Peregrine

ServiceCenter

Client/Server Installation Guide for Unix

Release 5.1

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Peregrine SYSTEMS

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This edition applies to version 5.1 of the licensed program.

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Contents

Getting Started

Welcome to the *Client/Server Installation Guide for Unix*. This guide has instructions to install the ServiceCenter Windows-based client and server. Follow the steps in this guide for a successful installation.

The *Client/Server Installation Guide for Unix* has this information:

- *Getting Started* describes this guide and what you need to know. Provides product support information, client platform system requirements for the ServiceCenter Unix client or server, and how to contact Peregrine Systems, Inc. for customer support.
- *Before You Begin the Installation* on page 9 describes the system requirements and other information you should know before you install ServiceCenter. This chapter describes client and server resources and the server directory structure.
- *Installation Instructions* on page 13 describes the steps to install the ServiceCenter client, server, or both on a Unix system, and how to update your authorization code if you are migrating from a trial to a permanent license.
- *Running ServiceCenter* on page 27 describes the steps to verify your installation of ServiceCenter.

- *SCEmail* on page 33 lists the steps to start and use SCEmail, the ServiceCenter component that allows users or applications (or both) to send mail through email.
- *Supplemental Information* on page 37 contains supplemental information for system administrators about installing and running ServiceCenter.

Knowledge Requirements

The instructions in this guide assume a working knowledge of Peregrine Systems ServiceCenter and the installation platform. You can find more information in the following guides:

- For information about a particular platform, see the appropriate platform documentation.
- For information about customizing your environment using parameters, see the *ServiceCenter Technical Reference* guide.
- Before you run the ServiceCenter server, see the *ServiceCenter User's Guide*.
- For administration and configuration information, see the *ServiceCenter System Administrator's Guide* or the *ServiceCenter Application Administration Guide.*
- For database configuration information, see the *ServiceCenter Database Management and Administration Guide.*
- For copies of the guides, download PDF versions from the CenterPoint web site using the Adobe Acrobat Reader, which is also available on the CenterPoint Web Site. For more information, see *CenterPoint Web Site* You can also order printed copies of the documentation through your Peregrine Systems sales representative.

Contacting Customer Support

For more information and help with this new release or with ServiceCenter in general, contact Peregrine Systems' Customer Support.

CenterPoint Web Site

You can also find information about version compatibility, hardware and software requirements, and other configuration issues at Peregrine's Centerpoint web site: *http://support.peregrine.com*

1. Log in with your login ID and password.
2. Select **Go** for **CenterPoint**.
3. Select **ServiceCenter** from **My Products** at the top of the page for configuration and compatibility information.

Note: For information about local support offices, select **Whom Do I Call?** from **Contents** on the left side of the page to display the **Peregrine Worldwide Contact Information**.

Corporate Headquarters

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Europe, Asia/Pacific, Africa

For information about local offices, see *CenterPoint Web Site* on page 7. You can also contact *Corporate Headquarters*.

Contacting Education Services

Training services are available for the full spectrum of Peregrine Products including ServiceCenter.

Current details of our training services are available through the following main contacts or at:

http://www.peregrine.com/education

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Fax:	+1 (858) 480-3928

CHAPTER 1

Before You Begin the Installation

This chapter describes the system requirements for installing the ServiceCenter Unix client/server. When your system is ready, you can proceed with the installation described in the next chapter.

Read these sections to ensure your system is ready:

Platform Requirements

For complete information about current platform requirements and compatibility, see *CenterPoint Web Site* on page 7.

System Requirements

Ensure that your system meets the following requirements before installing ServiceCenter.

- Disk space:
  - 400 MB for client/server installation
  - 23 MB for client only installation
- User and Group ID:
  - Before installing ServiceCenter, create a new Unix user name and group ID for the exclusive use by administrators who install, run, and maintain ServiceCenter. ServiceCenter uses the **setuid** feature of the Unix operating system to maintain the security of the file system and Unix resources.
  - Create a user name that is different from the names of ServiceCenter executables. For example, *scenter* would be inappropriate. Use the new administrative user name to install ServiceCenter.

Warning: Do not install ServiceCenter as root. You will not be able to run the ServiceCenter service if you installed the system from a root account.

- IP Address:

  ServiceCenter uses a service called *getmyip* to look at the IP address of the workstation where it is running. For workstations with multiple IP addresses, the *getmyip* service always returns the lowest IP address. In some cases this is not acceptable. For example, adding a new IP address that is lower than any of the existing addresses would cause the authorization code to fail.

If you do not want the ServiceCenter server license to verify against the lowest IP address, you can use the initialization parameter set in the sc.ini file:

-ip_address:<*address*>

where *address* is the actual IP address to be used. The system will not start if the address you specify is not a valid IP address on the computer.

- Base Directory for ServiceCenter:

  When you begin an installation, the first step is to create the base directory for ServiceCenter. This base directory must be created on a volume with sufficient disk space. The installation script stores all files associated with ServiceCenter in this directory. The ServiceCenter administrator must have read and write access to this directory. For more information, see *ServiceCenter Directory Structure* on page 38.

- TCP/IP Service Name

  During the ServiceCenter installation, the system prompts you for a valid TCP/IP service name. Establish this TCP/IP service name before you begin to install ServiceCenter by defining the new service in the etc/services file. This file should be updated only by a Unix administrator. The port number you choose for ServiceCenter must be greater than 1024. The installation program checks the etc/services file for this information at the appropriate time. For more information, see *Using TCP/IP* on page 39 and *Examples* on page 45.

