SIOS Protection Suite for Linux
Postfix Recovery Kit
v9.3.1

Administration Guide

November 2018

Table of Contents

Chapter 1: Introduction

Postfix Recovery Kit Technical Documentation

Postfix plays a variety of roles, all critical to the proper flow of email. It listens on the network for incoming mail, transports mail messages to other servers, and delivers local mail to a local program.

The LifeKeeper for Linux Postfix Recovery Kit provides a mechanism to recover Postfix from a failed primary server to a backup server in a LifeKeeper environment. Both LifeKeeper and Postfix ensure data integrity throughout the course of the failover process without significant lost time or human intervention.

Document Contents

This guide contain the following topics:

- Documentation and References.Provides a list of LifeKeeper for Linux documentation and where to find them.

- RequirementsA description of the hardware and software necessary to properly setup, install, and operate the Postfix Recovery Kit. Refer to SIOS Protection Suite Installation Guide for specific instructions on how to install or remove LifeKeeper for Linux software.Postfix Recovery Kit .

- Configuring the LifeKeeper for Linux Postfix Recovery Kit.A description of the procedures required to properly configure the Postfix Recovery Kit.

- Postfix Configuring Validation. Provides steps for validating the Postfix configuration prior to creating the Postfix resource hierarchy.

- LifeKeeper Configuration Tasks.A description of the tasks for creating and managing your Postfix resource hierarchies using the LifeKeeper GUI.

- Create a Dependency with the Mailbox Spool Resource. Describes how to manually create a dependency between the Postfix resource and the Mailbox Spool file system resource.

- Testing Your Resource Hierarchy.Describes steps for testing your Postfix resource hierarchies using the LifeKeeper GUI and command-line interface.

- Troubleshooting.A list of LifeKeeper for Linux error messages including a description for each.

Documentation and References

The following LifeKeeper product documentation is available from SIOS Technology Corp.:

- SPS for Linux Release Notes

- SPS for Linux Technical Documentation

- SIOS Protection Suite Installation Guide

- Optional Recovery Kit Documentation

This documentation, along with documentation associated with optional LifeKeeper Recovery Kits, is available on the SIOS Technology Corp. website at:

http://docs.us.sios.com

Postfix Documentation and References

The following is a list of reference documents associated with the Postfix application and the LifeKeeper Postfix Recovery Kit:

- Postfix Man Page

- Red Hat Postfix Reference Manual

Chapter 2: Requirements

Your LifeKeeper configuration must meet the following requirements **prior** to the installation of the LifeKeeper for Linux Postfix Recovery Kit. Please see SIOS Protection Suite Installation Guide for specific instructions regarding the configuration of your LifeKeeper hardware and software.

Hardware Requirements

- **Servers**-LifeKeeper for Linux supported servers configured in accordance with the requirements described in SIOS Protection Suite Installation Guideand SPS for Linux Release Notes.

- **Data Storage**-The Postfix Recovery Kit can be used in conjunction both with shared storage and with replicated storage provided by the LifeKeeper Data Replication product.

Software Requirements

- **TCP/IP software**.Each server also requires the TCP/IP software.

- **LifeKeeper software**.You must install the same version of LifeKeeper software and any patches on each server.

- **LifeKeeper for Linux IP Recovery Kit** .You must have the same version of the LifeKeeper IP Recovery Kit on each server.

- **IP network interface**. Each server requires at least one Ethernet TCP/IP-supported network interface. In order for IP switchover to work properly, user systems connected to the local network should conform to standard TCP/IP specifications.

  Note: Even though each server requires only a single network interface, you should use multiple interfaces for a number of reasons: heterogeneous media requirements, throughput requirements, elimination of single points of failure, network segmentation, and so forth.

- **Postfix software**. Each server must have the Linux distribution version of the Postfix software installed and configured before you can configure LifeKeeper and the Postfix Recovery Kit. The same version should be installed on each server. Consult the SPS for Linux Release Notes or your sales representative for the latest release compatibility and ordering information.

Recovery Kit Installation

Please refer to the SIOS Protection Suite Installation Guide for specific instructions on the installation and removal of the LifeKeeper for Linux software, including recovery kits.

Chapter 3: Configuring the LifeKeeper for Linux Postfix Recovery Kit

This section describes the LifeKeeper for Linux Postfix Recovery Kit configuration details. It also contains information you should consider before you start to configure and administer the Postfix Recovery Kit. Please refer to SPS for Linux Technical Documentation for instructions on configuring LifeKeeper Core resource hierarchies.

