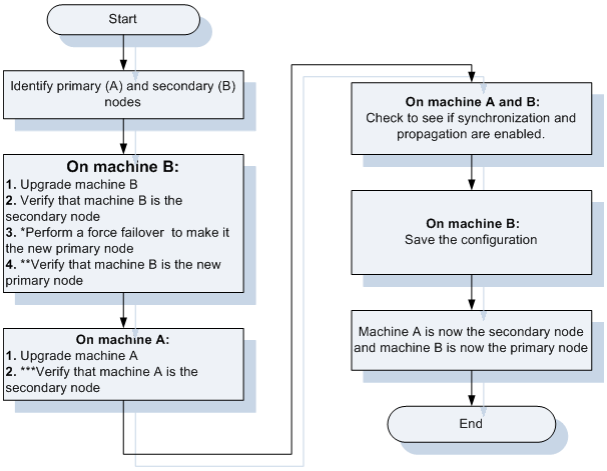
Upgrading a High Availability Pair

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

Points to Note

1. 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:
   -Configuration propagation and synchronization
   -States of the services
   -Connection failover sessions
   -Persistence sessions
   The above information might not get synchronized on the primary and secondary nodes if the two nodes are running different builds of the same release. Refer to the Known Issues section of the release notes to check if your NetScaler build has this issue.
2. Synchronization of the files in the All mode of the Sync HA files command works successfully if the two nodes in an HA configuration are running different NetScaler software releases, or the two nodes are running different builds of the same release. For more information, see Synchronising Configuration Files in High Availability Setup.

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 10.0, 10.1, 10.5, or 11.0 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: Thu Jun  23 08:37:26 2016 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 unti 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 10.1, 10.5, or 11.0 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 10.0, 10.1, 10.5, or 11 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 10.0, 10.1, 10.5, or 11 by using the configuration utility".

Upgrading to a Later Build within Release 11.1

To upgrade from an earlier 11.1 build to a later 11.1 build on a standalone NetScaler appliance or a high availability pair, you can use the configuration utility or the command line interface. You use 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 Appliance to a Later Build

In the following procedure, <targetbuildnumber> is the build number that you are upgrading to within the 11.1 release. The procedure includes optional steps to avoid losing any updates that are pushed to the /etc directory during the upgrade.

To upgrade a standalone NetScaler appliance running release 11.1 to a later build 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, and save the running configuration. At the prompt, type

   save ns 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<releasenumber><currentbuildnumber>

   You should backup the configuration file to another computer.
4. (Optional) If you have modified any 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:
   - ttys
   - resolv.conf
   - sshd_config
   - host.conf
   - newsyslog.conf
   - host.conf
   - httpd.conf
   - rc.conf
   - syslog.conf
   - crontab
   - 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:

   cp /nsconfig/<filename> /var/nsconfig_backup

   Example:

   ```
   cp /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 <releasenumber>nsinstall
   c. cd <releasenumber>nsinstall
   d. mkdir build_<targetbuildnumber>
   e. cd build_<targetbuildnumber>
6. Download or copy the installation package (build-11.0-<targetbuildnumber>_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 the Select a Product, select NetScaler ADC.
   c. Under Firmware, click the release and build number to download.
   d. Click Get Firmware.
7. Extract the contents of the installation package. Example:

```
tar â€“xvzf build_11.1-47.10_nc.tgz
```

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

   During the upgrade, you are prompted for an option to load a different configuration.

   If you do not want to load a different configuration and continue with the upgrade, type N. If want to load a different configuration file, then type Y.

   If the configuration file for the build to which you are upgrading exists in the appliance, you are prompted to load that configuration.
9. When prompted, restart the appliance.
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:
Last login: Fri Jun  24 12:12:54 2016 from 10.144.7.22
Done
> save ns config
> shell
Last login: Fri Jun  24 03:51:42 from 10.103.25.64
root@NSnnn# cd /var/nsinstall
root@NSnnn# cd 11.1nsinstall
root@NSnnn# mkdir build_47.10
root@NSnnn# cd build_47.10
root@NSnnn# ftp <FTP server IP address>
ftp> mget build-11.1-47.10_nc.tgz
ftp> bye
root@NSnnn# tar  build-11.1-47.10_nc.tgz
root@NSnnn# ./installns
installns version (11.1-47.10) kernel (ns-11.1-47.10_nc.gz)
The Netscaler version 11.1-47.10 checksum file is located on
http://www.mycitrix.com under Support > Downloads > Citrix NetScaler.
Select the Release 11.1-47.10 link to view the MD5 checksum file for build 11.1-47.10.

There may be a pause of up to 3 minutes while data is written to the flash.
Do not interrupt the installation process once it has begun....
...
...
Copying ns-11.1-47.10_nc.gz to /flash/ns-11.1-47.10_nc.gz ...
...
Installation has completed.

Reboot NOW? [Y/N] Y
```

To upgrade a standalone NetScaler running release 11.1 to a later build 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.
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 NetScaler High Availability Pair to a Later Build

