



## **Installation Guide for the Cisco Mobile Wireless Transport Manager**

6.0

March 2007

### **Americas Headquarters**

Cisco Systems, Inc.  
170 West Tasman Drive  
San Jose, CA 95134-1706  
USA  
<http://www.cisco.com>  
Tel: 408 526-4000  
800 553-NETS (6387)  
Fax: 408 527-0883

Text Part Number: OL-9120-01

THE SPECIFICATIONS AND INFORMATION REGARDING THE PRODUCTS IN THIS MANUAL ARE SUBJECT TO CHANGE WITHOUT NOTICE. ALL STATEMENTS, INFORMATION, AND RECOMMENDATIONS IN THIS MANUAL ARE BELIEVED TO BE ACCURATE BUT ARE PRESENTED WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED. USERS MUST TAKE FULL RESPONSIBILITY FOR THEIR APPLICATION OF ANY PRODUCTS.

THE SOFTWARE LICENSE AND LIMITED WARRANTY FOR THE ACCOMPANYING PRODUCT ARE SET FORTH IN THE INFORMATION PACKET THAT SHIPPED WITH THE PRODUCT AND ARE INCORPORATED HEREIN BY THIS REFERENCE. IF YOU ARE UNABLE TO LOCATE THE SOFTWARE LICENSE OR LIMITED WARRANTY, CONTACT YOUR CISCO REPRESENTATIVE FOR A COPY.

The Cisco implementation of TCP header compression is an adaptation of a program developed by the University of California, Berkeley (UCB) as part of UCB's public domain version of the UNIX operating system. All rights reserved. Copyright © 1981, Regents of the University of California.

NOTWITHSTANDING ANY OTHER WARRANTY HEREIN, ALL DOCUMENT FILES AND SOFTWARE OF THESE SUPPLIERS ARE PROVIDED "AS IS" WITH ALL FAULTS. CISCO AND THE ABOVE-NAMED SUPPLIERS DISCLAIM ALL WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING, WITHOUT LIMITATION, THOSE OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT OR ARISING FROM A COURSE OF DEALING, USAGE, OR TRADE PRACTICE.

IN NO EVENT SHALL CISCO OR ITS SUPPLIERS BE LIABLE FOR ANY INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES, INCLUDING, WITHOUT LIMITATION, LOST PROFITS OR LOSS OR DAMAGE TO DATA ARISING OUT OF THE USE OR INABILITY TO USE THIS MANUAL, EVEN IF CISCO OR ITS SUPPLIERS HAVE BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

CCVP, the Cisco Logo, and the Cisco Square Bridge logo are trademarks of Cisco Systems, Inc.; Changing the Way We Work, Live, Play, and Learn is a service mark of Cisco Systems, Inc.; and Access Registrar, Aironet, BPX, Catalyst, CCDA, CCDP, CCIE, CCIP, CCNA, CCNP, CCSP, Cisco, the Cisco Certified Internetwork Expert logo, Cisco IOS, Cisco Press, Cisco Systems, Cisco Systems Capital, the Cisco Systems logo, Cisco Unity, Enterprise/Solver, EtherChannel, EtherFast, EtherSwitch, Fast Step, Follow Me Browsing, FormShare, GigaDrive, GigaStack, HomeLink, Internet Quotient, IOS, iPhone, IP/TV, iQ Expertise, the iQ logo, iQ Net Readiness Scorecard, iQuick Study, LightStream, Linksys, MeetingPlace, MGX, Networking Academy, Network Registrar, *Packet*, PIX, ProConnect, RateMUX, ScriptShare, SlideCast, SMARTnet, StackWise, The Fastest Way to Increase Your Internet Quotient, and TransPath are registered trademarks of Cisco Systems, Inc. and/or its affiliates in the United States and certain other countries.

All other trademarks mentioned in this document or Website are the property of their respective owners. The use of the word partner does not imply a partnership relationship between Cisco and any other company. (0612R)

Any Internet Protocol (IP) addresses used in this document are not intended to be actual addresses. Any examples, command display output, and figures included in the document are shown for illustrative purposes only. Any use of actual IP addresses in illustrative content is unintentional and coincidental.

*Installation Guide for the Cisco Mobile Wireless Transport Manager*  
© 2005-2007 Cisco Systems, Inc. All rights reserved.



# CONTENTS

<b>Preface</b>	<b>vii</b>	
Document Objectives	<b>vii</b>	
Audience	<b>vii</b>	
Organization	<b>vii</b>	
Conventions	<b>viii</b>	
Product Documentation	<b>viii</b>	
Related Documentation	<b>ix</b>	
Obtaining Documentation, Obtaining Support, and Security Guidelines	<b>ix</b>	
Cisco.com	<b>ix</b>	
Product Documentation DVD	<b>ix</b>	
Ordering Documentation	<b>x</b>	
Documentation Feedback	<b>x</b>	
Cisco Product Security Overview	<b>x</b>	
Reporting Security Problems in Cisco Products	<b>xi</b>	
Product Alerts and Field Notices	<b>xii</b>	
Obtaining Technical Assistance	<b>xii</b>	
Cisco Support Website	<b>xii</b>	
Submitting a Service Request	<b>xiii</b>	
Definitions of Service Request Severity	<b>xiv</b>	
Obtaining Additional Publications and Information	<b>xiv</b>	
<b>CHAPTER 1</b>	<b>Preparing to Install the MWTM</b>	<b>1-1</b>
	Installation Methods	<b>1-2</b>
	Licensing Information	<b>1-2</b>
	Supported Platforms and Nodes	<b>1-2</b>
	Supported OS Images	<b>1-3</b>
	Upgrading the MWTM	<b>1-4</b>
	Migrated SGM 4.1 Content	<b>1-5</b>
	Migrated MWTM 5.0 Content	<b>1-6</b>
	Preserved SGM 4.1 Content	<b>1-7</b>
	Preserved MWTM 5.0 Content	<b>1-7</b>
	Upgrading from SGM 4.1 to MWTM 6.0 on the Same Machine	<b>1-8</b>

- Upgrading from SGM 4.1 to the MWTM 6.0 on Different Machines 1-8
- Upgrading from the MWTM 5.0 to 6.0 on the Same Machine 1-8
- Upgrading from the MWTM 5.0 to 6.0 on Different Machines 1-8
- About Using Alternate Ports 1-9
- Server System Requirements 1-10
- Solaris Patch Requirements 1-11
  - Solaris 9 Patches 1-11
  - Solaris 10 Patches 1-11
- Linux Update Requirements 1-12
- Client System Requirements 1-12
- Additional Software Requirements 1-14
- ITP Router Configuration Requirements 1-14
- RAN-O Router Configuration Requirements 1-15
- MIB Reference 1-17

**CHAPTER 2**

- Installing the MWTM on Solaris 2-1**
  - Overview of the Installation Process 2-2
  - Installation Prerequisites 2-2
  - Installing the MWTM Server and Client on Solaris 2-3
    - Installing the MWTM Server on Solaris 2-3
    - Installing the MWTM Client on Solaris 2-17
  - Installing the MWTM Server Only on Solaris 2-21
  - Installing the MWTM Client Only on Solaris 2-21
    - Installing the MWTM Client on Solaris Using the Install Tool 2-22
    - Installing the MWTM Client on Solaris Using the Web Server 2-22
  - Verifying MWTM Installation 2-24
    - Checking for Error Messages 2-24
    - Viewing Package Information for the MWTM Server and Client on Solaris 2-25
    - Verifying the Installation Directories 2-25
  - Starting the MWTM 2-26
    - Starting the MWTM Server on Solaris Immediately After Installation 2-26
    - Starting the MWTM Server on Solaris from the Command Line 2-26
    - Starting the MWTM Client on Solaris 2-26
  - Uninstalling the MWTM 2-27
    - Overview of the Uninstallation Process 2-27
    - Running the Uninstall Tool on Solaris 2-28

**CHAPTER 3****Installing the MWTM on Linux 3-1**

- Overview of the Installation Process 3-1
- Installation Prerequisites 3-2
- Installing the MWTM Server and Client on Linux 3-3
  - Installing the MWTM Server on Linux 3-3
  - Installing the MWTM Client on Linux 3-17
- Installing the MWTM Server Only on Linux 3-18
- Installing the MWTM Client on Linux Using the Web Server 3-18
- Verifying MWTM Installation 3-20
  - Checking for Error Messages 3-20
  - Viewing Package Information for the MWTM Server on Linux 3-21
  - Verifying the Installation Directories 3-21
- Starting the MWTM on Linux 3-22
  - Starting the MWTM Server on Linux Immediately After Installation 3-22
  - Starting the MWTM Server on Linux from the Command Line 3-22
  - Starting the MWTM Client on Linux 3-22
- Uninstalling the MWTM 3-23
  - Overview of the Uninstallation Process 3-23
  - Running the Uninstall Tool on Linux 3-24

**CHAPTER 4****Installing the MWTM Client on Windows 4-1**

- Installing the MWTM Client for Windows from the DVD-ROM 4-1
- Installing the MWTM Client for Windows Using the Web Server 4-2
- Verifying MWTM Client Installation 4-4
- Uninstalling the MWTM Client 4-4

**APPENDIX A****Mounting and Unmounting the DVD-ROM Drive for Installations on Solaris or Linux A-1**

- Mounting a Local DVD-ROM for Solaris A-1
- Mounting a Local DVD-ROM for Linux A-3
- Mounting a Network File System-Exported DVD-ROM Drive A-3
  - Steps to Perform on the Remote System for Solaris A-4
  - Steps to Perform on the Remote System for Linux A-6
  - Steps to Perform on the Local System for Solaris and Linux A-6
- Unmounting the DVD-ROM Drive A-7
  - Unmounting a Local DVD-ROM Drive for Solaris and Linux A-7
  - Unmounting a Remote DVD-ROM Drive for Solaris A-8
  - Unmounting a Remote DVD-ROM Drive for Linux A-9





## Preface

---

### Document Objectives

This document describes how to use the Cisco Mobile Wireless Transport Manager (MWTM) 6.0.

This guide describes the supported platforms, hardware and software requirements, and installation procedures for the MWTM. Using the information provided in this guide, you can complete the tasks that are necessary to install and verify MWTM in your system environment.

For the latest MWTM information and software updates, go to <http://www.cisco.com/go/mwtm>.

### Audience

This guide is for network administrators or operators who install, configure, and verify the MWTM software. Network administrators or operators should have the following skills:

- Basic network management skills
- Basic Solaris system administrator skills
- Basic IP, SS7, ITP, and RAN-O knowledge

### Organization

This guide includes the following chapters and appendixes:

- [Chapter 1, “Preparing to Install the MWTM”](#)—Describes the MWTM installation methods, supported platforms, and hardware and software requirements
- [Chapter 2, “Installing the MWTM on Solaris”](#)—Provides details on how to install, verify, and uninstall the MWTM on a Solaris workstation.
- [Chapter 3, “Installing the MWTM on Linux”](#)—Provides details on how to install, verify, and uninstall the MWTM on a Linux workstation.
- [Chapter 4, “Installing the MWTM Client on Windows”](#)—Provides details on how to install, verify, and uninstall the MWTM client on a Windows workstation.
- [Appendix A, “Mounting and Unmounting the DVD-ROM Drive for Installations on Solaris or Linux”](#)—Presents instructions for mounting and unmounting the DVD-ROM drive.

# Conventions

This document uses the following conventions:

Item	Convention
Commands and keywords	<b>boldface font</b>
Variables for which you supply values	<i>italic font</i>
Displayed session and system information	screen font
Information you enter	<b>boldface screen font</b>
Variables you enter	<i>italic screen font</i>
Menu items and button names	<b>boldface font</b>
Selecting a menu item in paragraphs	<b>Option &gt; Network Preferences</b>
Selecting a menu item in tables	Option > Network Preferences



## Note

Means *reader take note*. Notes contain helpful suggestions or references to material not covered in the publication.



## Caution

Means *reader be careful*. In this situation, you might do something that could result in equipment damage or loss of data.



## Tip

Means *the following is a useful tip*.

# Product Documentation

Additional information can be found in the following publications of the MWTM documentation set:

- *User Guide for the Cisco Mobile Wireless Transport Manager 6.0*
- *Release Notes for the Cisco Mobile Wireless Transport Manager 6.0*
- *OSS Integration Guide for the Cisco Mobile Wireless Transport Manager 6.0*

These documents are available as a PDF on the product DVD-ROM, or on Cisco.com here:

[http://www.cisco.com/en/US/products/ps6472/tsd\\_products\\_support\\_series\\_home.html](http://www.cisco.com/en/US/products/ps6472/tsd_products_support_series_home.html)

Context-sensitive online help is also available within MWTM 6.0.

## Related Documentation

Information about Cisco IOS software-related functions can be found in the following publication:

- *Cisco Management Information Base (MIB) User Quick Reference*

Information about Cisco IP Transfer Point (ITP) software, including procedures for configuring ITP objects, can be found in the following publication:

- *IP Transfer Point (ITP) feature module for Cisco IOS software release 12.2(25)SW4 or later.*

Information about the Cisco ITPs can be found in the documentation that shipped with the ITP.

For details on RAN-O, go to:

[http://www.cisco.com/en/US/netsol/ns341/ns396/ns177/ns329/networking\\_solutions\\_solution\\_category.html](http://www.cisco.com/en/US/netsol/ns341/ns396/ns177/ns329/networking_solutions_solution_category.html)

## Obtaining Documentation, Obtaining Support, and Security Guidelines

For information on obtaining documentation, obtaining support, providing documentation feedback, security guidelines, and also recommended aliases and general Cisco documents, see the monthly *What's New in Cisco Product Documentation*, which also lists all new and revised Cisco technical documentation, at:

<http://www.cisco.com/en/US/docs/general/whatsnew/whatsnew.html>

## Cisco.com

You can access the most current Cisco documentation at this URL:

<http://www.cisco.com/techsupport>

You can access the Cisco website at this URL:

<http://www.cisco.com>

You can access international Cisco websites at this URL:

[http://www.cisco.com/public/countries\\_languages.shtml](http://www.cisco.com/public/countries_languages.shtml)

## Product Documentation DVD

The Product Documentation DVD is a library of technical product documentation on a portable medium. The DVD enables you to access installation, configuration, and command guides for Cisco hardware and software products. With the DVD, you have access to the HTML documentation and some of the PDF files found on the Cisco website at this URL:

<http://www.cisco.com/univercd/home/home.htm>

The Product Documentation DVD is created and released regularly. DVDs are available singly or by subscription. Registered Cisco.com users can order a Product Documentation DVD (product number DOC-DOCDVD= or DOC-DOCDVD=SUB) from Cisco Marketplace at the Product Documentation Store at this URL:

<http://www.cisco.com/go/marketplace/docstore>

## Ordering Documentation

You must be a registered Cisco.com user to access Cisco Marketplace. Registered users may order Cisco documentation at the Product Documentation Store at this URL:

<http://www.cisco.com/go/marketplace/docstore>

If you do not have a user ID or password, you can register at this URL:

<http://tools.cisco.com/RPF/register/register.do>

## Documentation Feedback

You can provide feedback about Cisco technical documentation on the Cisco Support site area by entering your comments in the feedback form available in every online document.

## Cisco Product Security Overview

Cisco provides a free online Security Vulnerability Policy portal at this URL:

[http://www.cisco.com/en/US/products/products\\_security\\_vulnerability\\_policy.html](http://www.cisco.com/en/US/products/products_security_vulnerability_policy.html)

From this site, you will find information about how to do the following:

- Report security vulnerabilities in Cisco products
- Obtain assistance with security incidents that involve Cisco products
- Register to receive security information from Cisco

A current list of security advisories, security notices, and security responses for Cisco products is available at this URL:

<http://www.cisco.com/go/psirt>

To see security advisories, security notices, and security responses as they are updated in real time, you can subscribe to the Product Security Incident Response Team Really Simple Syndication (PSIRT RSS) feed. Information about how to subscribe to the PSIRT RSS feed is found at this URL:

[http://www.cisco.com/en/US/products/products\\_psirt\\_rss\\_feed.html](http://www.cisco.com/en/US/products/products_psirt_rss_feed.html)

## Reporting Security Problems in Cisco Products

Cisco is committed to delivering secure products. We test our products internally before we release them, and we strive to correct all vulnerabilities quickly. If you think that you have identified a vulnerability in a Cisco product, contact PSIRT:

- For emergencies only—[security-alert@cisco.com](mailto:security-alert@cisco.com)

An emergency is either a condition in which a system is under active attack or a condition for which a severe and urgent security vulnerability should be reported. All other conditions are considered nonemergencies.

- For nonemergencies—[psirt@cisco.com](mailto:psirt@cisco.com)

In an emergency, you can also reach PSIRT by telephone:

- 1 877 228-7302
- 1 408 525-6532



**Tip**

We encourage you to use Pretty Good Privacy (PGP) or a compatible product (for example, GnuPG) to encrypt any sensitive information that you send to Cisco. PSIRT can work with information that has been encrypted with PGP versions 2.x through 9.x.

Never use a revoked encryption key or an expired encryption key. The correct public key to use in your correspondence with PSIRT is the one linked in the Contact Summary section of the Security Vulnerability Policy page at this URL:

[http://www.cisco.com/en/US/products/products\\_security\\_vulnerability\\_policy.html](http://www.cisco.com/en/US/products/products_security_vulnerability_policy.html)

The link on this page has the current PGP key ID in use.

If you do not have or use PGP, contact PSIRT to find other means of encrypting the data before sending any sensitive material.

## Product Alerts and Field Notices

Modifications to or updates about Cisco products are announced in Cisco Product Alerts and Cisco Field Notices. You can receive these announcements by using the Product Alert Tool on Cisco.com. This tool enables you to create a profile and choose those products for which you want to receive information.

To access the Product Alert Tool, you must be a registered Cisco.com user. Registered users can access the tool at this URL:

<http://tools.cisco.com/Support/PAT/do/ViewMyProfiles.do?local=en>

To register as a Cisco.com user, go to this URL:

<http://tools.cisco.com/RPF/register/register.do>

## Obtaining Technical Assistance

Cisco Technical Support provides 24-hour-a-day award-winning technical assistance. The Cisco Support website on Cisco.com features extensive online support resources. In addition, if you have a valid Cisco service contract, Cisco Technical Assistance Center (TAC) engineers provide telephone support. If you do not have a valid Cisco service contract, contact your reseller.

## Cisco Support Website

The Cisco Support website provides online documents and tools for troubleshooting and resolving technical issues with Cisco products and technologies. The website is available 24 hours a day at this URL:

<http://www.cisco.com/en/US/support/index.html>

Access to all tools on the Cisco Support website requires a Cisco.com user ID and password. If you have a valid service contract but do not have a user ID or password, you can register at this URL:

<http://tools.cisco.com/RPF/register/register.do>

**Note**

Before you submit a request for service online or by phone, use the **Cisco Product Identification Tool** to locate your product serial number. You can access this tool from the Cisco Support website by clicking the **Get Tools & Resources** link, clicking the **All Tools (A-Z)** tab, and then choosing **Cisco Product Identification Tool** from the alphabetical list. This tool offers three search options: by product ID or model name; by tree view; or, for certain products, by copying and pasting **show** command output. Search results show an illustration of your product with the serial number label location highlighted. Locate the serial number label on your product and record the information before placing a service call.

**Tip****Displaying and Searching on Cisco.com**

If you suspect that the browser is not refreshing a web page, force the browser to update the web page by holding down the Ctrl key while pressing **F5**.

To find technical information, narrow your search to look in technical documentation, not the entire Cisco.com website. After using the Search box on the Cisco.com home page, click the **Advanced Search** link next to the Search box on the resulting page and then click the **Technical Support & Documentation** radio button.

To provide feedback about the Cisco.com website or a particular technical document, click **Contacts & Feedback** at the top of any Cisco.com web page.

## Submitting a Service Request

Using the online TAC Service Request Tool is the fastest way to open S3 and S4 service requests. (S3 and S4 service requests are those in which your network is minimally impaired or for which you require product information.) After you describe your situation, the TAC Service Request Tool provides recommended solutions. If your issue is not resolved using the recommended resources, your service request is assigned to a Cisco engineer. The TAC Service Request Tool is located at this URL:

<http://www.cisco.com/techsupport/servicerequest>

For S1 or S2 service requests, or if you do not have Internet access, contact the Cisco TAC by telephone. (S1 or S2 service requests are those in which your production network is down or severely degraded.) Cisco engineers are assigned immediately to S1 and S2 service requests to help keep your business operations running smoothly.

To open a service request by telephone, use one of the following numbers:

Asia-Pacific: +61 2 8446 7411

Australia: 1 800 805 227

EMEA: +32 2 704 55 55

USA: 1 800 553 2447

For a complete list of Cisco TAC contacts, go to this URL:

<http://www.cisco.com/techsupport/contacts>

## Definitions of Service Request Severity

To ensure that all service requests are reported in a standard format, Cisco has established severity definitions.

Severity 1 (S1)—An existing network is “down” or there is a critical impact to your business operations. You and Cisco will commit all necessary resources around the clock to resolve the situation.

Severity 2 (S2)—Operation of an existing network is severely degraded, or significant aspects of your business operations are negatively affected by inadequate performance of Cisco products. You and Cisco will commit full-time resources during normal business hours to resolve the situation.

Severity 3 (S3)—Operational performance of the network is impaired while most business operations remain functional. You and Cisco will commit resources during normal business hours to restore service to satisfactory levels.

Severity 4 (S4)—You require information or assistance with Cisco product capabilities, installation, or configuration. There is little or no effect on your business operations.

## Obtaining Additional Publications and Information

Information about Cisco products, technologies, and network solutions is available from various online and printed sources.