Protection Objects

The Postfix Recovery Kit protects the following objects:

- Postfix service daemon

- Network socket of Postfix

  Create one or more virtual IP addresses for monitoring mail and assign them to the inet_interfaces parameter in the Postfix configuration file. If "all" is specified for the inet_interfaces parameter, then the local loopback address is used for monitoring. The supported SMTP / SMTPS service ports supported by the Postfix smtpd daemon are 25 and 465 respectively.

- The queue directory (filesystem) Postfix uses

  If you need the mailbox spool area on another file system and need to protect it, you must create the file system hierarchy for it and create a dependency between the Postfix resource and this resource. Please refer to Create Dependency with Mailbox Spool Resource.

Configuration Requirements

- If the IP address used by the SMTP service is specified, the IP address should be a virtual IP address that is protected by Lifekeeper.

- main.cf

  The Postfix Recovery Kit refers to the value of the following parameters:

  - mail_owner

  - setgid_group

  - daemon_directory

- command_directory

- process_id_directory

- inet_interfaces

  Specify the virtual IP addresses to be monitored. One or more may be specified. Use "all" to specify all IP addresses.

- queue_directory

- mail_spool_directory

- master.cf

  You must specify the following:

  - A smtp(s) service entry to start smtpd.

- The directory specified for the queue_directory value must be on shared storage. This is necessary so that the file system of this directory can be LifeKeeper protected.

- If the system has a mailbox spool, the directory specified for the mail_spool_directory value has to be on shared storage.

- Owner id of postfix has to be the same id on all cluster servers.

- Group id of postdrop (setgid_group) has to be the same id on all cluster servers.

- Auto startup at the time of the system activation must be disabled because Postfix service is controlled by LifeKeeper.

Port and TCP Interface Definition and the Postfix Recovery Kit

The Postfix Recovery Kit listens to the port specified in the SMTP entry in the Postfix configuration file (master.cf). If the port is specified as a service name (e.g., smtp) then the port number is looked up in the /etc/services file (smtp is "25" and smtps is "465").

```
smtp        inet   n       -       n       -       -       smtpd
```

DNS, Postfix and LifeKeeper

DNS offers a mechanism (MX Records) for specifying backup or alternate hosts for mail delivery. This mechanism also allows hosts to assume mail-handling responsibilities for other hosts that are not configured to accept mail, such as a null client. MX records also provide a mechanism of forcing all mail to go to the hub machine or mail server. MX records specify a mail exchanger for a domain name (i.e. a host that will process

and/or forward mail for the specified hostname). As an example, this is done by adding entries into the DNS server as follows:

```
himalaya.sc.steeleye.com IN    MX      10  relay.steeleye.com.
```

In the example, the server himalaya.sc.steeleye.com has an MX record that will cause mail for this server to be delivered to relay.steeleye.com. The server which is to be LifeKeeper protected should not have any MX records. The LifeKeeper protected alias IP address that is used during the Postfix resource hierarchy creation should be used for MX records instead.

Postfix Configuration Examples
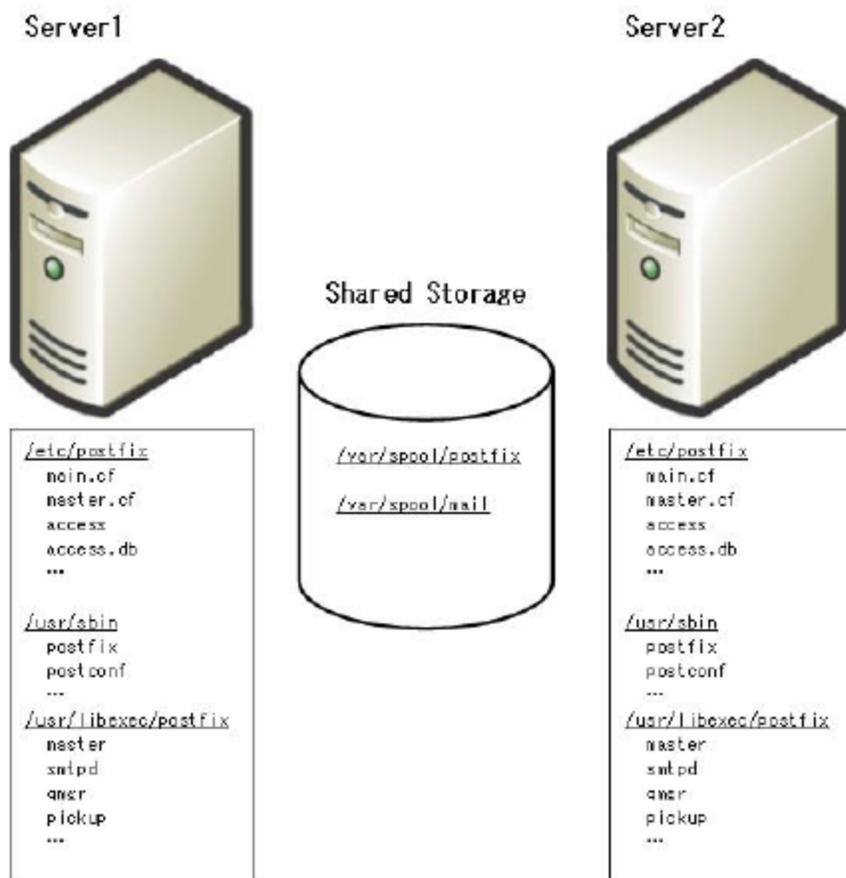
Figure 1: Typical LifeKeeper Active/Standby Postfix Environment 1

