

Samsung Wireless Enterprise Manager (WEM) Installation Manual

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**This manual should be read and used as a guideline for properly installing and operating the product.
All reasonable care has been made to ensure that this document is accurate.**

INTRODUCTION

Purpose

The Wireless Enterprise WLAN Manager (WEM) installation manual describes the basic software required to operate the WEM, management software, and the information required to install client.

Document Content and Organization

This manual consists of eight Chapters, two Annexes, and a list of Abbreviations. Summaries of each chapter are provided below.

CHAPTER 1. Before Installation

This chapter describes the basic details for the installation of the WEM.

CHAPTER 2. Installing Operating System

This chapter describes the establishment of the OS environments of the server required to run the WEM server.

CHAPTER 3. Installing WEM Server

This chapter describes the procedure for installing the WEM server.

CHAPTER 4. Upgrading WEM

This chapter describes the upgrading procedure for the WEM software.

CHAPTER 5. Operating WEM

This chapter describes the procedure for operating the WEM server.

CHAPTER 6. Connecting to WEM

This chapter describes the procedure for connecting to the WEM using the PC client.

CHAPTER 7. Checking WEM Operation

This chapter describes the procedure for checking whether the WEM has been installed normally.

CHAPTER 8. Configuring HTTPs

This chapter describes the process for creating a certificate for HTTP connections.

ANNEX A. First-Time Login

This annex describes the process for logging in to the WEM for the first time.

ANNEX B. Changing WEM IP Address

This annex describes the procedure for changing the IP address of the WEM.

Abbreviation

This chapter provides the definitions of the abbreviations used in this manual.

Conventions

The following types of paragraphs contain special information that must be carefully read and thoroughly understood. Such information may or may not be enclosed in a rectangular box, separating it from the main text, but is always preceded by an icon and/or a bold title.



CHECK

CHECKPOINT

Provides the operator with checkpoints for stable system operation.



NOTE

NOTE

Indicates additional information as a reference.

Console Screen Output

- The lined box with 'Courier New' font will be used to distinguish between the main content and console output screen text.
- '**Courier New**' font will indicate the value entered by the operator on the console screen.

Revision History

VERSION	DATE OF ISSUE	REMARKS
1.0	July 2015	North America Release Version

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CHAPTER 1. Before Installation

This chapter describes the hardware and software required to install the WEM.

1.1 Hardware and Software Requirements

1.1.1 Hardware

Any system that uses Red Hat Enterprise Linux can be used for the WEM server hardware. For the client hardware, regular PCs are used. In addition, laser printers can be used for message output.

The hardware of the WEM server and the client must meet the following minimum specifications.

Server

Category	Specification
CPU	3.0 GHz (Intel Xeon processor) or higher is recommended
Main Memory	16 GB or higher is recommended
Hard Disk	300 GB or higher is recommended
Drive	DVD-ROM drive
Monitor	17-inch color monitor
LAN Card	10/100 Base-T (RJ-45 connector)

Client

Category	Specification
CPU	3.0 GHz (Pentium IV processor) or higher
Main Memory	2 GB or higher
Hard Disk	100 GB or higher
Monitor	Color monitor with 1280 × 1024 resolution
LAN Card	10/100 Base-T (RJ-45 connector)



NOTE

Hardware Requirements

The specifications outlined above are for a low-capacity WEM. For a mid-/high-capacity configuration, the hardware specifications are subject to change depending on the management capacity.

1.1.2 Software

For the WEM to operate normally, the following software environments must be established.

Server

Category	Software
Operating System	Linux (Red Hat Enterprise 5.5 or 6.3)
JSP/Servlet Engine	Tomcat 5.0.28
Database	MySQL Enterprise 5.5
JVM	JDK 1.7.0_55
Management Protocol	SNMP
Other Protocols	FTP, TELNET (SSH)

* The version of each software must be exactly same as specified.

Client

Category	Software
Operating System	Windows XP~Windows 7
Web Brower	Microsoft Internet Explorer version 8,9 and 10 is recommended
Media	Flash Player 11 Active X version or higher

* The version of each software must be exactly same as specified.

1.2 Installing software

The following programs are installed on the WEM server.

Software	Installation Directory	Ver.	Item
Operating System	-	Red Hat Enterprise 5.5 or higher	Refer to the item for Operating System installation.
MySQL	/db/mysql/app	5.5	Included in the installation package, license must be purchased seperately.
JDK	/usr/jdk1.7.0_55	1.7.0_55	Included in the installation package.
Tomcat	/usr/local/tomcat	5.0.28	Included in the installation package.
WEM Server	/home	-	Included in the installation package.