- The Cisco Online Subscription Center is the website where you can sign up for a variety of Cisco e-mail newsletters and other communications. Create a profile and then select the subscriptions that you would like to receive. To visit the Cisco Online Subscription Center, go to this URL:  
<http://www.cisco.com/offer/subscribe>
- The *Cisco Product Quick Reference Guide* is a handy, compact reference tool that includes brief product overviews, key features, sample part numbers, and abbreviated technical specifications for many Cisco products that are sold through channel partners. It is updated twice a year and includes the latest Cisco channel product offerings. To order and find out more about the *Cisco Product Quick Reference Guide*, go to this URL:  
<http://www.cisco.com/go/guide>
- Cisco Marketplace provides a variety of Cisco books, reference guides, documentation, and logo merchandise. Visit Cisco Marketplace, the company store, at this URL:  
<http://www.cisco.com/go/marketplace/>
- Cisco Press publishes a wide range of general networking, training, and certification titles. Both new and experienced users will benefit from these publications. For current Cisco Press titles and other information, go to Cisco Press at this URL:  
<http://www.ciscopress.com>
- *Internet Protocol Journal* is a quarterly journal published by Cisco for engineering professionals involved in designing, developing, and operating public and private internets and intranets. You can access the *Internet Protocol Journal* at this URL:  
<http://www.cisco.com/ipj>
- Networking products offered by Cisco, as well as customer support services, can be obtained at this URL:  
<http://www.cisco.com/en/US/products/index.html>

- Networking Professionals Connection is an interactive website where networking professionals share questions, suggestions, and information about networking products and technologies with Cisco experts and other networking professionals. Join a discussion at this URL:  
<http://www.cisco.com/discuss/networking>
- “What’s New in Cisco Documentation” is an online publication that provides information about the latest documentation releases for Cisco products. Updated monthly, this online publication is organized by product category to direct you quickly to the documentation for your products. You can view the latest release of “What’s New in Cisco Documentation” at this URL:  
<http://www.cisco.com/univercd/cc/td/doc/abtnicd/136957.htm>
- World-class networking training is available from Cisco. You can view current offerings at this URL:  
<http://www.cisco.com/en/US/learning/index.html>





# CHAPTER 1

## Preparing to Install the MWTM

---

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

This chapter includes the following sections:

- [Installation Methods, page 1-2](#)
- [Licensing Information, page 1-2](#)
- [Supported Platforms and Nodes, page 1-2](#)
- [Supported OS Images, page 1-3](#)
- [Upgrading the MWTM, page 1-4](#)
- [About Using Alternate Ports, page 1-9](#)
- [Server System Requirements, page 1-10](#)
- [Solaris Patch Requirements, page 1-11](#)
- [Linux Update Requirements, page 1-12](#)
- [Client System Requirements, page 1-12](#)
- [Additional Software Requirements, page 1-14](#)
- [ITP Router Configuration Requirements, page 1-14](#)
- [RAN-O Router Configuration Requirements, page 1-15](#)
- [MIB Reference, page 1-17](#)

# 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 2-22](#)
- [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.

The MWTM 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 6.0 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 AMD64 (MWTM server only)
- Windows XP Professional (MWTM client only)

The MWTM 6.0 supports the following Cisco ITP nodes:

- 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



**Note** 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.

The MWTM 6.0 supports the following Cisco RAN-O nodes:

- CiscoMWR-1941-DC-A: Cisco MWR-1941-DC-A series router
- Cisco ONS 15454 chassis with ONS-RAN-SVC module(s)

## Supported OS Images

To see the latest information about supported OS images, use one of the following procedures:

- Enter the **mwtm osinfo** command.
- Select **ITP or RAN-O OS README** from the MWTM Web Administrative page.

The MWTM supports the following ITP nodes and corresponding IOS releases:

	2600	2811	7200	7300	7500	7600
12.2(4)MB9	X		X		X	
12.2(4) MB9a	X		X		X	
12.2(4) MB10	X		X		X	
12.2(4) MB11	X		X		X	
12.2(4) MB12	X		X		X	
12.2(4) MB13	X		X		X	
12.2(18) SW				X		
12.2(18) IXA						X
12.2(18) IXB						X
12.2(18) IXB1						X
12.2(18) IXB2						X
12.2(18) IXC						X
12.2(19) SW	X		X	X	X	
12.2(20) SW	X		X	X	X	
12.2(21) SW1	X		X	X	X	
12.2(23) SW	X		X	X	X	
12.2(23) SW1	X		X	X	X	
12.2(25) SW	X		X	X	X	
12.2(25) SW1	X		X	X	X	
12.2(25) SW2	X		X	X	X	
12.2(25) SW3	X		X	X	X	
12.2(25) SW4	X		X	X	X	
12.2(25) SW4a	X		X	X	X	
12.2(25) SW5	X		X	X	X	
12.2(25) SW6	X		X	X	X	
12.2(25) SW7	X		X	X	X	

	2600	2811	7200	7300	7500	7600
12.2(25) SW8	X		X	X	X	
12.4(11) SW	X	X	X	X		

The following features require these ITP IOS releases (or later):

Features	IOS Releases (Or Later)
GTT accounting statistics reports or GTT and route table deployment	<ul style="list-style-type: none"> <li>• 12.2(4) MB13</li> <li>• 12.2(18) SW</li> <li>• 12.2(18) IXA</li> <li>• 12.4(11) SW</li> </ul>
Route table or GTT table deployment	<ul style="list-style-type: none"> <li>• 12.2(4) MB13</li> <li>• 12.2(18) IXA</li> </ul>
GTT encoding scheme support	<ul style="list-style-type: none"> <li>• 12.2(25) SW</li> <li>• 12.2(18) IXA</li> <li>• 12.4(11) SW</li> </ul>
MLR address table configuration support	<ul style="list-style-type: none"> <li>• 12.2(25) SW3</li> <li>• 12.2(18) IXA</li> <li>• 12.4(11) SW</li> </ul>
MSU rates support	<ul style="list-style-type: none"> <li>• 12.2(25) SW7</li> <li>• 12.2(18) IXB</li> <li>• 12.4(11) SW</li> </ul>
ITP provisioning	<ul style="list-style-type: none"> <li>• 12.2(18) SW</li> <li>• 12.2(18) IXA</li> <li>• 12.4(11) SW</li> </ul>

The MWTM supports the following RAN-O platforms and corresponding software releases:

RAN-O Platform	Supported Software Releases
MWR-1941-DC-A	12.4(11) MR
ONS 15454	7.2
ONS-RAN-SVC	12.2(29) SM

## Upgrading the MWTM

You can upgrade to MWTM 6.0 from the Cisco Signaling Gateway Manager (SGM) 4.1 or from the latest version of MWTM 5.0. You can upgrade on the same machine, or upgrade on different machines. You might 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 (only Solaris 9 and 10 or RedHat Enterprise Linux 4.0 are supported). 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.

The following upgrade scenarios are supported:

- [Upgrading from SGM 4.1 to MWTM 6.0 on the Same Machine, page 1-8](#)
- [Upgrading from SGM 4.1 to the MWTM 6.0 on Different Machines, page 1-8](#)
- [Upgrading from the MWTM 5.0 to 6.0 on the Same Machine, page 1-8](#)
- [Upgrading from the MWTM 5.0 to 6.0 on Different Machines, page 1-8](#)

For details on migrated, non-migrated, and preserved content:

- [Migrated SGM 4.1 Content, page 1-5](#)
- [Migrated MWTM 5.0 Content, page 1-6](#)
- [Preserved SGM 4.1 Content, page 1-7](#)
- [Preserved MWTM 5.0 Content, page 1-7](#)

## Migrated SGM 4.1 Content

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

**Table 1-1 Migrated SGM 4.1 Content**

Migrated Content
SGM database—The MWTM migrates only node and signaling point objects from the SGM database.
Customized point code formats and network configurations
SNMP parameters
GTT, route table, and address table configuration files
Seed node files
Notes about nodes and signaling point objects
IP access list
Trap access list
Usernames, passwords, and all security (including SSL credentials, certificates, keys, and current state)

**Table 1-1 Migrated SGM 4.1 Content**

<b>Migrated Content</b>
System.properties file
Troubleshooting commands (located in the UserCommands.ts file)
Trap forwarding information

The MWTM replaces the following configuration information with the latest configuration:

- Network event configuration. The MWTM preserves the earlier event configuration file as *SgmEvent.conf.sgm\_release#*.

If you customized an earlier *SgmEvent.conf* file, take note 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.

The MWTM does not migrate the following configuration elements when you upgrade to a new version and release:

**Table 1-2 Non-Migrated SGM 4.1 Content**

<b>Non-Migrated Content</b>
All linksets, links, ASs, ASPs, ASPAs, and SGMP information
Notes related to any of the above objects
User preferences
Network event filter settings and preferences
Event configuration
Event sound customizations
Views
Address table and GTT preferences

## Migrated MWTM 5.0 Content

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

**Table 1-3 Migrated MWTM 5.0 Content**

<b>Migrated Content</b>
MWTM database—The MWTM migrates only RAN-O and MWR node objects from the MWTM database.
SNMP parameters
Seed node files

**Table 1-3 Migrated MWTM 5.0 Content**

<b>Migrated Content</b>
Notes about node objects
Username, passwords, and all security (including SSL credentials, certificates, keys, and current state)
System.properties file
Log files

The MWTM does not migrate the following configuration elements when you upgrade to a new version and release:

**Table 1-4 Non-Migrated MWTM 5.0 Content**

<b>Non-Migrated Content</b>
All node interface information
User preferences
Network event filter settings and preferences
Event configuration
Event sound customizations
Views

## Preserved SGM 4.1 Content

The following content is preserved when upgrading from SGM 4.1:

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

## Preserved MWTM 5.0 Content

The following content is preserved when upgrading from MWTM 5.0:

- Collected performance data to the following file:  
`/opt/CSCOsgm/data/IPRanStats.csv`
- Event history

## Upgrading from SGM 4.1 to MWTM 6.0 on the Same Machine

When upgrading SGM to the MWTM, SGM must be at release 4.1. Migration from any release of SGM prior to 4.1 is not supported. If you have SGM from a release earlier than 4.1, you must first upgrade to SGM 4.1.

Upgrading from SGM 4.1 to the MWTM 6.0 automatically occurs when you install the MWTM 6.0 directly over SGM 4.1.

## Upgrading from SGM 4.1 to the MWTM 6.0 on Different Machines

If you are upgrading SGM 4.1 to MWTM 6.0 on two different machines:

- 
- Step 1** On your SGM 4.1 machine, run the `sgm` backup command (see the *Cisco Signaling Gateway Manager 4.1 User Guide*).
  - Step 2** On the second machine, install the MWTM 6.0.
  - Step 3** Copy the SGM 4.1 backup to the `/opt` directory on your MWTM 6.0 machine.
  - Step 4** On the MWTM 6.0 machine, run the `mwtmUpgrade.sh` script, located in the following directory:  
`/opt/CSCOSgm/install`



---

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

---

The MWTM restores your SGM 4.1 backup data to the MWTM 6.0.

---

## Upgrading from the MWTM 5.0 to 6.0 on the Same Machine

Upgrading from the MWTM 5.0 to the MWTM 6.0 automatically occurs when you install the MWTM 6.0 directly over the MWTM 5.0.

## Upgrading from the MWTM 5.0 to 6.0 on Different Machines

If you are upgrading the MWTM 5.0 to 6.0 on two different machines:

- 
- Step 1** On your MWTM 5.0 machine, run the `mwtm` backup command (see the *Cisco Mobile Wireless Transport Manager 5.0 User Guide*).
  - Step 2** On the second machine, install the MWTM 6.0.

**Step 3** Copy the MWTM 5.0 backup to the */opt* directory on your MWTM 6.0 machine.

**Step 4** On the MWTM 6.0 machine, run the *mwtmUpgrade.sh* script, located in the following directory:

```
/opt/CSCOSgm/install
```



---

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

---

The MWTM restores your 5.0 backup data to 6.0.

---

## 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.

# 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 6.0*, available on Cisco.com.

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

	Demo / Proof of Concept		Small		Large	
<b>Operating system</b>	Solaris 9,10	Linux RHEL 4.0 AS AMD64	Solaris 9,10	Linux RHEL 4.0 AS AMD64	Solaris 9,10	Linux RHEL 4.0 AS AMD64
<b>RAN-O: Number of cell sites</b>	50		500		1000	
<b>ITP: Number of nodes</b>	10		50		100	
<b>ITP: Number of links</b>	20		250		1000	
<b>Model</b>	SunFire V210, V215, V240	SunFire X2100, X4100	SunFire V210, V215, V240	SunFire X4100	SunFire V490	SunFire X4100
<b>NEBS model</b>	Sun Netra 210, Netra 240	N/A	Sun Netra 210, Netra 240	N/A	Sun Netra 1290	N/A
<b>CPU type</b>	Sparc IIIi	Single-Core	Sparc IIIi	Dual-Core	Sparc IV+	Dual-Core
<b>CPU number</b>	1		2	1	4	2
<b>Minimum CPU speed</b>	1 GHz	2 GHz (AMD), 3 GHz (Intel)	1 GHz	2 GHz (AMD), 3 GHz (Intel)	1 GHz	2 GHz (AMD), 3 GHz (Intel)
<b>Minimum RAM</b>	2 GB		4 GB		8 GB (2GB per CPU)	
<b>Minimum Swap</b>	4 GB		8 GB		16 GB (2 x RAM)	
<b>Minimum disk space<sup>1</sup></b>	1 GB		1 GB		2 GB	
<b>Number of clients</b>	2		10		20	

1. MWTM statistics reporting requires approximately 1 MB of hard disk space for every ten links in your network. Also, by default, the MWTM event database can hold a maximum of 5000 events. If you change the default MWTM settings to significantly increase the size of the message archive, or if you increase the default aging intervals for reports, additional hard disk space might be required, and the performance of the MWTM server and clients is impacted.

**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 1-11](#).

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 119254-27 or later
- Patch 119578-29 or later
- Patch 118833-23 or later

# Linux Update Requirements

MWTM requires RedHat Enterprise Linux version 4 Update 3 (or later) AS AMD64.

## 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 6.0*, available on Cisco.com.

The subsequent 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 XP Professional	Solaris
<b>Model</b>	IBM PC-compatible computer	Sun Ultra Workstation
<b>Minimum CPU speed</b>	2.0 GHz Pentium 4 processor or later	1 GHz processor or greater
<b>Minimum RAM</b>	512 MB minimum is required (1 GB strongly recommended)	1 GB RAM or greater is required (1 GB recommended).
<b>Additional Memory</b>	To configure GTT tables or MLR address tables, between 256 MB and 1 GB of additional RAM is required. For example, a client used to configure 500,000-line GTT tables (the largest supported size) requires at least 1 GB of additional RAM on the client.	<ul style="list-style-type: none"> <li>• If you are running more than one MWTM client on the same device, an additional 256 MB RAM is required for each additional client.</li> <li>• Larger networks require more RAM to maintain performance.</li> <li>• To configure GTT tables or MLR address tables, between 256 MB and 1 GB of additional RAM is required. For example, a client used to configure 500,000-line GTT tables (the largest supported size) requires at least 1 GB of additional RAM on the client.</li> </ul>
<b>Minimum Swap</b>	N/A	2 GB or greater is required (swap space twice the size of RAM is recommended). Swap space is in addition to the recommended hard disk space.

	Windows XP Professional	Solaris
<b>Minimum disk space</b>	<ul style="list-style-type: none"> <li>• 200 MB minimum on the drive where you install the MWTM client is required (400 MB if installing the client from the MWTM web server, plus 20 MB minimum on the drive on which you save the downloaded client package).</li> <li>• 20 MB minimum on the drive that contains the TEMP directory is required (for InstallShield's temporary files).</li> <li>• 20 MB minimum on the drive that contains the Program Files directory is required (for the uninstall files).</li> </ul>	<ul style="list-style-type: none"> <li>• 200 MB minimum is required (particularly if installing the client from the MWTM web server).</li> </ul>
<b>Hardware</b>	<ul style="list-style-type: none"> <li>• A DVD-ROM drive (ISO 9660-compliant) on the host system, or access to the MWTM web server.</li> <li>• A monitor and video card that support displaying 16.7 million colors (24-bit color depth).</li> <li>• A PostScript-compatible printer is required for printing graphs and charts.</li> </ul>	<ul style="list-style-type: none"> <li>• To install software, a DVD-ROM drive on the server or on a remote host system that can be accessed by the Network File System (NFS).</li> <li>• A monitor and video card that support displaying 16.7 million colors (24-bit color depth) are required if you will run the MWTM client on the host system.</li> <li>• A PostScript-compatible printer is required for printing graphs and charts.</li> </ul> <p><b>Note</b> For optimum performance on large networks, it is recommended to use a local Solaris client with a graphics card and an attached monitor, rather than remote access.</p>

**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 remote workstation.

# Additional Software Requirements

## Web Browser Software

Microsoft Internet Explorer version 6.0 (SP1) or later, or Mozilla version 1.7 or later (including Firefox 1.5.x or 2.0 or later) browser software 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 the web-based MWTM features.

## CiscoWorks

The MWTM does not require CiscoWorks, but the MWTM does integrate with CiscoWorks to provide added value. CiscoWorks LMS 2.6 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 6.0*.

# ITP Router Configuration Requirements

When you configure IP Transfer Points (ITPs), keep the following MWTM considerations in mind:

- You must configure the ITPs to use SNMP community names. The MWTM requires that the names be at least read-only (RO), but read-write (RW) names also work.
- You must enable the ITPs to use both CS7 traps and SNMP traps. (The MWTM trap receiver supports SNMP traps for both version v1 and v2c, but not version v3).

You can also enable the ITPs to use ENVMON traps, to enable the MWTM to handle and display environmental events, but this is not required.

- The host IP address used for traps must be the MWTM server's IP address.

Also, for full access to MWTM commands and functions, set the SNMP trap port number to a value greater than 1024. By default, the MWTM listens for traps from trap multiplexing devices and NMS applications on port 44750, so this is a good port number to choose. The SNMP trap port number must be the same on all ITPs in your network.

- To minimize lost traps, set the length of the message queue for each trap host to at least 100. The more links handled by the host, the higher you should set the queue length. For example, if you have a fully loaded 7507 handling a large number of links, you might set the queue length to 500.
- To enable the MWTM to log more than one line of Syslog, set the logging history size to 500.

To implement these requirements on an ITP, enter the following IOS commands on the ITP:

```
snmp-server community public RO
snmp-server enable traps cs7
snmp-server enable traps snmp
snmp-server enable traps envmon
snmp-server host mwtm-ip-address public [udp-port port-number]
snmp-server queue-length 100
logging history size 500
```

where:

- *public* is the SNMP community name the ITP is to use.
- *mwtm-ip-address* is the IP address of the MWTM server.
- *port-number* is the SNMP trap port number of the ITPs and of the MWTM server, either **162** or **44750**.

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

**Note**

If, in addition to the MWTM, you are using other network management products to receive traps from ITPs, those ITPs might require additional IOS commands to enable them to use additional traps.

## RAN-O Router Configuration Requirements

When you configure the RAN-O network, keep the following MWTM considerations in mind:

- You must configure each network element to be reachable via IP networking to or from the MWTM server (you must be able to ping each MWR from the MWTM server).
- You must configure network elements to use SNMP community names. MWTM requires that the names be at least read-only (RO), but read-write (RW) names also work.
- You should enable network elements to use SNMP traps. (The MWTM trap receiver supports SNMP traps for both version v1 and v2c, but not version v3.)

You can also enable network elements to use ENVMON traps, to enable MWTM to handle and display environmental events, but this is not required.

- The host IP address used for traps must be the MWTM server's IP address.
- To minimize lost traps, set the length of the message queue for each trap host to at least 100.
- To enable MWTM to log more than one line of Syslog, set the logging history size to 500.

To implement these requirements on a network element, enter the following IOS commands on the network element:

```

ipran-mib snmp-access <inBand | outOfBand>
ipran-mib location <cellSite | aggSite>
...
...
...
snmp-server community <snmp community string> RO 1
snmp-server ifindex persist
snmp-server trap link ietf
no snmp-server sparse-tables
snmp-server queue-length 100
snmp-server enable traps snmp linkdown linkup coldstart warmstart
snmp-server enable traps ipran
snmp-server enable traps cpu threshold
snmp-server host <snmp-server-host-ip-address> version 2c v2c
[port-number]
snmp-server queue-length 100
logging history size 500

```

where:

- The `ipran-mib snmp-access` value determines how the MWTM collects data from the MWR. If you specify `outOfBand` as the value, the MWTM collects performance information automatically from the chassis. If you specify `inBand` as the value, the MWTM does not automatically collect performance information from the chassis, preventing the MWTM from consuming too much bandwidth when managing the MWR chassis. Typically, all `cellSite` routers are managed `inBand` while all `aggSite` routers are managed `outOfBand`.
- The `ipran-mib location` value determines how the MWR chassis appears in the MWTM application.
- `snmp community string` should be replaced with the SNMP community name the network element is to use.
- The `ifindex persist` keyword ensures that the SNMP values for the network interfaces are preserved when the router reboots.
- The `no snmp-server sparse-tables` keyword is required for the MWTM, and ensures that the SNMP engine on the router always returns a value even if the attribute is null or zero.
- `snmp-server-host-ip-address` is the IP address of the MWTM server.
- `port-number` is the SNMP trap port number of the network element and of the MWTM server, either 162 (the default) or 44750.

For more information about these commands, see the *Cisco IOS Release 12.4 Configuration Fundamentals Command Reference*.



**Note**

If, in addition to MWTM, you are using other network management products to receive traps from network elements, those network elements might require additional IOS commands to enable them to use additional traps.

# 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 CD 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 6.0*.





## CHAPTER 2

# Installing the MWTM on Solaris

---

This chapter describes how to install the MWTM server and client software on a Sun Solaris system. It also provides information about verifying the installation and uninstalling and reinstalling the MWTM on Solaris.