- The Postfix configuration files are on both servers
- The Postfix executable files are on both servers.

- The queue area (e.g. /var/spool/postfix) is on shared storage.

- The spool area (e.g. /var/spool/mail) is on shared storage.
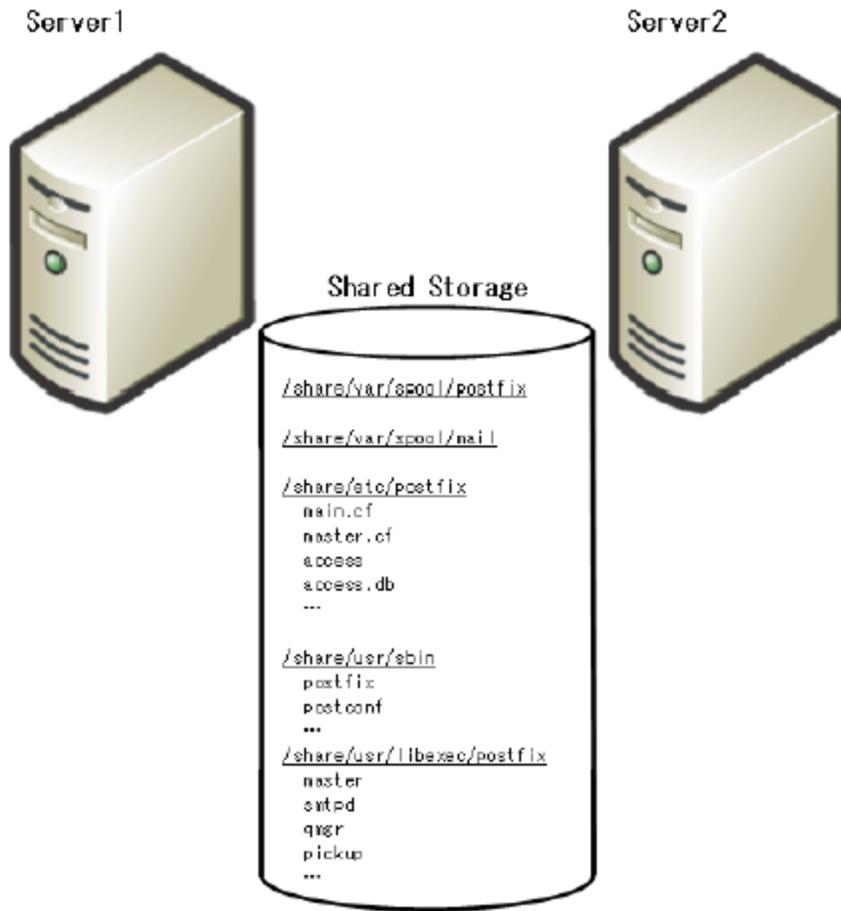
Figure 2: Typical LifeKeeper Active/Standy Postfix Environment 2

- The Postfix configuration files are on shared file system.

- The Postfix executable files are on shared file system.

- The queue area (e.g. /var/spool/postfix) is on shared storage.

