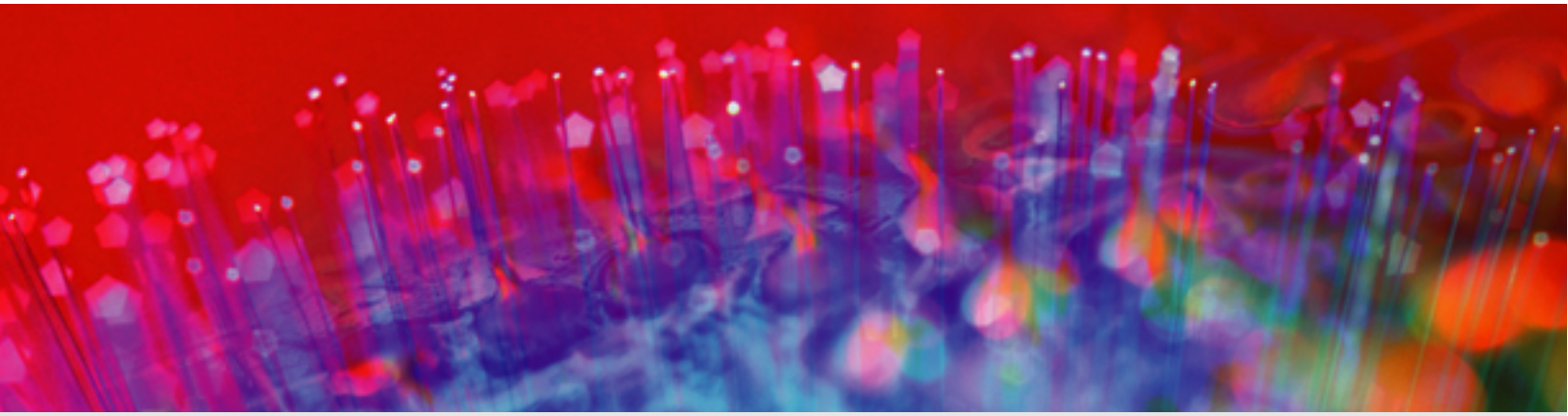
Alcatel 5620

SERVICE ROUTER MANAGER | RELEASE 1.2

INSTALLATION GUIDE



ARCHITECTS OF AN INTERNET WORLD

ALCATEL

Disclaimers

Alcatel products are intended for commercial uses. Without the appropriate network design engineering, they must not be sold, licensed or otherwise distributed for use in any hazardous environments requiring fail-safe performance, such as in the operation of nuclear facilities, aircraft navigation or communication systems, air traffic control, direct life-support machines, or weapons systems, in which the failure of products could lead directly to death, personal injury, or severe physical or environmental damage. The customer hereby agrees that the use, sale, licence or other distribution of the products for any such application without the prior written consent of Alcatel, shall be at the customer's sole risk. The customer hereby agrees to defend and hold Alcatel harmless from any claims for loss, cost, damage, expense or liability that may arise out of or in connection with the use, sale, licence or other distribution of the products in such applications.

This document may contain information regarding the use and installation of non-Alcatel products. Please note that this information is provided as a courtesy to assist you. While Alcatel tries to ensure that this information accurately reflects information provided by the supplier, please refer to the materials provided with any non-Alcatel product and contact the supplier for confirmation. Alcatel assumes no responsibility or liability for incorrect or incomplete information provided about non-Alcatel products.

Alcatel has made reasonable efforts to ensure that the Alcatel 5620 Service Router Manager, Release 1.2, complies in all material respects with the "Referenced Detailed Functional Specification for Newbridge Product Date Compliance" for all loads. To obtain this document and other information related to Year 2000 Date Compliance, please contact your Alcatel representative.

However, this does not constitute a representation or warranty. The warranties provided for Alcatel products, if any, are set forth in contractual documentation entered into by Alcatel and its customers.

This document was originally written in English. If there is any conflict or inconsistency between the English version and any other version of a document, the English version shall prevail.

Alcatel License Agreement

SAMPLE END USER LICENSE AGREEMENT

1. LICENSE

1.1 Subject to the terms and conditions of this Agreement, Alcatel grants to Customer and Customer accepts a non-exclusive, non-transferable license to use any software and related documentation provided by Alcatel pursuant to this Agreement ("Licensed Program") for Customer's own internal use, solely in conjunction with hardware supplied or approved by Alcatel. In case of equipment failure, Customer may use the Licensed Program on a back-up system, but only for such limited time as is required to rectify the failure.

1.2 Customer acknowledges that Alcatel may have encoded within the Licensed Program optional functionality and capacity (including, but not limited to, the number of equivalent nodes, delegate work stations, paths and partitions), which may be increased upon the purchase of the applicable license extensions.

1.3 Use of the Licensed Program may be subject to the issuance of an application key, which shall be conveyed to the Customer in the form of a Supplement to this End User License Agreement. The purchase of a license extension may require the issuance of a new application key.

2. PROTECTION AND SECURITY OF LICENSED PROGRAMS

2.1 Customer acknowledges and agrees that the Licensed Program contains proprietary and confidential information of Alcatel and its third party suppliers, and agrees to keep such information confidential. Customer shall not disclose the Licensed Program except to its employees having a need to know, and only after they have been advised of its confidential and proprietary nature and have agreed to protect same.

2.2 All rights, title and interest in and to the Licensed Program, other than those expressly granted to Customer herein, shall remain vested in Alcatel or its third party suppliers. Customer shall not, and shall prevent others from copying, translating, modifying, creating derivative works, reverse engineering, decompiling, encumbering or otherwise using the Licensed Program except as specifically authorized under this Agreement. Notwithstanding the foregoing, Customer is authorized to make one copy for its archival purposes only. All appropriate copyright and other proprietary notices and legends shall be placed on all Licensed Programs supplied by Alcatel, and Customer shall maintain and reproduce such notices on any full or partial copies made by it.

3. TERM

3.1 This Agreement shall become effective for each Licensed Program upon delivery of the Licensed Program to Customer.

3.2 Alcatel may terminate this Agreement: (a) upon notice to Customer if any amount payable to Alcatel is not paid within thirty (30) days of the date on which payment is due; (b) if Customer becomes bankrupt, makes an assignment for the benefit of its creditors, or if its assets vest or become subject to the rights of any trustee, receiver or other administrator; (c) if bankruptcy, reorganization or insolvency proceedings are instituted against Customer and not dismissed within 15 days; or (d) if Customer breaches a material provision of this Agreement and such breach is not rectified within 15 days of receipt of notice of the breach from Alcatel.

3.3 Upon termination of this Agreement, Customer shall return or destroy all copies of the Licensed Program. All obligations of Customer arising prior to termination, and those obligations relating to confidentiality and non-use, shall survive termination.

4. CHARGES

4.1 Upon shipment of the Licensed Program, Alcatel will invoice Customer for all fees, and any taxes, duties and other charges. Customer will be invoiced for any license extensions upon delivery of the new software application key or, if a new application key is not required, upon delivery of the extension. All amounts shall be due and payable within thirty (30) days of receipt of invoice, and interest will be charged on any overdue amounts at the rate of 1 1/2% per month (19.6% per annum).

5. SUPPORT AND UPGRADES

5.1 Customer shall receive software support and upgrades for the Licensed Program only to the extent provided for in the applicable Alcatel software support policy in effect from time to time, and upon payment of any applicable fees. Unless expressly excluded, this Agreement shall be deemed to apply to all updates, upgrades, revisions, enhancements and other software which may be supplied by Alcatel to Customer from time to time.

6. WARRANTIES AND INDEMNIFICATION

6.1 Alcatel warrants that the Licensed Program as originally delivered to Customer will function substantially in accordance with the functional description set out in the associated user documentation for a period of 90 days from the date of shipment, when used in accordance with the user documentation. Alcatel's sole liability and Customer's sole remedy for a breach of this warranty shall be Alcatel's good faith efforts to rectify the nonconformity or, if after repeated efforts Alcatel is unable to rectify the non-conformity, Alcatel shall accept return of the Licensed Program and shall refund to Customer all amounts paid in respect thereof. This warranty is available only once in respect of each Licensed Program, and is not renewed by the payment of an extension charge or upgrade fee.

6.2 ALCATEL EXPRESSLY DISCLAIMS ALL OTHER WARRANTIES, REPRESENTATIONS, COVENANTS OR CONDITIONS OF ANY KIND, WHETHER EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION, WARRANTIES OR REPRESENTATIONS OF WORKMANSHIP, MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, DURABILITY, OR THAT THE OPERATION OF THE LICENSED PROGRAM WILL BE ERROR FREE OR THAT THE LICENSED PROGRAMS WILL NOT INFRINGE UPON ANY THIRD PARTY RIGHTS.