This chapter includes the following sections:

- [Overview of the Installation Process, page 2-2](#)
- [Installation Prerequisites, page 2-2](#)
- [Installing the MWTM Server and Client on Solaris, page 2-3](#)
- [Installing the MWTM Server Only on Solaris, page 2-21](#)
- [Installing the MWTM Client Only on Solaris, page 2-21](#)
- [Installing the MWTM Client on Solaris Using the Web Server, page 2-22](#)
- [Verifying MWTM Installation, page 2-24](#)
- [Starting the MWTM, page 2-26](#)
- [Uninstalling the MWTM, page 2-27](#)

## Overview of the Installation Process

When you start the MWTM install tool, you will see these installation options:

- Installing the MWTM server and client—Use this option when you want the MWTM server and client software to reside on the same system. The MWTM uses separate server and client installation scripts. If you choose to install both the server and client, the server script runs first, followed immediately by the client script.
- Installing the MWTM server—Use this option when you want to install only the MWTM server software on this system.

The MWTM software consists of these Solaris packages:

- MWTM server (CSCOsgm-s)
- MWTM client (CSCOsgm-c)

When the MWTM install tool prompts you for a response, it displays the default value for each prompt in square brackets [ ]. To accept the default value, press **Return**. (When in doubt, accept the default.)

The MWTM also verifies the availability of all values, such as port numbers, before accepting them.

To stop the MWTM install tool at any time, press **Ctrl-C**.

If you attempt to install the MWTM in one window while installing another product (such as HP OpenView) in another window, the MWTM installation fails. If this situation occurs, wait until all other product installations are complete, then enter the following command from the top of the MWTM CD image:

```
./uninstall.sh -n
```

This command removes all MWTM components and restores your system to a clean state. Then reinstall the MWTM.

**Note**

Starting the client on Solaris after installation requires that you set the variable `DISPLAY` to your display in your UNIX shell environment. If you used Telnet to get to the server, you will not have access to your display and will not have the `DISPLAY` variable automatically set.

## Installation Prerequisites

Before you run the MWTM install tool:

- Make sure your Solaris system meets the requirements listed in [ITP Router Configuration Requirements, page 1-14](#).
- If you want the MWTM to receive traps natively, determine whether the MWTM is to receive traps on the standard UDP port number 162 or on another port. For example, if your nodes have been configured to send traps to a different port, or if trap multiplexing devices and NMS applications in your network have been configured to send traps to a different port, you need to specify that port number when prompted by the MWTM install tool.
- Determine whether you want to configure MWTM Security Services, and whether you want local-based or Solaris-based authentication. For more information, see the “Configuring MWTM User-Based Access” section in the *User Guide for the Cisco Mobile Wireless Transport Manager 6.0*.

- Determine whether CiscoWorks is installed on your system, whether you want to integrate the MWTM with CiscoWorks, and the name and port number for the CiscoWorks web server. The default port number is 1741.
- Determine whether you want the MWTM server to automatically discover your network the first time the server starts after installation. If so, determine the name or IP address of the node you want to use as a seed node. For more information about the discovery process and how to use seed nodes, see the “Discovering the Network” section of the *User Guide for the Cisco Mobile Wireless Transport Manager 6.0*.

## Installing the MWTM Server and Client on Solaris

This procedure assumes that you have not already installed the MWTM server or client on this workstation. If you have already installed the MWTM server or client on this workstation, some steps might be added, some might be different, and some might be unnecessary and ignored by the MWTM.

The MWTM uses separate server and client installation scripts. If you choose to install both the server and client, the server script runs first, followed immediately by the client script.

## Installing the MWTM Server on Solaris

Installing the MWTM server requires the following actions, in this order. Many of these steps are partially or fully automated.

- [Preliminary Activities, page 2-4](#)
- [Starting the Install Tool, page 2-4](#)
- [Checking the TCP/IP Address for the MWTM Server, page 2-6](#)
- [Checking the TCP/IP Port Usage for the MWTM Server, page 2-6](#)
- [MWTM Server Summary, page 2-7](#)
- [Checking Disk Space Usage, page 2-7](#)
- [Checking Release and Upgrade Information, page 2-8](#)
- [Selecting Express or Standard Installation, page 2-9](#)
- [Selecting the Directory for Installation, page 2-9](#)
- [Selecting TCP Ports for the Web, JSP, and Naming Servers, page 2-10](#)
- [Reviewing Your Selections, page 2-11](#)
- [Integrating the MWTM with CiscoWorks, page 2-11](#)
- [Configuring SNMP Traps, page 2-12](#)
- [Configuring Security Services, page 2-13](#)
- [Choosing Network Types, page 2-14](#)
- [Discovering your Network, page 2-14](#)
- [Enabling TFTP, page 2-15](#)
- [Concluding Server Installation, page 2-16](#)
- [Viewing the Installation Log, page 2-17](#)

**Preliminary Activities**

Complete these preliminary steps.

**Caution**

These steps include logging in as the root user. As the root user, you can adversely affect your operating environment if you are unaware of the effects of the commands you use. If you are a relatively inexperienced UNIX user, limit your activities as the root user to the tasks described in this guide.

**Step 1** If you have not already logged in, log in as the root user:

```
> login: root
> Password: root-password
```

If you are already logged in, but not as the root user, use the **su** command to change your login to root:

```
# su
# Password: root-password
```

**Step 2** Mount the DVD-ROM drive, as described in [Appendix A, “Mounting and Unmounting the DVD-ROM Drive for Installations on Solaris or Linux.”](#)

**Step 3** Change to the mounted directory using the **cd** command:

```
# cd /cdrom/MWTM60/solaris
```

or

```
# cd /cdrom/cdrom0/solaris
```

**Starting the Install Tool**

In this step you start the install tool and select the appropriate installation option.

**Step 1** Start the install tool by entering the following command:

```
# ./setup.sh
```

or

```
# ./setup.sh -i
```

**Note**

If you are installing the MWTM using an NFS-exported DVD-ROM drive, image checking might take several hours to complete. To avoid this problem, enter **./setup.sh -i**, which disables image checking.

**Step 2** The install tool checks the server and client images, then displays the installation menu:

```
1) Review README File First (Recommended)
2) Install MWTM Server and Client
3) Install MWTM Server Only
4) Install MWTM Client Only
5) Exit Setup
```

Please choose an option ->

Choose one of the following installation options:

- To read the latest information about the MWTM in the README file, enter **1**, then press **Return**.  
The README file contains late-breaking information about the MWTM that might not be found in the other product documentation.
- To install both the MWTM server and client, enter **2**, then press **Return**.  
The MWTM uses separate server and client installation scripts. If you choose to install both the server and client, the server script runs first, followed immediately by the client script.
- To install the MWTM server alone, enter **3**, then press **Return**.
- To install the MWTM client alone, enter **4**, then press **Return**. See [Installing the MWTM Client on Solaris, page 2-17](#) for further information.
- To exit the install tool, enter **5**, then press **Return**.

If you selected option 2 or 3, the install tool displays information similar to the following:

```
===== MWTM Server Install Tool Started =====
Started : date, time
Host    : Solaris your_MWTM_server
Version : 6.0.0
=====

INFO: Checking UID... root, OK.
```

where *your\_MWTM\_server* is the name of your MWTM server.

The install tool now performs a system-requirements check to ensure that all requirements are met. Information similar to the following appears:

```
=====
===== System Requirements Check =====
=====
INFO: Checking Host Operating System...SunOS, OK.
INFO: Checking Operating System Version... 5.9, OK.

Checking for Required patches...
INFO: Checking Solaris patches [113096-03]...OK.
INFO: Checking Solaris patches [112963-25]...OK.

INFO: This product requires:
      RAM          2048 MB
      SWAP         4096 MB
      CPU          1024 MHz

INFO: Checking RAM... 4096 MB OK

INFO: Checking Swap... 4099 MB OK

INFO: Checking CPU... 2 x 1002 MHz OK

INFO: Version on System: SGM 4.1 (or MWTM 5.0)
INFO: Available Latest Version: MWTM 6.0
```

If all requirements are in place, the following appears:

```
INFO: Checking your release... All components present.
```

If any requirement is missing, a warning message appears. For a list of all system requirements, see the [ITP Router Configuration Requirements, page 1-14](#).

If you are performing an upgrade, one of the following messages appear:

```
INFO: Upgrade from SGM version 4.1 to MWTM version 6.0 supported.
or
INFO: Upgrade from MWTM version 5.0 to MWTM version 6.0 supported.
```

### Checking the TCP/IP Address for the MWTM Server

The install tool now performs a TCP/IP address check. Information similar to the following appears:

```
=====
----- TCP/IP Address Check -----
=====

Here are the network-names defined for: your_MWTM_server
localhost
your_MWTM_server

where your_MWTM_server is the name of the MWTM server.

=====

INFO: Machine: "your_MWTM_server" resolves to server_IP_address
INFO: Verify this data is the same on each of your MWTM client machines.

INFO: Local address resolution -> Primary:files, Secondary:dns
```

### Checking the TCP/IP Port Usage for the MWTM Server

The install tool now performs a TCP/IP port usage check. Information similar to the following appears:

```
=====
----- TCP/IP Port Usage Check -----
=====

INFO: This product uses these port numbers:

INFO:   [ 1] Server Name           : your_MWTM_server
INFO:   [ 2] Web Server            : 1774/tcp
INFO:   [ 3] JSP Server            : 1775/tcp
INFO:   [ 4] Naming Server         : 44742/tcp

INFO: Checking system for available ports to see if these are in use...

INFO: Checking port 1774 for Web Server ... Available.
INFO: Checking port 1775 for JSP Server ... Available.
INFO: Checking port 44742 for Naming Server... Available.
```

where *your\_MWTM\_server* is the name of the MWTM server.

If any ports are in use, you receive prompts for any ports that need to be configured. However, if you are performing an upgrade, the system automatically uses ports defined in the previous installation, and skips to [Checking Disk Space Usage, page 2-7](#).

### MWTM Server Summary

The install tool now displays the following information and prompt:

```

=====
----- MWTM Server Summary -----
=====

INFO: The following parameters will be used:

INFO:  [ 1] Server Name           : your_MWTM_server
INFO:  [ 2] Web Server            : 1774/tcp
INFO:  [ 3] JSP Server           : 1775/tcp
INFO:  [ 4] Naming Server        : 44742/tcp

```

Press Return to continue ->

where *your\_MWTM\_server* is the name of the MWTM server.

**Step 1** Press **Return**. The MWTM now checks for disk space usage.

### Checking Disk Space Usage

The MWTM installation tool now attempts to determine whether there is adequate space in the default installation directory, */opt*, to install the MWTM server, and displays information similar to the following:

```

=====
----- Disk Space Usage Check -----
=====

INFO: For this product the default disk space requirements are:
      /opt                1024 MB
      /var/sadm           1 MB
      /var/tmp            1 MB
      /tmp                1 MB

```

INFO: Checking default disk space requirements... OK.

```
=====
```

- If there is adequate space, installation now continues.
- If there is not adequate space, the MWTM install tool asks you to specify a different directory. When you have specified a different directory, installation continues.

The MWTM install tool also checks the following directories to determine whether there is adequate space: */var/sadm*, */var/tmp*, and */tmp*. If there is not adequate space on any of these directories, a message similar to the following appears:

```

INFO: There is insufficient space in /var/tmp for an installation
INFO: to proceed. Disk Space of at least 1 MB
INFO: is required for the install.

```

The installation process stops and exits.

If errors or warnings are encountered up to this point, you might receive the following message:

```

System does not qualify for a Server Install. Found Errors/Warnings during system check!
Do you want to continue to install the MWTM - Server? (y/n)?

```

Do either of these:

- To continue with installation, enter **y**. The following warning appears:

```
WARNING: Installing the MWTM - Server without basic requirements
WARNING: may restrict you to use some of the MWTM - Server features.
```

- To stop installation, enter **n**. The installation stops and exits.

### Checking Release and Upgrade Information

The MWTM installation tool checks your release for all components and displays information similar to the following:

```
INFO: Checking your release... All components present.
```

The MWTM now checks for existing releases. If no existing releases are present:

```
INFO: Checking for existing product tree... None.
```

Or, if an existing release is found:

```
INFO: Checking for existing product tree... Found.
```

If an existing release is found, you are prompted to upgrade:

```
Do you want to upgrade to MWTM - Server version 6.0 (y/n)?
```

---

**Step 1** For the upgrading question, do either of these:

- Enter **y** to continue upgrading. The installation proceeds, using prior settings. No further questions are asked. Skip to [Viewing the Installation Log, page 2-17](#).
  - Enter **n** to stop the process.
-

### Selecting Express or Standard Installation

The Express Install option uses default settings, minimizing system prompts, and places the MWTM in the `/opt` directory.

If your system does not meet the requirements for Express Install, installation now continues with [Selecting the Directory for Installation, page 2-9](#). If you are upgrading, the Express Install is not an option.

If your system does meet the requirements, the install tool displays the following information and prompt:

```

=====
----- Express Install Check -----
=====

The Express Install takes all defaults and places the product
in /opt. No more questions will be asked.

Do you want the Express Install (y/n)? [Y]

```

---

**Step 1** Choose either of these installation options:

- To choose the Express Install, press **Return**.
  - To choose the standard installation, which prompts you for additional information, enter **n**, then press **Return**.
- 

### Selecting the Directory for Installation

The MWTM install tool then displays the following prompt:

```

INFO: Filesystems on this machine with enough space to install:
Filesystem      kbytes   used   avail capacity Mounted on
/dev/dsk/c0t0d0s0 493688 126228 318092    29%   /
/dev/dsk/c0t0d0s4 7153253 677611 6404110   10%  /usr
/dev/dsk/c0t0d0s3 1018382 23281 933999    3%   /var
/dev/dsk/c0t1d0s5 4573659 1570527 2957396   35%  /opt

Where should the product be installed ? [/opt]

```

---

**Step 1** Do either of these:

- To accept the default value, press **Return**.
  - Enter a different location, and press **Return**.
-

### Selecting TCP Ports for the Web, JSP, and Naming Servers

The MWTM install tool now checks for port numbers for the web server, JSP server, and naming server and displays information similar to the following:

```
INFO: This product uses these port numbers:

INFO:  [ 1] Server Name           : your_MWTM_server
INFO:  [ 2] Web Server            : 1774/tcp
INFO:  [ 3] JSP Server            : 1775/tcp
INFO:  [ 4] Naming Server         : 44742/tcp

INFO: Checking system for available ports to see if these are in use...

INFO: Checking port 1774 for Web Server ... Available.
INFO: Checking port 1775 for JSP Server ... Available.
INFO: Checking port 44742 for Naming Server... Available.

INFO: Express install disabled.
INFO: You will be prompted for any ports which need to be configured.
```

The MWTM works on standard web port 80. However, any software you install in the future that requires port 80 could conflict with the MWTM. The MWTM install tool therefore now prompts for a TCP server for the web server to use:

```
Which tcp port should Web Server use [1774] ?
```

- 
- Step 1** Do either of these:
- To accept the default value (recommended), press **Return**.
  - Enter a different port number, and press **Return**.
- Step 2** The MWTM install tool now displays the following prompt:
- ```
Which tcp port should JSP Server use? [1775]
```
- Do either of these:
- To accept the default value, press **Return**.
  - Enter a different port number, and press **Return**.
- Step 3** The MWTM install tool now displays the following prompt:
- ```
Which tcp port should Naming Server use? [44742]
```
- Do either of these:
- To accept the default value, press **Return**.
  - Enter a different port number, and press **Return**.
-

### Reviewing Your Selections

The MWTM install tool now displays the following messages and prompt:

```
=====
----- MWTM Server Summary -----
=====

INFO: The following parameters will be used:

INFO:  [1] Server Name      : your_MWTM_server
INFO:  [2] Web Server      : your_web_server_port/tcp
INFO:  [3] JSP Server      : your_JSP_server_port/tcp
INFO:  [4] Naming Server   : your_naming_server_port/tcp
```

If necessary, you can change these settings after installing the MWTM by using the following commands:

- To change the Server Name, use the **mwtm servername** command. The MWTM client name changes to match the new server name.
- To change the Web Server TCP port number, use the **mwtm webport** command.
- To change the JSP Server TCP port number, use the **mwtm jspport** command.
- To verify the new settings, use the **mwtm props** command.

The MWTM install tool then displays the following prompt:

```
Press Return to continue ->
```

---

**Step 1** Press **Return**. Installation proceeds.

---

### Integrating the MWTM with CiscoWorks

If CiscoWorks is not installed on your system, installation continues with [Configuring SNMP Traps, page 2-12](#).

If CiscoWorks is installed on your system, the MWTM installation program automatically integrates the MWTM server with CiscoWorks and displays output similar to the following:

```
Registering MWTM Server with CiscoWorks Application Registry...
Integrating MWTM Server with CiscoWorks Common Services...

[Wed Dec 13 13:10:55 EST 2006] INFO [CMICLogger : info] :
com.cisco.nm.cmf.cmic.CMICApplicationRegistry Registering mwtm with ems-svr200 1741 http
[Wed Dec 13 13:10:55 EST 2006] INFO [CMICLogger : info] :
com.cisco.nm.cmf.cmic.CMICApplicationRegistry Registering mwtm with ems-svr200 1741 http
[Wed Dec 13 13:10:55 EST 2006] INFO [CMICLogger : info] :
com.cisco.nm.cmf.cmic.registry.OperateRecords Processing template
/opt/CSCOpX/objects/data/cmf/cmic/mst-templates/mwtm.xml
[Wed Dec 13 13:14:41 EST 2006] INFO [CMICLogger : info] :
com.cisco.nm.cmf.cmic.registry.OperateRecords The number of records to be added : 92
[Wed Dec 13 13:15:18 EST 2006] INFO [CMICLogger : info] :
com.cisco.nm.cmf.cmic.registry.RegistryInteractor Successfully added record to the
registry :91
[Wed Dec 13 13:15:18 EST 2006] INFO [CMICLogger : info] :
com.cisco.nm.cmf.cmic.registry.OperateRecords Writing registered template at
/opt/CSCOpX/objects/data/cmf/cmic/registered-templates/mobilewirelesstransportmanager.5.0.
ems-svr200.1741.http.xml
[Wed Dec 13 13:15:18 EST 2006] INFO [CMICLogger : info] :
com.cisco.nm.cmf.cmic.registry.OperateRecords Setting permissions to casuser:casusers for
registered template.
```

```
[Wed Dec 13 13:15:18 EST 2006] INFO [CMICLogger : info] :
com.cisco.nm.cmf.cmic.CMICApplicationRegistry Registering in UNREGISTERDBmwtmwith display
Preference asself
[Wed Dec 13 13:15:18 EST 2006] INFO [CMICLogger : info] :
com.cisco.nm.cmf.cmic.CMICApplicationRegistry Registering in UNREGISTERDBmwtmwith display
Preference asself
[Wed Dec 13 13:15:18 EST 2006] INFO [CMICLogger : info] :
com.cisco.nm.cmf.cmic.registry.CMICApplicationRegistry Retrieving the last registered
application name
[Wed Dec 13 13:15:19 EST 2006] INFO [CMICLogger : info] :
com.cisco.nm.cmf.cmic.UnRegisterApplicationList Setting UNREGISTERDB
[Wed Dec 13 13:15:19 EST 2006] INFO [CMICLogger : info] :
com.cisco.nm.cmf.cmic.UnRegisterApplicationList Setting UNREGISTERDB
[Wed Dec 13 13:15:19 EST 2006] INFO [CMICLogger : info] :
com.cisco.nm.cmf.cmic.UnRegisterApplicationList retriving from UNREGISTERDB
[Wed Dec 13 13:15:19 EST 2006] INFO [CMICLogger : info] :
com.cisco.nm.cmf.cmic.UnRegisterApplicationList retriving from UNREGISTERDB
End of UnregiseterApplicaionList
[Wed Dec 13 13:15:19 EST 2006] INFO [CMICLogger : info] :
com.cisco.nm.cmf.cmic.UnRegisterApplicationList storing in UNREGISTERDB
[Wed Dec 13 13:15:19 EST 2006] INFO [CMICLogger : info] :
com.cisco.nm.cmf.cmic.UnRegisterApplicationList storing in UNREGISTERDB
[Wed Dec 13 13:15:19 EST 2006] INFO [CMICLogger : info] :
com.cisco.nm.cmf.cmic.UnRegisterApplicationList Added appname:Mobile Wireless Transport
Managerpreferenceself
[Wed Dec 13 13:15:19 EST 2006] INFO [CMICLogger : info] :
com.cisco.nm.cmf.cmic.UnRegisterApplicationList Added appname:Mobile Wireless Transport
Managerpreferenceself
```

CiscoWorks must be restarted to register MWTM menus:

```
/etc/init.d/dmgttd stop
/etc/init.d/dmgttd start
```

Integration of MWTM Server with CiscoWorks Complete.



#### Note

This step does not start the CiscoWorks server automatically. If the CiscoWorks server was not running when you began installing the MWTM, you must start it manually.

### Configuring SNMP Traps



#### Note

The MWTM can co-exist with HP OpenView on the same box for receiving traps. You need a “trap mux” program that can receive traps on one port and forward them to multiple different destinations. You can set up the MWTM and HP OpenView to listen on two different ports, and then set up trap mux to forward traps to both MWTM and HP OpenView ports.

The MWTM installation tool now displays the following prompt:

```
Would you like to configure MWTM to receive SNMP traps? [ y ]
```

#### Step 1

Do either of these:

- If you do not want to configure the MWTM to receive SNMP traps, enter **n** and press **Return**.
- If you want to configure the MWTM to receive SNMP traps, press **Return**. When you select an SNMP trap port number for the MWTM server, make sure that your network nodes use the same SNMP trap port number. See the description of the **snmp-server host** command in [ITP Router Configuration Requirements, page 1-14](#) for more information.

