



CHAPTER 1

Preparing to Install the MWTM

This chapter can help you plan your installation of the MWTM. It describes the MWTM installation methods, supported platforms, and hardware and software requirements.

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Installation Methods

You can install the MWTM server and client software on the same workstation or on different workstations. You can install the MWTM server and client software either locally or remotely using one of the following methods:

- From a locally-mounted DVD-ROM drive
- From a Network File System-exported DVD-ROM drive
- From the MWTM web server (MWTM client software only)

For more information about installing the MWTM client software from the web interface, see the following sections:

- [Installing the MWTM Client on Solaris Using the Web Server, page 2-20](#)
- [Installing the MWTM Client for Windows Using the Web Server, page 4-2](#)

Licensing Information

A single license for the MWTM allows you to install one MWTM server and an unlimited number of MWTM clients.

Cisco recommends a maximum of 20 clients per MWTM server. To connect more than 20 clients to a single server, that server will require additional memory and a more powerful CPU.

Supported Platforms and Nodes

Release 6.1 of the MWTM supports the following operating system platforms:

- Sun Solaris version 9 or 10 with the latest recommended patches from Sun Microsystems, Inc. (MWTM server and client)
- RedHat Enterprise Linux version 4.0 AS Update 6 (MWTM server only)
- Windows XP Professional (MWTM client only)

The MWTM 6.1 release supports the following Cisco nodes:

Cisco ITP Nodes ¹	Cisco IP-RAN Nodes	Cisco mSEF Nodes
<ul style="list-style-type: none"> • Cisco 2600 Series Routers Cisco 2650XM, Cisco 2651 and Cisco2651XM • Cisco 2811 Series Router • Cisco 7200 Series Routers Cisco 7202, Cisco 7204 and Cisco 7204VXR, Cisco 7206 and Cisco 7206VXR • Cisco 7300 Series Routers Cisco 7301, Cisco 7304 • Cisco 7500 Series Routers Cisco 7505, Cisco 7507, Cisco 7507mx, Cisco 7507z, Cisco 7513, Cisco 7513mx, Cisco 7513z • Cisco 7600 Series Routers Cisco 7603, Cisco 7604, Cisco 7606, Cisco 7609, Cisco 7613 • ITP on the Service and Application Module for IP (SAMI) card 	<ul style="list-style-type: none"> • CiscoMWR-1941-DC-A series router • Cisco ONS 15454 chassis with ONS-RAN-SVC module(s) • Cisco 3825 Integrated Services Router • Cisco 7600 Series Routers 	<ul style="list-style-type: none"> • Service Application Module for IP (SAMI) • Multiprocessor WAN Application Module (MWAM) • Cisco 7301 for Broadband Wireless Gateway (BWG) and Home Agent (HA) • Cisco 7600 Series Routers

1. For more information about SNMP, refer to “Configuring SNMP Support” in the *Cisco IOS Release 12.2 Configuration Fundamentals Configuration Guide, Part 3, System Management*.

Supported OS Images

To see the latest information about supported OS images, perform one of these options:

- Enter the **mwtm osinfo** command
- Select one of the **OS README** files from the MWTM web Administrative page
- See the *Supported IOS Releases for the Cisco Mobile Wireless Transport Manager and the Cisco Signaling Gateway Manager* document:

http://www.cisco.com/en/US/docs/net_mgmt/mobile_wireless_transport_manager/6.1/ios_support/release/IOS_comp.html

Upgrading the MWTM

Use the supported upgrade path when you install MWTM 6.1:

Current Installation	Upgrade Path
Signaling Gateway Manager (SGM) 4.1.x	1. Install MWTM 6.0.
MWTM 5.0.x	2. Migrate data from previous release. 3. Install the MWTM 6.0.3 patch. 4. Install MWTM 6.1
MWTM 6.0	1. Install the MWTM 6.0.3 patch.
MWTM 6.0.1	2. Install MWTM 6.1.
MWTM 6.0.2	
MWTM 6.0.3	1. Install MWTM 6.1.
MWTM 6.0.4	1. Install MWTM 6.1.

You can upgrade on the same machine, or upgrade on different machines. For example, you would want to upgrade using different machines if you are running SGM 4.1 on Solaris 8 or RedHat Enterprise Linux 3.0, which are unsupported for MWTM 6.0 and later versions. In this scenario, you keep the SGM 4.1 installation on one machine, and simply perform a backup, then restore the data onto another machine running MWTM 6.0.