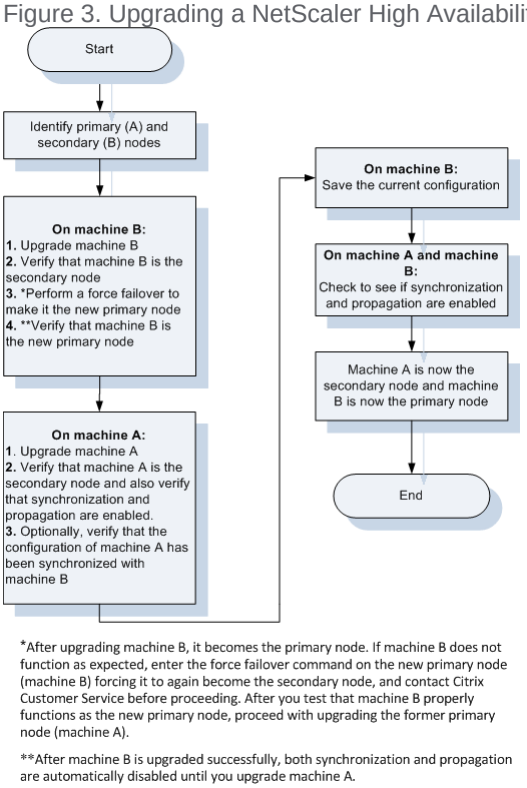
To upgrade the system software on NetScaler appliances in a high availability (HA) pair, upgrade the secondary node first, and then upgrade the primary node.

Warning: In certain cases, after you upgrade one of the nodes in an HA pair, synchronization and propagation are automatically disabled until you upgrade the other node. To determine whether synchronization and propagation are disabled at the command line interface, type: show ha node

Points to Note

1. 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:
   -Configuration propagation and synchronization
   -States of the services
   -Connection failover sessions
   -Persistence sessions
   The above information might not get synchronized on the primary and secondary nodes if the two nodes are running different builds of the same release. Refer to the Known Issues section of the release notes to check if your NetScaler build has this issue.
2. Synchronization of the files in the All mode of the Sync HA files command works successfully if the two nodes in an HA configuration are running different NetScaler software releases, or the two nodes are running different builds of the same release. For more information, see Synchronising Configuration Files in High Availability Setup.

Figure 3. Upgrading a NetScaler High Availability Pair to a Later Build



In the following procedure, machine A is the original primary and machine B is the original secondary node, and <targetbuildnumber> is the build number that you are upgrading to within the 10.1 release.

To upgrade a NetScaler high availability pair to a later build 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 to a Later Build". The procedure includes optional steps to avoid losing any updates that are pushed to the /etc directory during the upgrade.
2. After the NetScaler restarts, log on by using 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.

   On machine A (original primary node)

5. Follow the procedure for upgrading a standalone node as described in "Upgrading a Standalone NetScaler Appliance to a Later Build." 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 and propagation are enabled. Optionally, enter the show ns runningconfig command on both the nodes and compare the result to verify that the configuration of machine A has been synchronized with that of machine B.

On machine B (new primary node)

7. Enter the save ns config command to save the current configuration.

On machine A and machine B

8. After successfully upgrading both the nodes, run the show ha node command to verify that synchronization and propagation are enabled.

Example

```
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


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
```

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

Downgrading from Release 11.1

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 11.1 to an earlier release.
Note: Downgrading using the configuration utility is not supported.
This document includes the following information:

Downgrading a Standalone NetScaler

In the following procedure, <release> and <releasenumber> 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.

To downgrade a standalone NetScaler

1. Open an SSH connection to the NetScaler appliance by using an SSH client, such as PuTTY.
2. Log on to the NetScaler 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<currentbuildnumber>

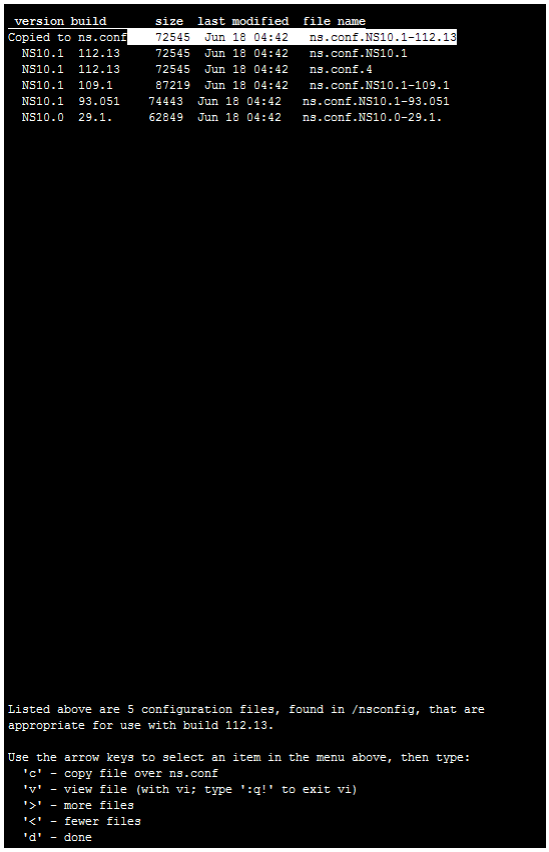
   You should backup a copy of the configuration file on another computer.
4. Copy the <releasenumber> configuration file (ns.conf.NS<releasenumber>) to ns.conf. At the shell prompt, type:

