C H A P T E R 1

Installation Overview

This chapter provides an overview of the Prime Network gateway high availability installation process and includes these installation-related topics:

Assumptions in This Document

The procedures described in this guide assume the following:

- Your deployment uses a Prime Network embedded database, not an external database.
- Your deployment does not have an IPv6 gateway or database.

If your gateway high availability deployment differs from the previous requirements, please contact your Cisco account representative for assistance with planning and installation of the solution.

Installation DVDs

The gateway high availability files are provided on the Prime Network installation DVDs listed in Table 1-1.

Note If you are upgrading an existing gateway high availability deployment to Prime Network 4.3.2, follow the upgrade procedure described in the *Cisco Prime Network 4.3.2 Installation Guide*.

Table 1-1   *Gateway High Availability Installation Scripts*

Scripts	Description	Local Redundancy		Geographical Redundancy
Disk 1—RH_ha.zip Contents				
install_Prime_HA.pl	Local redundancy—Is run from locally mounted node that has primary database. Installs gateway and embedded database on primary node, and sets up a limited number of elements on secondary node (such as cron jobs, users, groups, SSH keys, and so forth). In case of geographical redundancy *only* or geogrpahical + local redundancy, this script will install Prime Network gateway and embedded database on the remote site.	**Server P1 (primary database)** x	**Server P2** —	**Server S1** —
setup_Prime_DR.pl	Geographical redundancy—Is run from node that is running the primary database. Stops the gateway, installs Oracle ADG, and sets up cron jobs for gateway synchronization (GWSync) and ADG monitoring. Also triggers the initial Gateway Sync.	x	—	—
Disk 2—sil-esb-1.2.0.tar.gz Contents (Integration Layer)				
installAndConfigureEsb.sh	Installs local redundancy *alone* or local + geographical redundancy elements for PN-IL. **Note** PN-IL supports local redundancy *alone*, or local + geographical redundancy. It does not support geographical redundancy *alone*.	x	—	—
itgctl	Configures PN-IL.	x	—	x
il-watch-dog.sh	Controls the PN-IL health monitor.	x	—	x
DMSwitchToSuite.sh	Migrates a standalone PN-IL to suite mode.	x	—	x
Infobright_integ.zip Contents (Operations Reports)				
primenw_integration.pl	Installs Operations Reports. **Note** Operations Reports are only available to customers with Operations Reports license prior to May 2018. For re-installation of Operations Reports contact a Cisco customer support representative.	x	—	—

Installation Flow

Gateway high availability is provided in three configurations:

- Local redundancy *alone*, which uses two active local servers for automatic failover.

- Geographical redundancy *alone*, which uses a server at a remote geographical site for a full disaster recovery.

- Local + geographical redundancy, which uses both of the above.

Note   For all gateway HA configurations, the Prime Network gateway software, the embedded Oracle database, and (if installed) the Infobright database must all be installed on the same gateway server.

Table 1-2 shows the high availability deployments that are supported, depending on your Prime Network installation.

Table 1-2   Supported HA Deployments Available for Prime Network Installations

Installation	Supported Gateway High Availability Deployments		
	Local	**Geographical**	**Local + Geographical**
Prime Network	x	x	x
Prime Network with Operations Reports	x	x	x
Prime Network with PN-IL	x	x	x[1]
Prime Network with Operations Reports and PN-IL	x	x	x[1]

1. If you want to integrate a PN-IL deployment with Prime Central, Prime Central must have the same configuration.

Table 1-3 and Figure 1-1 provide the general flow for installing and setting up gateway high availability. For detailed instructions on each, see the topics referenced in Table 1-3.