- The spool area (e.g. /var/spool/mail) is on shared storage.
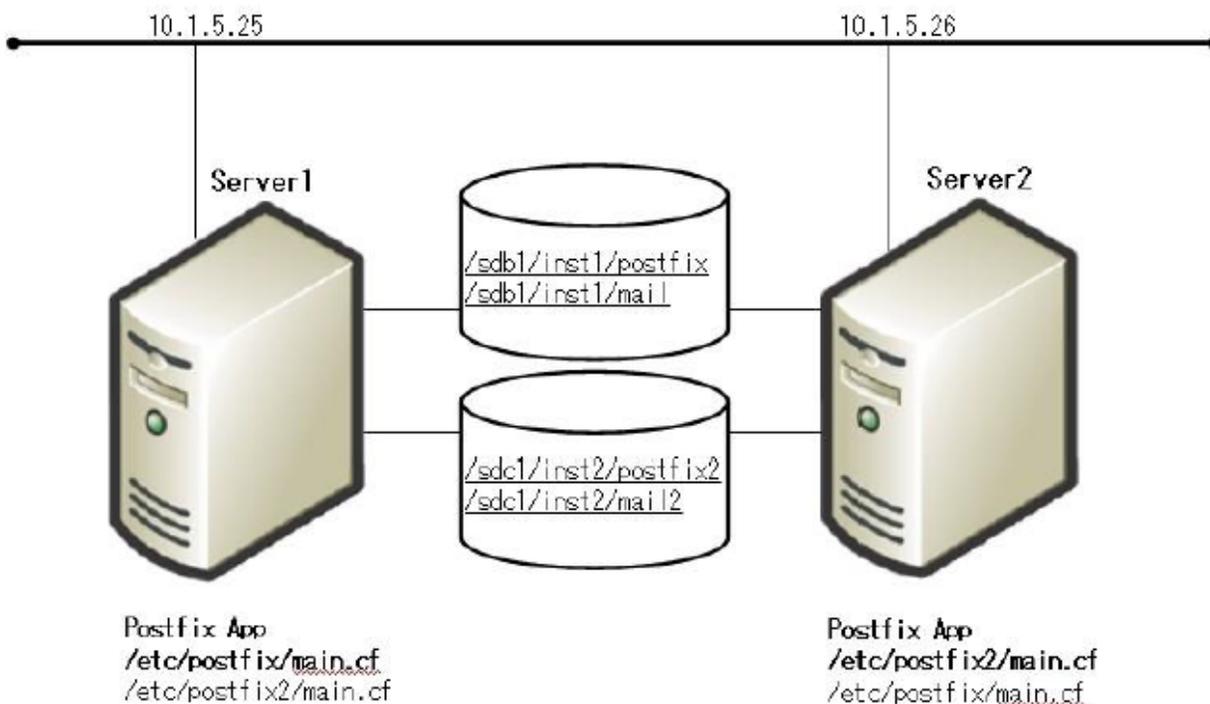
Figure 3: Typical LifeKeeper Active/Active Postfix Environment

[Server1 (Instance 1 is active)]

The Postfix configuration file: /etc/postfix

The Postfix executable files: /usr/sbin

The queue area: /sdb1/inst1/postfix

The spool area: /sdb1/inst1/mail

<main.cf>

inet_interfaces = 10.1.5.25, localhost

[Server2 (Instance 2 is active)]

The Postfix configuration file: /etc/postfix2

The Postfix executable files: /usr/sbin

The queue area: /sdc1/inst2/postfix2

The spool area: /sdc1/inst2/mail2

<main.cf>

inet_interfaces = 10.1.5.26

alternate_config_directories = /etc/postfix2

The following figure shows the Postfix resource hierarchies displayed in the LifeKeeper GUI:
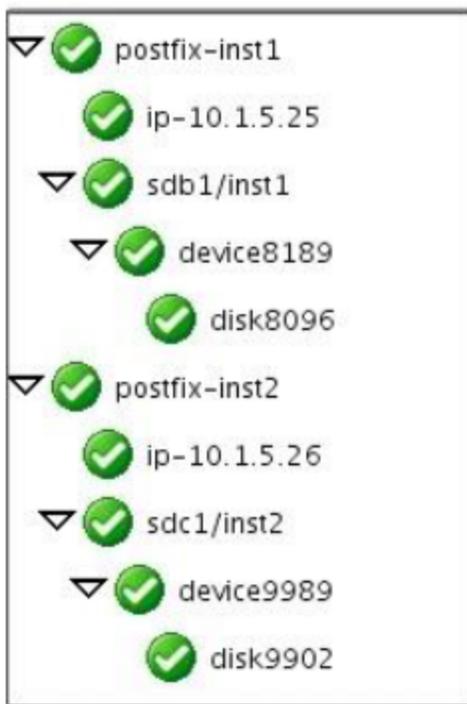
Chapter 4: Postfix Configuration Validation

This section shows a method to check the systems by using the Typical LifeKeeper Postfix Environment 1 as an example before you start to create resources in LifeKeeper.

