

# Tru64 UNIX Best Practice

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## clu\_upgrade Quick Reference

**December 2001**

**Product Version:**                   **TruCluster Server Version 5.0A and higher**

This Best Practice briefly describes the `clu_upgrade` commands used during a rolling upgrade from TruCluster™ Server cluster Version 5.0A or higher.



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## clu\_upgrade Quick Reference

This Best Practice describes how to use `clu_upgrade` for a rolling upgrade of TruCluster™ Server. It contains the flow chart for a rolling upgrade and a concise summary of the `clu_upgrade` commands. It is designed for an experienced cluster administrator who has previously performed rolling upgrades, but who wants a brief reminder of when and where to run the `clu_upgrade` commands.

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### Notes

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This Best Practice does not contain the preparatory steps or the full procedure for a rolling upgrade. They are described in the appropriate *Cluster Installation* manual. We assume that the reader has performed rolling upgrades, and has read the appropriate *Cluster Installation* manual and any associated release notes before performing the rolling upgrade.

For Versions 5.0A and 5.1, the title of the TruCluster Server installation manual was *Software Installation*. Starting with Version 5.1A, the title changed to *Cluster Installation*. For simplicity, this Best Practice uses *Cluster Installation* throughout.

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See the Tru64 UNIX Best Practices Web page for more information about Best Practices documentation.

### Is This Best Practice Right for You?

Not all Best Practices apply to all configurations, so you must be sure that it is appropriate for your system and circumstances. To use this Best Practice, you must meet the requirements described in the following table:

Requirement	Description
Operating System	Compaq Tru64™ UNIX Version 5.0A or higher

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Requirement	Description
Product Version	TruCluster Server Version 5.0A or higher
System Configuration	A cluster that is ready for a rolling upgrade.
Impact on Availability	When performed properly, a rolling upgrade uses cluster resources but does not stop the cluster from servicing client requests.
Skill Level	Experienced TruCluster Server administrator who has performed one or more complete rolling upgrades on a Version 5.0A or higher cluster.

If you do not meet the previous requirements, see the appropriate *Cluster Installation* manual at the TruCluster Server documentation web site.

## Before You Begin

Before you apply this Best Practice for using `clu_upgrade` commands for a rolling upgrade, you must understand some background information and perform some preliminary tasks.

- Perform the preparatory tasks described in the appropriate *Cluster Installation* manual. Make sure that adequate disk space is available before starting. For each release that supports a rolling upgrade, the *Cluster Installation* manual provides disk space requirements and detailed preparation steps.
- Depending on whether you are upgrading the operating system and TruCluster Server software, patching the current release, or installing a New Hardware Delivery (NHD) kit (Version 5.1A or higher), obtain the necessary kits and licenses before you start the rolling upgrade.
- Back up the current cluster.

## Applying the Best Practice

Before you start the rolling upgrade, be sure to follow the recommendations in *Before You Begin*.

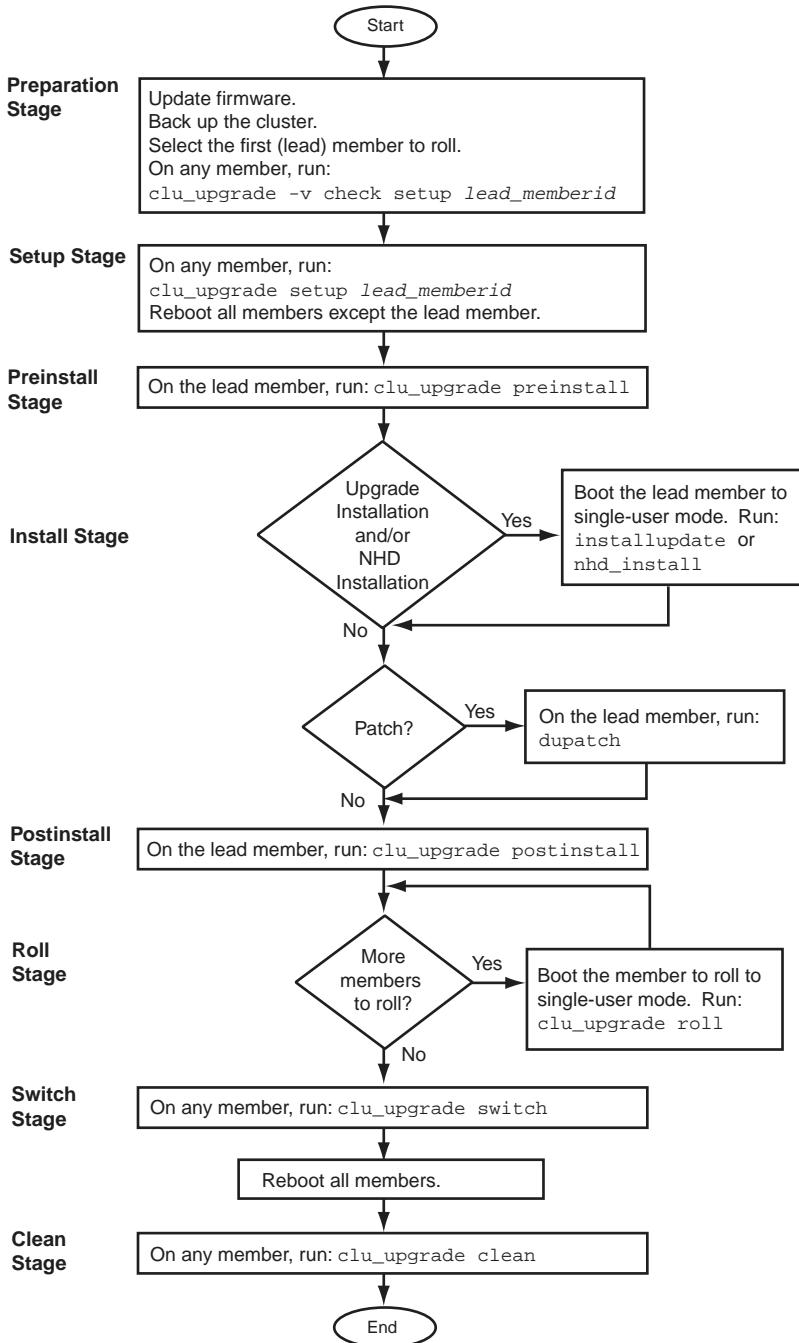
Because the purpose of this Best Practice is to provide a quick reference to help cluster administrators who already know how to do a rolling upgrade, this section does not provide a step-by-step procedure. It provides the rolling upgrade flow chart from the *Cluster Installation* manual, and a