CHECK

Precautions when Installing the Operating System

- Check the version.
Verify the hardware specifications and the operation system version before installing the WEM server. Red Hat Enterprise Linux ES release 5.5 or higher is recommended for the server's Operating System.
- Do not install the MySQL, JAVA, and WEB servers.
Since the MySQL, JAVA, and WEB servers are provided by the WEB installation package by default, do not install other versions of MySQL, JAVA, and WEB servers included in Linux.
- Install the FTP and Telnet (SSH) servers.
The WEM collects statistics data from the management object device using the FTP protocol (mandatory). Installing the Telnet or SSH server helps facilitate remote management (recommended).

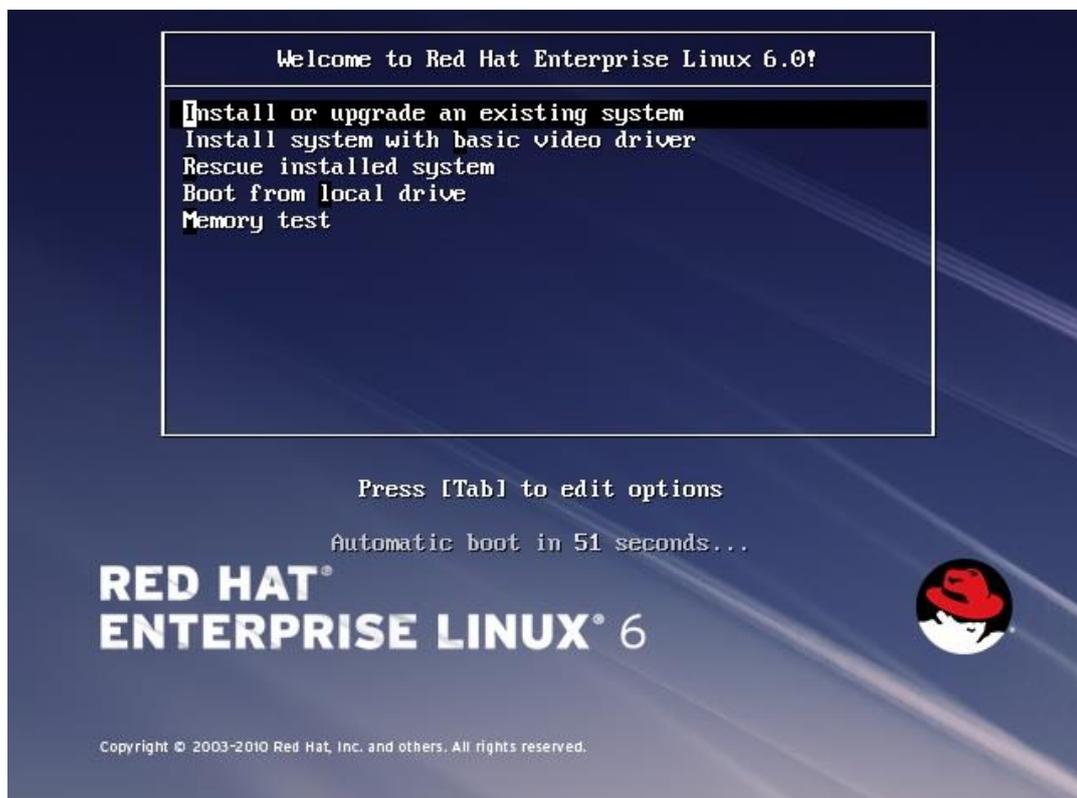
CHAPTER 2. Installing Operating System

This chapter describes the precautions that need to be taken when installing the Operation System of the WEM server and when establishing the environments required for WEM server operation.

2.1 Installing Linux

This description is based on Red Hat Enterprise Linux 6. For steps not specified in this manual, the default settings may be used.