6.3 Alcatel shall defend and indemnify Customer in any action to the extent that it is based on a claim that the Licensed Program furnished by Alcatel infringes any patent, copyright, trade secret or other intellectual property right, provided that Customer notifies Alcatel within ten (10) days of the existence of the claim, gives Alcatel sole control of the litigation or settlement of the claim, and provides all such assistance as Alcatel may reasonably require. Notwithstanding the foregoing, Alcatel shall have no liability if the claim results from any modification or unauthorized use of the Licensed Program by Customer, and Customer shall defend and indemnify Alcatel against any such claim.

6.4 Alcatel Products are intended for standard commercial uses. Without the appropriate network design engineering, they must not be sold, licensed or otherwise distributed for use in any hazardous environments requiring fail safe performance, such as in the operation of nuclear facilities, aircraft navigation or communication systems, air traffic control, direct life support machines, or weapons systems, in which the failure of products could lead directly to death, personal injury, or severe physical or environmental damage. The Customer hereby agrees that the use, sale, licence or other distribution of the Products for any such application without the prior written consent of Alcatel, shall be at the Customer's sole risk. The Customer also agrees to defend and hold Alcatel harmless from any claims for loss, cost, damage, expense or liability that may arise out of or in connection with the use, sale, licence or other distribution of the Products in such applications.

7. LIMITATION OF LIABILITY

7.1 IN NO EVENT SHALL THE TOTAL COLLECTIVE LIABILITY OF ALCATEL, ITS EMPLOYEES, DIRECTORS, OFFICERS OR AGENTS FOR ANY CLAIM, REGARDLESS OF VALUE OR NATURE, EXCEED THE AMOUNT PAID UNDER THIS AGREEMENT FOR THE LICENSED PROGRAM THAT IS THE SUBJECT MATTER OF THE CLAIM. IN NO EVENT SHALL THE TOTAL COLLECTIVE LIABILITY OF ALCATEL, ITS EMPLOYEES, DIRECTORS, OFFICERS OR AGENTS FOR ALL CLAIMS EXCEED THE TOTAL AMOUNT PAID BY CUSTOMER TO ALCATEL HEREUNDER. NO PARTY SHALL BE LIABLE FOR ANY INDIRECT, SPECIAL OR CONSEQUENTIAL DAMAGES, WHETHER OR NOT SUCH DAMAGES ARE FORESEEABLE, AND/OR THE PARTY HAD BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

7.2 The foregoing provision limiting the liability of Alcatel's employees, agents, officers and directors shall be deemed to be a trust provision, and shall be enforceable by such employees, agents, officers and directors as trust beneficiaries.

8. GENERAL

8.1 Under no circumstances shall either party be liable to the other for any failure to perform its obligations (other than the payment of any monies owing) where such failure results from causes beyond that party's reasonable control.

8.2 This Agreement constitutes the entire agreement between Alcatel and Customer and supersedes all prior oral and written communications. All amendments shall be in writing and signed by authorized representatives of both parties.

8.3 If any provision of this Agreement is held to be invalid, illegal or unenforceable, it shall be severed and the remaining provisions shall continue in full force and effect.

8.4 The Licensed Program may contain freeware or shareware obtained by Alcatel from a third party source. No license fee has been paid by Alcatel for the inclusion of any such freeware or shareware, and no license fee is charged to Customer for its use. The Customer agrees to be bound by any license agreement for such freeware or shareware. CUSTOMER ACKNOWLEDGES AND AGREES THAT THE THIRD PARTY SOURCE PROVIDES NO WARRANTIES AND SHALL HAVE NO LIABILITY WHATSOEVER IN RESPECT OF CUSTOMER'S POSSESSION AND/OR USE OF THE FREEWARE OR SHAREWARE.

8.5 Alcatel shall have the right, at its own expense and upon reasonable written notice to Customer, to periodically inspect Customer's premises and such documents as it may reasonably require, for the exclusive purpose of verifying Customer's compliance with its obligations under this Agreement.

8.6 All notices shall be sent to the parties at the addresses listed above, or to any such address as may be specified from time to time. Notices shall be deemed to have been received five days after deposit with a post office when sent by registered or certified mail, postage prepaid and receipt requested.

8.7 If the Licensed Program is being acquired by or on behalf of any unit or agency of the United States Government, the following provision shall apply: If the Licensed Program is supplied to the Department of Defense, it shall be classified as "Commercial Computer Software" and the United States Government is acquiring only "restricted rights" in the Licensed Program as defined in DFARS 227-7202-1(a) and 227.7202-3(a), or equivalent. If the Licensed Program is supplied to any other unit or agency of the United States Government, rights will be defined in Clause 52.227-19 or 52.227-14 of the FAR, or if acquired by NASA, Clause 18-52.227-86(d) of the NASA Supplement to the FAR, or equivalent. If the software was acquired under a contract subject to the October 1988 Rights in Technical Data and Computer Software regulations, use, duplication and disclosure by the Government is subject to the restrictions set forth in DFARS 252-227.7013(c)(1)(ii) 1988, or equivalent.

8.8 Customer shall comply with all export regulations pertaining to the Licensed Program in effect from time to time. Without limiting the generality of the foregoing, Customer expressly warrants that it will not directly or indirectly export, re-export, or transship the Licensed Program in violation of any export laws, rules or regulations of Canada, the United States or the United Kingdom.

8.9 No term or provision of this Agreement shall be deemed waived and no breach excused unless such waiver or consent is in writing and signed by the party claimed to have waived or consented. The waiver by either party of any right hereunder, or of the failure to perform or of a breach by the other party, shall not be deemed to be a waiver of any other right hereunder or of any other breach or failure by such other party, whether of a similar nature or otherwise.

8.10 This Agreement shall be governed by and construed in accordance with the laws of the Province of Ontario. The application of the United Nations Convention on Contracts for the International Sale of Goods is hereby expressly excluded.

Preface

About this document

The 5620 SRM Installation Guide provides user documentation to allow you to:

- install the 5620 SRM software on a Windows platform
- install the 5620 SRM software on a Solaris or LINUX platform

The 5620 SRM is written in a task-based format. Each chapter contains:

- overview information about the task
- a workflow describing the steps necessary to complete the task
- menus or commands used to complete the procedure
- a list of required procedures
- detailed procedures

About related documentation

There are many documents that describe the 5620 SRM and 7750 SR and how to use them.

See the 7750 SR user documentation guides for more detailed information about specific CLI commands, and some parameter information. The 7750 SR user documentation is available from the SDSD website at www.alcatel.com.

Conventions used in this guide

The following table lists the conventions that are used throughout the documentation.

Table 1 Documentation conventions

Convention	Description	Example
Key name	Press a keyboard key	Delete
Italics	Identifies a variable	*hostname*
Key+Key	Type the appropriate consecutive keystroke sequence	CTRL+G
Key–Key	Type the appropriate simultaneous keystroke sequence	CTRL–G
↵	Press the Return key	↵
—	An em dash indicates there is no information.	—
→	Indicates that a cascading submenu results from selecting a menu item	Policies→Alarm Policies

Procedures with options or substeps

When there are options in a procedure, they are identified by letters. When there are substeps in a procedure, they are identified by roman numerals.

Example of options in a procedure

At step 1, you can choose option a or b. At step 2, you must do what the step indicates.

1 This step offers two options. You must choose one of the following:

a This is one option.

b This is another option.

2 You must perform this step.

Example of substeps in a procedure

At step 1, you must perform a series of substeps within a step. At step 2, you must do what the step indicates.

1 This step has a series of substeps that you must perform to complete the step. You must perform the following substeps:

i This is the first substep.

ii This is the second substep.

iii This is the third substep.

2 You must perform this step.

Important information

The following conventions are used to indicate important information:

Note — A note provides information that is, or may be, of special interest.

Caution — A caution indicates that the described activity or situation may, or will, cause a service interruption.

Warning — A warning indicates that the described activity or situation may, or will, cause equipment damage.