The MWTM install tool now displays the following prompt:

```
MWTM can receive traps natively on the standard UDP port number 162
or on any other UDP port chosen.  If another application is already
bound to the SNMP standard trap reception port of 162, an alternate
port number for MWTM to receive traps must be specified.
```

```
UDP port number 44750 is the default alternate port.
```

```
Enter trap port number? [ 162 ]
```

**Step 2** Do either of these:

- To accept the default value (recommended), press **Return**.
- Enter a different port number, and press **Return**.

If you have accepted the defaults, the MWTM install tool now displays the following information:

```
MWTM SNMP Trap Listener: Enabled
```

```
MWTM SNMP Trap Port: 162
```

```
Default SNMP read community string set to: public
```

---

### Configuring Security Services

The MWTM install tool now displays the following prompt:

```
Would you like to configure MWTM Security Services? [n]
```

---

**Step 1** Do either of these:

- If you do not want to configure MWTM Security Services, press **Return**, then go on to [Discovering your Network, page 2-14](#).
- If you want to configure MWTM Security Services, enter **y** and press **Return**.

The MWTM install tool displays the following messages and prompt:

```
MWTM provides two types of security authentication, solaris and local.
```

```
Local authentication allows creation of user accounts and passwords local to the MWTM
system. When using this method, user names, passwords, and access levels are managed
using MWTM commands.
```

```
Solaris authentication uses the standard Solaris-based user accounts and passwords as
specified in the /etc/nsswitch.conf file. Using this method, authentication can be
provided by the local /etc/passwd file or from a distributed NIS or Kerberos system.
When using this method, access levels are assigned to user accounts using MWTM
commands, but all user names and passwords are managed using Solaris commands.
```

```
The valid choices for authentication type are solaris and local.
```

```
Please choose the type of authentication to use: [local]
```

**Step 2** Do either of these:

- If you want the MWTM to use local-based authentication, press **Return**. The MWTM install tool displays the following message:

```
Authentication type set to: local.
```

- If you want the MWTM to use Solaris-based authentication, enter **solaris** and press **Return**. The MWTM install tool displays the following message:

```
Authentication type set to: solaris.
```

The MWTM install tool then displays the following information:

```
User-Based Access Protection Is Enabled.
Use the "mwtm adduser" command to add users.
Log in with user names and passwords for access to MWTM features.
```

**Choosing Network Types**

The MWTM can manage two types of networks: ITP and RAN-O. You are prompted to choose a network type or types:

Select the type of network that you want to manage. To select multiple items, enter the numbers separated by commas:

```
1) ITP
2) RAN-O
Enter your selection ->
```

**Step 1** Do one of the following:

- Enter 1 to enable ITP networks
- Enter 2 to enable RAN-O networks
- Enter 1, 2 or 2, 1 to enable both ITP and RAN-O networks

The resulting output indicates which selection(s) you have enabled.

**Note**

You can change the network type after installation using the `mwtm manage` command (see the *User Guide for the Cisco Mobile Wireless Transport Manager 6.0*).

If you are performing an upgrade, the personality is automatically set. If you are upgrading from SGM 4.1, the ITP personality is set. If you are upgrading from MWTM 5.0, the RAN-O personality is set.

**Discovering your Network**

The MWTM must discover your network during operation. If the MWTM server installation is successful, and if you do not configure the MWTM server now to automatically discover your network the first time the server starts after installation, the Discovery dialog box and the MWTM main window appear upon client startup. For details about these windows and the discovery process, see the *User Guide for the Cisco Mobile Wireless Transport Manager 6.0*.

The install tool now prompts for whether or not you want to discovery the network after startup:

```
Would you like to discover your network after startup? [n]
```

**Step 1** Do either of these:

- If you do not want the MWTM server to automatically discover your network the first time the server starts after installation, press **Return** and go on to [Enabling TFTP, page 2-15](#).
- If you want the MWTM server to automatically discover your network the first time the server starts after installation, enter **y** and press **Return**.

**Step 2** If you chose to discover the network automatically:

a. You receive the following prompt:

```
Enter name of device to use to seed discovery:
```

Enter the name or IP address of a seed node and press **Return**.



**Note** The MWTM does not verify that the node name you enter is a valid node name.

b. You then receive the following prompt:

```
Enter default SNMP read community string: [ public ]
```

Press **Return** to accept the default, or enter in a different SNMP read community string.

c. If you have the RAN-O network type selected, you see the following prompt:

```
Authentication is required for ONS discovery.
```

```
Would you like to specify default ONS credentials for use in discovery? [n]
```

Do either of the following:

- Enter **n** to bypass setting ONS credentials. ONS devices will not be discovered.
- Enter **y** to set ONS credentials. If you select yes, you are prompted as follows:

```
Enter default username:
```

```
Enter default password:
```

```
Confirm default password:
```

### Enabling TFTP

The MWTM checks to see if TFTP is installed and enabled on the system.

- If the TFTP server on this system is installed and enabled, the MWTM installation program displays the following messages and prompt:

```
=====
----- TFTP Server Check -----
=====
```

```
INFO: Checking TFTP Server... Enabled
```

Installation continues with [Concluding Server Installation, page 2-16](#).

- If the TFTP server on this system is not enabled, the MWTM installation program displays the following messages and prompt:

```

=====
===== - TFTP Server Check - =====
=====
INFO: Checking TFTP Server... Not Installed

WARNING: The TFTP server on this system is not installed.

INFO: If you plan to use this system as a TFTP server to send
INFO: configuration files to ITP devices, install and enable
INFO: the TFTP server.
```

- If the TFTP server on this system is installed but not enabled, the MWTM installation program displays the following messages and prompt:

```

=====
===== - TFTP Server Check - =====
=====

INFO: Checking TFTP Server... Not Enabled

WARNING: The TFTP server on this system is not enabled.

INFO: If you plan to use this system as a TFTP server to send
INFO: configuration files to ITP devices, enable the TFTP server
INFO: and ensure that it is working properly.

INFO: Check the /etc/inetd.conf file for an entry similar to:

    tftp dgram udp6 wait root /usr/sbin/in.tftpd in.tftpd -s /tftpboot

INFO: and make sure the line is not commented out.
```

---

**Step 1** Check the specified line in the *etc/inetd.conf* file, then press **Return**.

---

### Concluding Server Installation

The MWTM install tool next creates client web download images in preparation for installation of the client software, then finishes the installation of the MWTM server.

The MWTM install tool displays the following message:

To use this product, set your path to:

```
/opt/CSCOs/gm/bin:$PATH
```

To access the MWTM Web Server use the URL:  
[http://your\\_MWTM\\_server:your\\_web\\_server\\_port](http://your_MWTM_server:your_web_server_port)

where:

- *your\_MWTM\_server* is the name of the MWTM web server.
- *your\_web\_server\_port* is the TCP port number used by the web server.

This URL is required if you want to install the MWTM client software using the web interface on the MWTM server, as described in [Installing the MWTM Client on Solaris Using the Web Server, page 2-22](#).

**Tip**

You can also use the web interface on the MWTM server to access server logs, system information, and MWTM documentation.

### Viewing the Installation Log

The MWTM install tool now displays the following messages and prompt:

```
No Errors were encountered during installation.  
Please review /var/tmp/cisco_sgmsvr_install.log for detailed results.  
Would you like to view the log? [n]
```

#### Step 1

Do either of these:

- If you do not want to view the log, installation is complete. Press **Return**.
- If you want to view the log, enter **y** and press **Return**. The server installation log appears, followed by the prompt:

```
Press Return to continue ->
```

Press **Return**.

## Installing the MWTM Client on Solaris

The MWTM uses separate server and client installation scripts. If you choose to install both the server and client, the server script runs first, followed immediately by the client script. If you have just installed the server, client installation now begins.

### Initiating the Client Installation

The MWTM install tool now performs a system requirements check, determining whether all required patches are installed. For details on required patches, see [ITP Router Configuration Requirements, page 1-14](#).

If all the required patches are not installed, the following warning appears:

```
Some of the required OS patches are not installed on this system.  
Do you want to continue to install the MWTM - Client ? (y/n)? [N]
```

**Caution**

Installing the MWTM client without necessary Solaris patches is not recommended, and might restrict your use of some of the MWTM client features.

The install tool now performs a system-requirements check to ensure that all required patches are installed and memory requirements are met.

### Checking Release and Upgrade Information

The MWTM installation tool checks your release for all components and displays information similar to the following:

```
INFO: Checking your release... All components present.
```

The MWTM now checks for existing releases. If no existing releases are present:

```
INFO: Checking for existing product tree... None.
```

Or, if an existing release is found:

```
INFO: Checking for existing product tree... Found.
INFO: Upgrading from x.x to 6.0.0....
```

### Checking Disk Space Usage

The MWTM installation tool now attempts to determine whether there is adequate space in the default installation directory, */opt*, to install the MWTM client, and displays information similar to the following:

```
=====
----- Disk Space Usage Check -----
=====

INFO: For this product the default disk space requirements are:
      /opt                200 MB
      /var/sadm           1 MB
      /var/tmp            1 MB
      /tmp                1 MB

INFO: Checking default disk space requirements... OK.
```

- If there is adequate space, installation now continues.
- If there is not adequate space, the MWTM install tool asks you to specify a different directory. When you have specified a different directory, installation continues.

The MWTM install tool also checks the following directories to determine whether there is adequate space: */var/sadm*, */var/tmp*, and */tmp*. If there is not adequate space on any of these directories, the following message appears:

```
There is insufficient space in <directory> for installation to proceed.
```

The installation process stops and exits.

If errors or warnings are encountered up to this point, you might receive the following message:

```
System does not qualify for a Client Install. Found Errors/Warnings during system check!
Do you want to continue to install the MWTM - Client? (y/n)?
```

Do either of these:

- To continue with installation, enter **y**. The following warning appears:
 

```
WARNING: Installing the MWTM - Client without basic requirements
WARNING: may restrict you to use some of the MWTM - Client features.
```
- To stop installation, enter **n**. The installation stops and exits.

**Checking the Browser Path**

The MWTM install tool performs a browser path check and displays information similar to the following:

```
=====
----- Browser Path Check -----
=====
What is the executable path name for Browser ? [/opt/firefox/firefox]
```



**Note** You might receive a warning about launching your browser before attempting to access MWTM online help, which means that before you can view MWTM online help, you need to have your specified browser opened.

Information similar to the following appears:

The MWTM install tool now displays the following messages and prompt:

```
=====
----- MWTM Client Summary -----
=====

INFO: The following parameters will be used:

INFO: [1] Server Name      : your_MWTM_server
INFO: [2] Web Server       : your_web_server_port/tcp
INFO: [3] JSP Server       : your_JSP_server_port/tcp
INFO: [4] Naming Server    : your_naming_server_port/tcp
INFO: [5] Browser Path     : your_browser_path

INFO: Filesystems on this machine with enough space to install:

Filesystem      kbytes   used   avail capacity  Mounted on
/dev/dsk/c0t0d0s0  493688 131961 312359   30%      /
/dev/dsk/c0t0d0s4  4131384 705262 3384809   18%     /usr
/dev/dsk/c0t0d0s3  4055498  27236 3987708    1%     /var
/dev/dsk/c0t1d0s5  4573659 947350 3580573   21%     /opt

Where should the product be installed ? [/opt]
```

**Step 1** Do either of these:

- To accept the default value, press **Return**.
- Enter a different location, and press **Return**.

### Integrating the MWTM with CiscoWorks

The MWTM asks a question similar to the following:

```
Integrate MWTM Client with a CiscoWorks Server? [n]
```

---

**Step 1** Do either of these:

- To integrate the MWTM client with a CiscoWorks server, enter **y** and press **Return**.
  - To not integrate the MWTM client with a CiscoWorks server, accept the default value of **n** and press **Return**.
- 

If CiscoWorks is not installed on your system, installation continues with [Creating the Downloaded Client](#), page 2-20.

If CiscoWorks is installed on your system, the MWTM installation program automatically integrates the MWTM server with CiscoWorks and displays output similar to the following:

```
Registering MWTM Client with CiscoWorks Application Registry...

Registered MWTM Client on sgm-sun33.

Integrate MWTM Client with a CiscoWorks Server? [y]
Enter server name for CiscoWorks Server: [sgm-sun33]
Enter port number for CiscoWorks Web Server on sgm-sun33: [1741]
Enter secure port number for CiscoWorks Web Server on sgm-sun33: [443]
Integration of MWTM Client with CiscoWorks Server [sgm-sun33] complete.
```




---

**Note** This step does not start the CiscoWorks server automatically. If the CiscoWorks server was not running when you began installing the MWTM, you must start it manually.

---

### Creating the Downloaded Client

The install tool now creates the downloaded client on your system, listing the components as it proceeds.

### Concluding MWTM Client Installation

The installation of the MWTM client now concludes. The MWTM install tool displays the following message and prompt:

```
No Errors were encountered during installation.
Please review /var/tmp/cisco_sgcli_install.log for detailed results.
Would you like to view the log? [n]
```

- If you do not want to view the log, installation is complete. Press **Return**.
- If you want to view the log, enter **y** and press **Return**. The client installation log appears, followed by the prompt:

```
Press Return to continue ->
```

---

**Step 1** Press **Return**. Client installation is complete.

---

### Reviewing Client Install Results

You can review detailed results of the client installation in the client install log, `/var/tmp/cisco_sgmcli_install.log`.

## Installing the MWTM Server Only on Solaris

This procedure assumes that you have not already installed the MWTM server or client on this workstation. If you have already installed the MWTM server or client on this workstation, some steps might be added, some might be different, and some might be unnecessary and ignored by the MWTM install tool.

To install the MWTM server only:

---

**Step 1** When the following install tool startup menu displays:

- 1) Review README File First (Recommended)
- 2) Install MWTM Server and Client
- 3) Install MWTM Server Only
- 4) Install MWTM Client Only
- 5) Exit Setup

Please choose an option ->

enter **3**, then press **Return**.

See [Installing the MWTM Server on Solaris, page 2-3](#).

---

## Installing the MWTM Client Only on Solaris

This procedure assumes that you have installed the MWTM server but not the MWTM client on this workstation.

If you have already installed the MWTM client on this workstation, some steps might be added, some might be different, and some might be unnecessary and ignored by the MWTM.

During installation, the MWTM install tool prompts you for the full path to the Microsoft Internet Explorer or Mozilla executable file. Verify the location of the file before installing the MWTM client. You can run the MWTM without IE or Mozilla, but IE or Mozilla is required to:

- Access the online help.
- Install the MWTM client using the web server.
- Access the MWTM server home page.
- Start CiscoView and CiscoWorks.

You also can change the path at any time after installation using the `mwtm browserpath` command. For more information, see the “MWTM Command Reference” appendix in the *User Guide for the Cisco Mobile Wireless Transport Manager 6.0*.

## Installing the MWTM Client on Solaris Using the Install Tool

To install the MWTM client only:

---

**Step 1** When the following install tool startup menu displays:

- 1) Review README File First (Recommended)
- 2) Install MWTM Server and Client
- 3) Install MWTM Server Only
- 4) Install MWTM Client Only
- 5) Exit Setup

Please choose an option ->

enter **4**, then press **Return**.

See [Installing the MWTM Client on Solaris, page 2-17](#).

---

## Installing the MWTM Client on Solaris Using the Web Server

You can access the MWTM client installation software from the MWTM web server. This is useful if you do not have the DVD-ROM, or if you prefer to download the software from the MWTM server. After you have downloaded the MWTM client installation software to your system, you must install the software on your local system by entering the **setup.sh** command.

The following procedure explains how to download, unzip, and install the MWTM client software on a Solaris system.

To install the MWTM client using the web interface:

---

**Step 1** Create a temporary directory in a disk partition that contains at least 60 MB of space on the system where you want to install the MWTM client software.

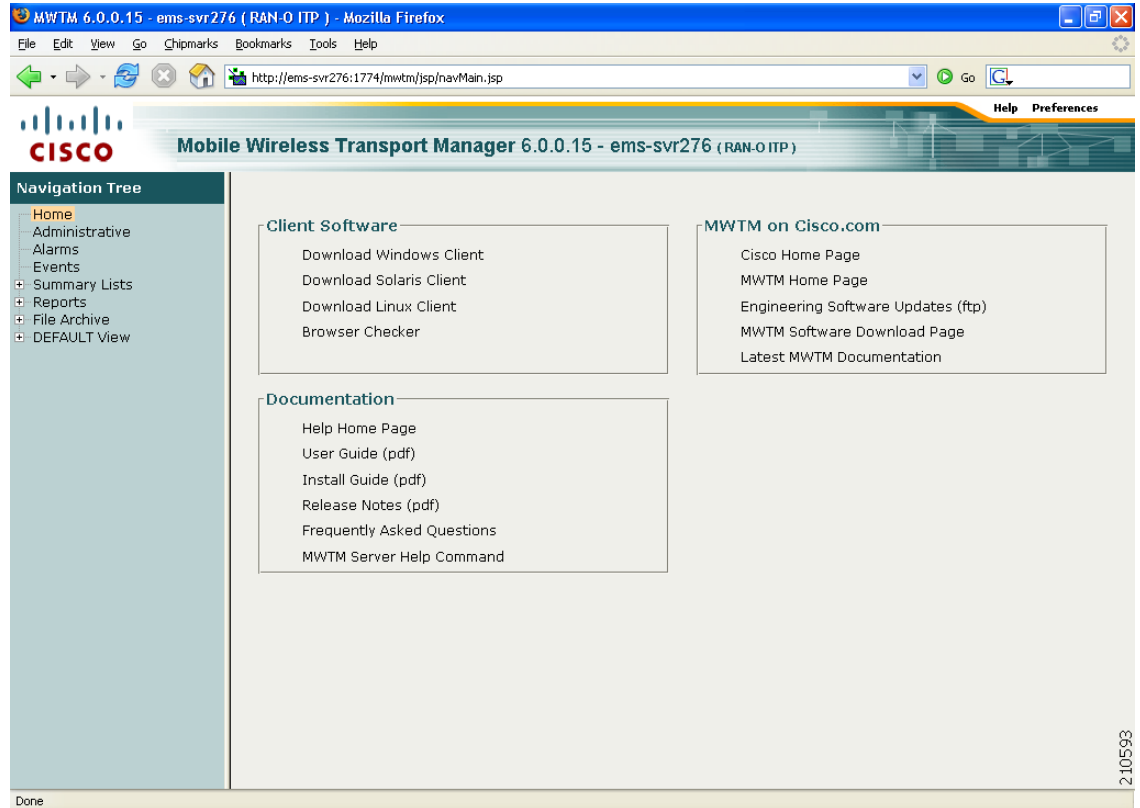
**Step 2** From your browser, go to the URL for the MWTM web server:

```
http://mwtm_web_server:1774
```

where *mwtm\_web\_server* is the name or IP address of the MWTM web server and *1774* is the web port being using by the MWTM. (**1774** is the default port number.) If you do not know the name or web port of the MWTM web server, contact the system administrator who installed the MWTM server software.

The MWTM displays the MWTM server home page ([Figure 2-1](#)).

Figure 2-1 Portion of the MWTM Server Home Page



- Step 3** Click **Download Solaris Client**. The Download Instructions for MWTM Client on Solaris page appears.
- Step 4** Click **Download the Solaris Client** to download the client software installation files.
- Step 5** When prompted, specify the directory where you want the installation software files to be downloaded, such as `/tmp/sgmClient`.
- Step 6** From the Solaris command line, change to the directory where you downloaded the installation software and unzip the files using the following command:
- ```
# unzip sgmClient60-download-sol.zip
```
- Step 7** Change to the CDImage directory using the following command:
- ```
# cd sgmClient60-download-sol
```
- Step 8** Run the MWTM client software install tool by entering the following command:
- ```
# ./setup.sh
```



**Note** If you are installing MWTM using an NFS-exported DVD-ROM drive, image checking might take several hours to complete. To avoid this problem, enter `./setup.sh -i`, which disables image checking.

The MWTM install tool displays the installation menu:

- 1) Review README File First (Recommended)
- 4) Install MWTM Client Only
- 5) Exit Setup

Please choose an option ->

Choose one of the following installation options:

- To read the latest information about the MWTM in the README file, enter **1** and press **Return**. The README file contains late-breaking information about the MWTM that might not be found in the other product documentation.
- To install only the MWTM client on the system, enter **4** and press **Return**.

The rest of the MWTM client installation is identical to the steps in [Installing the MWTM Client Only on Solaris, page 2-21](#).

- Step 9** After verifying that the MWTM client software installed successfully, remove all installation files in the temporary directory using the following command:

```
# rm -rf tmp/sgmClient
```

Where *tmp/sgmClient* is the directory containing the downloaded files.

## Verifying MWTM Installation

You can verify successful installation of the MWTM server software by performing the following tasks:

- [Checking for Error Messages, page 2-24](#)
- [Viewing Package Information for the MWTM Server and Client on Solaris, page 2-25](#)
- [Verifying the Installation Directories, page 2-25](#)

## Checking for Error Messages

During installation, messages are recorded in a log file to provide diagnostic information about problems that might arise. The location of the installation log file is provided in a message at the end of the MWTM install tool.

To check for installation error messages:

- Step 1** Log in as the root user, as described in [Preliminary Activities, page 2-4](#).

- Step 2** Use the following command to examine the MWTM server installation log:

```
# more install_directory/install/cisco_sgmsvr_install.log
```

Where *install\_directory* is the directory in which the MWTM was installed. The default installation directory for the MWTM is */opt/CSCOsgm*.

- Step 3** Press the **Space bar** to scroll through the display one screen at a time.

You can also display the MWTM server installation logs using the `mwtm installlog` command. For more information, see the “MWTM Command Reference” appendix in the *User Guide for the Cisco Mobile Wireless Transport Manager 6.0*.

## Viewing Package Information for the MWTM Server and Client on Solaris

You can use the `pkginfo` command to verify that the MWTM server (CSCOsgm-s) and MWTM client (CSCOsgm-c) software packages are installed on your system.