  If you use only a numeric port number, such as 7471 instead of scenter1, it does not need to appear in the etc/services file; it must be defined only in the sc.ini file using the system parameter. In this example, the entry in the sc.ini file would be:

  system:7471

Note: If you plan to use ServiceCenter as a client/server application, your ServiceCenter system name must be a valid TCP/IP service name.

Server Resources

The ServiceCenter server uses these resource:

- Shared Memory

A server uses approximately 8192 K of base shared memory plus 110 K for each logged-on user. For example, if you have 50 users, the shared memory requirement is 8192K + (110K * Background Processes) + (Users*4000) = 13692 K. The **shared_memory** parameter in the **sc.ini** file specifies the amount of shared memory allocated by ServiceCenter.

- Processes

  A process starts for each ServiceCenter user. In addition, a process starts for each background scheduler. For a 50-user system, where all users are client/server, and assuming there are 17 background schedulers, the number of ServiceCenter processes on the server is 50 + 17 = 67.

- Semaphores

  ServiceCenter uses 14 semaphores, regardless of the number of users logged on to the system.

Other Information

Please review the following information before you install ServiceCenter:

- ANSI Terminal

  The installation scripts assume that you are running on an ANSI terminal. If the scripts run on a non-ANSI terminal (such as the hpterm), the results may be undesirable.

- Root Access

  These installation procedures may require root access for system kernel modifications or for initially mounting the ServiceCenter CD-ROM, but not for installing the software.

- HACMP Clustering

  If an AIX server set up for High Availability Cluster Multi-Processing (HACMP) fails, a second server assumes the IP address. ServiceCenter will not accept the authorization code in the **sc.ini** file because of the new server, and may cease functioning. To avoid this, add the **clustername** parameter to the **sc.ini** file and recycle the ServiceCenter server. To specify a cluster IP address, add the **clustername** parameter to the **sc.ini** file. For example:

  clustername:*<IP address>*

CHAPTER 2 Installation Instructions

This chapter describes the steps required to install the ServiceCenter client, server, or both on a Unix system. This chapter also includes instructions for updating your authorization code if you are updating your system from a trial to a permanent license.

Read this chapter for more information about:

Preliminary Steps

The following convention identifies variables that may change depending on your particular installation:

<variable>
where <variable> is the...

As you go through the installation steps and see a variable in brackets, remember that you can assign a different value to the variable. Do not type the brackets (< >) as part of the command.

Warning: Do not install ServiceCenter or the Java client as root. You will not be able to run the ServiceCenter service if you installed the system from a root account unless you give ownership and permissions to the ServiceCenter administrative user. Create a user ID that owns ServiceCenter.

Prior to installation:

1. Determine where to install ServiceCenter. Do one of the following:
   - Create a directory for the ServiceCenter Installation. For example, at a command prompt, type **mkdir <sc>** where **<sc>** is the base directory where ServiceCenter is to be installed.
   - Let the installation script create the directory for you. The user running the installation script must have sufficient permissions to create the new directory.
2. Verify that the ServiceCenter installation directory is in the path of the ServiceCenter owner.
3. If you install only the Java client, create a directory under the web server document root if you plan to make the Java client available as a web URL, or create a directory for it elsewhere on your system. If you create this directory as root, give ownership and permissions to the ServiceCenter administrative user. You must have the appropriate permissions to create directories. The installation script attempts to create directories that you specify if they do not exist.

   Verify that the Java client installation directory is in the path of the ServiceCenter owner.
4. Insert the ServiceCenter CD-ROM in the drive.

5 Mount the CD-ROM drive.

6 Change directories to the Unix directory on the CD-ROM drive.

7 Run the executable install.sh script. The install script will detect the operating system you are running.

8 The installation script prompts you to type the installation directory identifier. Type the Java client installation root directory. For example, if you type ServiceCenter, the Java client files will reside in the /ServiceCenter/java directory.

Note: The system validates any directory name that you specify. If you specify an invalid directory, the installation generates an error message. If the installation cannot validate the directory name after three attempts, the installation script exits and generates an error message.

9 Choose the product to install:

- ServiceCenter (Includes Java Client)
- Java Client

If you are installing the client only, skip to *Installing the Java Client* on page 17.

Installing the ServiceCenter Client and Server

If the server runs with a default language other than English, you must modify the ServiceCenter initialization file. See *Setting Up the Server for Languages Other than English* on page 20.

See the *ServiceCenter Technical Reference* for more information about National Language Support (NLS).

For Java Client configuration information, see the *Java Client Installation and Configuration Guide*.

If you plan to install both client and server at the same time, see *Preliminary Steps* on page 14.

To install the ServiceCenter client and server:

1 Type **1** to install ServiceCenter client/server software and press **Enter**.

2 Do one of the following:

a Type **1** to select Evaluation or new install.

b Type **2** to select Binary upgrade.

The system takes several minutes to read the contents of the CD-ROM, uncompress the files, and create a logs directory.

3 Type a TCP/IP port number or a named service, if you have already specified the service name in your system **services** file. This value must be greater than 1024. For more information, see *Specifying the Server Host and Service Name* on page 39 and *Examples* on page 45. Press **Enter**.

Warning: Do not use **scenter** because it causes the system to use port 12670, regardless of the port you specify.

If you specify a port number, instead of a named service, an error message appears stating that the service name cannot be found. If this happens:

- To use the port you specified, type **y** and press **Enter**.
- To select a new port, type **n** and press **Enter**. Specify a new port and press **Enter**.