Note

After upgrading, the MWTM performs staggered presence polling for each node in the network. Completion time depends upon the number of nodes in your network and your poll interval setting. For a typical network, the default poll setting is 15 minutes. During the first poll cycle, functionality can be limited.

This section contains these topics:

- [Migrated Content, page 1-4](#)
- [Preserved Content, page 1-4](#)
- [Upgrading on the Same Server, page 1-5](#)
- [Upgrading on Different Servers, page 1-5](#)

Migrated Content

The MWTM migrates the following configuration information, as necessary, to be compatible with the MWTM 6.1 release:

Table 1-1 Migrated Content

Migrated Content	Unmigrated Content
MWTM database—The MWTM migrates the entire database.	—
Customized point code formats and network configurations	—
Simple Network Management Protocol (SNMP) parameters	—
GTT, route table, and address table configuration files	User preferences
Seed node files	Network event filter settings and preferences
Notes about nodes and signaling point objects	Event configuration ¹
IP access list	Event sound customizations
Trap access list	Views
Username, passwords, and all security (including SSL credentials, certificates, keys, and current state)	Address table and GTT preferences
System.properties file	
Troubleshooting commands (located in the UserCommands.ts file)	
Trap forwarding information	
Log files	

1. The MWTM saves a customized event configuration but does not migrate it. You must manually merge changes with the new *SgmEvent.conf* file.

The MWTM replaces the existing network event configuration with the newest configuration. The MWTM preserves the old event configuration file as *SgmEvent.conf.sgm_release#*.

If you customized an earlier *SgmEvent.conf* file, remember that the equivalent file in a later release of MWTM will not automatically include those customizations. If you want to retain those customizations, replace the new configuration file with the old configuration file. The later release of MWTM uses default values for any new fields or capabilities in the file.

Preserved Content

The following content is preserved when upgrading from MWTM 6.0.3:

- Network event information, including the event log and customized event help files
- ITP statistics
- Event history

- Network preferences (for example, ITP network or IP-RAN network)

Upgrading on the Same Server

When upgrading to MWTM 6.1, the MWTM must be at the release 6.0.3 or 6.0.4 patch level. Migration from any release of SGM or MWTM prior to 6.0.3 is not supported. If you have SGM or MWTM from a release earlier than 6.0.3, you must first upgrade to MWTM 6.0.3 or 6.0.4.

Upgrading from MWTM 6.0.3 or 6.0.4 to MWTM 6.1 automatically occurs when you install MWTM 6.1 directly over MWTM 6.0.3 or 6.0.4.

Upgrading on Different Servers

If you are upgrading MWTM 6.0.3 or 6.0.4 to MWTM 6.1 on two different servers:

-
- Step 1** On the MWTM 6.0.3 or 6.0.4 server, run the **mwtm backup** command (see the *User Guide for the Cisco Mobile Wireless Transport Manager 6.1*).
 - Step 2** On the second server, install MWTM 6.1.
 - Step 3** Copy the MWTM 6.0.3 or 6.0.4 backup to the `/opt` directory on the MWTM 6.1 server.
 - Step 4** On the MWTM 6.1 server, run the `mwtmUpgrade.sh` script in the `/opt/CSCOs/gm/install` directory:



Note `/opt/CSCOs/gm` is the default installation directory. If you installed the MWTM in a directory other than `/opt`, then the `CSCOs/gm` directory is located in that directory.

The MWTM restores the MWTM 6.0.3 or 6.0.4 backup data to MWTM 6.1.

About Using Alternate Ports

The MWTM client and server software must be set up to communicate on the same port. If you are installing the MWTM client on the same machine as the MWTM server, the install tool handles this automatically. If you are installing the MWTM client on a separate system from the server, *you must make sure the ports specified during the client installation match those installed for the MWTM server*. In most installation situations the default ports should be available for the MWTM client and server.

The MWTM server software uses the following default ports:

- web server—1774/tcp
- JSP server—1775/tcp
- naming server—44742/tcp

The MWTM client software must know which ports the MWTM server is using. By default, the client uses the following ports:

- web server—1774/tcp
- JSP server—1775/tcp
- naming server—44742/tcp

When you install the MWTM server, or the MWTM server and client, the MWTM install tool determines whether or not these ports are available. (This is not done when you install only the MWTM client.) If there are conflicts with the ports, the software provides you with the option to specify an alternate port number.