Contents

5620 SRM Installation Guide

5620 Service Router Manager Installation Guide
December 2003 95-5779-01-00-A

1 — Installing and uninstalling the 5620 SRM on a Windows platform

1.1 5620 SRM Windows platform installation overview

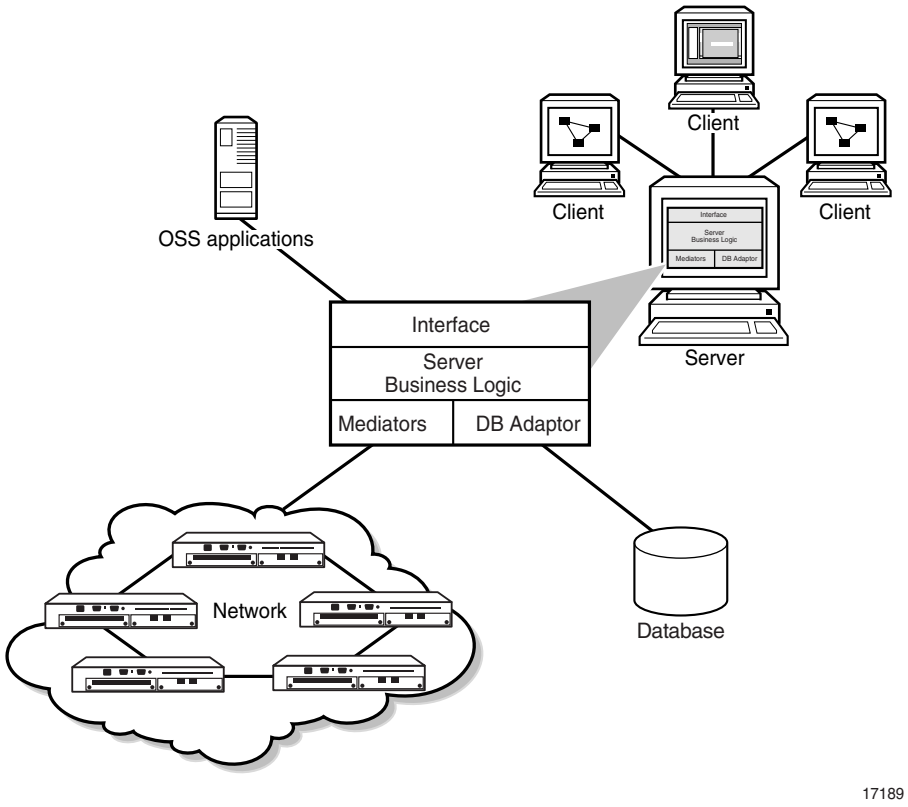
This chapter describes how to install the 5620 SRM software on PCs running Windows. Table 1-1 describes the 5620 SRM applications.

Table 1-1 5620 SRM applications

Application	Description/information	Platform
Oracle 9.2.0.2 software for the 5620 SRM database	Software to create a database used by the 5620 SRM database. You must have 3.5 GB of space available to install the Oracle software.	Windows 2000 Professional Edition Windows XP
5620 SRM database	• Stores network objects and configurations. • The 5620 SRM database, server, and client applications should be installed on different PCs.	
5620 SRM server	• Mediates between the 5620 SRM database, 5620 SRM clients and the router network. • Can support many 5620 SRM clients. • Only one server should be installed and pointed to the 5620 SRM database.	
5620 SRM client	• Provides a GUI to discover, configure and manage the router network. • Only one client should be installed per PC.	

Figure 1-1 shows the 5620 SRM architecture.

Figure 1-1 5620 SRM architecture



1.2 Workflow to install the 5620 SRM software on a Windows platform

1. Configure a network of PCs.
2. Establish an Ethernet connection from the network to the routers or router simulators. This connection must be from the PC on which you install the 5620 SRM server.
3. Install Oracle 9.2.0.2.
4. Install the 5620 SRM database.
5. Install the 5620 SRM server.
6. Install one or more 5620 SRM clients.

Note — Conversion from 5620 SRM Release 1.1 or Release 1.2 to 5620 SRM Release 2.0 will not be supported. The 5620 SRM Release 2.0 database will be incompatible with older 5620 SRM databases.

1.3 5620 SRM installation and uninstallation procedures list for a Windows platform

Table 1-2 lists the procedures to install and uninstall the 5620 SRM applications.

Table 1-2 5620 SRM installation and uninstallation procedure reference

Procedure	Purpose
To install Oracle software for use as a 5620 SRM database	To install the Oracle software that will be used to create and manage the 5620 SRM database
To install the 5620 SRM database	To install the 5620 SRM database
To install the 5620 SRM server	To install and start the 5620 SRM server
To install the 5620 SRM client	To install and start the 5620 SRM client
To uninstall the 5620 SRM database	To uninstall the 5620 SRM database
To uninstall the 5620 SRM server	To stop and uninstall the 5620 SRM server
To uninstall a 5620 SRM client	To uninstall the 5620 SRM client
To modify the 5620 SRM server	To modify 5620 SRM server configurations without reinstalling the software
To modify the 5620 SRM client	To modify 5620 SRM client configurations without reinstalling the software

1.4 5620 SRM installation and uninstallation procedures for a Windows platform

This section provides the procedures to install and uninstall the 5620 SRM applications.

Procedure 1-1 To install Oracle software for use as a 5620 SRM database

You must install Oracle 9.2.0.2. You must have at least 3.5 GB of space for the Oracle software.

1 Place the first Oracle software CD-ROM in the CD-ROM drive.

2 Install the software according to the Oracle installation documentation and the installation prompts, with the following exceptions:

- For the File Locations parameter, set the Destination to the location of the Oracle home directory, for example c\:oracle\OraHome\
- For the Select a product to install parameter, choose Oracle9i Database 9.2.0.2 with patch number p3095277_9204.
- For the Installation Types parameter, choose Enterprise Edition
- For the Database Configuration parameter, choose Software Only. This option installs the software, but does not create a database. The database is created in Procedure 1-2

Procedure 1-2 To install the 5620 SRM database

The 5620 SRM database system requirements are:

- PC running Windows 2000 Professional Edition or XP
- 3 GB RAM
- 30 GB disk space for the database
- Intel 4 CPU at 3GHz or higher

The 5620 SRM database, server, and client applications should be installed on different PCs. The creation of the database is a resource-intensive process. It should be done during down-time, when system resources are more free.

Before you install the 5620 SRM database, perform the following tasks.

- Install Oracle 9.2.0.2. You must install Oracle and the 5620 SRM database on the same PC.
- If a 5620 SRM database is currently installed on the PC, uninstall the 5620 SRM database. See Procedure 1-5.
- If the service exists, ensure that the OracleOraHome92TNSListener service is started and configured to automatically restart when you restart Windows. Choose Start→Settings→Control Panel from the Windows toolbar, and select Administrative Tools→Services to launch the Windows Services manager. Select the OracleOraHome92TNSListener row from the list and double-click. Then click on the Start button.

You must have administrator and Ora_DBA privileges to perform this procedure.

1 Log on to the PC on which you want to install the 5620 SRM database.

2 Double-click on the DBconfig.exe installation file on your hard drive or CD-ROM.

The 5620 SRM database configurator is launched.

3 A series of windows with installation parameters appears. You must accept the license agreement. Accept the default values, or change the defaults according to your network requirements. Table 1-3 describes the parameters.

Table 1-3 5620 SRM database installation parameters

Parameter	Instructions
Oracle root directory	Enter the location of Oracle root directory specified in Procedure 1-1, for example c\:oracle\OraHome\
Install directory	Enter a directory name and path for the installation directory, for example c:\SRM\SRMdb The installation root directory will be created by the 5620 SRM database configurator, if it does not already exist.
Database name	Enter a name for the 5620 SRM database tablespace, for example oracledb. The tablespace will be created in Oracle by the 5620 SRM database configurator. Ensure that you have enough disk space available. Use the recommended amount of disk space.
5620 SRM database user name	Enter a user name, for example USR1.
5620 SRM database user password option	Enter a password, for example 174aX!-8.
Estimated available memory (MB)	Accept the default or specify a value. Alcatel recommends 1024.
Archive log mode	Check the check mark box if you want to be able to perform database backups and restores using the 5620 SRM client database manager.
Choose location	Specify a directory where database backups are to be stored. This directory should be secure and regularly backed up to prevent corruption or loss of data. Alcatel recommends that you create an c:\oracle\dbsnapshot directory path.
Data layout	Perform one of the following to determine Table Space (TS) creation: • Choose the Single Table Space option to store all data on one storage drive. • Choose the Multiple Table Space option, specifying only Stats and Alarm drives option to store statistics and alarm history data to a separate drive. Alcatel recommends this configuration, to ensure the database is configured for maximum efficiency and data retrieval. • Choose the Multiple Table Space option, assigning each TS to a drive option to customize all Oracle tablespaces that are created by the 5620 SRM.
Configure tablespaces	Create a stats and an alarms directory. These two directories should be in the same directory as the oracledb database. Associated the stats and alarms directories with the Oracle database tablespaces that handle alarms and stats. Use the Add Associations button.
Data file directory	Enter a name and path for the tablespace distribution directory, for example c:\SRM\SRMdb\database The directory will be created by the 5620 SRM database configurator.
Run configuration scripts	Choose to run the scripts now If you choose to run scripts later, a window appears indicating the directory in which the scripts have been saved. You must run the scripts manually from the directory. You must have administrator and Ora_DBA privileges to run the scripts.
Oracle SYS password	Enter the Oracle SYS password, which is the same as for the user created during the Oracle installation.
Oracle SYSTEM password	Enter the Oracle SYSTEM password, which is the same as for the user created during the Oracle installation.

4 Click on the Start Process button to start the 5620 SRM database installation. The installation takes 15 to 30 min. A message indicates when the installation is complete.

5 Restart Windows.

Procedure 1-3 To install the 5620 SRM server

The 5620 SRM server system requirements are:

- PC running Windows 2000 Professional Edition or XP
- 3 GB RAM
- 15 GB disk space
- Intel 4 CPU at 3GHz or higher

The 5620 SRM database, server, and client applications should be installed on different PCs. Only one server should be installed and pointed to the 5620 SRM database.

Before you perform this procedure, complete the following tasks.