4 Type your authorization code and press **Enter**. If you *previously* installed ServiceCenter using a *temporary* authorization code, you will receive the permanent authorization code when you purchase the product. For more information, see *Updating the ServiceCenter Authorization Code* on page 18. For information about obtaining your authorization code, see *Contacting Customer Support* on page 6.

5 The installation script runs and generates a sample **sc.ini** file. Press **Enter**. The installation script gathers the kernel setup data and stores the information in a file called **kernel.data**. The **kernel.data** file resides in the ServiceCenter **install** subdirectory.

6 The installation prompts you to install the ServiceCenter documentation. Type **y** to install the documentation. Press **Enter**.

The ServiceCenter documentation is in HTML format. The start page is **doc_index.html** in the installation directory. To skip the documentation installation step, type **n** and press **Enter**. The server installation is complete.

7 To install the Java client, type **y** at the prompt. Press **Enter**.

Continue with *step 5 on page 18*.

Note: For complete Java client configuration information, see the *Java Client Installation and Configuration Guide*.

Installing the Java Client

Peregrine Systems recommends that you complete the server installation before you install the client.

If you need installation instructions for ServiceCenter clients on specific platforms, see:

- The Client/Server Installation Guide for Windows with instructions to install ServiceCenter Windows clients to communicate with servers running on Unix or Windows platforms.
- The *Java Client Installation and Configuration Guide* with instructions to install ServiceCenter Java clients on Windows, Macintosh, Unix, and OS/2 platforms to communicate with servers running on OS/390, Unix, or Windows platforms.
- The *SC3270 Client Installation Guide* with instructions to install the ServiceCenter 3270 bi-directional client that allows the Windows- or Unix-based client to communicate with an OS/390 server.

Note: If you install the Java client only, it cannot connect to a port number greater than 65535.

To install the ServiceCenter Java client:

1. Complete *Preliminary Steps* beginning with step 1 if you have not done so already.
2. Type **2** to install the Java Client.
3. **Type the host name of the ServiceCenter server.**

   Type the host name or TCP/IP address of the ServiceCenter server. Press **Enter**.
4. **Type the ServiceCenter server port.**

   Type the ServiceCenter service number that the Java client connects to, such as 12670. Specify numeric values only. If ServiceCenter is running as a named service (defined in your system **etc/services** file) do not specify the service name itself. Type the port number assigned to the named service. For more information, see *Examples* on page 45. Press **Enter**.

5 **Is this a web server-based client install?**

Do one of the following:

- Type **n** for a standalone Java client installation. Press **Enter**. The installation program skips step 6 and completes the standalone Java client installation.
- Type **y** for a web server-based Java client installation. Press **Enter**.

6 **Type the URL code-base for the Java client.**

Type the URL for the Java client installation directory. For example, if you install the client in a directory named **java** under your company web server's document root, the codebase variable would be **www.mycompany.com/java**. Do not type **http://**. Press **Enter**. The installation program completes the standalone Java client installation.

Updating the ServiceCenter Authorization Code

You must have an authorization code to run ServiceCenter. Initially you specify the authorization code during the installation procedure. If you are running a trial, the authorization code is temporary. You will receive a permanent authorization code when you purchase the product. Specify your new authorization code by editing the **sc.ini** file. If you do not have an authorization code, contact your Peregrine Systems, Inc. Account Executive. For more information, see *CenterPoint Web Site* on page 7.

To change the ServiceCenter authorization code:

1 Use a text editor to open the **sc.ini** file from the ServiceCenter **RUN** directory.

2 At the **auth** parameter, type the authorization code supplied by your Peregrine Systems, Inc. Account Executive.

3 If you are using a Named Users license, you must select Named users. If you are using a Floating Users License, skip to step 4.

Flag the user's operator record as described in the *Named Users* section of the *System Administrator's Guide*, or add the **namedusersfile** parameter:

namedusersfile:*<filename>*

where *filename* identifies the text file listing the ServiceCenter operators. If this file is not in the ServiceCenter **RUN** directory, specify the fully qualified path with the file name.

For more information, see the *Named Users* section of the *System Administrator's Guide*.

4 Save the changes and close the file.

Named Users

If you are running ServiceCenter with a Named Users license, you must to select named users when you switch from a temporary to a permanent license.

Named users can be selected in two ways:

- Add a flag to each user's operator record.
- Create a named user file and add the **namedusersfile** parameter to the **sc.ini** file.

  A **namedusers** file lists the ServiceCenter operators. This text file is in the ServiceCenter **RUN** directory. If you are running ServiceCenter with a Floating Users license, you do not need the **namedusers** file and the **namedusersfile** parameter.

For more information about sc.ini file parameters, see the *ServiceCenter Technical Reference*.

Java Client Heap Size

To change the heap allocations, edit the **scjava** script and change the **SCJ_JRE_ARGS** setting.

- Set the minimum (initial) heap size by using: **-ms[size][units]**
- Set the maximum heap size by using: **-mx[size][units]**

Where **[size]** is an integer, and **[units]** is **k** (kilobytes) or **m** (megabytes).

For example, to set the initial and maximum heap sizes to 32MB and 48MB respectively, the value of SCJ_JRE_ARGS would be:

```
SCJ_JRE_ARGS=-ms32m -mx48m
```

The minimum and maximum heap size should be increased to improve the Java client runtime performance, or if you see Out Of Memory Exception messages on the console after starting the client.