To determine the ports that are currently in use on your system, use the **netstat** command for Solaris, which includes the corresponding port type (TCP):

```
# netstat -a -n -f inet -P tcp
```

If you are specifying an alternate port, remember that ports 1 through 1023 are reserved for system processes.

For more information about MWTM ports, see the *User Guide for the Cisco Mobile Wireless Transport Manager 6.1*.

Server System Requirements


Note

Hardware and software version information is subject to change, based on enhancements to the product. For the most current version information, refer to the *Release Notes for the Cisco Mobile Wireless Transport Manager 6.1*, available on Cisco.com.

The subsequent table describes system requirements for running the MWTM on a Solaris or Linux server. Server sizes are listed at the top and requirement types are listed at left.

	Demo / Proof of Concept		Small Server		Medium Server		Large (Solaris Server)
	Solaris 9,10	Linux RHEL 4.0 AS Update 6	Solaris 9,10	Linux RHEL 4.0 AS Update 6	Solaris 9,10	Linux RHEL 4.0 AS Update 6	Solaris 9,10
Operating system	Solaris 9,10	Linux RHEL 4.0 AS Update 6	Solaris 9,10	Linux RHEL 4.0 AS Update 6	Solaris 9,10	Linux RHEL 4.0 AS Update 6	Solaris 9,10
IP-RAN: Number of nodes	50	50	500	500	1,000	1,000	2,000
IP-RAN: Number of links	250	250	2,500	2,500	5,000	5,000	10,000
ITP: Maximum nodes	10	10	50	50	100	100	250
ITP: Maximum links	20	20	2000	2,000	4,000	4,000	10,000
CSG2 SAMI cards	50	50	500	500	1,000	1,000	2,000
CSG1 cards in 7600s	50	50	500	500	1,000	1,000	2,000
GGSN/ MWAM cards	10	10	100	100	200	200	400
HA 4, GGSN, or BWG SAMI cards	8	8	80	80	160	160	350
HA or BWG on 7301	50	50	500	500	1,000	1,000	2,000

	Demo / Proof of Concept		Small Server		Medium Server		Large (Solaris Server)
Model	SunFire V215, V245 Sun T5120, T5140, T5220, T5240	SunFire X2100, X4100	SunFire V215, V245 Sun T5120, T5140, T5220, T5240	SunFire X4100	Sun T5140, T5240	SunFire X4100	SunFire V490 Sun M4000
NEBS model	Sun Netra 210, 240, T5220, T5440	X4200	Sun Netra 210, 240, T5220, T5440	X4200	Sun Netra T5440	X4200	Sun Netra 1290
CPU type	Sparc IIIi Quad-core for T5xxx series	Single-Core	Sparc IIIi Quad-core for T5xxx series	Dual-Core	Quad-core	Dual-core	Sparc IV+ (V490, V1290) Sparc64 VI (M4000)
CPU number	1	1	1 (T5xxx) 2 (V215, V245)	1	2	2	4 (V490, V1290) 2 (M4000)
Minimum CPU speed	1 GHz	2 GHz (multi-core), 3 GHz (multi-core)	1 GHz	2 GHz (multi-core), 3 GHz (multi-core)	1.2 GHz	2 GHz (multi-core), 3 GHz (multi-core)	1 GHz (V490, V1290) 2 GHz (M4000)
Minimum RAM	2 GB	2 GB	4 GB	4 GB	8 GB	8 GB	8 GB
Minimum Swap	2 GB	2 GB	4 GB	4 GB	8 GB	8 GB	8 GB
Minimum disk space¹	10 GB	10 GB	100 GB	100 GB	200 GB	200 GB	500 GB
Number of clients²	2	2	10	10	15	15	25
DVD-ROM drive	On the local system or on an accessible remote system.						

1. The disk space shown is for the file system where you installed the MWTM. For systems requiring longer periods of system and network status message and statistics archiving, more disk space is required.
2. For systems running multiple clients on the same server, add 256 MB RAM for each client running at the same time.