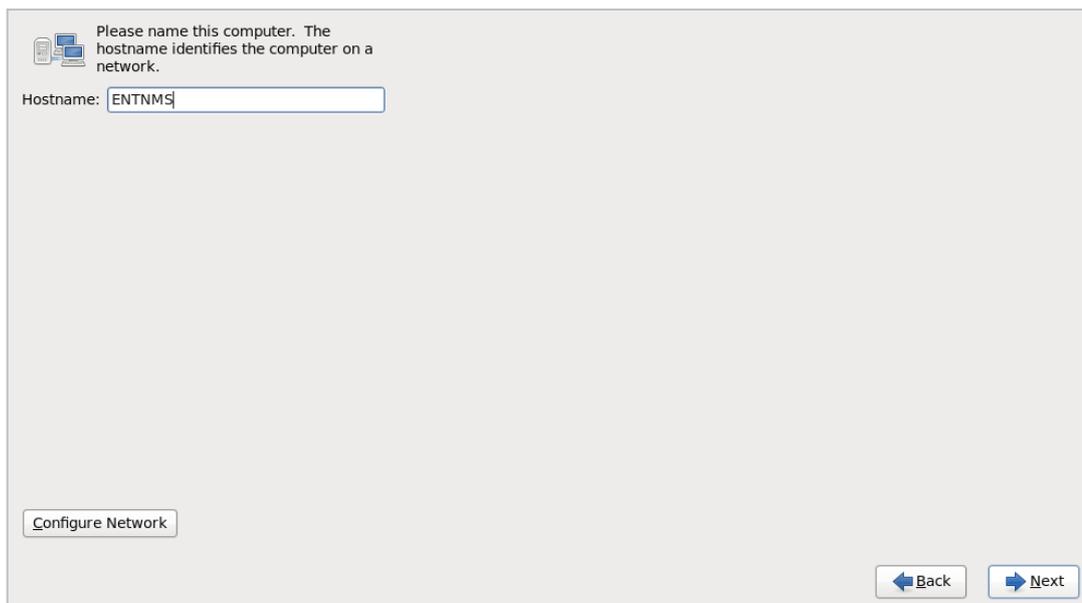
- 1) Insert the Linux installation DVD into the DVD-ROM drive and start the server. The following window will appear; select 'Install or upgrade an existing system' to proceed.



- 2) Click the [Skip] button in the 'Disc Found' window. (If you click the [OK] button, the DVD test will start.)

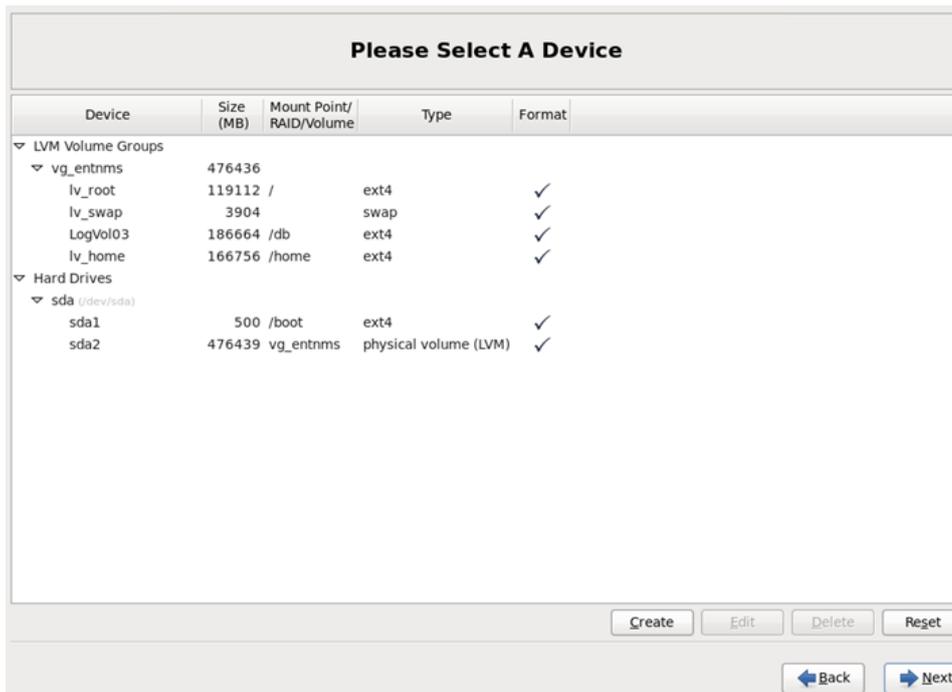
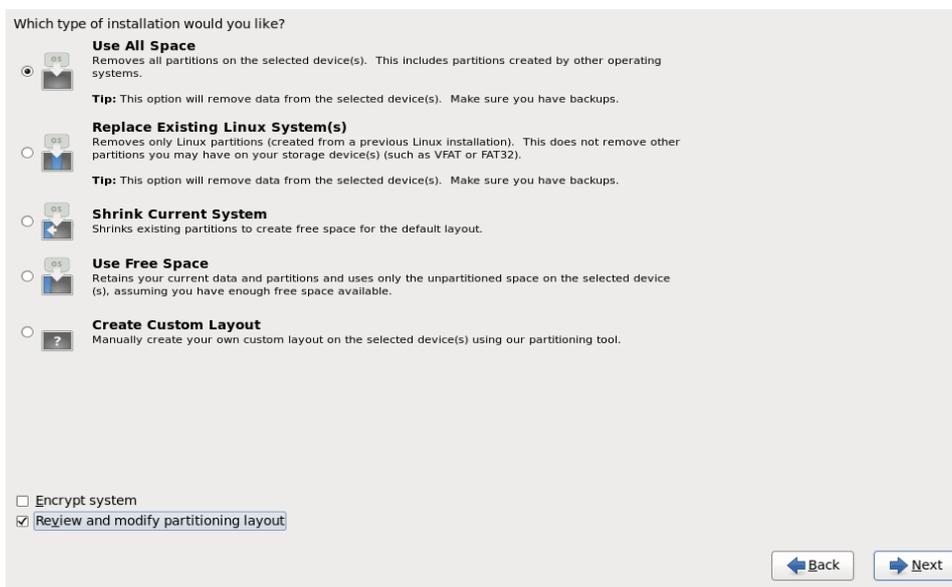