Setting Up the Server for Languages Other than English

To change the default language:

1. Use a text editor to open the sc.ini file from the ServiceCenter RUN directory.
2. At the language: parameter, replace the code for English with a new language code.
3. Save the changes and close the file.

For a list of supported languages, see the *ServiceCenter Technical Reference*.

Kernel Resource Requirements

ServiceCenter Server requires both shared memory and semaphores to run. On most Unix systems, you can configure these resources through kernel configuration parameters.

Important: The kernel resource requirements shown on the following pages are the *minimum* values required for running ServiceCenter Server. In most cases, you should add these values to the current or default settings to run ServiceCenter concurrently with other programs or products on your system.

Note: For all platforms, shared memory maximum units are expressed in megabytes (MB). For example, the shmmax value for an HP-UX server with 30 users would be 11534336 bytes (11 MB).

AIX Server

You do not need to adjust your kernel configuration on AIX systems because they are self-adjusting.

HP-UX Server

Shared Memory

shmem:	1 byte	
shmmax:	11 MB	8MB for each ServiceCenter system + 3MB per 30 users
shmmni:	1 byte	per ServiceCenter system

Semaphores

sema:	1 byte	
semmap:	2 bytes	per ServiceCenter system
semmni:	1 byte	per ServiceCenter system
semmns:	11 bytes	per ServiceCenter system
semmnu:	2 bytes	per ServiceCenter user
semume:	11 bytes	per ServiceCenter system

Multiply 2 bytes by the number of users and divide that product by the default kernel parameter value. The result is the number of bytes for each ServiceCenter user. If the result is greater than 2 bytes, increase the kernel parameter value.

Processes

maxuprc:	calculated as 5 bytes + 1 byte per background scheduler + 1 byte per ServiceCenter user
nproc:	same as maxuprc

IPC parameters

Use the SAM utility to configure kernel IPC parameters on HP-UX.

Note: You need to be logged in as a root user or have superuser capabilities before you start the SAM utility.

Before you start SAM, define the DISPLAY environment variable. For example, if the name of your host (or X terminal) is eagle, type the following command at your shell prompt.

If you use the Bourne or Korn shell:

```
DISPLAY=eagle:0 #
export DISPLAY
```

If you use the C Shell:

```
setenv DISPLAY eagle:0
```

To configure kernel IPC parameters:

1. Start SAM.
2. Select the **Kernel Configuration** option from the main menu.
3. Select the **Configurable Parameters** option.
4. Modify the kernel parameters as specified in *IPC parameters* on page 21.

When you finish modifying the necessary parameters, the SAM utility guides you through the steps to restart the system. Restarting is necessary to activate the changes.

Maxdsiz parameter

The HP-UX maxdsiz parameter sets the maximum data segment size for each process. This data segment can consist of virtual memory (swap space) and real memory. The system attempts to meet your requirements with real memory. It uses swap space to make up the difference until it reaches the maxdsiz limit.

Each ServiceCenter user requires approximately 1MB of physical memory (resident set size on Unix and working set size on MVS). You must set the server platform memory size to support the maximum number of users that will be logged in to ServiceCenter concurrently. For example, if you have 100 ServiceCenter users, set the maxdsiz parameter to 100MB or more.

You do not need to increase the value of the maxdsiz parameter above the number of users on the system unless you have processes that use large amounts of static data storage space. Setting the maxdsiz value to the maximum size of 944MB is not recommended because private memory-mapped files and shared-library data also occupy space in the dynamic storage region.

The following values are acceptable.

Default:	0x4000000 (64MB)
Minimum:	0x400000 (4MB)
Maximum:	0x3B03100 (944MB)

The system returns an error to the calling process if the maxdsiz value is too low for the number of users and running processes. A setting that is too low may cause the process to terminate.

You can change the maxdsiz parameter using the SAM utility process described in *IPC parameters* on page 21.

Linux Server

The default shared memory limit (both SHMMAX and SHMALL) is 32 MB, but it can be changed in the proc file system without restarting the system. For example, to specify 128 MB:

```
# echo 134217728 >/proc/sys/kernel/shmall
# echo 134217728 >/proc/sys/kernel/shmmax
```

You can use sysctl.conf to control these parameters. Look for a file called /etc/sysctl.conf and add these lines:

```
kernel.shmall = 134217728
kernel.shmmax = 134217728
```

This file is usually processed at startup, but sysctl.conf can be called later.

Solaris Server

Shared Memory

forceload:sys/shmsys

shmsys:shminfo_shmmax	11 MB	8MB for each ServiceCenter system plus 3MB for each 30 users
shmsys:shminfo_shmmni	1 byte	for each ServiceCenter system

Semaphores

forceload:sys/semsys

semsys:seminfo_semmap:	2 bytes	for each ServiceCenter system
semsys:seminfo_semmni:	1 bytes	for each ServiceCenter system
semsys:seminfo_semmns:	11 bytes	for each ServiceCenter system
semsys:seminfo_semmnu:	2 bytes	for each ServiceCenter user
semsys:seminfo_semume:	11 bytes	for each ServiceCenter system

Processes

maxuprc:	5 bytes + 1 byte per background scheduler + 1 byte per ServiceCenter user
max_nprocs:	maxuprc

IPC Parameters

You can control kernel parameters with the **/etc/system** file. The operating system reads the **/etc/system** file at initialization time to define the initial kernel parameters.