**Note**

For the Solaris server, you must have the latest recommended patches from Sun Microsystems Inc. and required patches for the MWTM. For a list of the required patches for the MWTM, see [Solaris Patch Requirements, page 1-9](#). The MWTM installation program automatically verifies your operating system version and (if applicable) checks for the required level of Solaris patches.

Solaris Patch Requirements

The Solaris patches listed by version in this section are required to install the MWTM. These patches can be installed separately or as a jumbo patch from Sun Microsystems, Inc.

**Caution**

If the required patches are not installed, the MWTM might not operate as expected.

To verify the patches installed on your Solaris system, run the **showrev -p** command. The MWTM installation program also checks for these patches automatically, and reports any missing patches.

To obtain the patches, download and install the entire recommended patch cluster for your OS version from the Sun Microsystems website:

<http://sunsolve.sun.com>

Solaris 9 Patches

The following minimum patch levels are required to run the MWTM on Solaris version 9:

Patches required for all system configurations:

- Patch 111711-16 or later
- Patch 111712-16 or later
- Patch 112785-56 or later
- Patch 112963-25 or later
- Patch 113096-03 or later

Solaris 10 Patches

The following minimum patch levels are required to run the MWTM on Solaris version 10:

- Patch 121133-02 or later
- Patch 120900-04 or later
- Patch 119254-53 or later
- Patch 119578-30 or later
- Patch 118833-36 or later
- Patch 118918-24 or later
- Patch 119042-10 or later

Linux Update Requirements

MWTM requires RedHat Enterprise Linux version 4 Update 6.

Client System Requirements


Note

Hardware and software version information is subject to change, based on enhancements to the product. For the most current version information, refer to the *Release Notes for the Cisco Mobile Wireless Transport Manager 6.1*, available on Cisco.com.

The following table describes system requirements for running the MWTM on a Solaris or Windows XP Professional client. Operating systems are listed at the top and requirement types are listed at left.

	Windows	Solaris
Model	XP Professional (IBM PC-compatible computer)	Sun Ultra Workstation
Minimum CPU speed	2.0 GHz Pentium 4 processor or later	1 GHz processor or greater
Minimum RAM	512 MB minimum is required (1 GB strongly recommended)	1 GB or greater is required (1 GB recommended).
Browser	Microsoft Internet Explorer version 6.0 (SP1) or later or Firefox version 2.0 or later is required to access the MWTM's online help, to download the MWTM client software using the web interface, and to access the MWTM server home page and web-based MWTM features.	
Additional Memory	To configure GTT tables or MLR address tables, between 256 MB and 1 GB of additional RAM is required. ¹	<ul style="list-style-type: none"> • If you are running more than one MWTM client on the same device, add 256 MB RAM for each additional client. • Larger networks require more RAM to maintain performance. • To configure GTT tables or MLR address tables, between 256 MB and 1 GB of additional RAM is required.¹
Minimum Swap²	N/A	1 GB or greater is required (twice RAM size recommended).

	Windows	Solaris
Minimum disk space	<ul style="list-style-type: none"> • 200 MB minimum on the drive where you install the MWTM client • 400 MB if installed from the MWTM web server • 20 MB minimum on the drive that contains the TEMP directory (for InstallShield's temporary files). • 15 MB minimum on the drive that contains the Program Files directory (for the uninstall files). 	<ul style="list-style-type: none"> • 200 MB minimum is required (particularly if installing the client from the MWTM web server).
Hardware	<ul style="list-style-type: none"> • DVD-ROM drive (ISO 9660-compliant) on the host system, or access to the MWTM web server. • Monitor and video card that support displaying 16.7 million colors (24-bit color depth). • PostScript-compatible printer for printing graphs and charts. 	<ul style="list-style-type: none"> • DVD-ROM drive on the server or on a remote host system that can be accessed by the Network File System (NFS). • Monitor and video card that support displaying 16.7 million colors (24-bit color depth) if you run the client on the host system.³ • PostScript-compatible printer for printing graphs and charts.

1. For example, a client that is used to configure 500,000-line GTT tables (the largest supported size) requires at least 1 GB of additional RAM on the client.
2. Swap space is in addition to the recommended hard disk space.
3. For optimum performance on large networks, use a local Solaris client with a graphics card and an attached monitor, rather than remote access.