Postfix Configuration Validation Steps

1. Postfix Configuration

   The Postfix configuration files are on both servers.

   ```
   main.cf (extract)


   daemon_directory = /usr/libexec/postfix
   command_directory = /usr/sbin
   process_id_directory = pid
   inet_interfaces = localhost , 192.168.0.10
   mail_spool_directory = /var/spool/mail
   queue_directory = /var/spool/postfix
   ```

   ```
   master.cf (extract)


   smtp        inet    n       -       n       -       -       smptd
   ```

2. Bring up virtual IP address for SMTP

   You must bring up virtual IP address for SMTP. You can configure it by using the "ifconfig" command or creating a LifeKeeper IP resource.

   ```
   # ifconfig eth0:1  192.168.0.10  netmask  255.255.255.0  up
   ```

3. Mount the shared filesystem for queue area

```
# mkfs.ext3  /dev/sda1
# mount -t ext3  /dev/sda1  /mnt/queue
# mkdir -p  /mnt/queue/postfix
```

```
# cp  -rp  /var/spool/postfix/*  /mnt/queue/postfix/
# mv  /var/spool/postfix  /var/spool/postfix.org
# ln  -s  /mnt/queue/postfix  /var/spool/postfix
# postfix check
```

4. Mount the shared filesystem for spool area

```
# mkfs.ext3  /dev/sdb1
# mv  /var/spool/mail  /var/spool/mail.org
# mkdir  -p /var/spool/mail
# mount  -t ext3  /dev/sdb1  /var/spool/mail
```

5. Start Postfix

```
# postfix –c /etc/postfix  start
postfix/postfix-script:  starting  the  Postfix  mail  system
```

6. Verify processes and socket for Postfix

```
# netstat -pltun | grep master

tcp    0   0   127.0.0.1:25          0.0.0.0:*        LISTEN          15931/master
tcp    0   0   192.168.0.10:25       0.0.0.0:*        LISTEN          15931/master


# ps -ef | grep -v grep | grep postfix

root        15931          1  0   16:11  ?  00:00:00   /usr/libexec/postfix/master
postfix     15932      15931  0   16:11  ?  00:00:00   pickup -l -t fifo -u
postfix     15933      15931  0   16:11  ?  00:00:00   qmgr -l -t fifo -u
```

7. Stop Postfix

```
# postfix -c /etc/postfix stop
postfix/postfix-script: stopping the Postfix mail system
```

If you cannot start or stop Postfix in steps 5-7, please check the Postfix error messages. Once there are no error messages in the log file, the configuration is correct. Next, repeat steps 1-7 on all systems in the cluster and confirm that the configuration is correct.

Chapter 5: LifeKeeper Configuration Tasks

You can perform all LifeKeeper for Linux Postfix Recovery Kit administrative tasks via the LifeKeeper Graphical User Interface (GUI). The LifeKeeper GUI provides a guided interface to configure, administer, and monitor Postfix resources.

The following tasks are available for configuring the LifeKeeper for Linux Postfix Recovery Kit:

- Create a Resource Hierarchy - Creates a Postfix resource hierarchy.

- Delete a Resource Hierarchy - Deletes a Postfix resource hierarchy.

- Extend a Resource Hierarchy - Extends a Postfix resource hierarchy from the primary server to the backup server.

- Unextend a Resource Hierarchy - Unextends (removes) a Postfix resource hierarchy from a single server in the LifeKeeper cluster.

- Create Dependency - Creates a child dependency between an existing resource hierarchy and another resource instance and propagates the dependency changes to all applicable servers in the cluster.

- Delete Dependency - Deletes a resource dependency and propagates the dependency changes to all applicable servers in the cluster.

- In Service - Activates a resource hierarchy.

- Out of Service - Deactivates a resource hierarchy.

- View/Edit Properties - View or edit the properties of a resource hierarchy.

Note: Throughout the rest of this section, configuration tasks are performed using the **Edit** menu. You can also perform most of these tasks:

1. From the toolbar, right - click on a global resource in the left pane of the status display.

2. Right - click on a resource instance in the right pane of the status display.

   Note: Using the right-click method allows you to avoid entering information that is required when using the **Edit** menu.

Creating a Postfix Resource Hierarchy

After you have completed the necessary setup tasks, use the following steps to define the Postfix resource hierarchy.

IMPORTANT: The alias IP address should be under LifeKeeper protection before creating the Postfix resource instance.