To view package information for the MWTM server and/or client:

---

**Step 1** Enter one of the following `pkginfo` commands:

```
# pkginfo -l CSCOsgm-s
# pkginfo -l CSCOsgm-c
```

**Step 2** Verify that you receive output similar to the following display:

```
PKGINST: CSCOsgm-s
NAME: Cisco MWTM Server
CATEGORY: application
ARCH: sparc
VERSION: 6.0.0.15
BASEDIR: /opt/CSCOsgm
VENDOR: Cisco Systems, Inc
DESC: Cisco MWTM Server
PSTAMP: ems-svr24720061212040359
INSTDATE: Dec 12 2006 14:15
HOTLINE: 1-800-553-2447
EMAIL: tac@cisco.com
STATUS: completely installed
FILES: 4439 installed pathnames
      247 directories
      4175 executables
      2 setuid/setgid executables
      350476 blocks used (approx)
```

If the package was not found, one of the following messages are displayed:

```
ERROR: information for "CSCOsgm-s" was not found
ERROR: information for "CSCOsgm-c" was not found
```

The MWTM software package was not installed. Install the MWTM again.

---

## Verifying the Installation Directories

After you install the MWTM, use the `ls` command to verify that you have a new directory structure containing the MWTM software.

- For the MWTM server, the default directory is `/opt/CSCOsgm`.
- If you installed the MWTM in a directory other than `/opt`, then the `CSCOsgm` directory is located in that directory.

## Starting the MWTM

After you install the MWTM server, verify that you can start the MWTM software using any of these methods:

- [Starting the MWTM Server on Solaris Immediately After Installation, page 2-26](#)
- [Starting the MWTM Server on Solaris from the Command Line, page 2-26.](#)
- [Starting the MWTM Client on Solaris, page 2-26](#)

**Note**

---

No harm results from attempting to start an MWTM server if it is already running.

---

## Starting the MWTM Server on Solaris Immediately After Installation

At the conclusion of installation, the MWTM install tool displays the following MWTM start menu:

- ```
1) Start MWTM Server Only
2) Exit Setup
```

Please choose an option ->

- To start the MWTM server immediately after installation, select option 1 and press **Return**.
- To exit the set up without starting the MWTM server, select option 2 and press **Return**. Use the command line option to start the MWTM server at a later time.

## Starting the MWTM Server on Solaris from the Command Line

**Note**

---

The following procedures assume that you installed the MWTM in the default directory, */opt*. If you installed the MWTM in a different directory, use the name of that directory in place of */opt*.

---

To start just the MWTM server from the command line, log in as the root user and use the following commands:

```
# cd /opt/CSCOs/gm/bin
# ./mwtm start
```

For a complete list of all of the MWTM commands, see the “MWTM Command Reference” appendix in the *User Guide for the Cisco Mobile Wireless Transport Manager 6.0*.

## Starting the MWTM Client on Solaris

The MWTM client install tool now displays the following MWTM start menu:

- ```
1) Start MWTM Server and Client
2) Start MWTM Server Only
3) Exit Setup
```

Please choose an option ->

**Note**

Starting the client on Solaris requires that you set the variable `DISPLAY` to your display in your UNIX shell environment. If you used Telnet to get to the server, you will not have access to your display and will not have the `DISPLAY` variable set automatically for you.

To start the MWTM client now, enter one of the options and press **Return**. To start the MWTM client at a later time:

**Step 1** Choose either of these options:

- Enter:  
`/opt/CSCOsgmClient/bin/mwtm client`
- Include the following in your path  
`/opt/CSCOsgmClient/bin`  
then enter:  
`mwtm client`

If the MWTM server installation was successful, and if you did not configure the MWTM server to automatically discover your network the first time the server starts after installation, the Discovery dialog box and the MWTM main window appear upon client startup. For details about these windows and the discovery process, see the *User Guide for the Cisco Mobile Wireless Transport Manager 6.0*.

## Uninstalling the MWTM

The uninstall tool provides you with a menu similar to that presented for installation.

Uninstalling the MWTM is covered in these sections:

- [Overview of the Uninstallation Process, page 2-27](#)
- [Running the Uninstall Tool on Solaris, page 2-28](#)

## Overview of the Uninstallation Process

When you run the uninstall tool, remember the following information:

- If you have the SGM on your system and are migrating to the MWTM using the in-place upgrade process, the MWTM automatically preserves all data necessary for a successful migration. However, if you uninstall SGM before migration, all SGM data also is uninstalled, and is lost. At this point, if you have an SGM backup, you can perform a backup/restore upgrade preserving your SGM data to the MWTM.
- The default for each prompt is the value in square brackets [ ]. To accept the default value, press **Return**.
- To stop the install tool at any time, press **Break** or **Ctrl-C**.
- If you elect to uninstall both the server and client, the uninstall tool uninstalls the client first.

Uninstall both the MWTM server software and client software on a Solaris system, either at the same time or separately, using the following menu options provided by the uninstall program.

1. **Uninstall MWTM Server and Client**—Use when the MWTM server and client software reside on the same Solaris system and you want to remove all of the MWTM software on that system. This option removes all of the MWTM packages from the system: the MWTM server package (CSCOSgm-s) and MWTM client package (CSCOSgm-c).
2. **Uninstall MWTM Server Only**—Use when you want to remove only the MWTM server software on this system. This option removes the MWTM server package (CSCOSgm-s).




---

**Note** Uninstalling the MWTM server also disables the MWTM client. If you want to uninstall the MWTM server, we strongly recommend that you uninstall both the MWTM server and the MWTM client.

---

3. **Uninstall MWTM Client Only**—Use when you want to remove only the MWTM client software on this system. This option removes the MWTM client package (CSCOSgm-c).

## Running the Uninstall Tool on Solaris

To uninstall the MWTM software:

---

**Step 1** Log in as the root user as described in the [Preliminary Activities, page 2-4](#).

**Step 2** If you are running an MWTM client locally, exit all open MWTM windows.



**Tip**

---

To display a list of all MWTM clients that are connected to the MWTM server, use the **mwtm who** command. To notify all MWTM clients that you are uninstalling MWTM, use the **mwtm wall** command.

---

You do not need to stop the MWTM server; the MWTM uninstall program stops the server automatically.

**Step 3** To start the uninstall script, enter the following command:

```
# /opt/CSCOSgm/install/uninstall.sh
```

If you installed the MWTM client only, enter the following command:

```
# /opt/CSCOSgmClient/install/uninstall.sh
```

You can also use the **mwtm uninstall** command; see the “MWTM Command Reference” appendix in the *User Guide for the Cisco Mobile Wireless Transport Manager 6.0*.

**Step 4** The MWTM uninstall program displays the uninstall menu. The options displayed depend on what you have installed. For example, if you have installed only the MWTM server, then your only option is to uninstall the MWTM server.

Choose one of the following actions:

- To uninstall both the MWTM server and client software, enter **1** and press **Return**. The MWTM client is uninstalled, followed by the MWTM server.
- To uninstall only the MWTM server, enter **2** and press **Return**.
- To uninstall only the MWTM client, enter **3** and press **Return**.

**Step 5** The MWTM uninstall program asks you to verify that you want to uninstall the MWTM client, server, or both. When prompted, enter **y** and press **Return**.

**Step 6** When `uninstall` is complete, the MWTM `uninstall` program displays messages indicating that the packages were deleted successfully.

For example, the following example shows the message received when uninstalling the MWTM server:

```
INFO: The following Cisco MWTM packages
INFO: have been successfully deleted from the system: CSCOsgm-s
Please review /var/tmp/cisco_sgmsvr_uninstall.log for detailed results
```

```
Would you like to view the log? [ n ] ->
```

- If you do not want to view the log, uninstallation is complete. Press **Return**.
- If you want to view the log, enter `y` and press **Return**. The server uninstallation log appears, followed by the prompt:

```
Press Return to continue ->
```

Press **Return**.

**Step 7** To verify that the MWTM server and its associated services are uninstalled, enter the following `pkginfo` commands:

```
# pkginfo -l CSCOsgm-s
ERROR: information for "CSCOsgm-s" was not found

# pkginfo -l CSCOsgm-c
ERROR: information for "CSCOsgm-c" was not found
```

---





# CHAPTER 3

## Installing the MWTM on Linux

---

This chapter describes how to install the MWTM server software on a Linux system. It also provides information about verifying the MWTM installation and uninstalling and reinstalling the MWTM on Linux.

This chapter includes the following sections:

- [Overview of the Installation Process, page 3-1](#)
- [Installation Prerequisites, page 3-2](#)
- [Installing the MWTM Server and Client on Linux, page 3-3](#)
- [Installing the MWTM Server Only on Linux, page 3-18](#)
- [Installing the MWTM Client on Linux Using the Web Server, page 3-18](#)
- [Verifying MWTM Installation, page 3-20](#)
- [Starting the MWTM on Linux, page 3-22](#)
- [Uninstalling the MWTM, page 3-23](#)

## Overview of the Installation Process

When you start the MWTM install tool, you will see these installation options:

- Installing the MWTM server and client—Use this option when you want the MWTM server and client software to reside on the same system. The MWTM uses separate server and client install tools. If you choose to install both the server and client, the server script runs first, followed immediately by the client script.



---

**Note** The client is unsupported. This is because Cisco Systems cannot exhaustively test the client side of all installations.

---

- Installing the MWTM server—Use this option when you want to install only the MWTM server software on this system.

The MWTM server software consists of the following Linux Red Hat Package Manager (RPM) packages:

- CSCOmwtm-s
- CSCOmwtm-j2re
- CSCOmwtm-web
- CSCOpenssl

When the MWTM install tool prompts you for a response, it displays the default value for each prompt in square brackets [ ]. To accept the default value, press **Return**. (When in doubt, accept the default.)

The MWTM also verifies the availability of all values, such as port numbers, before accepting them.

To stop the MWTM install tool at any time, press **Ctrl-C**.

If you attempt to install the MWTM in one window while installing another product in another window, the MWTM installation will fail. If this situation occurs, wait until all other product installations are complete, then enter the following command from the top of the MWTM CD image:

```
./uninstall.sh -n
```

This command removes all MWTM components and restores your system to a clean state. Then reinstall the MWTM.

## Installation Prerequisites

Before you run the MWTM install tool:

- Make sure your Linux system meets the requirements listed in [ITP Router Configuration Requirements, page 1-14](#).
- Determine how you want the MWTM to receive SNMP traps. If you want the MWTM to receive traps natively, determine whether MWTM is to receive traps on the standard UDP port number 162 or on another port. For example, if your ITPs have been configured to send traps to a different port, or if trap multiplexing devices and NMS applications in your network have been configured to send traps to a different port, you need to specify that port number when prompted by the MWTM install tool.
- Determine whether you want to configure MWTM Security Services, and whether you want local-based or Linux-based authentication. For more information, see the “Configuring MWTM User-Based Access” section in the *User Guide for the Cisco Mobile Wireless Transport Manager 6.0*.
- Determine whether CiscoWorks is installed on your system, whether you want to integrate the MWTM with CiscoWorks, and the name and port number for the CiscoWorks web server. The default port number is 1741.
- Determine whether you want the MWTM server to automatically discover your network the first time the server starts after installation. If so, determine the name or IP address of the node you want to use as a seed node. For more information about the Discovery process and how to use seed nodes, see the “Discovering the Network” section of the *User Guide for the Cisco Mobile Wireless Transport Manager 6.0*.

# Installing the MWTM Server and Client on Linux

This procedure assumes that you have not already installed the MWTM server or client on this workstation. If you have already installed the MWTM server or client on this workstation, some steps might be added, some might be different, and some might be unnecessary and ignored by the MWTM.

The MWTM uses separate server and client installation scripts. If you choose to install both the server and client, the server script runs first, followed immediately by the client script.

## Installing the MWTM Server on Linux

Installing the MWTM server requires the following actions, in this order. Many of these steps are partially or fully automated.

- [Preliminary Activities, page 3-4](#)
- [Starting the Install Tool, page 3-4](#)
- [Selecting the TCP/IP Address for the MWTM Server, page 3-6](#)
- [Selecting the TCP/IP Address for the MWTM Server, page 3-6](#)
- [Reviewing Your Selections, page 3-7](#)
- [Checking Disk Space Usage, page 3-8](#)
- [Checking Release and Upgrade Information, page 3-9](#)
- [Selecting Express or Standard Installation, page 3-9](#)
- [Selecting the Directory for Installation, page 3-10](#)
- [Checking for Available Ports, page 3-10](#)
- [Selecting a TCP Port for the Web Server, page 3-10](#)
- [Selecting a TCP Port for the JSP Server, page 3-11](#)
- [Selecting a TCP Port for the Naming Server, page 3-11](#)
- [Reviewing Your Selections, page 3-11](#)
- [Configuring SNMP Traps, page 3-12](#)
- [Configuring Security Services, page 3-12](#)
- [Choosing Network Types, page 3-14](#)
- [Discovering your Network, page 3-14](#)
- [Enabling TFTP, page 3-15](#)
- [Concluding Server Installation, page 3-16](#)
- [Viewing the Installation Log, page 3-16](#)
- [Verifying MWTM Installation, page 3-20](#)

**Preliminary Activities**

Complete these preliminary steps:

**Note**

These steps include logging in as the root user. As the root user, you can adversely affect your operating environment if you are unaware of the effects of the commands you use. If you are a relatively inexperienced Linux user, limit your activities as the root user to the tasks described in this guide.

**Step 1** If you have not already logged in, log in as the root user:

```
> login: root
> Password: root-password
```

If you are already logged in, but not as the root user, use the **su** command to change your login to root:

```
# su
# Password: root-password
```

**Step 2** Mount the DVD-ROM drive, as described in [Appendix A, “Mounting and Unmounting the DVD-ROM Drive for Installations on Solaris or Linux.”](#)

**Step 3** Change to the mounted directory using the **cd** command:

```
# cd /cdrom/MWTM60/linux
```

or

```
# cd /cdrom/cdrom0/linux
```

**Starting the Install Tool**

In this step you start the install tool and select the appropriate installation option.

**Step 1** Start the install tool by entering the following command:

```
# ./setup.sh
```

or

```
# ./setup.sh -i
```

**Note**

If you are installing the MWTM using an NFS-exported DVD-ROM drive, image checking is highly recommended, however it can take several hours to complete. To avoid this problem, enter **./setup.sh -i**, which disables image checking.

**Step 2** The MWTM install tool displays the installation menu:

- 1) Review README File First (Recommended)
- 2) Install MWTM Server and Client (Client Unsupported)
- 3) Install MWTM Server
- 4) Exit Setup

Please choose an option ->

Choose one of the following installation options:

- To read the latest information about the MWTM in the README file, enter **1**, then press **Return**.  
The README file contains late-breaking information about the MWTM that might not be found in the other product documentation.
- To install both the MWTM server and client, enter **2**, then press **Return**.  
The MWTM uses separate server and client install tools. If you choose to install both the server and client, the server script runs first, followed immediately by the client script.



**Note** The Linux client works with many distributions, but it is not formally supported. Use it at your own discretion.

You can also install the Linux client from the MWTM Web interface (for details, see [Installing the MWTM Client on Linux Using the Web Server, page 3-18](#)).

- To install the MWTM server alone, enter **3**, then press **Return**.
- To exit the install tool, enter **4**, then press **Return**.

If you selected option 2 or 3, the install tool displays information similar to the following:

```
===== MWTM Server Install Tool Started =====
Started : date, time
Host    : Linux your_MWTM_server
Version : 6.0.0
=====

INFO: Checking UID... root,    OK.
```

where *your\_MWTM\_server* is the name of your MWTM server.

The install tool now performs a system-requirements check to ensure that all requirements are met. Information similar to the following appears:

```

=====
----- System Requirements Check -----
=====
INFO: Checking Host Operating System...Linux, OK.
INFO: Checking Operating System Version... 4, OK.
INFO: Checking for RHEL Update Number... 4, OK.

INFO: This product requires:
      RAM      2048 MB
      SWAP     4096 MB
      CPU      1024 MHz
INFO: Checking RAM... 2048 MB OK
INFO: Checking Swap... 4096 MB OK
INFO: Checking CPU... 2 x 1005 MHz OK

INFO: Version on System: SGM 4.1 (or MWTM 5.0)
INFO: Available Latest Version: MWTM 6.0

```

If any requirement is missing, a warning message appears. For a list of all system requirements, see [ITP Router Configuration Requirements, page 1-14](#).

If you are performing an upgrade, one of the following messages appear:

```

INFO: Upgrade from SGM version 4.1 to MWTM version 6.0 supported.
or
INFO: Upgrade from MWTM version 5.0 to MWTM version 6.0 supported.

```

### Selecting the TCP/IP Address for the MWTM Server

The install tool now performs a TCP/IP port usage check. Information similar to the following appears:

```

=====
----- TCP/IP Address Check -----
=====

The server must bind to a specific IP address. This address will be used
by any remote client connecting to the server.

Available IP addresses
-----
172.16.0.0
172.31.255.255

Enter IP address to use for client communications:

```

---

**Step 1** Enter the IP address that you want to use, choosing from the list of available IP addresses, then press **Return**.

If you are performing an upgrade, or if only one IP address is available, you are not prompted to enter an IP address, as the system uses the previous configuration or single IP address to make that determination, and provides output similar to:

```
Using 172.31.255.255 for client communications
```

---

### Checking the TCP/IP Port Usage for the MWTM Server

The install tool now performs a TCP/IP port usage check. Information similar to the following appears:

```

=====
----- TCP/IP Port Usage Check -----
=====

INFO: This product uses these port numbers by default:

INFO:  [ 1] Server Name       : your_MWTM_server
INFO:  [ 2] Web Server        : 1774/tcp
INFO:  [ 3] JSP Server        : 1775/tcp
INFO:  [ 4] Naming Server     : 44742/tcp

INFO: Checking the system for available ports to see if these are in use...

INFO: Checking port  1774 for Web Server  ... Available.
INFO: Checking port  1775 for JSP Server  ... Available.
INFO: Checking port  44742 for Naming Server... Available.

```

where *your\_MWTM\_server* is the name of the MWTM server.

If any ports are in use, you receive prompts for any ports that need to be configured. However, if you are performing an upgrade, the system automatically uses ports defined in the previous installation, and skips to [Checking Disk Space Usage, page 3-8](#).

### Reviewing Your Selections

The install tool now displays information similar to the following:

```

=====
----- MWTM Server Summary -----
=====

INFO: The following parameters will be used:

INFO:  [1] Server Name       : your_MWTM_server
INFO:  [2] Web Server        : 1774/tcp
INFO:  [3] JSP Server        : 1775/tcp
INFO:  [4] Naming Server     : 44742/tcp

Press Return to continue ->

```

where *your\_MWTM\_server* is the name of the MWTM server.

---

**Step 1** Press **Return**. The MWTM now checks for disk space usage.

---

### Checking Disk Space Usage

The MWTM installation tool now attempts to determine whether there is adequate space in the default installation directory, */opt*, to install the MWTM server, and displays information similar to the following:

```
=====
----- Disk Space Usage check -----
=====

INFO: For this product the default disk space requirements are:
      /opt                300 MB
      /var/lib/rpm        1 MB
      /var/tmp            1 MB
      /tmp                1 MB

INFO: Checking default disk space requirements... OK.

=====
```



**Note** The */var/lib/rpm* directory is the default on most devices, but might vary depending upon your device set up.

- If there is adequate space, installation now continues.
- If there is not adequate space, the MWTM install tool asks you to specify a different directory. When you have specified a different directory, installation continues.

The MWTM install tool also checks the */var/sadm* directory to determine whether there is adequate space. If there is not adequate space on any of these directories, the following message appears:

```
INFO: There is insufficient space in </directory> for an installation
INFO: to proceed. Disk Space of at least <x> MB
INFO: is required for the install.
Cannot continue...
```

The installation process stops and exits.

If errors or warnings are encountered up to this point, you might receive the following message:

```
System does not qualify for a Server Install. Found Errors/Warnings during system check!
Do you want to continue to install the MWTM - Server? (y/n)?
```

Do either of these:

- To continue with installation, enter **y**. The following warning appears:
 

```
WARNING: Installing the MWTM - Server without basic requirements
WARNING: may restrict you to use some of the MWTM - Server features.
```
- To stop installation, enter **n**. The installation stops and exits.

**Checking Release and Upgrade Information**

The MWTM installation tool checks your release for all components and displays information similar to the following:

```
INFO: Checking your release... All components present.
```

The MWTM now checks for existing releases. If no existing releases are present:

```
INFO: Checking for existing product tree... None.
```

Or, if an existing release is found:

```
INFO: Checking for existing product tree... Found.
```

If an existing release is found, you are prompted to upgrade:

```
Do you want to upgrade to MWTM - Server version 6.0 (y/n)?
```

---

**Step 1** Do either of these:

- Enter **y** to continue upgrading. The installation proceeds, using prior settings. No further questions are asked. Skip to [Viewing the Installation Log, page 3-16](#).
  - Enter **n** to stop the process.
- 

**Selecting Express or Standard Installation**

The Express Install option uses default settings, minimizing system prompts, and places the MWTM in the */opt* directory.

If your system does not meet the requirements for Express Install, installation now continues with [Selecting the Directory for Installation, page 3-10](#). If you are upgrading, Express Install is not an option.