short description of each stage. If, at any point, you are uncertain about the detailed actions to take within each stage, see the *Cluster Installation* manual for your release.

## Rolling Upgrade Flow Chart

A rolling upgrade consists of an ordered series of steps, called **stages**. The following figure provides a simplified flow chart of the tasks and stages that are part of a rolling upgrade initiated on a TruCluster Server cluster. (The installation of an NHD kit is supported only on a Version 5.1A or higher cluster.)

## Flow Chart



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**Note**

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The tasks that you can perform during a rolling upgrade depend on which versions of the base operating system and cluster software are currently running on the cluster.

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## Rolling Upgrade Stages and `clu_upgrade` Commands

The commands that control a rolling upgrade enforce the order of the stages. The primary command is `clu_upgrade`. This section provides a short description of each stage, and lists the `clu_upgrade` command that is run during the stage. This information is a subset of the information provided in the `clu_upgrade(8)` reference page and *Cluster Installation* manuals.

Stage	<code>clu_upgrade</code> Command	Where Run/Run Level	Comments
Setup	<code>clu_upgrade setup lead_memberid</code> The <code>lead_memberid</code> is the member ID of the cluster member where the <code>installupdate</code> , <code>dupatch</code> , or <code>nhd_install</code> commands will be run. This member, known as the lead member, is the first member of the cluster to roll.	Where: any member Level: multi-user mode	Have the media available for whatever type of upgrade you are performing. When <code>setup</code> completes, reboot all members of the cluster (one at a time) except the lead member. After the reboot, all members except the lead member will be using tagged files.
Preinstall	<code>clu_upgrade preinstall</code>	Where: lead member Level: multi-user mode	

Stage	clu_upgrade Command	Where Run/Run Level	Comments
Install	no clu_upgrade command required	Where: lead member Level: single-user mode for installupdate single-user mode (recommended) or multi-user mode for dupatch single-user mode or multi-user mode for nhd_install	See the appropriate manuals.
Postinstall	clu_upgrade postinstall This command verifies that the lead member has completed an update installation, a patch installation, or an NHD installation.	Where: lead member Level: multi-user mode	If an update installation was performed, clu_upgrade postinstall verifies that the lead member has rolled to the new version of the base operating system.
Roll	clu_upgrade roll	Where: the member to be rolled Level: single-user mode	Run the roll stage on all but the lead member, one at a time. Halt the member, and boot it to single-user mode. Run <code>init -s</code> , <code>bcheckrc</code> , and <code>lmf reset</code> before running <code>clu_upgrade roll</code> .

Stage	clu_upgrade Command	Where Run/Run Level	Comments
Switch	clu_upgrade switch After all members have rolled, the switch command turns on any new features that had been disabled during the upgrade.	Where: any member Level: multi-user mode	After the switch command completes, reboot all members, one at a time.
Clean	clu_upgrade clean	Where: any member Level: multi-user mode	Deletes files that are no longer needed.

At each stage, the `clu_upgrade` command provides the information needed to prepare for the next stage.

With no arguments, `clu_upgrade` prints the status of the current rolling upgrade. The `started` and `completed` flags let a user or program determine whether a specific stage has started or completed.

To determine whether the cluster is ready to perform a stage without actually performing the stage, use the `check` flag with the name of the stage. The `clu_upgrade` command returns a 0 exit status if the member is ready to perform the specified stage, and -1 otherwise.

To undo a stage, use the `undo` option with the stage you want to undo. The `clu_upgrade` command will verify whether the specified stage is a valid stage to undo. Stages must be undone in reverse order. You cannot undo the `switch` or the `clean` stage.

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#### Note

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Before undoing any stage, read the relevant version of the *Cluster Release Notes* to determine whether there are restrictions related to the undoing of any stage.

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## Verifying Success

This Best Practice is a summary of the `clu_upgrade` commands used during a rolling upgrade. Success is defined as completing the rolling upgrade for the software you are installing.

## Troubleshooting

If a rolling upgrade does not complete successfully, first determine which stage has the problem, and then see the appropriate *Cluster Installation* manual for detailed information about what is supposed to happen during that stage. The `clu_upgrade` command writes the `/cluster/admin/clu_upgrade.log` file, which might contain specific information about the failure.

## Comments and Questions

We value your comments and questions on the information in this document. Please mail your comments to us at this address:

`best_practices@zk3.dec.com`

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