---

1. From the LifeKeeper GUI menu, select **Edit**, then **Server**. From the menu, select **Create Resource Hierarchy**.

    The **Create Resource Wizard** dialog box will appear with a drop down list box displaying all recognized Recovery Kits installed within the cluster.

2. Select **Postfix Mail Server** and click **Next**.

3. You will be prompted to enter the following information. When the **Back** button is active in any of the dialog boxes, you can go back to the previous dialog box. This is helpful should you encounter an error requiring you to correct previously entered information. You may click Cancel at any time to cancel the entire creation process.

Field	Tips
Switchback Type	Choose either *intelligent* or *automatic*. This dictates how the Postfix instance will be switched back to this server when the server comes back up after a failover. The switchback type can be changed later from the General tab of the Resource Properties dialog box. **Note:** The switchback strategy should match that of the IP or File System resource to be used by the Postfix resource. If they do not match the Postfix resource, creation will attempt to reset them to match the setting selected for the Postfix resource.
Server	Select the **Server** on which you want to create the hierarchy.
Postfix Binary Location	Enter the directory path name where the Postfix daemon resides.
Postfix server Config File Location	Enter the directory path name where the Postfix configuration file (main.cf) resides.
Queue Root Directory	Enter the directory path name of the Postfix queue directory. The default is decided from the configuration file, which you selected in the previous dialog box. The Postfix queue directory must be on a shared disk. If the Postfix queue directory is a symbolic link, the dialog box will show the root directory of the symbolic link pointing to the directory's original location.
Root Tag	Either select the default root tag offered by LifeKeeper, or enter a unique name for the resource instance on this server. The default is postfix-on-*<queue directory path>*. You may use letters, numbers and the following special characters: - _ . /

4. Click **Create**. The Create Resource Wizard will then create your Postfix resource hierarchy. LifeKeeper will validate the data entered. If LifeKeeper detects a problem, an error message will appear in the information box.

5. An information box will appear indicating that you have successfully created a Postfix resource hierarchy, and you must extend that hierarchy to another server in your cluster in order to achieve failover protection. Click **Next**.

6. Click **Continue**. LifeKeeper will then launch the *Pre-Extend Wizard*. Refer to Step 2 under Extending Your Hierarchy (below) for details on how to extend your resource hierarchy to another server.

Extending a Resource Hierarchy

This operation can be started from the **Edit** menu, or initiated automatically upon completing the **Create Resource Hierarchy** option, in which case you should refer to Step 2 below.

1. On the **Edit** menu, select Resource, then Extend Resource Hierarchy. The *Pre-Extend Wizard* appears. If you are unfamiliar with the Extend operation, click **Next**. If you are familiar with the LifeKeeper **Extend Resource Hierarchy** defaults and want to bypass the prompts for input/confirmation, click **Accept Defaults**.

2. The *Pre-Extend Wizard* will prompt you to enter the following information.

    Note: The first two fields appear only if you initiated the Extend from the **Edit** menu.

Field	Tips
Template Server	Enter the server where your Postfix resource is currently in service.
Tag to Extend	Select the Postfix resource you wish to extend.
Target Server	Enter or select the server you are extending to.
Switchback Type	Select either *intelligent* or *automatic*. The switchback type can be changed later, if desired, from the General tab of the Resource Properties dialog box. **Note:** Remember that the switchback strategy must match that of the dependent resources to be used by the Postfix resource.
Template Priority	Select or enter a priority for the template hierarchy. Any unused priority value from 1 to 999 is valid, where a lower number means a higher priority (the number 1 indicates the highest priority). The extend process will reject any priority for this hierarchy that is already in use by another system. The default value is recommended. **Note:** This selection will appear only for the initial extend of the hierarchy.
Target Priority	Either select or enter the priority of the hierarchy for the target server.

3. After receiving the message that the pre-extend checks were successful, click **Next**.

4. LifeKeeper will display a series of dialog boxes for the Postfix resource to be extended, some of which cannot be edited.

Field	Tips
Root Tag	LifeKeeper will provide a default tag name for the new Postfix resource instance on the target server. The default tag name is the same as the tag name for this resource on the template server. If you enter a new name, be sure it is unique on the target server. You may use letters, numbers and the following special characters: - _ . /

Field	Tips
Binary Directory (Information Only)	This dialog box is for informational purposes only. You cannot change the Binary Directory that appears in the box.
Configuration Directory (Information Only)	This dialog box is for informational purposes only. You cannot change the Configuration Directory that appears in the box.