To configure kernel IPC parameters:

1 Modify the **/etc/system** file to alter any kernel parameters. By default, the IPC system is not enabled. Append the following statements to the end of the file:

```
* /etc/system sample file
* Customize kernel parameters
* These statements initialize the IPC subsystem
forceload: sys/shmsys
forceload: sys/semsys
forceload: sys/msgsys
```

```
*
* SEM
set semsys:seminfo_semmap=60
set semsys:seminfo_semmni=100
set semsys:seminfo_semmns=1000
set semsys:seminfo_semmnu=30
set semsys:seminfo_semmsl=50
set semsys:seminfo_semopm=10
set semsys:seminfo_semume=15
set semsys:seminfo_semvmx=32767
set semsys:seminfo_semaem=16384
*
* SHM
set shmsys:shminfo_shmmax=67108864
set shmsys:shminfo_shmmni=100
set shmsys:shminfo_shmmin=1
set shmsys:shminfo_shmseg=10
*
set max_nprocs=1200
set maxusers=64
set maxuprc=800
```

2 Restart the system to activate the changes. Type:

```
cd /
usr/sbin/shutdown -i6 -y -g0
```

AIX Server Data Set Size

The default upper limit data set size is 1 GB. You must increase this value to accommodate **scdb** files that exceed that limit.

To increase the upper limit:

1 Login to the AIX server.

2 Run **ulimit -a**:

```
$/home/gtakahas(AIX): ulimit -a
time(seconds)      unlimited
file(blocks)       2097151
data(kbytes)       2000000
stack(kbytes)      32768
```

```
memory(kbytes)     32768
coredump(blocks)   2097151
nofiles(descriptors) 2000
```

If the result for **data (kbytes)** is **2000000** (blocks), and each block contains 512 bytes, the maximum data file size for this Unix user is 2,000,000 blocks multiplied by 512 bytes. The result is 1GB, which is the default upper limit.

3 To increase this value, to 2GB, type this command:

```
$ ulimit -f 4005000
```

To specify an unlimited amount of space for a data set:

▶ Type this command:

```
$ ulimit -f unlimited
```

CHAPTER 3

Running ServiceCenter

The information in this chapter will help you verify the ServiceCenter installation. It also describes different ways to start and stop ServiceCenter and ServiceCenter schedulers.

Read this chapter for information about:

Connecting to a Remote Server

Client workstations on any platform can connect to a ServiceCenter server on a Unix platform as long as there is network access to the ServiceCenter server.

To connect to a remote ServiceCenter server:

1. Verify that the server is running.
2. Verify that the ServiceCenter client is installed on the remote workstation.

   Note: You can use a browser-based Java Client to connect with a URL. For more information, see the Java Client Installation and Configuration guide.

3. Configure the shortcut or launch script using the IP address or host name of the server to point to the ServiceCenter server.

Starting ServiceCenter

To start ServiceCenter Server:

- Start the ServiceCenter server by running the `scstart` shell script. For more information, see *Running Shell Scripts* on page 29.

Connecting in Text Mode

To start ServiceCenter in text mode:

1. Change directories to the ServiceCenter `RUN` directory.
2. Type `scenter -term:<`*terminal*`>`

   where *terminal* is the type of terminal you are using, such as ansi or xterm. ServiceCenter starts up in text mode.
3. Type your user name and password. The main menu appears. If startup fails for any reason, check the `*.log` files for error messages.

Figure 3-1 shows the ServiceCenter main menu.

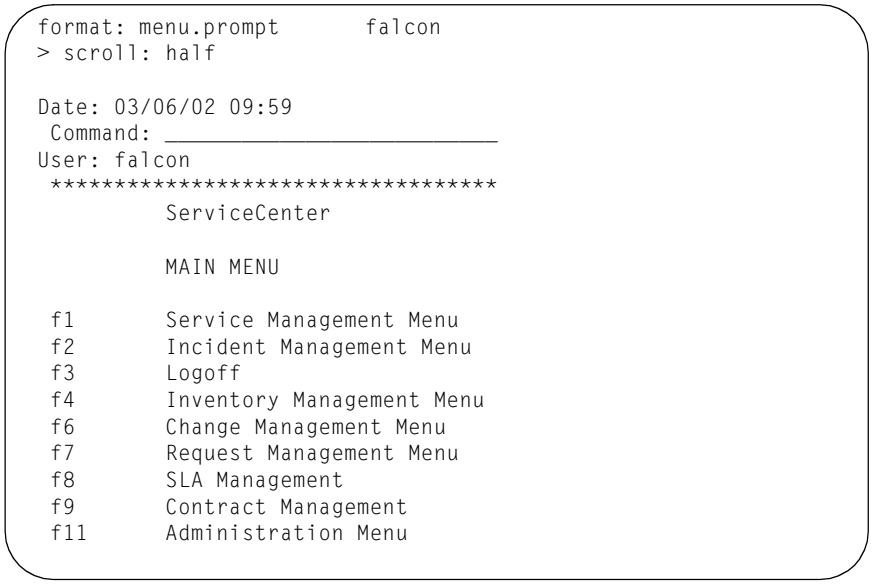

Figure 3-1: ServiceCenter main menu

Running Shell Scripts

The Unix version of ServiceCenter has three shell scripts that automate startup, shutdown, and monitoring. You can use these generic scripts for any ServiceCenter system. Run these scripts directly from the ServiceCenter **RUN** directory, or include the **RUN** directory in your PATH to run the scripts from any location.

Starting Background Processes With scstart

The scstart script starts the ServiceCenter server and background schedulers. To run this script, you must own the ServiceCenter system.