Note   If you are upgrading an existing gateway high availability deployment to Prime Network 4.3.2, follow the upgrade procedure described in the *Cisco Prime Network 4.3.2 Installation Guide*. If you are upgrading Prime Network in a HA setup, you should always start the upgrade from the Primary gateway as active gateway. The active gateway should not be the secondary gateway when starting the upgrade process.
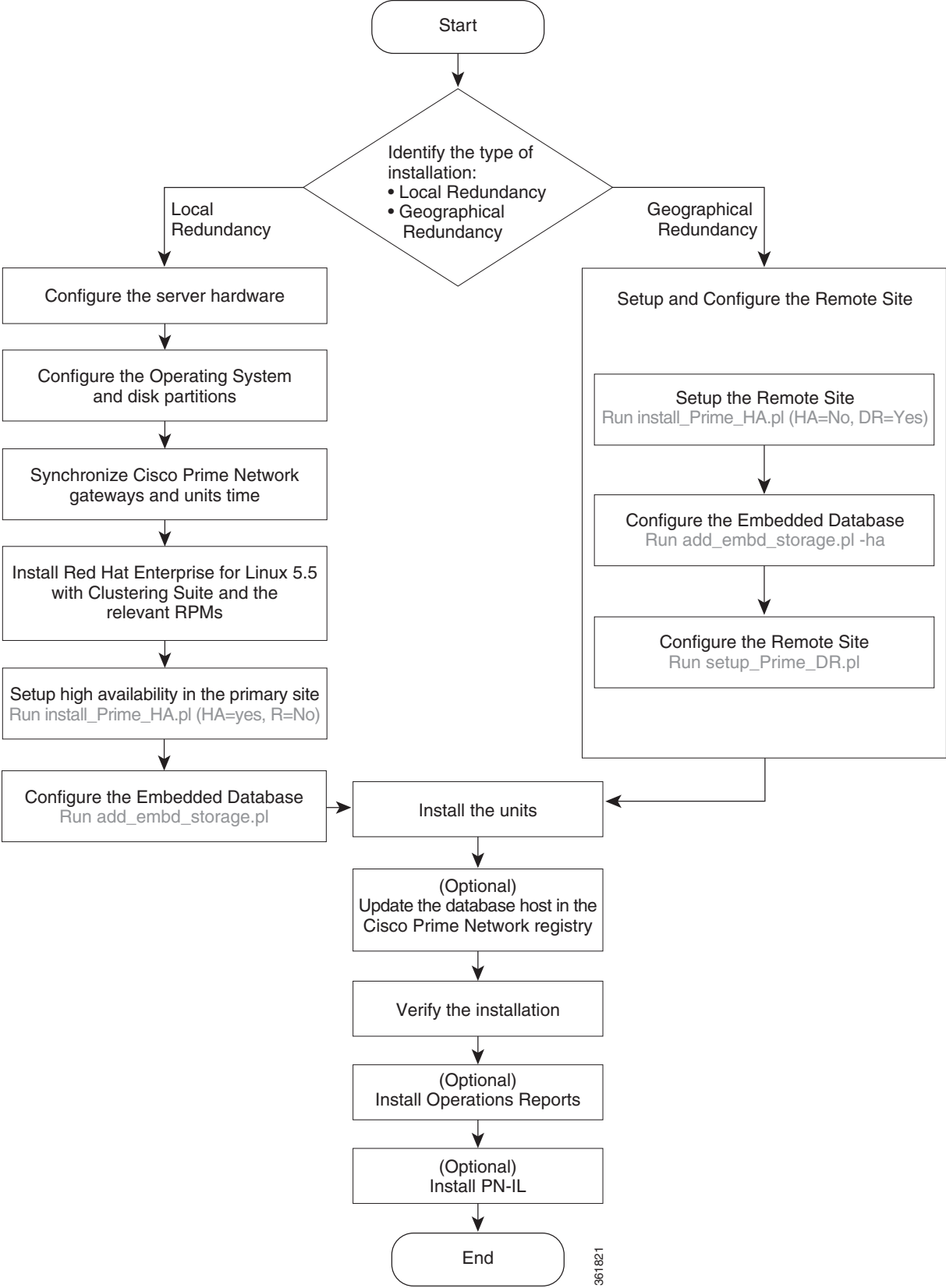
Table 1-3   *Installation Flow*