- Install the 5620 SRM database. See Procedure 1-2.
- If a 5620 SRM server is currently installed on the PC, uninstall the 5620 SRM server. See Procedure 1-6.

You must have administrator privileges to perform this procedure.

1 Log in to the PC on which you want to install the 5620 SRM server.

2 Double-click on the ClientServerInstall.exe file on your hard drive or CD.

The 5620 SRM installer is launched.

3 A series of windows with installation parameters appears. You must accept the license agreement. Accept the default values, or change the defaults according to your network requirements. Table 1-4 describes the parameters.

Table 1-4 5620 SRM server installation parameters

Parameter	Instructions
Installation type	Choose server installation and configuration
Installation root directory	Enter a name and path for the 5620 SRM server installation root directory, for example c:\SRM\server The server installation root directory will be created by the 5620 SRM installer, if it does not already exist.

4 When prompted, click on the Install button. A series of windows with installation parameters appears. Accept the default values, or change the defaults according to your network requirements. Table 1-5 describes the parameters.

Table 1-5 5620 SRM server installation options

Parameter	Instructions
Database server IP address	Specify the IP address of the PC on which you installed the 5620 SRM database.
Database server port	Specify the default port of 1521.
Database name	Specify the name of the 5620 SRM database tablespace created when you installed the 5620 SRM database, for example oracledb. The database name is case sensitive.
Database user name	Specify the 5620 SRM database user name created when you installed the 5620 SRM database, for example USR1.
Database user password	Specify the 5620 SRM database user password created when you installed the 5620 SRM database, for example 174aX!-8.
Multiple tablespaces	You can choose to use multiple tablespaces if you chose the multiple Table Space option when you installed the 5620 SRM database. You cannot choose to use multiple tablespaces if you chose the single multiple Table Space option when you installed the 5620 SRM database.
Collection of statistics	Choose to collect statistics if you want the 5620 SRM to collect statistics for the equipment managed by the 5620 SRM.
Interval	Specify an interval over which to collect statistics, in minutes, or use the default of 720 min.
EJB/JMS Server IP address	This parameter specifies the IP address of the PC on which you are installing the 5620 SRM server. Accept the default.
EJB/JMS Server port	Specify the server messaging port. Accept the default port 1099.
SNMP trap receiving IP address	Specify the IP address of the PC on which you are installing the 5620 SRM server. Accept the default.
SNMP trap receiving port	Specify a port. The default is 162. This setting should match the setting for the 7750 SR.
SNMP trap community	Specify an SNMP trap community. This setting should match the setting for the 7750 SR.
Maximum amount of memory in MB reserved for the JVM	Specify the maximum amount of the memory the server can use. Accept the default or specify a value. The default is 1024.

A message indicates when the installation is complete.

5 Restart Windows and log in as admin.

6 If required, start the server.

i Double-click on the 5620 SRM console icon on your desktop.

A Windows command prompt appears.

ii Start the server by typing:

```
nmsserver start ↵
```

The time it takes the server to start depends on the platform. A message indicates that the 5620 SRM server has started. One or more clients can now connect to the 5620 SRM server.

Procedure 1-4 To install the 5620 SRM client

The 5620 SRM client system requirements are:

- PC running Windows 2000 Professional Edition or XP
- 1 GB RAM
- 15 GB disk space
- CPU at 2GHz or higher
- color monitor with a minimum of 1280 x 1024 pixel resolution
- 16-bit color graphics/video card

The 5620 SRM database, server, and client applications should be installed on separate PCs. Only one client should be installed per PC.

Before you install the 5620 SRM client, perform the following tasks.

- Install and start the 5620 SRM server. One 5620 SRM server supports many 5620 SRM clients. See Procedure 1-3.
- If a 5620 SRM client is currently installed on the PC, uninstall the 5620 SRM client. See Procedure 1-7.

You must have administrator privileges to perform this procedure.

1 Log in to the PC on which you want to install the 5620 SRM client.

2 Double-click on the ClientServerInstall.exe file on your hard drive or CD.

The 5620 SRM installer is launched.

3 A series of windows with installation parameters appears. You must accept the license agreement. Accept the default values, or change the defaults according to your network requirements. Table 1-6 describes the parameters.

Table 1-6 5620 SRM client installation parameters

Parameter	Instructions
Installation type	Choose client installation and configuration
Installation root directory	Enter a name and path for the 5620 SRM client installation root directory, for example c:\SRM\client This client installation root directory will be created by the 5620 SRM installer if it does not already exist.

4 When prompted, click on the Install button. A series of windows with installation parameters appears. Accept the default values, or change the defaults according to your network requirements. Table 1-7 describes the parameters.

Table 1-7 5620 SRM client installation parameters

Parameter	Instructions
Server IP address	Specify the IP address of the PC on which you installed the 5620 SRM server.
Server port	Use the default or specify a port. The default is 1099.
Maximum amount of memory in MB reserved for the JVM	Specify the maximum amount of the memory the client can use. Alcatel recommends that you set this parameter to 1024.

A message indicates when the installation is complete.

5 Start the 5620 SRM if required.

i Click on the 5620 SRM client icon on your desktop.

ii Login. The system administrator should use login name *admin* and password *admin* for initial access to the 5620 SRM client.

The system administrator should change the password after logging in. Choose Security→Manage Security from the 5620 SRM main menu to launch the Security Management window and change the password.

Procedure 1-5 To uninstall the 5620 SRM database

Before performing this procedure, stop the 5620 SRM server by performing steps 1 and 2 in Procedure 1-6.

You must have administrator and Ora_DBA privileges to perform this procedure.

1 Choose Start→Settings→Control Panel from the Windows toolbar.

2 Choose Add/Remove Programs.

3 Select the 5620 SRM Oracle database configuration software.

4 Click on the Change/Remove button.

5 The 5620 SRM uninstaller is launched.

6 Click on the Uninstall button.

A message indicates when the uninstall is complete.

7 Restart Windows.

Procedure 1-6 To uninstall the 5620 SRM server

You must have administrator privileges to perform this procedure.

1 Open a Windows command prompt and Navigate to the *<installation_root>*/v1.2/nms/bin directory,

where

<installation_root> is the 5620 SRM server installation root directory, for example c:\SRM\server.

2 Stop the server by typing:

nmsserver stop ↵

A message indicates that the 5620 SRM server has stopped.

3 Choose Start→Settings→Control Panel from the Windows toolbar.

4 Choose Add/Remove Programs.

5 Select the 5620 SRM Installation software.

6 Click the Change/Remove button.

The 5620 SRM uninstaller is launched.

7 Click on the Uninstall button.

Click on the Continue with the Uninstall process button.

A message indicates when the uninstall is complete.

8 Restart Windows.

Procedure 1-7 To uninstall a 5620 SRM client

You must have administrator privileges to perform this procedure.

1 Stop the 5620 SRM client.

2 Choose Start→Settings→Control Panel from the Windows toolbar.

3 Choose Add/Remove Programs.

4 Select the 5620 SRM software.

5 Click on the Change/Remove button.

The 5620 SRM uninstaller is launched.

6 Click on the Uninstall button.

Click on the Continue with the Uninstall process button.

A message indicates when the uninstall is complete.

7 Restart Windows.

Procedure 1-8 To modify the 5620 SRM server

You must have administrator privileges to perform this procedure.

1 Log in to the PC on which you want to modify the 5620 SRM server.

2 Double-click on the ClientServerInstall.exe file on your hard drive or CD.

The 5620 SRM installer is launched.

3 A series of windows with parameters appears. When prompted, choose the server configuration option.

4 Modify your 5620 SRM server settings as required.

Procedure 1-9 To modify the 5620 SRM client

You must have administrator privileges to perform this procedure.

1 Log in to the PC on which you want to modify the 5620 SRM client.

2 Double-click on the 5620 SRM client/server installation file on your hard drive or CD.

The 5620 SRM installer is launched.