If the IP and Filesystem dependent resource are also being extended, LifeKeeper will display a series of dialog box for the resources, some of which cannot be edited.

Click Extend.

5. After receiving the message "Hierarchy extend operations completed" click **Next Server** to extend the hierarchy to another server, or click **Finish** if there are no other extend operations to perform.

6. After receiving the message "Hierarchy Verification Finished", click **Done**.

Unextending a Postfix Hierarchy

To remove a resource hierarchy from a single server in the LifeKeeper cluster, do the following:

1. On the **Edit** menu, select **Resource**, then **Unextend Resource Hierarchy**.

2. Select the **Target Server** where you want to unextend the Postfix resource. It cannot be the server where the Postfix resource is currently in service. (This dialog box will not appear if you selected the Unextend task by right clicking on a resource instance in the right pane.) Click **Next**.

3. Select the Postfix hierarchy to unextend and click **Next**. (This dialog will not appear if you selected the Unextend task by right clicking on a resource instance in either pane).

4. An information box appears confirming the target server and the Postfix resource hierarchy you have chosen to unextend. Click **Unextend**.

5. Another information box appears confirming that the Postfix resource was unextended successfully. Click **Done** to exit the Unextend Resource Hierarchy menu selection.

Deleting a Postfix Hierarchy

It is important to understand what happens to dependencies and protected services when a Postfix hierarchy is deleted.

- **Dependencies:** When you choose to delete the Postfix hierarchy, only the Postfix resource will be deleted. Dependent IP and file system resources will not be removed.

- **Protected Services:**If you take the Postfix resource hierarchy out of service before deleting it, the Postfix daemons will be stopped. If you delete a hierarchy while it is in service, the Postfix daemons will continue running and offering services (without LifeKeeper protection) after the hierarchy is deleted.

To delete a resource hierarchy from all the servers in your LifeKeeper environment, complete the following steps:

1. On the **Edit** menu, select **Resource**, then **Delete Resource Hierarchy**.

2. Select the **Target Server** where you will be deleting your Postfix resource hierarchy and click **Next**. (This dialog will not appear if you selected the Delete Resource task by right clicking on a resource instance in either pane.)

3. Select the **Hierarchy to Delete**. (This dialog will not appear if you selected the Delete Resource task by right clicking on a resource instance in the left or right pane.) Click **Next**.

4. An information box appears confirming your selection of the target server and the hierarchy you have selected to delete. Click **Delete**.

5. Another information box appears confirming that the Postfix resource was deleted successfully.

6. Click **Done** to exit.

Create Dependency with Mailbox Spool Resource

If the Postfix queue directory and Mailbox Spool directory are on the same file system (LUN) on the shared disk, both directories are protected by creating the Postfix resource hierarchy and extending the Postfix resource hierarchy to another server in your cluster. If your spool directory is on another file system (LUN), you must create a file system resource for Mailbox Spool and create a dependency for the resource.

To create a resource instances and create dependencies for your Mailbox Spool directory, you should complete the following step:

1. Mount file system for your Mailbox Spool Directory.

2. From the LifeKeeper GUI menu, select **Edit**, then **Server**. From the drop down menu, select **Create Resource Hierarchy**.

3. Select File System from the drop down listing.

4. Select Switchback Type.

5. Select the Primary Server.

6. Select the Mount Point for the file system resource hierarchy.

7. Select or enter Root Tag.

Through this process, the file system resource is created on the primary server, and you must extend it to backup servers. Next, create dependencies for each file system resources to the Postfix resource. You should refer Creating Resource Dependency section of LifeKeeper for Linux Technical Documentation for specific instructions on how to create dependencies.

Testing Your Resource Hierarchy

You can test your Postfix resource hierarchy by initiating a manual switchover. This will simulate a failover of a resource instance from the primary server to the backup server.

Performing a Manual Switchover from the GUI

You can initiate a manual switchover from the LifeKeeper GUI by selecting **Edit**, then **Resource**, then finally **In Service** from the drop down menu. For example, an in service request executed on a backup server causes the application hierarchy to be placed in service on the backup server and taken out of service on the primary server. At this point, the original backup server is now the primary server and original primary server has now become the backup server.

If you execute the **Out of Service** request, the application is taken out of service without bringing it in service on the other server.

Performing a Manual Switchover from the Command-Line Interface

You can initiate a manual switchover from the LifeKeeper command-line interface by the following steps on the server:

```
# /opt/LifeKeeper/bin/perform_action -t [tag-name] -a [restore|remove]
```

- **-t**

- This specifies the last resource instance that the action will be performed on. "tag-name" are the information elements that may be used to describe the resources in the hierarchy, the name can be checked from LifeKeeper GUI, or "lcdstatus" command.