	Procedure	Flow
Step 1	If you are you going to install gateway high availability with Operations Reports or PN-IL, or integrate with Prime Central, have you read these topics? • Operations Reports and Gateway High Availability, page 1-7 • Gateway High Availability and the Prime Network Integration Layer (PN-IL), page 1-7 • Gateway High Availability and Prime Central, page 1-8	**Yes:** Go to next step. **No:** Do not continue until you have read those sections. They contain information on supported configurations.
Step 2	Have you familiarized yourself with the high availability solutions by reading these topics? • Local Redundancy Functional Overview, page 2-1 • Geographical Redundancy Functional Overview, page 2-5	**Yes:** Go to next step. **No:** Do not continue until you have read those sections. They contain information on supported configurations.
Step 3	Does the gateway where you will install gateway high availability meet the requirements? • For local redundancy *alone* (with or without Operations Reports and PN-IL), see Installation Requirements for Local Redundancy, page 3-4. • For geographical redundancy *alone* (with or without Operations Reports), see Installation Requirements for Geographical Redundancy, page 4-4. • For local + geographical redundancy (with or without Operations Reports and PN-IL), see Installation Requirements for Local Redundancy, page 3-4 and Installation Requirements for Geographical Redundancy, page 4-4.	**Yes:** Go to next step. **No:** Do not continue until all specified requirements are met.
Step 4	Have you performed the tasks in these sections? • For local redundancy *alone* (with or without Operations Reports and PN-IL), see Preparing to Install the Local Redundancy Solution, page 3-8. • For geographical redundancy *alone* (with or without Operations Reports), see Preparing to Install Geographical Redundancy, page 4-6. • For local + geographical redundancy (with or without Operations Reports and PN-IL), see Preparing to Install the Local Redundancy Solution, page 3-8 and Preparing to Install Geographical Redundancy, page 4-6.	**Yes:** Go to next step. **No:** Do not continue until all preinstallation tasks are completed.
Step 5	(Local redundancy) When the installation is complete, have you verified the installation according to Verifying the Local Redundancy Setup, page 3-21?	**Yes:** Go to next step. **No:** Do not continue until you have verified the installation,

Table 1-3   *Installation Flow (continued)*

	Procedure	**Flow**
Step 6	(Local redundancy) Have you completed all post-installation tasks according to Post-Installation Tasks for Local Redundancy, page 3-23?	**Yes:** Go to next step. **No:** Do not continue until you have finished the post-installation tasks.
Step 7	Do you want to install the Prime Network Integration Layer (PN-IL) in your redundancy environment?	**Yes:** Perform the steps described in: • Installing and Configuring PN-IL with Local Redundancy, page 3-30, or • Installing and Configuring PN-IL for Local + Geographical Redundancy, page 4-18. • Installing and Configuring PN-IL for Geographical Redundancy Only, page 4-27 **No:** Installation complete.

Figure 1-1   *Installation Flow for Prime Network Gateway High Availability*

```
                              ┌─────────────┐
                              │    Start    │
                              └──────┬──────┘
                                     │
                                     ▼
                              ◇ Identify the type of
                                installation:
                                • Local Redundancy
                                • Geographical
                                  Redundancy ◇
        Local Redundancy                        Geographical Redundancy
               │                                         │
               ▼                                         ▼
  ┌──────────────────────────┐          ┌──────────────────────────────────┐
  │ Configure the server     │          │ Setup and Configure the Remote   │
  │ hardware                 │          │ Site                             │
  └────────────┬─────────────┘          │                                  │
               │                        │  ┌────────────────────────────┐  │
               ▼                        │  │ Setup the Remote Site      │  │
  ┌──────────────────────────┐          │  │ Run install_Prime_HA.pl    │  │
  │ Configure the Operating  │          │  │ (HA=No, DR=Yes)            │  │
  │ System and disk          │          │  └─────────────┬──────────────┘  │
  │ partitions               │          │                │                 │
  └────────────┬─────────────┘          │                ▼                 │
               │                        │  ┌────────────────────────────┐  │
               ▼                        │  │ Configure the Embedded     │  │
  ┌──────────────────────────┐          │  │ Database                   │  │
  │ Synchronize Cisco Prime  │          │  │ Run add_embd_storage.pl -ha│  │
  │ Network gateways and     │          │  └─────────────┬──────────────┘  │
  │ units time               │          │                │                 │
  └────────────┬─────────────┘          │                ▼                 │
               │                        │  ┌────────────────────────────┐  │
               ▼                        │  │ Configure the Remote Site  │  │
  ┌──────────────────────────┐          │  │ Run setup_Prime_DR.pl      │  │
  │ Install Red Hat          │          │  └────────────────────────────┘  │
  │ Enterprise for Linux 5.5 │          └────────────────┬─────────────────┘
  │ with Clustering Suite    │                           │
  │ and the relevant RPMs    │                           │
  └────────────┬─────────────┘                           │
               │                                          │
               ▼                                          │
  ┌──────────────────────────┐                           │
  │ Setup high availability  │                           │
  │ in the primary site      │                           │
  │ Run install_Prime_HA.pl  │                           │
  │ (HA=yes, R=No)           │                           │
  └────────────┬─────────────┘                           │
               │                                          │
               ▼                                          │
  ┌──────────────────────────┐      ┌──────────────────┐ │
  │ Configure the Embedded   │      │ Install the      │◄┘
  │ Database                 │─────►│ units            │
  │ Run add_embd_storage.pl  │      └────────┬─────────┘
  └──────────────────────────┘               │
                                             ▼
                                   ┌──────────────────────┐
                                   │ (Optional)           │
                                   │ Update the database  │
                                   │ host in the Cisco    │
                                   │ Prime Network        │
                                   │ registry             │
                                   └──────────┬───────────┘
                                              │
                                              ▼
                                   ┌──────────────────────┐
                                   │ Verify the           │
                                   │ installation         │
                                   └──────────┬───────────┘
                                              │
                                              ▼
                                   ┌──────────────────────┐
                                   │ (Optional)           │
                                   │ Install Operations   │
                                   │ Reports              │
                                   └──────────┬───────────┘
                                              │
                                              ▼
                                   ┌──────────────────────┐
                                   │ (Optional)           │
                                   │ Install PN-IL        │
                                   └──────────┬───────────┘
                                              │
                                              ▼
                                      ┌──────────────┐
                                      │     End      │      361821
                                      └──────────────┘
```