To start ServiceCenter:

1 Change directories to the one containing the ServiceCenter startup parameter file (sc.ini) and type one of these commands:

```
scstart
scstart [-h]
```

where [-h] displays help text.

2 To start a ServiceCenter system with one additional server, directories to the one containing the ServiceCenter startup parameter file (sc.ini) and type:

```
scstart -listener:[xname]
```

where -listener:[*xname*] starts another ServiceCenter server using *xname* as the socket name.

Stopping Background Processes with scstop

The scstop script performs a three-step shutdown of ServiceCenter.

- The system attempts a normal shutdown.
- The system terminates any running ServiceCenter processes.
- The system releases up Interprocess Communication (IPC) system resources.

To run this script, you must own the ServiceCenter system.

To stop ServiceCenter:

▶ Change directories to the one containing the ServiceCenter startup parameter file (sc.ini) and type one of these commands:

```
scstop [-h]
scstop u -s
scstop u -c
scstop u [-c|-s] [-qif]
scstop g groupname [-c|-s] [-qif]
```

The following table describes the available options.

Option	Function
-h	Display help text.
u	Terminate ServiceCenter processes and release IPC resources owned by the current user ID.
g	Terminate ServiceCenter processes and release IPC resources owned by the users in *groupname*.
-s	Release ServiceCenter client and server resources (the default option).
-c	Release ServiceCenter client resources.
-q	Run in quiet mode and do not produce output.
-i	Bypass the normal internal shutdown.
-f	Force a shutdown if a normal shutdown fails.

Warning: A -f (force) can cause file corruption if you request it while a file regen executes. Use the ServiceCenter **status** and **system.monitor** functions to examine active processes. For more information, see the *ServiceCenter System Administrator's Guide*.

Note: Do not release ServiceCenter resources if there are active users on a Unix workstation that can run multiple clients; otherwise, this command terminates active user sessions. Peregrine Systems recommends that you include the cleanup command in a script as a conditional step that always tests for other users.

Displaying System Status

The scstatus script displays the status of a ServiceCenter system, including ServiceCenter processes and IPC resources.

To show the status of a system:

1 Type one of these commands:

```
scstatus [-h]
scstatus [u [username]]
scstatus g [groupname]
```

The following table describes the available options.

Option	Function
-h	Display help text.
u	Display ServiceCenter resources owned by user *username*. If you omit *username*, ServiceCenter displays resources owned by the current user. To display resources owned by user scprd, type: `scstatus u scprd`
g	Display ServiceCenter resources owned by the users in group *groupname*. If you omit *groupname*, ServiceCenter displays resources owned by the current user group. To display resources owned by user group scgrp, type: `scstatus g scgrp`

Verifying Unix Kernel Parameters

ServiceCenter uses resources of the Unix system. Most systems have sufficient resources to run in evaluation mode; however, when the ServiceCenter user base grows, some kernel parameters may need adjustment to support the load.

For more information, see *Kernel Resource Requirements* on page 20.

4 SCEmail

CHAPTER

SCEmail is a ServiceCenter component that enables you to send email to external mail applications. SCEmail sends mail using the standard Unix sendmail program. You can find SCEmail in the ServiceCenter RUN directory.

Read this chapter for information about:

Starting SCEmail

SCEmail is a Unix application, which enables you to send mail from ServiceCenter using external mail applications. SCEmail starts automatically when you start ServiceCenter from the command line with no parameters. SCEmail uses the log: parameter in the sc.ini file to determine which log file to use. The default log file is email.log. You can edit the scstart file in the ServiceCenter RUN directory to add optional startup parameters.

Verify that SCEmail starts successfully by checking the email.log file. A successful startup message is Initializing.

When SCEmail starts successfully, it checks for ServiceCenter Email events and turns them into real mail messages.

Using Email with ServiceCenter

Read this section for information about:

- *Sending ServiceCenter Mail to Email*
- *Errors and Returned Mail* on page 35
- *Optional Parameters* on page 35

Sending ServiceCenter Mail to Email

To send ServiceCenter mail to external email users, your system administrator must log in and change the user operator record to point to the external email address for that user.

To change a user operator record:

1. Log in to ServiceCenter with an account that has system administrator authority.
2. Use one of the Administration options to access the operator record.
3. Type the email address for that user in the email field.
4. Save the operator record.

Errors and Returned Mail

SCEmail sends mail as though it were sent from the account that started SCEmail. Any messages sent to that account are not delivered to ServiceCenter. This includes any failed email messages that bounce because of incorrect or outdated email addresses. Peregrine Systems recommends that you check the SCEmail startup account periodically.

Optional Parameters

You can type the following optional parameters when you start ServiceCenter.

Parameter	Function
-log <file>	Name of the file where SCEmail logs messages. The default file is the log file specified in the **sc.ini** file.
-keepmail	Do not delete mail or events after SCEmail sends them successfully.
-sleep <*n*>	Number of seconds to sleep between checking for events and mail. Default is 10 seconds.
-debug	Prints more diagnostics to the log file and turns the -keepmail option on.

APPENDIX A Supplemental Information

This appendix has supplemental information ServiceCenter administrators need to install and run ServiceCenter.

Read this appendix for information about:

ServiceCenter Directory Structure

The installation creates subdirectories in the main Service Center directory. If products other than ServiceCenter are also loaded, the system creates a directory for each of the additional products.