   cp **ns.conf.NS**<releasenumber> **ns.conf**

   Note: ns.conf.NS<releasenumber> is the backup configuration file that is automatically created when the system software is upgraded from release version <releasenumber> 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<targetreleasenumber> ZebOS.conf
6. Change directory to /var/nsinstall/<releasenumber>nsinstall, or create one if it does not exist.
7. Change directory to build_<targetbuildnumber>, or create one if it does not exist.
8. Download or copy the installation package (build-<release>-<targetbuildnumber>.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



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: Fri Jun 24 02:06:52 2016 from 10.102.29.9
Done
> save config
> shell
root@NSnnn# cp ns.conf.NS10.5 ns.conf
root@NSnnn# cd /var/nsinstall
root@NSnnn# mkdir 10.5nsinstall
root@NSnnn# cd 10.5nsinstall
root@NSnnn# mkdir build_57
root@NSnnn# cd build_57
root@NSnnn# ftp 10.102.1.1
ftp> mget build-10.5-57_nc.tgz
ftp> bye
root@NSnnn# tar -xzvf build-10.1-125_nc.tgz
root@NSnnn# ./installns
installns version (10.5-57) kernel (ns-10.5-57.gz)
...
...
...
Copying ns-10.5-57.gz to /flash/ns-10.5-57_nc.gz ...
Changing /flash/boot/loader.conf for ns-10.5-57 ...

Installation has completed.

Reboot NOW? [Y/N] Y
```

Downgrading a High Availability Pair

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".

Downgrading to an Earlier Build within Release 11.1

You can downgrade from a later 11.1 build to an earlier 11.1 build on a standalone NetScaler or a high availability pair. This procedure must be performed by using the command line interface.

Warning: Loss in configuration may occur when downgrading. You should compare the configurations before and after the downgrade, and then manually readd any missing entries.
This document includes the following information:

Downgrading a Standalone NetScaler to an Earlier Build

In the procedure below, <targetbuildnumber> is the build number that you are downgrading to within the same release.

To downgrade a standalone NetScaler to an earlier build

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

   save ns config

   Caution: If ns.conf.NS11.1-<targetbuildnumber> does not exist, loss in configuration may occur when downgrading to an earlier build. The errors and warnings appear only on the console. Please watch the console closely for these errors and warnings. After the appliance restarts, compare the saved configuration with the running configuration, and make any adjustments for features and entities configured before the downgrade. Save the running configuration after making the changes.
3. Change directory to /var/nsinstall/11.1nsinstall.
4. Change directory to build_<targetbuildnumber>, or create one if it does not exist.
5. Download or copy the installation package (build-11.1-<targetbuildnumber>_nc.tgz) to this directory and extract the contents of the installation package.
6. Run the installns script to install the old 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.
7. When prompted, restart the NetScaler.

Example

```
login: nsroot
Password: nsroot
Last login: Fri Jun  24 08:38:25 2016 from 10.102.29.4
Done
> save ns config
> shell
Last login: Fri Jun 24  09:07:06 from 10.103.25.64
root@NSnnn# cp ns.conf.NS11.1-55.23 ns.conf
root@NSnnn# cd /var/nsinstall
root@NSnnn# cd 11.1nsinstall
root@NSnnn# cd build_47_10
root@NSnnn# ftp <FTP server IP address>
ftp> mget build-11.1-47.10_nc.tgz
ftp> bye
root@NSnnn# tar xzvf build-11.1-47.10_nc.tgz
root@NSnnn# ./installns
installns version (11.1-47.10) kernel (ns-11.1-47.10.gz)
...
...
...
Copying ns-11.1-47.10_nc.gz to /flash/ns-11.1-47.10_nc.gz ...
Changing /flash/boot/loader.conf for ns-11.1-47.10 ...

Installation has completed.

Reboot NOW? [Y/N] Y
```

Downgrading a NetScaler High Availability Pair to an Earlier Build

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 to an Earlier Build".

Note: In an HA setup, both nodes must run NetScaler nCore or NetScaler classic. If the nodes are running NetScaler classic and you want to migrate to NetScaler nCore of the same NetScaler release, propagation and synchronization are not supported during the migration process. Once migration is complete, you have to manually enable propagation and synchronization. The same applies if you migrate from NetScaler nCore to NetScaler classic.

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, 10.5, and 11.0. 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

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 newnslog files.
  - The ns.log file.
  - The messages file.
- A network topology diagram.

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

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.
- **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.

- **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 â€“a command from the primary node.

- **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 â€“h command to show the available disk space.

- **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.

- **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.

- **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.

- **Issue**

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

  Resolution

  Check to see if the correct license has been installed.

- **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.

- **Issue**

  During reboot, the following error message appears:

  `One or more commands in ns.conf failed`What 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.
- **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.
- **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.
- **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.