3 A series of windows with parameters appears. When prompted, choose the client configuration option.

4 Modify your 5620 SRM client settings as required.

2 — Installing and uninstalling the 5620 SRM on a Solaris or Linux platform

2.1 5620 SRM Solaris and Linux platform installation overview

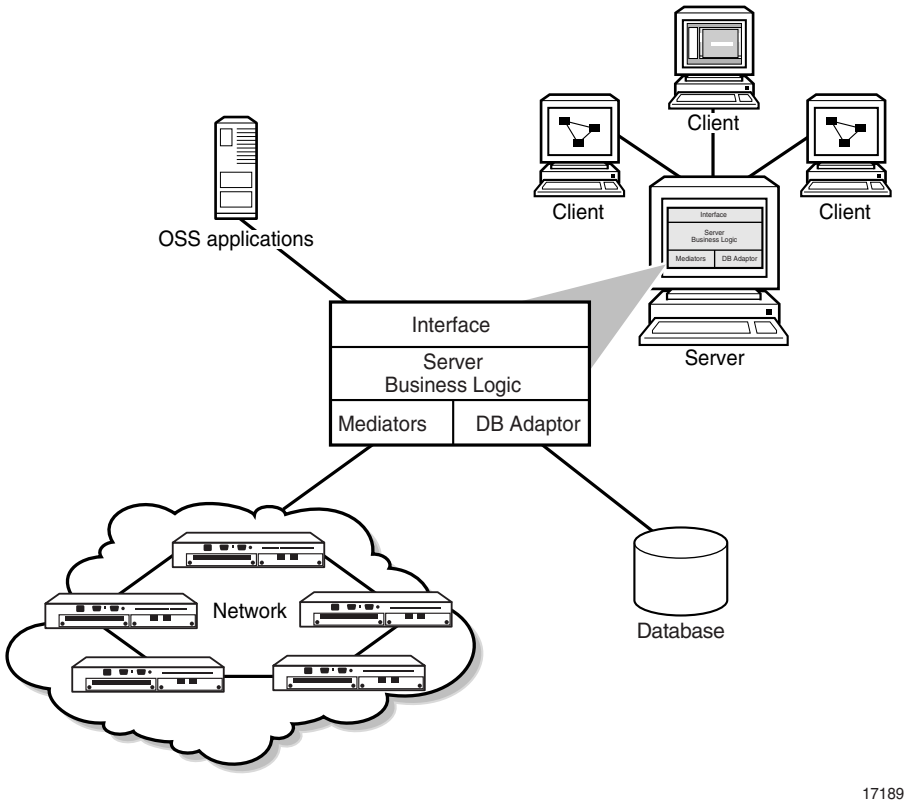
This chapter describes how to install the 5620 SRM software on Solaris or Linux workstations. Table 2-1 describes the 5620 SRM applications.

Table 2-1 5620 SRM applications

Application	Description/information	Platform	Version
Oracle 9.2.0.2 software for the 5620 SRM database	Software used to create the 5620 SRM database. You must have 3.5 GB of space available to install the Oracle software.	Solaris	9
5620 SRM database	• Stores network objects and configurations. • The 5620 SRM database, server, and client applications should be installed on different workstations.	Solaris	9
5620 SRM server	• Mediates between the 5620 SRM database, 5620 SRM clients and the router network. • Can support many 5620 SRM clients. • Linux Red Hat should be installed on a PC with the same platform requirements detailed in chapter 1 • Only one server should be installed and pointed to the 5620 SRM database.	Solaris	9
		Linux Red Hat	7.2
5620 SRM client	• Provides a GUI to discover, configure and manage the router network. • Linux Red Hat should be installed on a PC with the same platform requirements detailed in chapter 1 • Only one client should be installed per workstation.	Solaris	9
		Linux Red Hat	7.2

Figure 2-1 shows the 5620 SRM architecture.

Figure 2-1 5620 SRM architecture



2.2 Workflow to install the 5620 SRM applications on a Solaris or Linux platform

1. Configure a network of workstations.
2. Establish an Ethernet connection from the network to the routers or router simulators. This connection must be from the workstation on which you install the 5620 SRM server.
3. Preconfigure your workstations for 5620 SRM application installations.
4. Install Oracle 9.2.0.2.
5. Install the 5620 SRM database.
6. Install the 5620 SRM server.
7. Install one or more 5620 SRM clients.

Note — Conversion from 5620 SRM Release 1.1 or Release 1.2 to 5620 SRM Release 2.0 will not be not supported. The 5620 SRM Release 2.0 database will be incompatible with earlier 5620 SRM databases.

2.3 5620 SRM installation and uninstallation procedures list for the Solaris or Linux platform

Table 2-2 lists the procedures necessary to install and uninstall the 5620 SRM applications, or modify the server or client applications.

Table 2-2 5620 SRM installation and uninstallation procedure reference

Procedure	Purpose
To preconfigure your network settings for the installation of 5620 SRM applications	To preconfigure your workstations for 5620 SRM application installations
To install Oracle software for the 5620 SRM database	To install the Oracle software that will be used to create and manage the 5620 SRM database
To install the 5620 SRM database	To install the 5620 SRM database
To install the 5620 SRM server	To install and start the 5620 SRM server
To install the 5620 SRM client	To install and start the 5620 SRM client
To uninstall the 5620 SRM database	To uninstall the 5620 SRM database
To uninstall the 5620 SRM server	To uninstall the 5620 SRM server
To uninstall the 5620 SRM client	To uninstall the 5620 SRM client
To modify the 5620 SRM server	To modify 5620 SRM server configurations without reinstalling the software
To modify the 5620 SRM client	To modify 5620 SRM client configurations without reinstalling the software

2.4 5620 SRM installation and uninstallation procedures for the Solaris or Linux platform

This section provides procedures to install and uninstall the 5620 SRM applications, or modify the server or client applications.

Procedure 2-1 To preconfigure your network settings for the installation of 5620 SRM applications

Perform this procedure to preconfigure your network settings.

1 Create a new UNIX account to use the bash shell under which Oracle will be installed. Accept the default values, except for the following UNIX account attributes:

- Set the Login Shell attribute to Other and set to /bin/bash.
- Set the Create Home directory to /home/oracle.

2 Create a .bash_profile with the following settings and place it in the Oracle user's home directory:

```
ORACLE_BASE=<oracle_home>
export ORACLE_BASE
ORACLE_HOME=$ORACLE_BASE/OraHome
export ORACLE_HOME
ORACLE_SID=<db_name>
export ORACLE_SID
ORACLE_TERM=xterm
export ORACLE_TERM
NLS_LANG=AMERICAN
export NLS_LANG
LD_LIBRARY_PATH=$ORACLE_HOME/lib:/lib:/usr/lib
export LD_LIBRARY_PATH
PATH="$PATH":/usr/ccs/bin:/usr/ucb:$ORACLE_HOME/bin:/bin:/sbin:/
etc:/usr/openwin/bin:/usr/bin
export PATH
CLASSPATH=$ORACLE_HOME/JRE:$ORACLE_HOME/jlib:$ORACLE_HOME/rdbms/
jlib
export CLASSPATH
ORA_NLS33=$ORACLE_HOME/ocommon/nls/admin/data
export ORA_NLS33
```

where

<oracle_home> is the Oracle home directory, for example, /opt/oracle

<db_name> is the database tablespace name for the 5620 SRM database, for example, oracledb. This is the same as the Database Name parameter in Table 2-3.

You are prompted to create and specify a name for the tablespace during the installation of the 5620 SRM database which should match the name specified in the .bash_profile.

3 Add the following settings to the /etc/system file:

```
set semsys:seminfo_semmni=100
set semsys:seminfo_semmns=1024
set semsys:seminfo_semmsl=256
set shmsys:shminfo_shmmax=4294967295
set shmsys:shminfo_shmmin=1
set shmsys:shminfo_shmmni=100
set shmsys:shminfo_shmseg=10
```

4 Reboot the system using the init 6 command.

Procedure 2-2 To install Oracle software for the 5620 SRM database

You must install Oracle 9.2.0.2. You must have at least 3.5 GB for the Oracle software.

1 Switch to the Oracle user created in Procedure 2-1.

2 Place the first Oracle software CD-ROM in the CD-ROM drive.

3 Install the software according to the Oracle installation documentation and the installation prompts, with the following exceptions:

- For the File Locations parameter, set the Destination to the ORACLE_BASE and the ORACLE_HOME parameters specified in the .bash_profile file. For example, OraHome is the name attribute, and /opt/oracle would be the path.
- For the Select a product to install parameter, choose Oracle9i Database 9.2.0.1.0 with patch p3095277_9204
- For the Installation Types parameter, choose Enterprise Edition
- For the Database Configuration parameter, choose Software Only. This option installs the software, but does not create a database. The database is created in Procedure 2-3

Procedure 2-3 To install the 5620 SRM database

The 5620 SRM database, server, and client applications should be installed on different workstations. The creation of the database is a resource-intensive process. It should be done during down-time, when system resources are more free.

Before you install the 5620 SRM database, uninstall any currently installed 5620 SRM database. See Procedure 2-6.

The 5620 SRM database system requirements are:

- workstation running Solaris 9 04/03 with the latest available patch set
- 3 GB RAM
- 30 GB for the database
- Sun UltraSparc 280R with a dual CPU
- 4 GB swap space

1 As Oracle user, start the Oracle listener by typing:

```
lsnrctl start ↵
```

Note — Oracle listener must be restarted manually after every system reboot.

2 As Oracle user, launch the 5620 SRM database configurator from the appropriate directory by typing:

```
./DBConfig.bin ↵
```

The 5620 SRM database configurator is launched.

3 A series of windows with installation parameters appears. You must accept the license agreement. Accept the default values, or change the defaults according to your network requirements. Table 2-3 describes the parameters.