If your system does meet the requirements, the install tool displays the following information and prompt:

```
=====
----- Express Install Check -----
=====
```

```
The Express Install takes all defaults and places the product
in /opt. No more questions will be asked.
```

```
Do you want the Express Install (y/n)? [Y]
```

---

**Step 1** Choose either of these installation options:

- To choose the Express Install, press **Return**.
  - To choose the standard installation, which prompts you for additional information, enter **n**, then press **Return**.
-

### Selecting the Directory for Installation

The MWTM install tool then displays the following prompt:

```
INFO: Filesystems on this machine with enough space to install:
Filesystem      kbytes    used   avail capacity Mounted on
/dev/dsk/c0t0d0s0 493688 126228 318092    29%    /
/dev/dsk/c0t0d0s4 7153253 677611 6404110   10%    /usr
/dev/dsk/c0t0d0s3 1018382 23281 933999    3%    /var
/dev/dsk/c0t1d0s5 4573659 1570527 2957396   35%    /opt
```

Where should the product be installed ? [/opt]

---

**Step 1** Do either of these:

- To accept the default value, press **Return**.
  - Enter a different location, and press **Return**.
- 

### Checking for Available Ports

If you did not select express installation, the MWTM install tool then displays information similar to the following:

INFO: This product uses these port numbers by default:

```
INFO:  [ 1] Server Name      : ems-lnx179.cisco.com
INFO:  [ 2] Web Server       : 1774/tcp
INFO:  [ 3] JSP Server       : 1775/tcp
INFO:  [ 4] Naming Server    : 44742/tcp
INFO:  [ 5] Browser Path     : /opt/netscape/netscape
```

INFO: Checking the system to see if these are already in use...

```
INFO: Checking port 1774 for Web Server ... Available.
INFO: Checking port 1775 for JSP Server ... Available.
INFO: Checking port 44742 for Naming Server... Available.
```

INFO: Express install disabled.

INFO: You will be prompted for any ports which need to be configured.

### Selecting a TCP Port for the Web Server

The MWTM works on standard web port 80. However, any software you install in the future that requires port 80 could conflict with the MWTM. The MWTM install tool therefore now prompts for a TCP server for the web server to use:

Which tcp port should Web Server use? [1774]

---

**Step 1** Do either of these:

- To accept the default value (recommended), press **Return**.
  - Enter a different port number, and press **Return**.
-

**Selecting a TCP Port for the JSP Server**

The MWTM install tool now displays the following prompt:

```
Which tcp port should JSP Server use? [1775]
```

**Step 1** Do either of these:

- To accept the default value, press **Return**.
- Enter a different port number, and press **Return**.



**Note** After you confirm all port selections, the install tool sets the JSP server shutdown port to 1776 by default.

**Selecting a TCP Port for the Naming Server**

The MWTM install tool now displays the following prompt:

```
Which tcp port should Naming Server use? [44742]
```

**Step 1** Do either of these:

- To accept the default value, press **Return**.
- Enter a different port number, and press **Return**.

**Reviewing Your Selections**

The MWTM install tool now displays the following messages and prompt:

```
=====
----- MWTM Server Summary -----
=====

INFO: The following parameters will be used:

INFO:  [1] Server Name      : your_MWTM_server
INFO:  [2] Web Server       : your_web_server_port/tcp
INFO:  [3] JSP Server        : your_JSP_server_port/tcp
INFO:  [4] Naming Server     : your_naming_server_port/tcp
INFO:  [5] Browser Path      : your_browser_path
```

If necessary, you can change these settings after installing the MWTM by using the following commands:

- To change the Server Name, use the **mwtm servername** command. The MWTM client name changes to match the new server name.
- To change the Browser Path, use the **mwtm browserpath** command.
- To change the Web Server TCP port number, use the **mwtm webport** command.
- To change the JSP Server TCP port number, use the **mwtm jspport** command.
- To verify the new settings, use the **mwtm props** command.

The MWTM install tool then displays the following prompt:

```
Press Return to continue ->
```

---

**Step 1** Press **Return**. The install tool updates the relevant files.

---

### Configuring SNMP Traps

The MWTM can receive traps natively on default UDP port number 162, or on any other UDP port that you choose. If another application is already bound to this standard SNMP trap-reception port, you must specify an alternate port number for MWTM to receive traps. The default UDP port number is 44750.



#### Note

When you select an SNMP trap port number for the MWTM server, make sure that your devices use the same SNMP trap port number. See the description of the **snmp-server host** command in [ITP Router Configuration Requirements, page 1-14](#) for more information.

---

The MWTM install tool now displays the following prompt:

```
Would you like to configure MWTM to receive SNMP traps? [y]
```

---

**Step 1** Do either of these:

- If you do not want to configure the MWTM to receive SNMP traps, enter **n** and press **Return**.
- If you want to configure the MWTM to receive SNMP traps, press **Return**.

The MWTM enables the trap listener, sets the SNMP trap type and port as specified, and by default sets the SNMP read community string to public.

---

### Configuring Security Services

MWTM provides two types of security authentication: Linux and local. Local authentication allows creation of user accounts and passwords local to the MWTM system. When using this method, you can manage usernames, passwords, and access levels using MWTM commands.

Linux authentication uses the standard Linux-based user accounts and passwords, as specified in the `/etc/nsswitch.conf` file. Using this method, authentication can be provided by the local `/etc/passwd` file or from a distributed NIS or Kerberos system. When you use this method, you can assign access levels to user accounts using MWTM commands, but you can manage all usernames and passwords using Linux commands.

The MWTM install tool now displays the following prompt:

```
Would you like to configure MWTM Security Services? [n]
```

---

**Step 1** Do either of these:

- If you do not want to configure MWTM Security Services, press **Return**, then go on to [Discovering your Network, page 3-14](#).
- If you want to configure MWTM Security Services, enter **y** and press **Return**.

The MWTM install tool displays the following messages and prompt:

```
MWTM provides two types of security authentication, linux and local.
```

```
Local authentication allows creation of user accounts and passwords local to the MWTM system. When using this method, user names, passwords, and access levels are managed using MWTM commands.
```

```
Linux authentication uses the standard linux-based user accounts and passwords as specified in the /etc/nsswitch.conf file. Using this method, authentication can be provided by the local /etc/passwd file or from a distributed NIS or Kerberos system. When using this method, access levels are assigned to user accounts using MWTM commands, but all user names and passwords are managed using linux commands.
```

```
The valid choices for authentication type are linux and local.
```

```
Please choose the type of authentication to use: [local]
```

**Step 2** Do either of these:

- If you want the MWTM to use local-based authentication, press **Return**. The MWTM install tool displays the following message:

```
Authentication type set to: local.
```

- If you want the MWTM to use Linux-based authentication, enter **linux** and press **Return**. The MWTM install tool displays the following message:

```
Authentication type set to: linux.
```

The MWTM install tool then displays the following messages:

```
User-Based Access Protection Is Enabled.
```

```
Use the "mwtm adduser" command to add users.
```

```
Log in with user names and passwords for access to MWTM features.
```

---

### Choosing Network Types

The MWTM can manage two types of networks: ITP and RAN-O. You are prompted to choose a network type or types:

Select the type of network that you want to manage. To select multiple items, enter the numbers separated by commas:

```
1) ITP
2) RAN-O
Enter your selection ->
```

---

**Step 1** Do one of the following:

- Enter 1 to enable ITP networks
- Enter 2 to enable RAN-O networks
- Enter 1, 2 or 2, 1 to enable both ITP and RAN-O networks

The resulting output indicates which selection(s) you have enabled.

---



**Note** You can change the network type after installation using the `mwtm manage` command (see the *User Guide for the Cisco Mobile Wireless Transport Manager 6.0* ).

If you are performing an upgrade, the personality is automatically set. If you are upgrading from SGM 4.1, the ITP personality is set. If you are upgrading from MWTM 5.0, the RAN-O personality is set.

---

### Discovering your Network

The MWTM must discover your network during operation. If the MWTM server installation is successful, and if you do not now configure the MWTM server to automatically discover your network the first time the server starts after installation, the Discovery dialog box and the MWTM main window appear upon client startup. For details about these windows and the discovery process, see the *User Guide for the Cisco Mobile Wireless Transport Manager 6.0*.

The install tool now prompts for whether or not you want to discovery the network after startup:

```
Would you like to discover your network after startup? [n]
```

---

**Step 1** Do either of these:

- If you do not want the MWTM server to automatically discover your network the first time the server starts after installation, press **Return** and go on to [Enabling TFTP, page 2-15](#).
- If you want the MWTM server to automatically discover your network the first time the server starts after installation, enter **y** and press **Return**.

**Step 2** If you chose to discover the network automatically:

- a. You receive the following prompt:

```
Enter name of device to use to seed discovery:
```

Enter the name or IP address of a seed node and press **Return**.




---

**Note** The MWTM does not verify that the node name you enter is a valid node name.

---

- b. You then receive the following prompt:

```
Enter default SNMP read community string: [ public ]
```

Press **Return** to accept the default, or enter in a different SNMP read community string.

- c. If you have the RAN-O network type selected, you see the following prompt:

```
Authentication is required for ONS discovery.
```

```
Would you like to specify default ONS credentials for use in discovery? [n]
```

Do either of the following:

- Enter **n** to bypass setting ONS credentials.
- Enter **y** to set ONS credentials. If you select yes, you are prompted as follows:

```
Enter default username:
Enter default password:
Confirm default password:
```

---

### Enabling TFTP

The MWTM checks to see if TFTP is installed and enabled on the system.

- If the TFTP server on this system is installed and enabled, the MWTM installation program displays the following messages and prompt:

```
=====
----- TFTP Server Check -----
=====
```

```
INFO: Checking TFTP Server... Enabled
```

Installation continues with [Concluding Server Installation, page 3-16](#).

- If the TFTP server on this system is not enabled, the MWTM installation program displays the following messages and prompt:

```
INFO: Checking TFTP Server... Not Installed
```

```
WARNING: The TFTP server on this system is not installed.
```

```
INFO: If you plan to use this system as a TFTP server to send
INFO: configuration files to ITP devices, install and enable
INFO: the TFTP server.
```

- If the TFTP server on this system is installed but not enabled, the MWTM installation program displays the following messages and prompt:

```
INFO: Checking TFTP Server... Not Enabled
```

```
WARNING: The TFTP server on this system is not enabled.
```

```
INFO: If you plan to use this system as a TFTP server to send
INFO: configuration files to ITP devices, enable the TFTP server
INFO: and ensure that it is working properly.
```

```
INFO: Check the /etc/xinetd.d/tftp file for the entries:
      disable = no and user = rootCheck the specified line in the etc/inetd.conf file,
then press Return.
```

### Concluding Server Installation

The MWTM install tool now finishes the installation of the MWTM server and displays the following message:

To use this product, set your path to:

```
/opt/CSCOmwtm/bin:$PATH
```

To access the MWTM Web Server use the URL:

```
http://your_MWTM_server:your_web_server_port
```

where:

- *your\_MWTM\_server* is the name of the MWTM web server.
- *your\_web\_server\_port* is the TCP port number used by the web server.



#### Tip

You can also use the web interface on the MWTM server to access server logs, system information, and MWTM documentation.

### Viewing the Installation Log

The MWTM install tool now displays the following messages and prompt:

```
No Errors were encountered during installation.
```

```
start date/time
end_date/time
```

```
Please review /var/tmp/cisco_sgmsvr_install.log for detailed results.
Would you like to view the log? [n]
```

#### Step 1

Do either of these:

- If you do not want to view the log, installation is complete. Press **Return**.
- If you want to view the log, enter **y** and press **Return**. The server installation log appears, followed by the prompt:

```
Press Return to continue ->
```

Press **Return**.

## Installing the MWTM Client on Linux

The MWTM uses separate server and client installation scripts. If you choose to install both the server and client, the server script runs first, followed immediately by the client script. If you have just installed the server, client installation now begins. The MWTM install tool performed the necessary system requirements check when you started the server installation.

The MWTM install tool now displays information similar to the following:

```
=====
----- MWTM Client Install Tool Started -----
Started : Wed Apr 26 16:58:51 EDT 2006
Host    : Linux your_MWTM_server
Version : 6.0.0.x
=====
Archive:  archive_path
```

where:

- *your\_MWTM\_server* is the name of the MWTM web server.
- *archive\_path* is the path to the download zip file.

The MWTM install tool now unpacks the zip file, listing the content files as it goes.

The MWTM install tool now displays the following messages and prompt:

To start the MWTM Client type:

```
/opt/CSCOsgmClient/bin/mwtm client
```

or include /opt/CSCOsgmClient/bin in your path and type 'mwtm client'

```
Would you like to view the log? [ n ] ->
```

---

### Step 1 Do either of these:

- If you do not want to view the log, installation is complete. Press **Return**.
- If you want to view the log, enter **y** and press **Return**. The server installation log appears, followed by the prompt:

```
Press Return to continue ->
```

Press **Return**.

---

## Installing the MWTM Server Only on Linux

This procedure assumes that you have not already installed the MWTM server or client on this workstation. If you have already installed the MWTM server or client on this workstation, some steps might be added, some might be different, and some might be unnecessary and ignored by the MWTM install tool.

To install the MWTM server only:

---

**Step 1** When the following install tool startup menu displays:

- 1) Review README File First (Recommended)
- 2) Install MWTM Server and Client (Client Unsupported)
- 3) Install MWTM Server
- 4) Exit Setup

Please choose an option ->

enter **3**, then press **Return**.

See [Installing the MWTM Server on Linux, page 3-3](#), for the remaining steps in this procedure.

---

## Installing the MWTM Client on Linux Using the Web Server

While you cannot install the client alone from the MWTM install tool, you can access the MWTM client installation software from the MWTM web server. After you have downloaded the MWTM client installation software to your system, you must install the software on your local system by entering the **setup.sh** command.

The following procedure explains how to download, unzip, and install the MWTM client software on a Linux system.

To install the MWTM client using the web interface:

---

**Step 1** Create a temporary directory in a disk partition that contains at least 60 MB of space on the system where you want to install the MWTM client software.

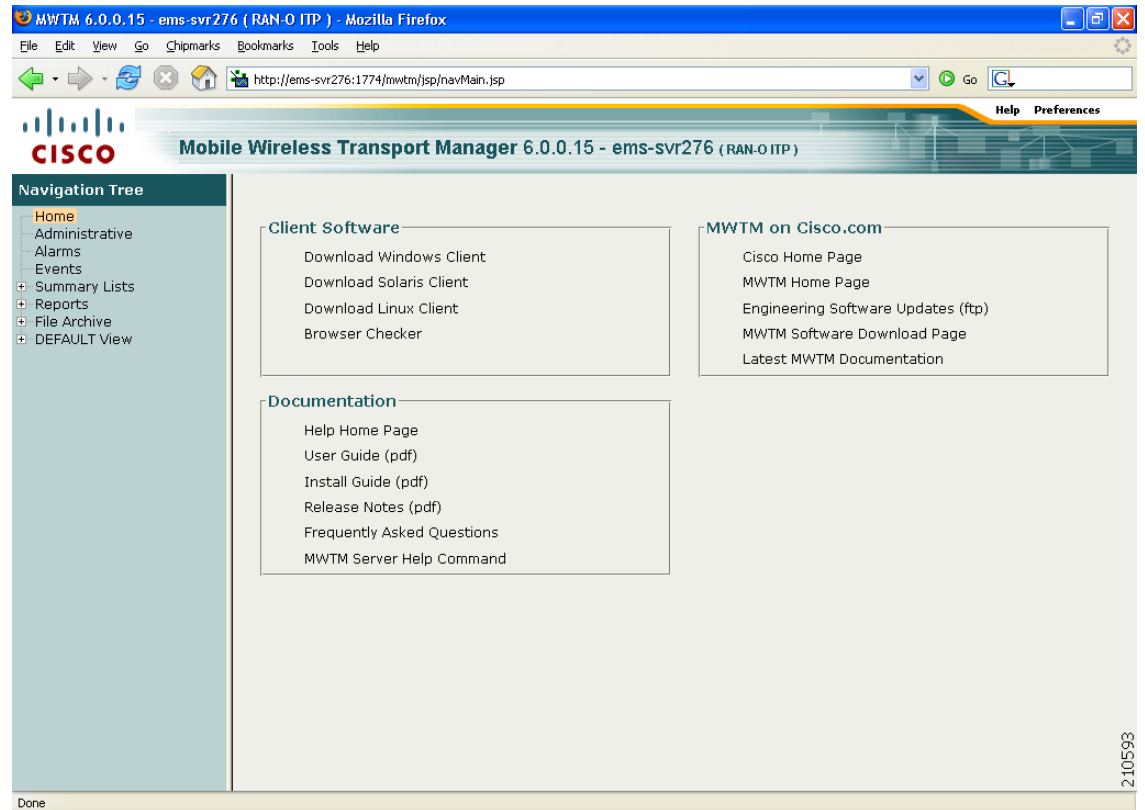
**Step 2** From your browser, go to the URL for the MWTM web server:

`http://mwtm_web_server:1774`

where `mwtm_web_server` is the name or IP address of the MWTM web server and `1774` is the web port being using by the MWTM. (**1774** is the default port number.) If you do not know the name or web port of the MWTM web server, contact the system administrator who installed the MWTM server software.

The MWTM displays the MWTM server home page ([Figure 3-1](#)).

Figure 3-1 Portion of the MWTM Server Home Page



- Step 3** Scroll down to and click **Download Linux Client**. The Download Instructions for MWTM Client on Linux page appears.
- Step 4** Click **Download the Linux Client** to download the client software installation files.
- Step 5** When prompted, specify the directory where you want the installation software files to be downloaded, such as `/tmp/mwtmClient`.
- Step 6** From the Linux command line, change to the directory where you downloaded the installation software and unzip the files using the following command:
- ```
# unzip mwtmClient60-download-linux.zip
```
- Step 7** Change to the CDImage directory using the following command:
- ```
# cd mwtmClient60-download-linux
```
- Step 8** Run the MWTM client software install tool by entering the following command:
- ```
# ./setup.sh
```



**Note** If you are installing MWTM using an NFS-exported DVD-ROM drive, image checking might take several hours to complete. To avoid this problem, enter `./setup.sh -i`, which disables image checking.

The MWTM install tool displays the installation menu:

- ```
1) Review README File First (Recommended)
4) Install MWTM Client Only
5) Exit Setup
```

Please choose an option ->

Choose one of the following installation options:

- To read the latest information about the MWTM in the README file, enter **1** and press **Return**. The README file contains late-breaking information about the MWTM that might not be found in the other product documentation.
- To install only the MWTM client on the system, enter **4** and press **Return**.

**Step 9** After verifying that the MWTM client software installed successfully, remove all installation files in the temporary directory using the following command:

```
# rm -rf tmp/mwtmClient
```

where *tmp/mwtmClient* is the directory containing the downloaded files.

---

## Verifying MWTM Installation

You can verify successful installation of the MWTM server software by performing the following tasks:

- [Checking for Error Messages, page 3-20](#)
- [Viewing Package Information for the MWTM Server on Linux, page 3-21](#)
- [Verifying the Installation Directories, page 3-21](#)

## Checking for Error Messages

During installation, messages are recorded in a log file to provide diagnostic information about problems that might arise. The location of the installation log file is provided in a message at the end of the MWTM install tool.

To check for installation error messages:

**Step 1** Log in as the root user, as described in [Preliminary Activities, page 3-4](#).

**Step 2** Use the following command to examine the MWTM server installation log:

```
# more install_directory/install/cisco_mwtmsvr_install.log
```

Where *install\_directory* is the directory in which the MWTM was installed. The default installation directory for the MWTM is */opt/CSCOmwtm*.

**Step 3** Press the **Space bar** to scroll through the display one screen at a time.

---

You can also display the MWTM server installation logs using the **mwtm installog** command. For more information, see the “MWTM Command Reference” appendix in the *User Guide for the Cisco Mobile Wireless Transport Manager 6.0*.

## Viewing Package Information for the MWTM Server on Linux

You can use the **rpm** command to verify that the MWTM server (CSCOmwtm-s) software package is installed on your system.

To view package information for the MWTM server:

---

**Step 1** Enter one of the following **rpm** commands:

```
# rpm -qi CSCOsgm-s
# rpm -qi CSCOsgm-j2re
# rpm -qi CSCOsgm-web
# rpm -qi CSCOsgm-openssl
```

**Step 2** Verify that you receive output similar to the following display:

```
Name: CSCOsgm-s
Relocations: /opt/CSCOsgm
Version: 6.0.0
Vendor: Cisco Systems, Inc.
Release: 01
Build Date: Mon 18 Dec 2006 03:39:41 AM EST
Install Date: Mon 18 Dec 2006 11:46:22 AM EST
Build Host: localhost.localdomain
Group: Cisco/Network Management
Source RPM: CSCOsgm-s-6.0.0-01.src.rpm
Size: 51993130
License: Copyright 2005 Cisco Systems, Inc.
Signature: (none)
Summary: Cisco Mobile Wireless Transport Manager - Server
Description: The Cisco Mobile Wireless Transport Manager.
```

If the package was not found, one of the following messages are displayed:

```
package "CSCOsgm-s" is not installed
package "CSCOsgm-j2re" is not installed
package "CSCOsgm-web" is not installed
package "CSCOsgm-openssl" is not installed
```

The MWTM software package was not installed. Install the MWTM again.

---

## Verifying the Installation Directories

After you install the MWTM, use the **ls** command to verify that you have a new directory structure containing the MWTM software.

- For the MWTM server, the default directory is */opt/CSCOsgm*.
- If you installed the MWTM in a directory other than */opt*, then the *CSCOsgm* directory is located in that directory.

## Starting the MWTM on Linux

After you install the MWTM server, verify that you can start the MWTM software using any of these methods:

- [Starting the MWTM Server on Linux Immediately After Installation, page 3-22](#)
- [Starting the MWTM Server on Linux from the Command Line, page 3-22](#)
- [Starting the MWTM Client on Linux, page 3-22](#)

**Note**

No harm results from attempting to start an MWTM server if it is already running.

## Starting the MWTM Server on Linux Immediately After Installation

At the conclusion of installation, the MWTM install tool displays the following MWTM start menu:

- ```
1) Start MWTM Server Only
2) Exit Setup
```

Please choose an option ->

- To start the MWTM server immediately after installation, select option 1 and press **Return**.
- To exit the set up without starting the MWTM server, select option 2 and press **Return**. Use the command line option to start the MWTM server at a later time.