Using Gateway High Availability with Cisco Prime Central and Other Prime Network Components

Unit High Availability and Gateway High Availability

Gateway high availability is compatible with unit server high availability. However, unit server high availability must be configured separately as described in the *Cisco Prime Network 4.3.2 Administrator Guide*. Designating active and standby units is *not* included in the procedures described in this guide.

Operations Reports and Gateway High Availability

> ✎
> **Note**   Operations Reports are only available to customers with Operations Reports license prior to May 2018. For re-installation of Operations Reports contact a Cisco customer support representative.

The gateway high availability solution also protects Operations Reports data that is stored on the gateway and the Infobright database.

You should install Operations Reports *after* you have installed the base gateway redundancy solution. When Operations Reports is installed, Prime Network will start the processes required to protect your Operations Reports data. This includes the folders, system files, registry data on the gateway, and event data that is stored in the Infobright database. These are monitored using:

- The RHCS Infobright database service, **ifb**:

  In case of local redundancy *only* and local + geographical redundancy configurations, if a hardware or software failure occurs, the RHCS automatically restarts the failed node's services on the functional node. See Table 2-1 on page 2-3 for more information.

- The GWSync process:

  Replicates data between the local and remote servers in a geographical redundancy configuration.

- AVM 45:

  AVM 45 runs on the active server and constantly loads data to the backup site in a geographical redundancy configuration. If there is a failover event, archived event data and standard event data from the previous 80 minutes is lost. This is due to the time required to load and validate the data that is saved on the secondary Infobright database.

Inventory data is retrieved from memory (from the inventory snapshot) and is therefore not affected by any high availability events.

Gateway High Availability and the Prime Network Integration Layer (PN-IL)

PN-IL supports all the redundancy configurations as supported by Prime Network, i.e, local only, local + geographical, and geographical only. The RHCS **ana** service will monitor the PN-IL resources.

> ✎
> **Note**   PN-IL supports all the redundancy configurations as that of the Prime Network. Therefore, if you want to integrate a PN-IL deployment with Prime Central, Prime Central also must have the same configuration.

If you want to use PN-IL, install it *after* you have installed Prime Network in following HA configurations. See:

- Installing and Configuring PN-IL with Local Redundancy, page 3-30

- Installing and Configuring PN-IL for Local + Geographical Redundancy, page 4-18

- Installing and Configuring PN-IL for Geographical Redundancy Only, page 4-27

Gateway High Availability and Prime Central

Deployments of Prime Network gateway high availability (with or without Operations Reports and PN-IL) can be integrated with Prime Central. Therefore, if you want to integrate a PN-IL deployment with Prime Central, Prime Central also must have the same configuration.

> **Note** Operations Reports are oOperations Reports are only available to customers with Operations Reports license prior to May 2018. For re-installation of Operations Reports contact a Cisco customer support representative.

See these documents and topics for more information.

Table 1-4   Where to Get Information on Integration with Prime Central

To integrate Prime Central with:	See
Prime Network with or without Operations Reports	*Cisco Prime Central High Availability Quick Start Guide*
Prime Network plus PN-IL	Configuring PN-IL with Prime Central (Suite Mode with Local Redundancy), page 3-33
	Configuring and Migrating PN-IL with Prime Central (Suite Mode with Local + Geographical Redundancy), page 4-23 and Configuring and Migrating PN-IL with Prime Central (Suite Mode with Geographical Redundancy Only), page 4-31

Licenses

In addition to the gateway high availability license, you must purchase a license for each redundant gateway server and a standby license.