Table 2-3 5620 SRM database installation parameters

Parameters	Instructions
Installation root directory	Enter a name and path for the installation directory, for example, /srm/srmdb. You must have read/write/execute permissions in the parent directory when you create a new name and path. The installation root directory is created by the 5620 SRM database configurator, if it does not already exist, or create the folders as required.
Oracle root directory	Enter the location of the Oracle root directory, for example, /opt/oracle/OraHome/.
Database name	Enter a name for the 5620 SRM database tablespace, for example, oracledb. This name should match the name specified in the .bash_profile ORACLE_SID parameter. The tablespace is created in Oracle by the 5620 SRM database configurator. Ensure that you have enough disk space available. Use the recommended amount of disk space.
5620 SRM database user name	Enter a user name, for example, USR1. You can use the same name as that of the Oracle UNIX account you created.
5620 SRM database user password option	Enter a password, for example, 174aX!-8.
Estimated available memory (MB)	Accept the default or specify a value.
Archive log mode	Select the check mark box if you want to be able to perform database backups and restores using the 5620 SRM client database manager.
Choose location	Specify a directory where database backups are to be stored. This directory should be secure and regularly backed up to prevent corruption or loss of data. Alcatel recommends that you create an /opt/oracle/dbsnapshot directory.
Data layout	Perform one of the following to determine Table Space (TS) creation: • Choose the Single Table Space option to store all data on one storage drive. • Choose the Multiple Table Space option, specifying only the Stats and Alarm drives options to store statistics and alarm history data to a separate drive. Alcatel recommends this configuration, to ensure that the database is configured for maximum efficiency and data retrieval. • Choose the Multiple Table Space, assigning each table space to a drive option, to customize all Oracle tablespaces that are created by the 5620 SRM.
Configure tablespaces	Create a stats and an alarms directory, which should be in the same directory as the oracledb database. Ensure that you have read/write access to the directories. Associate the stats and alarms directories with the Oracle database tablespaces that handle alarms and stats. Use the Add Associations button.
Data file directory	Enter a name and path for the tablespace distribution directory, for example, /srm/srmdb/database. The directory is created by the 5620 SRM database configurator, or create the folders as required.
Run configuration scripts	Choose to run the scripts now. If you choose to run scripts later, a window appears indicating the directory in which the scripts have been saved. You must run the scripts manually from the directory as Oracle user.
Oracle SYS password	Enter the Oracle SYS password, which can be the same password as the Oracle account password.
Oracle SYSTEM password	Enter the Oracle SYSTEM password, which can be the same password as the Oracle account password.

4 Click on the Start Process button to start the 5620 SRM database installation. The installation takes 45 to 60 min. A message indicates when the installation is complete.

5 Reboot the operating system by typing:

```
init 6 ↵
```

Procedure 2-4 To install the 5620 SRM server

The 5620 SRM database, server, and client applications should be installed on different workstations. Only one server should be installed and pointed to the 5620 SRM database.

The 5620 SRM server system requirements are:

- workstation running Solaris 9 04/03 with the latest available patch set, or Linux Red Hat 7.2
- 3 GB RAM
- 15 GB disk space
- Sun UltraSparc 280R with a dual CPU
- 4 GB swap space

Before you perform this procedure, complete the following tasks.

- Install the 5620 SRM database. See Procedure 2-3.
- If a 5620 SRM server is currently installed on the workstation, uninstall the 5620 SRM server. See Procedure 2-7.

1 As UNIX or Linux user, launch the 5620 SRM installer from the appropriate directory by typing:

```
./ClientServerInstall.bin ↵
```

The 5620 SRM installer is launched.

2 A series of windows with installation parameters appears. You must accept the license agreement. Accept the default values, or change the defaults according to your network requirements. Table 2-4 describes the parameters.

Table 2-4 5620 SRM server installation parameters

Parameter	Instructions
Installation type	Choose server installation and configuration.
Installation root directory	Enter a directory name and path for the 5620 SRM server installation root directory, for example, opt/5620srm/server. You must have read/write/execute permissions in the parent directory if you are creating a new installation root directory. The server installation root directory is created by the 5620 SRM server installer, if it does not already exist, or create the folders as required.

3 When prompted, click on the Install button. A series of windows with installation parameters appears. Accept the default values, or change the defaults according to your network requirements. Table 2-5 describes the parameters.

Table 2-5 5620 SRM server installation parameters

Parameter	Instructions
Database server IP address	Specify the IP address of the workstation on which you installed the 5620 SRM database.
Database server port	Specify the database server port. Keep the default of 1521.
Database name option	Specify the name of the 5620 SRM database tablespace created when you installed the 5620 SRM database, for example, oracledb.
Database user name	Specify the 5620 SRM database user name for the Oracle account that you created when you installed the 5620 SRM database.
Database user password	Specify the 5620 SRM database user password for the Oracle account that you created when you installed the 5620 SRM database.
Multiple tablespaces	You can choose to use multiple tablespaces if you specified the Multiple Table Space option when you installed the 5620 SRM database. You cannot choose to use multiple tablespaces if you specified the Single Table Space option when you installed the 5620 SRM database.
Collection of statistics	Choose to collect statistics if you want the 5620 SRM to collect statistics.
Statistics collection interval	Accept the default or specify a value.
EJB/JMS Server IP address	Specify the IP address of the workstation on which you are installing the 5620 SRM server. Use the default.
EJB/JMS Server port	Specify the server messaging port. Use the default port 1099.
SNMP trap receiving IP address	Specify the IP address of the workstation on which you are installing the 5620 SRM server. Use the default.
SNMP trap receiving port	Specify the default port 162. This setting should match the setting for the 7750 SR.
SNMP trap community	Accept the default or specify an SNMP trap community. This setting should match the setting for the 7750 SR.
Maximum amount of memory in MB reserved for the JVM	Specify the maximum amount of the memory that the server can use. Use the default or specify a value. The default is 1024.

A message indicates when the installation is complete.

4 Start the server.

i As root user running the bash shell, navigate to the *<installation_root>*/v1.2/nms/bin directory, where *<installation_root>* is the 5620 SRM server installation root directory specified in Table 2-4, for example /opt/5620srm/server.

ii Start the server by typing:

```
bash ./nmsserver.bash start ↵
```

The time it takes the server to start depends on the platform. A message indicates that the 5620 SRM server has started.

This start script should be added to a platform startup script, to ensure the server restarts automatically after a reboot or power failure. See the /etc/rc3.d/README file for Solaris installations.

Procedure 2-5 To install the 5620 SRM client

The 5620 SRM database, server, and client applications should be installed on different workstations. Only one client should be installed per workstation.

The 5620 SRM client system requirements are:

- workstation running Solaris 9 04/03 with the latest available patch set, or Linux Red Hat 7.2
- Solaris Ultra 10 with a single CPU
- 1 GB RAM
- 15 GB disk space
- 1 GB swap space
- color monitor with a minimum 1280 x 1024 pixel resolution
- 16-bit color graphics/video card

Before you install the 5620 SRM client, perform the following tasks:

- Install and start the 5620 SRM server. One 5620 SRM server can support many 5620 SRM clients.
- If a 5620 SRM client has been previously installed on the workstation, uninstall the 5620 SRM client. See Procedure 2-8.

1 As UNIX or Linux user, launch the 5620 SRM database configurator from the appropriate directory by typing:

```
./ClientServerInstall.bin ↵
```

The 5620 SRM installer is launched.

2 A series of windows with installation parameters appears. You must accept the license agreement. Accept the default values, or change the defaults according to your network requirements. Table 2-6 describes the parameters.

Table 2-6 5620 SRM client installation parameters

Parameters	Instructions
Installation type	Choose client installation and configuration.
Installation root directory	Enter a directory name and path for the 5620 SRM client installation root directory, for example, opt/5620srm/client. You must have read/write/execute permissions in the parent directory if you are creating a new installation root directory. This client installation root directory is created by the 5620 SRM server installer, if it does not already exist, or create the folders as required.

3 When prompted, click on the Install button. A series of windows with installation parameters appears. Accept the default values, or change the defaults according to your network requirements. Table 2-7 describes the parameters.

Table 2-7 5620 SRM client installation parameters

Option	Instructions
Server IP address	Specify the IP address of the workstation on which you installed the 5620 SRM server.
Server port	Use the default or specify a port. The default is 1099.
Maximum amount of memory in MB reserved for the JVM	Specify the maximum amount of the memory the client can use. Alcatel recommends that you set this parameter to 1024.

A message indicates when the installation is complete.

4 Start the 5620 SRM client if required.

i As root user running the bash shell, navigate to the *<installation_root>*/v1.2/nms/bin directory, where *<installation_root>* is the 5620 SRM client installation root directory specified in Table 2-6, for example /opt/5620srm/client.

ii Start the 5620 SRM client by typing:

```
bash ./nmsclient.bash ↵
```

iii Enter your login name and password.

The system administrator should change the password after logging in. Choose Security→Manage Security from the 5620 SRM main menu to launch the Security Management window and change the password.

Procedure 2-6 To uninstall the 5620 SRM database

Before you perform this procedure, stop the 5620 SRM server by performing steps 1 and 2 in Procedure 2-7.