## Starting the MWTM Server on Linux from the Command Line

**Note**

The following procedures assume that you installed the MWTM in the default directory, */opt*. If you installed the MWTM in a different directory, use the name of that directory in place of */opt*.

To start just the MWTM server from the command line, log in as the root user and use the following commands:

```
# cd /opt/CSCOs/gm/bin
# ./mwtm start
```

For a complete list of all of the MWTM commands, see the “MWTM Command Reference” appendix in the *User Guide for the Cisco Mobile Wireless Transport Manager 6.0*.

## Starting the MWTM Client on Linux

The MWTM client install tool now displays the following MWTM start menu:

- ```
1) Start MWTM Server and Client
2) Start MWTM Server Only
3) Exit Setup
```

Please choose an option ->

**Note**

Starting the client on Linux requires that you set the variable `DISPLAY` to your display in your Linux shell environment. If you used Telnet to get to the server, you will not have access to your display and will not have the `DISPLAY` variable set automatically for you.

To start the MWTM client now, enter one of the options and press **Return**. To start the MWTM client at a later time:

**Step 1** Choose either of these options:

- Enter:  
`/opt/CSCOsgmClient/bin/mwtm client`
- Include the following in your path  
`/opt/CSCOsgmClient/bin`  
then enter:  
`mwtm client`

If the MWTM server installation was successful, and if you did not configure the MWTM server to automatically discover your network the first time the server starts after installation, the Discovery dialog box and the MWTM main window appear upon client startup. For details about these windows and the discovery process, see the *User Guide for the Cisco Mobile Wireless Transport Manager 6.0*.

## Uninstalling the MWTM

The uninstall tool provides you with a menu similar to that presented for installation.

Uninstalling the MWTM is covered in these sections:

- [Overview of the Uninstallation Process, page 3-23](#)
- [Running the Uninstall Tool on Linux, page 3-24](#)

## Overview of the Uninstallation Process

When you run the uninstall program, remember the following information:

- If you have the SGM on your system and are migrating to the MWTM using the in-place upgrade process, the MWTM automatically preserves all data necessary for a successful migration. However, if you uninstall SGM before migration, all SGM data also is uninstalled, and is lost. At this point, if you have an SGM backup, you can perform a backup/restore upgrade preserving your SGM data to the MWTM.
- The default for each prompt is the value in square brackets [ ]. To accept the default value, press **Return**.
- If you elect to uninstall both the server and client, the uninstall tool uninstalls the client first.
- To stop the install tool at any time, press **Break** or **Ctrl-C**.

## Running the Uninstall Tool on Linux

To uninstall the MWTM software:

**Step 1** Log in as the root user, as described in [Preliminary Activities, page 3-4](#).

**Step 2** If you are running an MWTM client locally, exit all open MWTM windows.



**Tip**

To display a list of all MWTM clients that are connected to the MWTM server, use the **mwtm who** command. To notify all MWTM clients that you are uninstalling MWTM, use the **mwtm wall** command.

You do not need to stop the MWTM server; the MWTM uninstall program stops the server automatically.

**Step 3** To start the uninstall tool, enter the following command:

```
# /opt/CSCOsgm/install/uninstall.sh
```

You can also use the **mwtm uninstall** command; see the “MWTM Command Reference” appendix in the *User Guide for the Cisco Mobile Wireless Transport Manager 6.0*.

**Step 4** The MWTM uninstall program displays the uninstall menu. To uninstall the MWTM server, enter **1** and press **Return**.

**Step 5** The MWTM uninstall program asks you to verify that you want to uninstall the MWTM server. When prompted, enter **y** and press **Return**.

**Step 6** When uninstall is complete, the MWTM uninstall program displays messages indicating that the packages were deleted successfully.

For example, the following example shows the message received when uninstalling the MWTM server:

```
INFO: The following Cisco MWTM
INFO: packages have been successfully deleted from the system: CSCOsgm-s CSCOsgm-j2re
CSCOsgm-web CSCOsgm-openssl
Please review /var/tmp/cisco_sgmsvr_uninstall.log for detailed results
```

```
Would you like to view the log? [ n ] ->
```

- If you do not want to view the log, uninstallation is complete. Press **Return**.
- If you want to view the log, enter **y** and press **Return**. The server uninstallation log appears, followed by the prompt:

```
Press Return to continue ->
```

Press **Return**.

**Step 7** To verify that the MWTM server and its associated services are uninstalled, enter the following **rpm** commands:

```
# rpm -q CSCOsgm-s
# rpm -q CSCOsgm-j2re
# rpm -q CSCOsgm-web
# rpm -q CSCOsgm-openssl
```

```
package "CSCOsgm-s" is not installed
package "CSCOsgm-j2re" is not installed
package "CSCOsgm-web" is not installed
package "CSCOsgm-openssl" is not installed
```



## CHAPTER 4

# Installing the MWTM Client on Windows

---

The MWTM client software can be installed on a Windows XP Professional system from the DVD-ROM or downloaded from the MWTM server's web server. This chapter describes how to install the MWTM client software, how to verify installation, and how to uninstall and reinstall the MWTM on Windows.

This chapter includes the following sections:

- [Installing the MWTM Client for Windows from the DVD-ROM, page 4-1](#)
- [Installing the MWTM Client for Windows Using the Web Server, page 4-2](#)
- [Verifying MWTM Client Installation, page 4-4](#)
- [Uninstalling the MWTM Client, page 4-4](#)

## Installing the MWTM Client for Windows from the DVD-ROM

Before running the MWTM installation program, make sure your Windows system meets the requirements listed in [Chapter 1, "Preparing to Install the MWTM."](#)

When you run the MWTM installation program, you are asked for the name of the host on which the MWTM server software is installed and an MWTM server port number, and, optionally, a CiscoWorks server name and web port number. Verify this information with the system administrator who installed the MWTM server software before running the program.

To begin the installation of the MWTM client software:

- 
- Step 1** Insert the MWTM DVD-ROM in the DVD-ROM drive on the workstation. The MWTM program files are automatically extracted from the DVD-ROM. When all the files are extracted, the Cisco MWTM Client Setup window appears, with the text, "Welcome to the InstallShield Wizard for MWTM Client."



---

**Note** If the setup window does not appear automatically when you insert the DVD-ROM, go to the root directory and run the **setup.exe** command. If you are having trouble reading the DVD-ROM, make sure your DVD-ROM drive complies with the ISO 9660 standard.

---

- Step 2** Click **Next**. The Directory Name window appears.



---

**Note** Before continuing, you should know the name of the host on which the MWTM server is installed and the MWTM naming server port number (the default is 44742).

---

- Step 3** Accept the default location, enter a location, or browse to find a location, then click **Next**.
- Step 4** In the **MWTM Server Name** field, enter the name of the host on which the MWTM server software is installed.
- Step 5** (Optional) In the **MWTM Server Port** field, enter a numeric server port number. The default is 44742. If the MWTM server is using a different port number, enter that number in this field. The MWTM client and server can communicate only if they are configured for the same port number. Do not enter a non-numeric port number. If you do, you are prompted to enter a numeric port number.
- Step 6** Click **Next**. The CiscoWorks window appears.
- Step 7** (Optional) If you do not have a CiscoWorks server, skip to [Step 9](#). If you do have a CiscoWorks server, enter the name of the host on which the CiscoWorks server is installed in the **Cisco Works Server Name** field. The CiscoWorks server can be the same as the MWTM server, or it can be a different server.
- Step 8** (Optional) In the **Cisco Works Server Port** field, enter a numeric CiscoWorks web port number. The default is 1741.
- Step 9** Click **Next**. The Summary window appears.
- Step 10** Click **Install** and the files are copied. When all of the files have been copied, the InstallShield Wizard Complete window appears. Installation is complete.
- Step 11** Click **Finish** and remove the DVD-ROM from the drive.
- 

## Installing the MWTM Client for Windows Using the Web Server

You can use the MWTM web server to access the client installation software if you do not have access to the DVD-ROM, or if you prefer to download the MWTM client software from the MWTM server to run the installation.

To install the MWTM client on a Windows system from the MWTM web server:

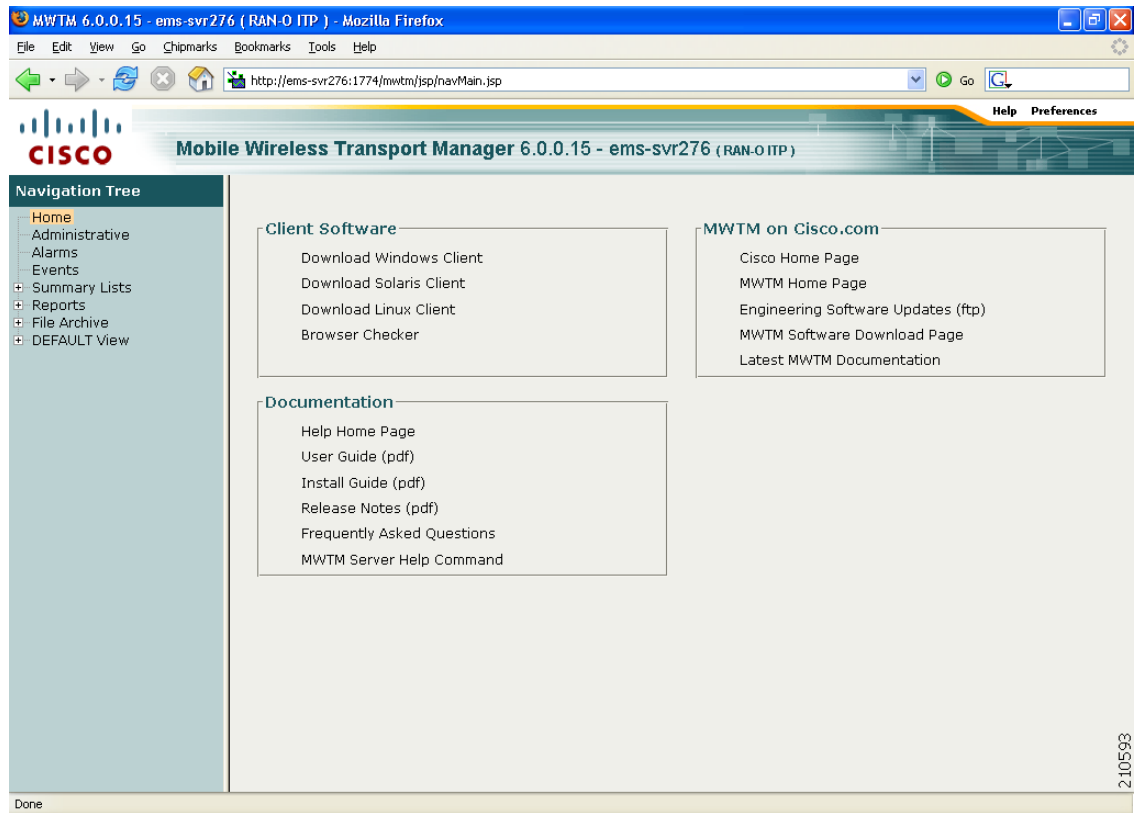
- 
- Step 1** From your browser, go to the URL for the MWTM web server:

`http://your_MWTM_server:1774`

where *your\_MWTM\_server* is the name or IP address of the MWTM web server and *1774* is the web port being used by the MWTM. (**1774** is the default port number.) If you do not know the name or web port of the MWTM web server, contact the system administrator who installed the MWTM server software.

The MWTM server home page appears ([Figure 4-1](#)).

Figure 4-1 Part of the MWTM Server Home Page



- Step 2** Click **Download Windows Client**. The Download Instructions for MWTM Client on Windows page appears.
- Step 3** Click **Download the Windows Client** to download the installation setup program for Windows XP Professional.
- Step 4** When queried, specify the directory into which you want to download the installation software file.
- Step 5** Go to the download directory and double-click the **setup.exe** command to install the software. The installation files automatically uncompress into a temporary directory, and the Cisco MWTM Client Setup window appears, with the text, “Welcome to the InstallShield Wizard for the Cisco MWTM Client.”



**Note** It is recommended to temporarily disable any anti-virus and security software before installing the MWTM client on your computer.

- Step 6** Continue with [Step 2](#) in [Installing the MWTM Client for Windows from the DVD-ROM, page 4-1](#).

## Verifying MWTM Client Installation

To verify the MWTM client installation:

- 
- Step 1** Make sure the MWTM server is available.
- Step 2** Make sure the MWTM client icon appears on the desktop.
- Step 3** Make sure the following options are in the **Start > Programs > Cisco MWTM Client** menu:
- **Modify Default MWTM Server Name**
  - **MWTM Client**
  - **MWTM DOS Prompt**
  - **MWTM Event Editor**
  - **MWTM SSL Certificate Tool**
  - **Readme**
  - **Uninstall MWTM Client**
- Step 4** To start the MWTM client, use one of the following methods:
- Choose **Start > Programs > Cisco MWTM Client > MWTM Client**.
  - Double-click the MWTM Client icon on the Windows desktop.
- 

The MWTM must discover your network during operation. If the MWTM server installation is successful, and if you do not now configure the MWTM server to automatically discover your network the first time the server starts after installation, the Discovery dialog box and the MWTM main window appear upon client startup. For details about these windows and the discovery process, see the *User Guide for the Cisco Mobile Wireless Transport Manager 6.0*.

## Uninstalling the MWTM Client

You can use the standard **Add/Remove Programs** icon in the Windows Control Panel to uninstall the MWTM, or you can uninstall the MWTM from the Windows Start menu.

To uninstall the MWTM:

- 
- Step 1** Exit all open MWTM windows.
- Step 2** From the Windows Start menu, choose **Start > Programs > Cisco MWTM Client > Uninstall MWTM Client**.



**Note** You can also uninstall the MWTM from the Windows Control Panel by clicking **Add/Remove Programs**, selecting **MWTM Client**, and clicking **Change/Remove**, but using the Windows Start Menu is the recommended method.

---

- Step 3** Click **OK** in the Confirm File Deletion window. The MWTM components are removed.
- Step 4** Click **Finish**. The MWTM has been successfully uninstalled.
-





# APPENDIX **A**

## Mounting and Unmounting the DVD-ROM Drive for Installations on Solaris or Linux

---

You can install the MWTM server or client software from a DVD-ROM drive connected to your local system or from a DVD-ROM drive connected to a remote system. In either case, you must first mount the DVD-ROM drive. Mounting a device makes it available to the local file system. This appendix presents the DVD-ROM drive mounting and unmounting instructions .

This appendix includes the following sections:

- [Mounting a Local DVD-ROM for Solaris, page A-1](#)
- [Mounting a Local DVD-ROM for Linux, page A-3](#)
- [Mounting a Network File System-Exported DVD-ROM Drive, page A-3](#)
- [Unmounting the DVD-ROM Drive, page A-7](#)

### Mounting a Local DVD-ROM for Solaris

To mount a local DVD-ROM for Solaris:

- 
- Step 1** Insert the MWTM DVD-ROM into the DVD-ROM drive.
  - Step 2** Log in as the root user, as described in [Preliminary Activities, page 2-4](#). The command prompt changes to the pound sign (#).
  - Step 3** If the `/cdrom` directory does not already exist, create it using the `mkdir` command:  

```
# mkdir /cdrom
```
  - Step 4** Mount the DVD-ROM drive.



**Note** The vold process manages the DVD-ROM device and performs the mounting. The DVD-ROM should mount automatically onto the `/cdrom/mwtm60` or `/cdrom/cdrom0` directory.

---

If you are running File Manager, a separate File Manager window displays the contents of the DVD-ROM.

**Step 5** If the `/cdrom/mwtm60` or `/cdrom/cdrom0` directory is empty because the DVD-ROM was not mounted, or if File Manager did not open a window displaying the contents of the DVD-ROM, verify that the `vold` daemon is running by entering the following command:

```
# ps -e | grep vold | grep -v grep
```

**Step 6** Do one of the following:

- If the `vold` daemon is running, the system displays the process identification number of `vold`. If the system does not display anything, restart the daemon by entering the following command:

```
# /usr/sbin/vold &
```

- If the `vold` daemon is running but did not mount the DVD-ROM, then stop the `vold` daemon process using the `kill` command and restart the daemon:

```
# kill -15 process_ID_number
# /usr/sbin/vold &
```




---

**Note** To stop the `vold` process, you must know the process identification number. If you do not know the process identification number, enter the `ps` command shown in [Step 5](#).

---

**Step 7** If you have problems with the `vold` daemon, use the following `mount` command to mount the DVD-ROM directly:

```
# mount -F hsfs -r ro /dev/dsk/device_filename /cdrom/MWTM60
```

or

```
# mount -F hsfs -r ro /dev/dsk/device_filename /cdrom/cdrom0
```

Where:

**-F** indicates the type of file system (**hsfs** for the ISO 9660 standard).

**-r ro** mounts the DVD-ROM in read-only mode.

*device\_filename* is the name of the device, such as `/dev/dsk/cxydz0sz` where *x* is the DVD-ROM drive controller number, *y* is the DVD-ROM drive SCSI ID number, and *z* is the slice partition on which the DVD-ROM is located.

---

## Mounting a Local DVD-ROM for Linux

To mount a local DVD-ROM for Linux:

- 
- Step 1** Insert the MWTM DVD-ROM into the DVD-ROM drive.
- Step 2** Log in as the root user, as described in [Preliminary Activities, page 3-4](#). The command prompt changes to the pound sign (#).
- Step 3** If the `/mnt/cdrom` directory does not already exist, create it using the `mkdir` command:
- Step 4** Mount the DVD-ROM drive:



---

**Note** Make sure that you are not in the `/mnt/cdrom` directory when you perform this step.

---

```
# mount /dev/cdrom /mnt/cdrom
```

---

## Mounting a Network File System-Exported DVD-ROM Drive

MWTM installation from a device on a remote system does not require any disk space on the remote system. The software is copied across the network to the local system.



### Caution

---

The instructions for mounting a Network File System-exported (NFS-exported) DVD-ROM drive on a local system are for like systems. For example, the instructions are for exporting a DVD-ROM file system from a Solaris or Linux system and mounting it on another Solaris or Linux system for installation, but not for cross-platform operation. For help with cross-platform operations, see your system administrator.

---

The NFS-exported DVD-ROM drive mounting instructions are presented in the following sections:

- [Steps to Perform on the Remote System for Solaris, page A-4](#)
- [Steps to Perform on the Remote System for Linux, page A-6](#)
- [Steps to Perform on the Local System for Solaris and Linux, page A-6](#)

## Steps to Perform on the Remote System for Solaris

On the remote system perform the following steps:

**Step 1** Log in as the root user as described in [Preliminary Activities, page 2-4](#). The command prompt changes to the pound sign (#).

**Step 2** If the `/cdrom` directory does not already exist, create it using the `mkdir` command:

```
# mkdir /cdrom
```

**Step 3** Mount the DVD-ROM drive.



**Note** The `vold` process manages the DVD-ROM device and performs the mounting. The DVD-ROM should mount automatically onto the `/cdrom/mwmt60` or `/cdrom/cdrom0` directory.

If you are running File Manager, a separate File Manager window displays the contents of the DVD-ROM.

**Step 4** If the `/cdrom/mwmt60` or `/cdrom/cdrom0` directory is empty because the DVD-ROM was not mounted, or if File Manager did not open a window displaying the contents of the DVD-ROM, verify that the `vold` daemon is running by entering the following command:

```
# ps -e | grep vold | grep -v grep
```

**Step 5** Do one of the following:

- If the `vold` daemon is running, the system displays the process identification number of `vold`. If the system does not display anything, then restart the daemon by entering the following command:

```
# /usr/sbin/vold &
```

- If the `vold` daemon is running but did not mount the DVD-ROM, then stop the `vold` daemon process using the `kill` command and restart the daemon:

```
# kill -15 process_ID_number
# /usr/sbin/vold &
```



**Note** To stop the `vold` process, you must know the process identification number. If you do not know the process identification number, enter the `ps` command shown in [Step 5](#).

**Step 6** If you have problems with the vold daemon:

a. Within the /cdrom directory, create the following directories:

```
# mkdir MWTM60
# mkdir cdrom0
```

b. Use the following **mount** command to mount the DVD-ROM:

```
# mount -F hsfs -r ro /dev/dsk/device_filename /cdrom/MWTM60
```

or

```
# mount -F hsfs -r ro /dev/dsk/device_filename /cdrom/cdrom0
```

Where:

**-F** indicates the type of file system (**hsfs** for the ISO 9660 standard).

**-r ro** mounts the DVD-ROM in read-only mode.

*device\_filename* is the name of the device, such as /dev/dsk/cxydz where *x* is the DVD-ROM drive controller number, *y* is the DVD-ROM drive SCSI ID number, and *z* is the slice partition on which the DVD-ROM is located.

**Step 7** Edit or create the /etc/dfs/dfstab file to include the following line, which sets the NFS attributes to read-only:

```
share -F nfs -o ro -d /cdrom/MWTM60
```

or

```
share -F nfs -o ro -d /cdrom/cdrom0
```

Where:

**-F** specifies the file system share type.

**-o** specifies the start of file system export options.

**ro** specifies read-only file system export option.

**-d** specifies that you want to share a directory.

**/cdrom/MWTM60** or **/cdrom/cdrom0** is the name of the directory to be shared.

**Step 8** Make sure your remote machine is enabled as an NFS server by entering the following command:

```
# ps -ef | grep nfs | grep -v grep
```

Verify that the /usr/lib/nfs/nfsd and /usr/lib/nfs/mountd daemons are running.