Directory	Contents
bitmaps	Bitmaps for the client
data	ServiceCenter database (application) files
Docs	ServiceCenter guides in HTML format (open doc_index.html first)
install	Scripts for product installation (you can remove this directory after installation is complete)
irlang	IR-Expert support files.
java	Java client files
logs	Runtime log files
RUN	Files and scripts to start, stop, and administer ServiceCenter

Using TCP/IP

ServiceCenter supports TCP/IP for client/server communication. The ServiceCenter server becomes available to the network at startup using a TCP/IP service name. The server system parameter specifies the service name. Figure A-1 shows a typical ServiceCenter client/server configuration.

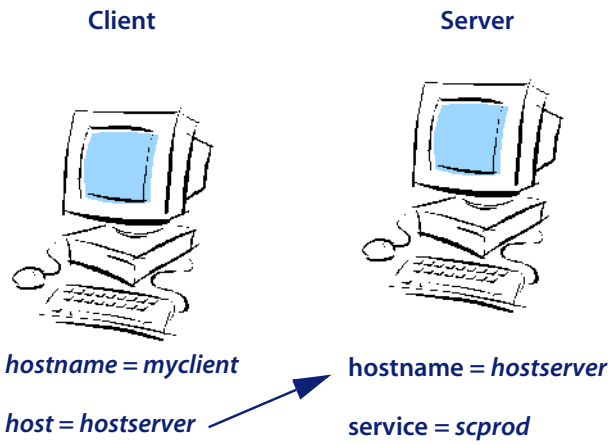

Figure A-1: TCP/IP Communication

The ServiceCenter server has a host name of hostserver. The service name for the server is scprod, which you must specify with a service parameter. The client has a host name of *myclient*. It communicates with this server by specifying the hostname *hostserver* and the service name *scprod*.

Specifying the Server Host and Service Name

Most TCP/IP configurations use hosts and services files to identify the IP address and the service, or port, number. See the following examples of hosts and services files. For more information, see your TCP/IP documentation and *Examples* on page 45.

Example of a hosts file:

```
31.41.59.61myclient myclient.peregrine.com # MYCLIENT host entry
31.41.59.62hostserver hostserver.peregrine.com# HOSTPC host entry
```

Example of a services file:

scprod1423/tcp# Production ServiceCenter

The Host Parameter

If you completed a standard installation, it is not necessary to modify the sc.ini file. Define the host name in the TCP/IP hosts file or in the DNS (Domain Name Server) to specify the TCP/IP host name where the ServiceCenter server is running. Define the host parameter in the initialization file (sc.ini), or as a command line parameter for the program icon. The host parameter specifies the TCP/IP host name where the ServiceCenter server is running.

To add the hosts parameter:

1 Use a text editor to open the sc.ini file.

2 Add or modify this parameter:

host:hostname

Using the example in Figure A-1 on page 39, the host and service parameters are specified as:

host:hostpc

3 Save the changes and close the file.

As a command line startup parameter, you can also specify:

-system:hostname.service

The Service Parameter

The service parameter specifies the servicename of the ServiceCenter server if you run in client/server mode. You can specify the service name as a port number instead of a name, or you can leave it blank to assume the default port setting. The default service port number is 12670. You can specify the service parameter in the initialization file (sc.ini), or as a command line parameter for the program icon.

Note: Verify the correct servicename and hostname values for the target server before you change the sc.ini file.

To change the services parameter:

1 Use a text editor to open the sc.ini file.

2 Add (or modify) this parameter:

service:servicename

Using the example in Figure A-1 on page 39, the service parameter is:

service:scprod

If you specify a port number instead of a service name, the correct format is:

service:1423

If you use the default port number of 12670, you can omit the service name.

3 Save the changes and close the file.

Note: If you use a name for the service parameter, such as scprod, the name must appear in the TCP/IP services file.

As a command line startup parameter, you can also specify:

-system:hostname.service

The Express Parameter

Express mode can improve performance if communication to the server is slow, or if the client CPU has insufficient resources.

For the ServiceCenter client, the express parameter specifies the ServiceCenter server when you choose Express mode. You may enter the express name as a port number instead of a name, or you can leave it blank to assume the default port setting. The default port number for express is 12670, the same as the port number for a full client.

You can specify the express parameters in the initialization file (sc.ini), or as a command line parameter for the program icon.

To change the express parameter:

1 Use a text editor to open the sc.ini file.

2 If you are connecting to an Express server, substitute the express parameter for the service parameter:

```
host:hostname
express:expressname
```

Using the example in Figure A-1 on page 39, the express parameter is:

```
express:scprodex
```

If you specify a port number instead of a service name, the correct format is:

```
host:hostpc
express:1424
```

If you assume the default port number of 12680, you can omit or leave the express parameter value blank.

```
host:hostpc
express:
```

3 Save the changes and close the file. As a command line startup parameter, you can also specify:

```
-host:hostname -express:expressname
```

Changing the System Parameter

If you select a typical installation, it is not necessary to add the system parameter. The installation does this for you.

To change the system parameter:

1 Use a text editor to open the sc.ini file.

2 Modify the system parameter:

```
system:TCP/IP servicename
```

This is a unique service name that defines the ServiceCenter server port on your workstation. Contact your system administrator for the correct service name if your services file does not assigned it.

3 Save the changes and close the file.

Using Other Databases

In addition to the high level of performance and stability offered by the ServiceCenter database, you may also use other databases including:

- IBM DB2 Universal
- Oracle
- Sybase

Contact Peregrine Systems about the availability of other vendor products. ServiceCenter Setup can automatically prepare other RDBMS that are supported by ServiceCenter and are ODBC compliant.