1 As Oracle user, navigate to the *<oracle_installation>*/Uninstaller directory, where *<oracle_installation>* is the Oracle installation root directory specified in Table 2-3, for example /opt/oracle/OraHome.

2 Launch the 5620 SRM uninstaller by typing:

```
./Uninstall_5620_SRM_Database_Configurator ↵
```

The 5620 SRM uninstaller is launched.

3 Click on the Uninstall button.

A message indicates when the uninstall is complete.

Procedure 2-7 To uninstall the 5620 SRM server

1 As root user running the bash shell, navigate to the <*installation_root*>/v1.2/nms/bin directory, where <*installation_root*> is the 5620 SRM server installation root directory.

2 Stop the server by typing:

bash ./nmsserver.bash stop ↵

A message indicates that the server has stopped.

3 Navigate to the <*installation_root*>/Uninstaller directory, where<*installation_root*> is the 5620 SRM server installation root directory.

4 Launch the 5620 SRM server uninstaller by typing:

./Uninstall_5620_SRM ↵

The 5620 SRM uninstaller is launched.

5 Click on the Uninstall button.

A message indicates when the uninstall is complete.

Procedure 2-8 To uninstall the 5620 SRM client

1 Stop the 5620 SRM client.

2 As UNIX or Linux user, navigate to the <*installation_root*>/Uninstaller directory, where <*installation_root*> is the 5620 SRM client installation root directory.

3 Launch the 5620 SRM uninstaller by typing:

./Uninstall_5620_SRM ↵

The 5620 SRM uninstaller is launched.

4 Click on the Uninstall button.

A message indicates when the uninstallation is complete.

Procedure 2-9 To modify the 5620 SRM server

1 As UNIX or Linux user, launch the 5620 SRM installer from the appropriate directory by typing:

```
./ClientServerInstall.bin ↵
```

The 5620 SRM installer is launched.

2 A series of windows with parameters appears. When prompted, choose the server configuration option.

3 Modify the 5620 SRM server settings as required.

Procedure 2-10 To modify the 5620 SRM client

1 As UNIX or Linux user, launch the 5620 SRM installer from the appropriate directory by typing:

```
./ClientServerInstall.bin ↵
```

The 5620 SRM installer is launched.

2 A series of windows with parameters appears. When prompted, choose the client configuration option.

3 Modify the 5620 SRM client settings as required.

Glossary

Numerics

5620 SRM 5620 Service Router Manager

The 5620 SRM is the network manager for the 7750 SR.

5620 SRM client The 5620 SRM client provides a GUI to configure IP network elements.

5620 SRM database The 5620 SRM database stores network objects and configurations.

5620 SRM server The 5620 SRM server mediates between the 5620 SRM database, 5620 SRM client, and the network.

7750 SR 7750 Service Router

The 7750 SR is a router that provides scalable, high-speed private data services with SLAs.

A

ACL access control list

An access control list, which is also known as a filter policy, is a template applied to services or ports to control network traffic into (ingress) or out (egress) of an SAP or port based on IP and MAC matching criteria. Filters are applied to services to examine packets entering or leaving a SAP or network interface. An ACL policy can be used on several interfaces. The same filter can be applied to ingress traffic, egress traffic, or both.

alarm An alarm is a node-generated message created as a result of an event, such as an interface status change.

API application programming interface

An API is a set of programming functions and routines that provides an interface to the network for application programs. APIs translate high-level program code into low-level computer instructions that run the network. Thus, application programs (for example, word processors) can communicate with low-level programs handling network data traffic.

AS autonomous system

An AS is a collection of routers under one administrative entity that cooperates by using a common IGP (such as OSPF). AS is synonymous with the ISO term “routing domain”. Routing between autonomous systems is done with an inter-AS or interdomain EGP, such as BGP-4.

ASBR autonomous system boundary router

In OSPF, an ASBR is a router that exchanges information with routers from other ASs. ASBRs are also used to import routing information about RIP, direct, or static routes from non-OSPF attached interfaces.

B

BGP border gateway protocol

BGP is an IETF standard EGP used to propagate routing information between autonomous systems.

C

CBS committed burst size

CBS specifies the amount of buffers that can be drawn from the reserved buffer protion of the queue’s buffer pool. Once the reserved buffers for a given queue have been used, the queue contends with other queues for additional buffer resources up to the maximum burst size.

The CBS is provisioned on ingress and egress service queues within the service ingress QoS policies and service egress QoS policies, respectively. The CBS for a queue is specified in Kbytes.

The CBS for network queues are defined with the network buffer policies based on the forwarding class. The CBS for the queues for the forwarding class are defined as a percentage of buffer space for the buffer pool.

class of service *See* CoS

CIR committed information rate

The CIR is the guaranteed minimum rate of throughput between two end-user devices over a network under normal operating circumstances. This rate, measured in bits or kb/s, is used in congestion control procedures.

circuit A circuit is a communications connection between two points. It has a line interface from which it transmits and receives data and signaling. A circuit is also known as a port, channel, or timeslot. An electronic circuit is one or more electronic components connected together to perform a specific function.

CLI command line interface

The CLI is an interface that allows the user to interact with the operating system by typing alphanumeric commands and optional parameters at a command prompt. UNIX and DOS provide CLIs.

confederation In BGP, a confederation is an AS that has been subdivided into smaller ASs called CMASs. A confederation appears to be a single AS to other ASs and is recognized only by other confederation members.

CoS class of service

CoS is the degree of importance assigned to VPN traffic in the Switched routing system. The Switched routing system supports standard and premium classes of services. During queuing and forwarding, service points give preferential treatment to traffic that originates on elements configured for premium CoS.

CPM central processor module

The dual CPU control plane module is dedicated for system control, centralized protocol processing, and management.

D

DSCP differentiated services codepoint

The DSCP is a six-bit field in the IP header that provides CoS on a per-packet basis.

E

encapsulation Encapsulation is the addition of information to the beginning and end of data. Encapsulation is used by layered network protocols as data moves from one stack down to the next. Header and trailer information is added to the data at each layer. Encapsulation is also used to bridge connections between different types of networks.

F

fault A fault is a failure or defect in a network, causing the network, or part of the network, to malfunction.

FIB forwarding information base

FIB is the set of information that represents the best forwarding information—for example, next IP hop—for each destination (or set thereof). The entries in the FIB are derived from the reachability information held in the RIB, subject to administrative routing.

forwarding class

A forwarding class, also called a CoS, provides to network elements a method to weigh the relative importance of one packet over another in a different forwarding class. Each forwarding class is important only in relation to other forwarding classes.

Queues are created for a specific forwarding class to determine the manner in which the queue output is scheduled into the switch fabric and the type of parameters the queue accepts. The forwarding class of the packet, along with the in-profile or out-of-profile state, determines how the packet is queued and handled (the per-hop behavior at each hop along its path to a destination egress point).

Table 1 describes the forwarding classes supported by the 7750 SR router.

Table 1 Forwarding class types

Forwarding class type	Designation	Class type	Description
Network control	NC	High priority	For network control traffic
High-1	H1		For a second network control class or delay- and jitter-sensitive traffic
Expedited	EF		For delay- and jitter-senstive traffic
High-2	H2		For delay- and jitter-senstive traffic
Low-1	L1	Assured	For assured traffic (default)
Assured	AF		For assured traffic
Low-2	L2	Best effort	For best effort traffic
Best effort	BE		For best effort traffic

FTP

file transfer protocol

FTP is the Internet standard client-server protocol for transferring files from one computer to another. FTP generally runs over TCP or UDP.

G

GUI

graphical user interface

A GUI is a computer user interface that incorporates graphics to make software easier to use.

I

ICMP

Internet Control Message Protocol

ICMP is a protocol that sends and receives the control and error messages used to manage the behavior of the TCP/IP stack. ICMP is defined in RFC 792.

IES Internet Enhanced Service

IES is a routed connectivity service where the subscriber communicates with an IP router interface to send and receive Internet traffic. An IES has one or more logical IP router interface, each with a SAP which acts as the access point to the subscriber network. IES allows customer-facing IP interfaces to participate in the same routing instance used for service network core routing connectivity. IES services require that the IP addressing scheme used by the subscriber be unique between other provider addressing schemes and possibly the entire Internet.

While the IES is part of the routing domain, the usable IP address space may be limited. This allows a portion of the service provider address space to be reserved for service IP provisioning, and be administered bya separate but subordinate address authority.

IP interfaces defined within the context of an IES service must have a SAP associated as the access point to the subscriber network. Multiple IES services are created to segregate subscriber-owned IP interfaces.

IS-IS intermediate system to intermediate system

IS-IS is an ISO standard link-state routing protocol. Integrated IS-IS is an extension that allows IS-IS to be used for route determination in IP networks.

J

JMS Java Message Service

JMS is an API that combines Java technology with enterprise messaging. The JMS API defines a common set of interfaces for creating applications for reliable asynchronous communication among components in a distributed computing environment, so that the applications are portable across different enterprise systems.