**Step 9** If the daemons you verified in [Step 8](#) are not running, enable your machine as an NFS server by entering the following command:

```
# /etc/init.d/nfs.server start
```

**Step 10** When your machine is enabled as an NFS server, enter either of the following commands:

```
# share
# shareall
```

## Steps to Perform on the Remote System for Linux



**Note** Make sure the nfs server is installed before performing these steps.

On the remote system perform the following steps:

- 
- Step 1** Log in as the root user as described in [Preliminary Activities, page 3-4](#). The command prompt changes to the pound sign (#).
- Step 2** If the `/cdrom` directory does not already exist, create it using the `mkdir` command:
- ```
# mkdir -p /mnt/cdrom/
```
- Step 3** Insert the DVD-ROM and mount the the drive:
- ```
# mount /dev/cdrom /mnt/cdrom
```
- Step 4** Edit or create the `/etc/exports` file to include the following line, which sets the NFS attributes to read-only:
- ```
/mnt/cdrom(ro)
```
- Step 5** Run the following command to restart the nfs server:
- ```
# /etc/init.d/nfs restart
```
- 

## Steps to Perform on the Local System for Solaris and Linux

On the local system perform the following steps:

- 
- Step 1** Go to the machine on which you want to install the MWTM.
- Step 2** Log in as the root user as described either in [Preliminary Activities, page 2-4](#) for Solaris systems or [Preliminary Activities, page 3-4](#) for Linux systems.
- Step 3** If the `/cdrom` directory does not already exist, create it using the `mkdir` command:
- ```
# mkdir -p /cdrom/MWTM
```
- Step 4** To mount a file system that is exported from a remote system, use the `mount` command, as shown below:
- ```
# /usr/sbin/mount -r remote_hostname:/cdrom/MWTM60 /cdrom/MWTM
```
- or
- ```
# /usr/sbin/mount -r remote_hostname:/cdrom/cdrom0 /cdrom/MWTM
```

The remote DVD-ROM is mounted and ready for software installation on the local system.

**Note**

(Solaris only) When you are installing the MWTM using an NFS-exported DVD-ROM drive, image checking might take several hours to complete. To avoid this problem, when you install the MWTM, enter `./setup.sh -i`, which disables image checking.

## Unmounting the DVD-ROM Drive

After you install the MWTM, if you did not use the automounter, you must unmount the DVD-ROM drive as explained in the following sections:

- [Unmounting a Local DVD-ROM Drive for Solaris and Linux, page A-7](#)
- [Unmounting a Remote DVD-ROM Drive for Solaris, page A-8](#)
- [Unmounting a Remote DVD-ROM Drive for Linux, page A-9](#)

## Unmounting a Local DVD-ROM Drive for Solaris and Linux

To unmount a local DVD-ROM drive for Solaris or Linux:

- 
- Step 1** Log in as the root user as described either in [Preliminary Activities, page 2-4](#) for Solaris systems or [Preliminary Activities, page 3-4](#) for Linux systems.
- Step 2** (Solaris only) Enter the following commands:
- ```
# cd
# umount /cdrom/MWTM60
```
- or
- ```
# cd
# umount /cdrom/cdrom0
```
- Step 3** (Linux only) Enter the following commands:
- ```
# cd
# umount /mnt/cdrom
```
- Step 4** Enter the following command to remove the DVD-ROM:
- ```
# eject
```
- Step 5** Store the DVD-ROM in a safe place.
-

## Unmounting a Remote DVD-ROM Drive for Solaris

To unmount a remote DVD-ROM drive for Solaris:

---

**Step 1** Log in as the root user on the local machine and enter the following command:

```
# umount /cdrom/MWTM
```

**Step 2** Log in as the root user on the remote machine:

- a. Edit the `/etc/dfs/dfstab` file to remove the following line, which stops the NFS attributes from being read-only:

```
share -F nfs -o ro -d /cdrom/MWTM60
or
share -F nfs -o ro -d /cdrom/cdrom0
```

Where:

**-F** specifies the file system share type.

**-o** specifies the start of file system export options.

**ro** specifies read-only file system export option.

**-d** specifies that you want to share a directory.

`/cdrom/MWTM60` or `/cdrom/cdrom0` is the name of the directory to be shared.

- b. Restart the nfs server:

```
# /etc/init.d/nfs.server restart
```

- c. Enter the following command:

```
# umount /cdrom/MWTM60
or
# umount /cdrom/cdrom0
```

**Step 3** Enter the following command to remove the DVD-ROM:

```
# eject
```

**Step 4** Store the DVD-ROM in a safe place.

---

## Unmounting a Remote DVD-ROM Drive for Linux

To unmount a remote DVD-ROM drive for Linux:

- 
- Step 1** Log in as the root user on the local machine and enter the following command:
- ```
# umount /cdrom
```
- Step 2** Log in as the root user on the remote machine:
- Edit the */etc/exports* file to remove the following line, which stops the NFS attributes from being read-only:  

```
/mnt/cdrom(ro)
```
  - Restart the nfs server:  

```
# /etc/init.d/nfs restart
```
  - Enter the following command:  

```
# umount /mnt/cdrom/
```
- Step 3** Enter the following command to remove the DVD-ROM:
- ```
# eject
```
- Step 4** Store the DVD-ROM in a safe place.
-





## INDEX

---

### A

- additional software requirements [1-14](#)
- address table configuraton files, content migration [1-5](#)
- alternate ports, using [1-9](#)
- audience for this document [vii](#)
- authentication
  - Linux based [3-2](#)
  - local-based [2-2, 3-2](#)
  - Solaris-based [2-2](#)
- available ports
  - Linux [3-10](#)
  - Solaris [2-10](#)

---

### B

- browser path
  - checking, Linux [3-12](#)
  - checking, Solaris [2-19](#)

---

### C

- cautions
  - on becoming root user
    - Linux [3-4](#)
    - Solaris [2-4](#)
  - on NFS-exported DVD-ROM drive instructions [A-3](#)
  - on Solaris patches required [2-17](#)
  - required patches [1-11](#)
  - significance of [viii](#)
- checking
  - browser path [2-19, 3-12](#)
  - Linux disk space usage [3-8](#)

#### checking (*continued*)

- release, upgrade information for Linux [3-9](#)
- release, upgrade information for Solaris [2-18](#)
- Solaris disk space usage [2-7, 2-18](#)
- TCP/IP port usage for MWTM server [3-7](#)

#### choosing network type

- ITP, RAN-O [2-14](#)
- Linux [3-14](#)
- Solaris [2-14](#)

#### Cisco ITP

- nodes, supported [1-3, 1-4](#)
  - 2600 series routers, 2811 series router, 7200 series routers, 7300 series router, 7500 series router, 7600 series router [1-2](#)

#### Cisco RAN-O

- IOS releases [1-4](#)
- nodes, supported
  - MWR-1941-DC-A series router, ONS 15454 chassis with ONS-RAN-SVC module [1-3](#)

#### Cisco Signaling Gateway Manager 4.1. *See* SGM 4.1

#### CiscoWorks

- integrating MWTM with (Linux) [3-2](#)
- integrating MWTM with (Solaris) [2-11 to 2-12](#)
  - client installation [2-20](#)
  - server installation [2-11 to 2-12](#)
- integrating MWTM with (Windows)
  - CiscoWorks host server, naming [4-2](#)

#### client

- installation
  - Linux [3-17](#)
- installation concluding
  - Solaris [2-20](#)
- installation initiating
  - Solaris [2-17](#)

client (*continued*)

installation results, Solaris [2-21](#)

system requirements [1-12](#)

## configuring

ITP router [1-14](#)

RAN-O router [1-15](#)

security services, Linux [3-12](#)

security services, Solaris [2-13](#)

SNMP traps [3-12](#)

creating downloaded client [2-20, 3-19](#)

customized point code formats, content migration [1-5](#)

**D**

default directory, MWTM [2-26](#)

different machine upgrades [1-8](#)

discovery, as part of installation

Solaris [2-14 to 2-15](#)

disk space availability

automated checking, Solaris [2-7, 2-18](#)

automated checking, Linux [3-5](#)

DISPLAY variable, setting [2-2, 2-27](#)

documentation [viii](#)

audience for this [vii](#)

cautions, significance of [viii](#)

chapter list [vii](#)

current, obtaining [ix](#)

objectives [vii](#)

related

to associated products [ix](#)

to this product [viii](#)

typographical conventions used in [viii](#)

DVD-ROM drive (Solaris and Linux) [A-1 to A-9](#)

mounting a local drive

Linux [A-3](#)

Solaris [A-1 to A-2](#)

NFS-exported DVD-ROM drives,

DVD-ROM drive (Solaris and Linux) (*continued*)

mounting [A-3 to A-7](#)

local drive (Linux and Solaris) [A-6 to A-7](#)

remote drive (Linux) [A-6](#)

remote drive (Solaris) [A-4 to A-5](#)

unmounting local drives (Solaris or Linux) [A-7](#)

unmounting remote drives

Linux [A-9](#)

Solaris [A-8](#)

**E**

enabling TFTP [2-15, 3-15](#)

error messages, checking

Linux [3-20](#)

Solaris [2-24 to 2-25](#)

express installation, selecting

Linux [3-9](#)

Solaris

client [2-20](#)

server [2-9](#)

**G**

GTT support [1-4, 1-5](#)

**H**

HP OpenView and MWTM [2-12](#)

**I**

image checking

disabling, Linux [3-4, 3-19](#)

disabling, Solaris [2-4, 2-23](#)

inserting

MWTM DVD-ROM into DVD-ROM drive. [A-3](#)

- installation
  - directory, selecting
    - Linux [3-8](#)
    - Solaris [2-9](#)
  - log, viewing
    - Linux [3-16](#)
- installation directory
  - selecting
    - Solaris [2-19](#)
  - verifying
    - Solaris [2-25](#)
- installation directory, selecting
  - Solaris [?? to 2-9](#)
- installation directory,selecting
  - Solaris [2-20](#)
- installation log, viewing
  - Linux [3-16](#)
  - Solaris [2-17](#)
- installation methods [1-2](#)
- installation prerequisites
  - Linux [3-2](#)
  - Solaris [2-2](#)
- installations on Linux [3-1 to 3-24](#)
  - about [3-1](#)
  - before starting [3-2](#)
  - CiscoWorks integration [3-2](#)
  - client download, creating [3-19](#)
  - concluding steps [3-16](#)
  - error messages [3-20](#)
  - logs, viewing [3-16](#)
  - port availability, checking [3-10](#)
  - process [3-1, 3-2](#)
  - security authentication [3-12](#)
  - summary of selections [3-11](#)
  - TCP port for JSP server [3-11](#)
  - TCP port for naming server [3-11](#)
  - TCP port for web server [3-10](#)
  - verifying [3-20](#)
- installations on Solaris [2-1 to 2-25](#)
  - about [2-2](#)
  - before starting [2-2 to 2-3](#)
  - CiscoWorks, integrating with
    - client [2-20](#)
    - server [2-11 to 2-12](#)
  - client download, creating [2-20](#)
  - client-only installation [2-21 to 2-24](#)
    - using the install tool [2-22](#)
    - using the web server [2-22 to 2-24](#)
  - discovery, as part of installation [2-14 to 2-15](#)
  - express or standard installation, selecting
    - client [2-20](#)
    - server [2-9](#)
  - final steps
    - in installing the client [2-20 to 2-21](#)
    - in installing the server [2-16 to 2-17](#)
  - install directory, selecting [2-19, 2-20](#)
  - installation log, viewing [2-17](#)
  - process [2-2](#)
  - security services, configuring [2-13 to 2-14](#)
  - server and client [2-3 to 2-21](#)
    - client phase [2-17 to 2-21](#)
    - disk space availability, automated checking of [2-7, 2-18](#)
    - root user, becoming [2-4](#)
    - server phase [2-3 to 2-17](#)
    - TCP/IP address, automated checking of [2-6](#)
    - TCP/IP availability, automated checking of [2-6](#)
  - server-only installation [2-21](#)
  - SNMP traps, configuring [2-12 to 2-13](#)
  - summary of selections, interim
    - in installing the client [2-19](#)
    - in installing the server [2-11](#)
  - TCP ports, selecting [2-10](#)
- installing MWTM
  - client only, Solaris [2-21 to 2-22](#)
  - Linux client [3-17](#)
  - Linux client, using webserver [3-18](#)

installing MWTM (*continued*)

Linux server [3-3](#)

Linux server only [3-18](#)

Linux server, client [3-3](#)

installing MWTM on Windows

from DVD-ROM [4-1](#)

from the CD-ROM [4-1 to 4-2](#)

using the web server [4-2 to 4-3](#)

integrating MWTM with CiscoWorks [2-20](#)

IOS images, supported [1-3](#)

IOS releases [1-3](#)

Cisco ITP support [1-3, 1-4](#)

Cisco RAN-O support [1-4](#)

IP access list, content migration [1-5](#)

ITP provisioning [1-4](#)

ITP router configuration requirements [1-14](#)

## J

JSP port number, selecting

Linux [3-12](#)

JSP server TCP port, selecting

Solaris [2-10](#)

## L

licensing information [1-2](#)

Linux

client limitation [3-5](#)

client, starting [3-23](#)

disk space availability [3-5](#)

error messages [3-20](#)

MWTM client limitation [3-1](#)

Red Hat Package Manager, software contents [3-2](#)

security authentication [3-12](#)

Linux update requirements [1-11](#)

log files, content migration [1-6](#)

logs, viewing

Linux [3-16](#)

Solaris [2-17](#)

## M

methods of installation [1-2](#)

MIB reference [1-17](#)

migrated MWTM 5.0 content [1-6](#)

migrated SGM 4.1 content [1-5](#)

MLR address table configuration support [1-4](#)

Mobile Wireless Transport Manager. *See* MWTM

MSU rates support [1-4](#)

MWTM

5.0 to 6.0 upgrades on different machines [1-8](#)

5.0 to 6.0 upgrades on same machine [1-8](#)

CiscoWorks integration [2-20](#)

database, content migration [1-6](#)

HP OpenView, co-existence [2-12](#)

latest information about [3-5](#)

server, client installation on Solaris [2-3](#)

SNMP traps [3-2](#)

upgrading [1-4](#)

MWTM 5.0 content

migrated [1-6](#)

preserved [1-7](#)

mwtm browserpath command [3-12](#)

MWTM client

installation using web server on Solaris [2-22](#)

limitation on Linux [3-1](#)

starting installation

Solaris [2-17](#)

starting on Solaris [2-26](#)

MWTM default directory [2-26](#)

mwtm jsspport command [3-12](#)

mwtm props command [3-12](#)  
 MWTM Security Services, configuring [3-2](#)  
 MWTM server  
     default directory [3-22](#)  
     installation [2-3](#)  
     SNMP trap port number [3-12](#)  
 mwtm servername command [3-12](#)  
 mwtm webport command [3-12](#)

## N

naming server TCP port, selecting  
     Solaris [2-10](#)  
 network type  
     changing, Linux [3-14](#)  
     changing, Solaris [2-14](#)  
 NFS-exported DVD-ROM drive, mounting [A-3 to A-7](#)  
     Linux  
         local [A-6 to A-7](#)  
         remote [A-6](#)  
     Solaris  
         local [A-6 to A-7](#)  
         remote [A-4 to A-5](#)  
 nodes, content migration [1-5](#)  
 nodes, supported [1-2](#)

## O

OS releases [1-4](#)  
 overviews on  
     installation  
         Solaris [2-2](#)  
         Linux installation [3-1](#)  
         Linux uninstallation [3-23](#)  
     uninstallation  
         Solaris [2-27 to 2-28](#)

## P

package information, viewing  
     Linux [3-21](#)  
     Solaris [2-25](#)  
 passwords, content migration [1-5, 1-6](#)  
 platforms, supported [1-2](#)  
 preliminary activities  
     Linux [3-4](#)  
     Solaris [2-4](#)  
 preserved MWTM 5.0 content [1-7](#)  
 preserved SGM 4.1 content [1-7](#)

## R

RAN-O platforms and corresponding software releases, supported [1-4](#)  
 RAN-O router configuration requirements [1-15](#)  
 release, upgrade information  
     checking Linux [3-6, 3-9](#)  
     checking Solaris [2-8, 2-18](#)  
 requirements  
     client system [1-12](#)  
     ITP router configuration [1-14](#)  
     Linux [1-11](#)  
     RAN-O router [1-15](#)  
     server system [1-9](#)  
     software, additional [1-14](#)  
     Solaris patches [1-11](#)  
     web browser [1-14](#)  
 reviewing client install results [2-21](#)  
 root user, becoming  
     Linux [3-4](#)  
     Solaris [2-4](#)  
 root user, logging in as [2-4, 3-4](#)  
 route table, content migration [1-5](#)  
 routers, supported [1-2](#)  
 rpm command [3-21](#)  
 running uninstall on Linux [3-24](#)

running uninstall on Solaris [2-28](#)

## S

same machine upgrades [1-7, 1-8](#)

security authentication, MWTM [3-12](#)

security services, configuring

Linux [3-12, 3-13](#)

Solaris [2-13 to 2-14](#)

security, content migration [1-5, 1-6](#)

seed node file

content migration [1-5, 1-6](#)

selecting

Express or Standard installation

Linux [3-9](#)

Express or Standard installaton

Solaris [2-9](#)

Linux installation directory [3-10](#)

Solaris installation directory [2-9](#)

server installation

TFTP enabling [3-15](#)

server installation

concluding, Linux [3-16](#)

concluding, Solaris [2-16](#)

configuring security services, Linux [3-12](#)

configuring security services, Solaris [2-13](#)

configuring SNMP traps, Linux [3-12](#)

configuring SNMP traps, Solaris [2-12](#)

enabling TFTP, Solaris [2-15](#)

network discovery, Linux [3-14](#)

network discovery, Solaris [2-14](#)

network types, Linux [3-14](#)

network types, Solaris [2-14](#)

server name, changing [3-12](#)

server system requirements [1-9](#)

settings, verifying [3-12](#)

SGM 4.1

content migration [1-5](#)

content, preserved [1-7](#)

SGM 4.1 (*continued*)

database, content migration [1-5](#)

upgrading to MWTM 6.0, on different machines [1-8](#)

upgrading to MWTM 6.0, on same machine [1-7](#)

SNMP parameters, content migration [1-5, 1-6](#)

SNMP trap port number

MWTM server [3-12](#)

SNMP traps, configuring [2-12, 2-13, 3-12](#)

software requirements, additional [1-14](#)

software requirements. *See* client system requirements, server system requirements

Solaris

client installation [2-17](#)

disk space usage [2-7](#)

installation directories, verifying [2-25](#)

installation directory, selecting [2-9](#)

installation prerequisites [2-2](#)

release upgrade information [2-18](#)

Solaris 10 patches [1-11](#)

Solaris 9 patches [1-11](#)

Solaris installation log, viewing [2-17](#)

Solaris patch requirements [1-11](#)

starting

install tool on Linux [3-4](#)

install tool on Solaris [2-4](#)

Linux

after installation [3-22](#)

MWTM client [3-22](#)

MWTM client on Windows [4-4](#)

MWTM on Linux

command line [3-22](#)

MWTM on Solaris [2-26 to 2-27](#)

as final step of installation [2-26](#)

client, starting [2-26 to 2-27](#)

command line [2-26](#)

startup menu [2-26](#)

Solaris client, requirement for [2-27](#)

stopping  
 MWTM installation  
   Solaris [2-27](#)  
 supported OS images [1-3](#)  
 supported platforms, nodes [1-2](#)  
 system.properties file, content migration [1-5, 1-6](#)

---

## T

TCP ports  
 selecting [?? to 2-10](#)  
 TCP ports, selecting  
   JSP server  
     Linux [3-11](#)  
     Solaris [2-10, 2-10](#)  
   naming server  
     Linux [3-11](#)  
     Solaris [2-10 to ??, 2-10, ?? to 2-10](#)  
   web server [2-10](#)  
     Linux [3-10](#)  
     Solaris [2-10](#)  
 TCP/IP  
   address, automated checking of  
     Linux [3-6](#)  
     Solaris [2-6](#)  
   port usage, automated checking of  
     Linux [3-7](#)  
     Solaris [2-6](#)  
   port usage, checking  
     for MWTM Server [2-6](#)  
 TFTP, enabling [2-15, 3-15](#)  
 tips on  
   displaying a list of all MWTM clients [2-28](#)  
   significance of [viii](#)  
   web interface, using [2-17](#)  
 trap access list, content migration [1-5](#)  
 trap forwarding information, content migration [1-5](#)

troubleshooting commands, content migration [1-5](#)  
 typographical conventions in this document [viii](#)

---

## U

uninstalling  
   MWTM client [4-4](#)  
 uninstalling MWTM  
   on Linux [3-23, 3-24](#)  
   on Solaris [2-27 to 2-29](#)  
     about [2-27 to 2-28](#)  
     uninstall tool, using [2-28 to 2-29](#)  
 upgrading  
   about MWTM [1-4](#)  
   from MWTM 5.0 to 6.0 on different machines [1-8](#)  
   from SGM 4.1 to MWTM 6.0 on different machines [1-8](#)  
   from SGM 4.1 to MWTM 6.0 on same machine [1-7](#)  
   from the MWTM 5.0 to 6.0 on the same machine [1-8](#)  
 usernames, content migration [1-5, 1-6](#)  
 using alternate ports [1-9](#)

---

## V

verifying installation  
   on Linux [3-20](#)  
     error messages, checking [3-20](#)  
     install directories [3-21](#)  
     package information, viewing [3-21](#)  
   on Solaris [2-24 to 2-25](#)  
     error messages, checking [2-24 to 2-25](#)  
     install directories, verifying [2-25](#)  
     package information, viewing [2-25](#)  
   on Windows [4-4](#)  
 viewing  
   Linux installation log [3-16](#)  
   MWTM server package information on Linux [3-21](#)  
   Solaris installation log [2-17](#)

---

## W

web browser software, required [1-14](#)

web server

- CiscoWorks default port number [3-2](#)

- client installation with

  - Linux [3-18](#)

  - Solaris [2-22 to 2-24](#)

- installing MWTM on Windows [4-2 to 4-3](#)

- port number, changing [3-12](#)

- TCP port, selecting

  - Linux [3-10](#)

  - Solaris [2-10](#)