To use another database:

1. Use a text editor to open the sc.ini file.
2. Add the sqldb parameter to the sc.ini file:
3. Add the sqldb parameter to the sc.ini file:

   sqldb:hostname

   where hostname is the ODBC connection name for the Server.
4. Add the sqllogin parameter to the sc.ini file:

   sqllogin:logon/password

   where logon is the logon name of the user (with DBA authority), and password is the password for the DBA account.
5. Save the changes and close the file.
6. Type the scenter convert command from the command prompt:

   scenter convert.*databasename*

   where *databasename* is the new database to be used. For example:

   scenter convert.oracle
   scenter convert.sybase

   The log messages from the conversion process are directed to the standard output device (stdout). You can redirect this to a file by appending *>filename* to the command line where *filename* is the name of a text file where you want to the log information to go.

Note: Because database preparation logic is in RAD, verify that you have the latest RAD code installed.

B Examples

APPENDIX

The following example is an etc/services file from a ServiceCenter installation on a Solaris platform.

```
#ident          "@(#)services  1.20      98/07/08 SMI"/*
 SVr4.0 1.8*/
#
# Network services, Internet style
#
tcpmux          1/tcp
echo            7/tcp
echo            7/udp
discard         9/tcp           sink null
discard         9/udp           sink null
systat          11/tcp          users
daytime         13/tcp
daytime         13/udp
netstat         15/tcp
chargen         19/tcp          ttytst source
chargen         19/udp          ttytst source
ftp-data        20/tcp
ftp             21/tcp
telnet          23/tcp
smtp            25/tcp          mail
time            37/tcp          timserver
time            37/udp          timserver
```

```
name            42/udp      nameserver
whois           43/tcp      nicname     # usually to sri-nic
domain          53/udp
domain          53/tcp
bootps          67/udp                  # BOOTP/DHCP server
bootpc          68/udp                  # BOOTP/DHCP client
hostnames       101/tcp     hostname    # usually to sri-nic
pop2            109/tcp     pop-2       # Post Office Protocol - V2
pop3            110/tcp                 # Post Office Protocol - Version 3
sunrpc          111/udp     rpcbind
sunrpc          111/tcp     rpcbind
imap            143/tcp     imap2       # Internet Mail Access Protocol v2
ldap            389/tcp                 # Lightweight Directory Access Protocol
ldap            389/udp                 # Lightweight Directory Access Protocol
ldaps           636/tcp                 # LDAP protocol over TLS/SSL
                                        #(was sldap)
ldaps           636/udp                 # LDAP protocol over TLS/SSL
                                        #(was sldap)
#
# Host specific functions
#
tftp            69/udp
rje             77/tcp
finger          79/tcp
link            87/tcp      ttylink
supdup          95/tcp
iso-tsap        102/tcp
x400            103/tcp                 # ISO Mail
x400-snd        104/tcp
csnet-ns        105/tcp
pop-2           109/tcp                 # Post Office
uucp-path       117/tcp
nntp            119/tcp      usenet     # Network News Transfer
ntp             123/tcp                 # Network Time Protocol
ntp             123/udp                 # Network Time Protocol
NeWS            144/tcp     news        # Window System
cvc_hostd       442/tcp                 # Network Console
```

```
#
# UNIX specific services
# these are NOT officially assigned
#
exec            512/tcp
login           513/tcp
shell           514/tcp         cmd         # no passwords used
printer         515/tcp         spooler     # line printer spooler
courier         530/tcp         rpc         # experimental
uucp            540/tcp         uucpd       # uucp daemon
biff            512/udp         comsat
who             513/udp         whod
syslog          514/udp
talk            517/udp
route           520/udp         router routed
klogin          543/tcp                     # Kerberos authenticated rlogin
new-rwho        550/udp         new-who     # experimental
rmonitor        560/udp         rmonitord   # experimental
monitor         561/udp                     # experimental
pcserver        600/tcp                     # ECD Integrated PC board srvr
kerberos-adm    749/tcp                     # Kerberos V5 Administration
kerberos-adm    749/udp                     # Kerberos V5 Administration
kerberos        750/udp          kdc        #Kerberos key server
kerberos        750/tcp         kdc         # Kerberos key server
krb5_prop       754/tcp                     # Kerberos V5 KDC propogation
ufsd            1008/tcp        ufsd        # UFS-aware server
ufsd            1008/udp        ufsd
cvc             1495/tcp                    # Network Console
ingreslock      1524/tcp
www-ldap-gw     1760/tcp                    # HTTP to LDAP gateway
www-ldap-gw     1760/udp                    # HTTP to LDAP gateway
listen          2766/tcp                    # System V listener port
nfsd            2049/udp        nfs         # NFS server daemon (clts)
nfsd            2049/tcp        nfs         # NFS server daemon (cots)
eklogin         2105/tcp                    # Kerberos encrypted rlogin
lockd           4045/udp                    # NFS lock daemon/manager
lockd           4045/tcp
dtspc           6112/tcp                    # CDE subprocess control
fs              7100/tcp                    # Font server
astctr          8000/tcp                    # AssetCenter for Paul-eric
```

```
#
# OpenV*NetBackup services
#
bpcd            13782/tcp    bpcd
vopied          13783/tcp    vopied
bpjava-msvc     13722/tcp    bpjava-msvc
bprd            13720/tcp    bprd
snmp            161/udp                 # Simple Network Management Protocol
```

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