**Note**

To enable a remote Solaris workstation to access the MWTM on a local workstation, you can use the **xhost + UNIX** command. However, performance is always better if you access the MWTM by installing the MWTM client on the local workstation.

Additional Software Requirements

CiscoWorks

The MWTM does not require CiscoWorks, but the MWTM does integrate with CiscoWorks to provide added value. CiscoWorks LMS 3.1 is the version supported by the MWTM.

If you want to integrate the MWTM with CiscoWorks, you should also know the following information:

- Name of the host on which CiscoWorks is installed.
- CiscoWorks web server port number. The default is 1741.

For details on integrating the MWTM with CiscoWorks, see the `mwtm cwsetup` command reference in the *User Guide for the Cisco Mobile Wireless Transport Manager 6.1*.

SNMP Configuration Requirements

This section provides requirements for setting up the SNMP configuration of the network elements (nodes) that the MWTM will manage.

When you configure your network for MWTM management, observe these requirements:

- Configure each network node to be accessible through IP networking to or from the MWTM server (that is, you must be able to access each node from the MWTM server).
- Configure nodes to use SNMP community names. The MWTM requires that the names be at least read-only (RO), but read-write (RW) names also work.
- Enable nodes to use technology-specific SNMP traps. (The MWTM trap receiver supports SNMP traps for both version v1 and v2c, but not version v3.)
- (Optional) To enable the MWTM to handle and display environmental events, enable MWTM-managed nodes to use ENVMON traps.
- Ensure that the host IP address used for traps is the MWTM server's IP address.

Also, if MWTM is not the only application listening for traps on the server, set the SNMP trap port number to a value greater than 1024. Because the MWTM listens for traps from trap multiplexing devices and NMS applications on port 44750 (recommended), port 44750 is a good port number to choose. The SNMP trap port number must be the same on all nodes in your network.

- To minimize lost traps, set the length of the message queue for each trap host to at least 100.
- To enable MWTM to view more than one line of Syslog, set the logging history size to 500.

To implement these requirements, enter the following IOS commands on all MWTM-managed nodes:

```
snmp-server community <snmp community string> RO 1
snmp-server enable traps snmp linkdown linkup coldstart warmstart
snmp-server enable traps config
snmp-server host <snmp-server-host-ip-address> public [port-number]
snmp-server queue-length 100
logging history size 500
```

where:

- *snmp-server-host-ip-address* is the IP address of the MWTM server.
- *port-number* is the SNMP port number on the MWTM server to send traps to (default is 162)

For more information about these commands, see the Cisco IOS Release 12.2 *Configuration Fundamentals Command Reference*.

Additional configuration requirements for MWTM-managed nodes depend on the type of network that you are managing. [Table 1-2](#) provides these additional requirements.

Table 1-2 Network-specific Configuration Requirements

Network Type	Configuration Requirement
ITP	<code>snmp-server enable traps cs7</code>
IP-RAN	<code>ipran-mib snmp-access <inBand outOfBand>¹</code> <code>ipran-mib location <cellSite aggSite>²</code> <code>snmp-server trap link ietf</code>
CSG	<code>snmp-server enable traps csg</code>
GGSN	<code>snmp-server enable traps gprs</code>

Table 1-2 Network-specific Configuration Requirements

Network Type	Configuration Requirement
HA	<code>snmp-server enable traps ip local pool</code> <code>snmp-server enable traps ipmobile</code>
BWG	<code>snmp-server enable traps agw</code>

1. The `ipran-mib snmp-access` value determines how the MWTM collects data from the node. If you specify `outOfBand`, the MWTM collects performance information automatically from the chassis. If you specify `inBand`, the MWTM does not automatically collect performance information from the chassis, preventing the MWTM from consuming too much bandwidth when managing the node. Typically, `cellSite` routers are managed `inBand` while `aggSite` routers are managed `outOfBand`.
2. The `ipran-mib location` value determines how the network node appears in the MWTM application.

MIB Reference

You can obtain the latest versions of the MWTM MIBs from one of the following locations:

- The zip file `mibs.zip`, located at the top of the MWTM DVD image
- As a download from the Cisco website:

<http://www.cisco.com/public/sw-center/netmgmt/cmtk/mibs.shtml>

For more information about MWTM MIBs, see the “MWTM MIB Reference” section in the *User Guide for the Cisco Mobile Wireless Transport Manager 6.1*.