L

LAG link aggregation group

A LAG increases the bandwidth available between two nodes by grouping up to eight ports into one logical link. The aggregation of multiple physical links allows for load sharing and offers seamless redundancy. If one of the links fails, traffic is redistributed over the remaining links. Up to eight links can be supported in a single LAG, and up to 64 LAGs can be configured on a node.

LDP label distribution protocol

LDP is a signaling protocol used for MPLS path setup and teardown. An LDP is used by LSRs to indicate to other LSRs of the meaning of labels used to forward traffic.

LDP is defined in RFC 3036.

LLC logical link control

LLC is the upper sublayer of the ISO model data link layer. LLC governs packet transmission as specified by IEEE 802.2.

load balancing Load balancing is the distribution of network traffic among the ports by a router so that no single port is overwhelmed, and network bandwidth is optimized.

LSA link state advertisement

LSA describes the local state of a router or network, including the state of the router's interfaces and adjacencies. Each LSA is flooded throughout the routing domain. The collected LSAs of all routers and networks form the protocol's topological database.

LSP label switched path

LSPs support MPLS functionality and allow network operators to perform traffic engineering. There are two types of LSPs:

- static LSP
  A static LSP specifies a static path. All routers that the LSP traverses must be configured manually with labels. No signaling is required.
- signaled LSP
  A signaled LSP is an LSP that is set up using a signaling protocol. The signaling protocol allows labels to be assigned from an ingress router to an egress router. Signaling is triggered by the ingress router. Only the ingress router, and not the intermediate routers, must be configured. Signaling also facilitates path selection.

LSR label switched router

An LSR is an MPLS node that runs MPLS control protocols and is capable of forwarding packets based on labels. An MPLS node may also be capable of forwarding native layer 3 packets.

M

MAC media access control

MAC is a sublayer of the data link layer, defined in IEEE 802.2 specifications, that is responsible for accessing the LAN medium. The MAC layer handles the recognition and identification of individual network devices.

Every computer and network node has a MAC address that is hardware-encoded.

MDA media dependent adaptor

MDA is a pluggable interface module that distributes traffic between the network and the system I/O module.

menu bar The menu bar is a tool on the GUI that organizes tasks across broad headings. You can perform functions on the application by selecting an action from the menu bar.

MPLS multiprotocol label switching

MPLS is a technology in which forwarding decisions are based on fixed-length labels inserted between the data link layer and network layer headers to increase forwarding performance and flexibility in path selection.

MTU Maximum transmission unit

MTU is the largest unit of data that can be transmitted over a particular interface type in one packet. The MTU can change over a network.

N

navigation tree The navigation tree displays a view of all managed equipment, services, and protocols, and allows you to navigate through these components.

network topology A network topology is the layout of a network, which can include the way in which elements in a network, such as nodes, are connected and how they communicate.

NSSA not-so-stubby-area

NSSA is an OSPF area type where OSPF propogates any external routes that it obtains from the AS.

O

OSPF Open Shortest Path First

OSPF is an IETF standard link-state routing protocol used to determine the most direct path for a transmission in IP networks.

P

PIR Peak Information Rate

The PIR is the peak data transfer rate for a path, such as a frame relay, VPC, VCC, or DE Service path. The PIR is the PCR converted to kb/s.

Q

QoS Quality of Service

QoS is a term for the set of parameters and their values that determine the performance of a virtual circuit. This service level is usually described in a network by delay, bandwidth, and jitter.

R

RED random early detection

RED is a gateway that detects and avoids traffic congestion in a packet-swiched network. Incoming congestion is detected by calculating the average queue size. If the gateway decides that the average queue size exceeds a predetermined threshold, it either randomly drops packets arriving at the gateway or sets a bit in the packet headers. The packet transmission rate is reduced until all the packets reach their destination.

RIP Routing Information Protocol

RIP is a Bellman-Ford routing protocol based on distance vector algorithms that measure the shortest path between two points on a network in terms of the number of hops between those points. Various forms of RIP are used to distribute routing information in IP, XNS, IPX, and VINES networks.

See also OSPF.

router A router is an interface device between two networks, connecting LANs to LANs or LANs to WANs. It selects the most cost-effective route for moving data between multiprotocol LANs, making sure that only one route exists between source and destination devices. Routers make forwarding decisions based on network layer addresses.

routing instance A routing instance is the configuration of a router, including information such as protocols, interfaces, routing, and policies.

RSVP Resource Reservation Protocol is used two ways:

1 RSVP is the process of reserving network and host resources to achieve a QoS for an application.

2 RSVP is an IP-based protocol that is used for communicating application QoS requirements to intermediate transit nodes in a network. RSVP uses a soft-state mechanism to maintain path and reservation state in each node in the reservation path.

S

SAP service access point

An SAP is a point of communication exchange between an application and the LLC or between layers of software.

SDP service distribution path

	A service distribution path acts as a logical way of directing traffic from one 7750 SR to another 7750 SR through a unidirectional service tunnel. The SDP terminates at the far-end 7750 SR, which directs packets to the correct service egress SAPs on that device. A distributed service consists of a configuration with at least one SAP on a local node, one SAP on a remote node, and an SDP binding the service to the service tunnel.
service-level agreement	*See* SLA.
service tunnel	A service tunnel is used by a service distribution path to unidirectionally direct traffic from one 7750 SR router to another. The service tunnel is provisioned with an encapsulation and the services are mapped to the service tunnel that most appropriately supports the service needs.
SLA	service-level agreement An SLA is a service contract between a network service provider and a subscriber that guarantees a particular QoS. SLAs are used for providing network availability and data-delivery reliability.
SNMP trap	An SNMP trap is an unsolicited notification that indicates that the SNMP agent on the node has detected a node event, and that the network management domain should be aware of the event. SNMP trap information typically includes alarm and status information, and standard SNMP messages.
SNMP trap log ID	SNMP trap log ID is the ID of a log. A valid log ID must exist for alarms and traps to be sent to the trap receiver.
SONET	Synchronous Optical Network SONET is an ANSI standard for fiber optic transmission of high-speed digital traffic. SONET allows internetworking of transmission products from multiple vendors and defines a physical interface, optical line rates known as OC signals, frame format, and an OAM protocol. The base rate is 51.84 Mb/s (OC-1), and higher rates are multiples of the base rate. SONET uses synchronous high-speed signals and provides easy access to low-speed signals by mapping them into VTs. SONET is a North American standard that is technically consistent with SDH, which is international.
SPF	shortest path first SPF is an algorithm used by IS-IS and OSPF to make routing decisions based on the state of network links.
SSH	secure shell The SSH protocol is used to protect communications between two hosts by encrypting a Telnet or FTP connection between the 5620 NM and some nodes. Both ends of the client/server connection are authenticated using a digital certificate, and passwords are protected by being encrypted.
statistics	Statistics are the quantitative data collected in the 5620 SRM, which includes equipment statistics and network alarm statistics.

subscriber A subscriber is a customer who buys services from a network provider.

T

Telnet Telnet is the Internet-standard TCP/IP protocol for remote terminal connection service. It allows a user at one site to interact with a remote timesharing system at another site as if the user's terminal connected directly to the remote machine.

The Telnet command and program are used to log in from one Internet site to another. It gets the user to the login prompt of another host.

tiered architecture Tiered architecture refers to the way in which the GUI and the network management components use a Java-based technology that provides distributed, secure, and scalable applications. This tiered architecture allows for scaling and fair load balancing, which improves performance.

U

UNIX UNIX is a multi-user, multitasking operating system, which is used on mainframes, workstations, and PCs. UNIX is the basis of Solaris and SunOS, which are operating systems used by Sun workstations.

V

virtual link Virtual links physically connect separate elements of a backbone, and function as if they are unnumbered point-to-point networks between two routers. A virtual link uses the intra-area routing of its transit area (the non-backbone area that both routers share) to forward packets.

VLL virtual leased line

A virtual leased line is a type of VPN where IP is transported in a point-to-point manner. CPE devices are connected through nodes, and the nodes are connected to an IP tunnel.

VPLS virtual private LAN service

A VPLS is a type of VPN in which a number of sites are connected in a single bridged domain over an IP/MPLS network. Although the services may be from different locations, in a VPLS, they appear to be on the same LAN.

W

window Windows are forms, panels of information, equipment drawings, or graphics that appear on a screen. Windows commonly allow a user to input data and initiate functions but some windows simply display information.

wizard A wizard is a tool that simplifies the execution of tasks, such as configuring equipment or services, by leading the user through the configuration steps.

workflow The 5620 SRM workflow is a defined series of tasks that describe how to install, configure, create, and manage services.

working pane The working pane is a component of the 5620 SRM GUI that can include windows, drawings, and configuration forms.

WRED weighted random early detection

WRED is a variation of RED, but instead of dropping packets randomly when there is high traffic congestion, the packets are dropped based on traffic priority.

X

X.733 ITU-T X.733

X.733 is the standard that describes the alarm reporting function.

XML extensible markup language

XML defines the syntax to customize markup languages. The markup languages are used to create, manage, and transmit documents across the Web.

95-5779-01-00-A