- **-a**

  This specifies the resource action that will be performed. To bring the resource instance into service, specify restore, to take a resource out of service, specify remove.

Please refer to man pages of *perform action* for more details.

Recovery Operations

When the following failure occurs on the in service server, the Postfix Recovery Kit software performs Recovery:

- Failure in the Postfix resource

- Failure in IP resource relative to the Postfix resource

- Failure in file system resource relative to the Postfix resource

- Node Failure

When the primary server fails, the Postfix Recovery Kit software performs the following tasks:

- Brings the alias IP address into service on the backup server by bringing *in service* a logical interface on one of that server's physical network interfaces

- Mounts the file system(s) on the shared disk on that server

- Starts the daemon processes related to Postfix

Since session context is lost following recovery, after the recovery, Postfix users must reconnect using exactly the same procedures they used to connect originally.

Chapter 6: Troubleshooting

This section provides a list of messages that you may encounter during the process of creating, extending, removing and restoring a LifeKeeper Postfix hierarchy, and, where appropriate, provides additional explanation of the cause of the errors and necessary action to resolve the error condition. Other messages from other LifeKeeper scripts and utilities are also possible. In these cases, please refer to the documentation for the specific script or utility. Messages in this section fall under these categories:

Hierarchy Creation

Hierarchy Extend

Hierarchy Remove, Restore and Recovery Error Messages

Hierarchy Creation Error Message

Error	Error Message
No config path	The Postfix configuration path was not found. Please enter the configuration path.
main.cf not found in the configuration path	The file main.cf does not exist in the path specified. Please enter the correct path.
master.cf not found in the configuration path	The file master.cf does not exist in the configuration path. Please enter the correct path.
A value of inet_interfaces must be IPv4 or "all"	Please specify an IPv4 address or "all" for the inet_interfaces parameter in the main.cf file.
No execute path	Must specify the absolute path to the Postfix executables. Please enter the correct path.
Postfix command invalid	The Postfix command is invalid. Please verify the Postfix installation or command and enter the correct command.
<queue directory> is not found. This directory must exist on a shared filesystem	The mail queue directory(s) must be located on a shared filesystem. Please make sure your configuration is correct.
<tag name> not in service on the server	The tag name is not in service. Please create the IP resource and verify that the virtual IP address is active on the server.
Could not find IP resouce for "*<IP address>*"	The LifeKeeper IP resource for the IP address specified for the inet_interfaces parameter in main.cf is missing. Please create the LifeKeeper IP resource.

Hierarchy Extend Error Messages

Error	Error Message
postfix id does not match between servers	The Postfix uid does not match on the servers in the cluster. Please set the same uid for the user "postfix" on the cluster servers.
postdrop gid does not match between servers	The Postfix postdrop gid does not match on the servers in the cluster. Please set the same gid for the group "postdrop" on the cluster servers.

Postfix Resource In-Service / Out-of-Service / Health Monitoring Error Messages

Error	Error Message
Master process of postfix is not running	The master process of Postfix is not running. Please check the Postfix error log.
Failed in a check by post-fix command	Postfix command check option has failed. Please check the Postfix configuration file or Postfix environment.
Couldn't start postfix resource	The Postfix resource could not start. Please check the Postfix error log.
Failed in a stop process by kill command	The kill command failed to stop Postfix. Please check the Postfix error log.
PID *<pid>* does not exist. postfix may have already stopped	The Postfix pid does not exist. Please check the Postfix error log and Postfix processes. The Postfix process may have been stopped and then restarted and assigned another pid.
Check script was not able to be connected to a socket (*vip:port*)	The check script was not able to connect to the socket for service. Please check the Postfix configuration file and the Postfix owner.
Execute files (postfix or postconf command) is not an executable file	The files postfix or postconf does not exist or are not executable. The files are located in the executable path that was specified when the resource was created. Please check these files.
Configuration files (main.cf or master.cf) does not exist	The Postfix configuration files main.cf or master.cf does not exist or is not readable. The files and located in the configuration path that was specified when the resource was created. Please check these files.
The postfix owner *<owner name>* does not exist	The Postfix owner does not exist. Please check the Postfix configuration and Postfix owner.
The postdrop group id does not match and attribute of queue directory	The postdrop group id does not match the group id associates with the files in the mail queue directory. Please check the Postfix configuration file.