- 3) After selecting the language, keyboard, and storage device, the 'Hostname' input window appears as shown below. **Important: You must enter the hostname as 'ENTNMS'.**
In addition, click the [Network Settings] button below to configure the IP address settings. (Even if you skip the configuration in this step, you can configure the IP address settings after the installation is complete.)

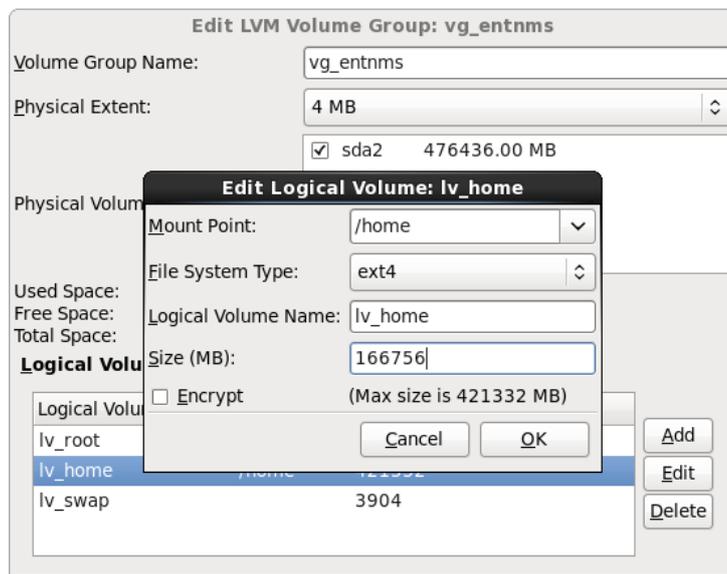
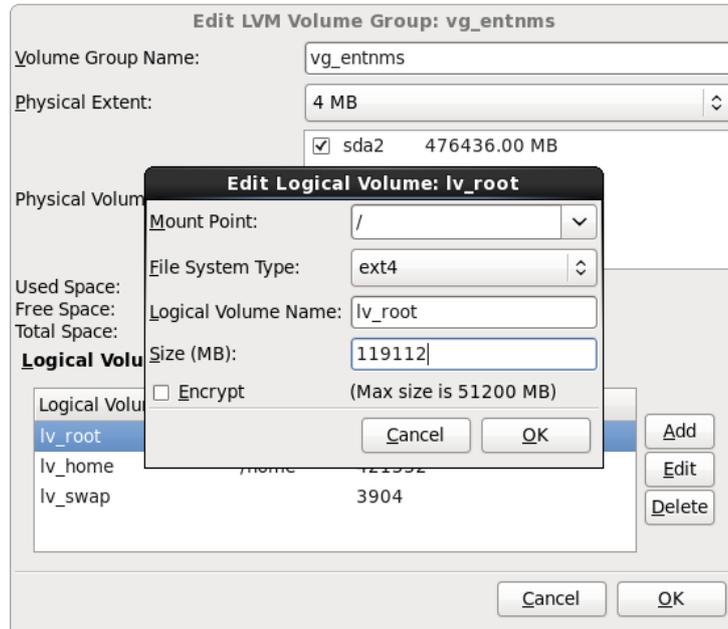


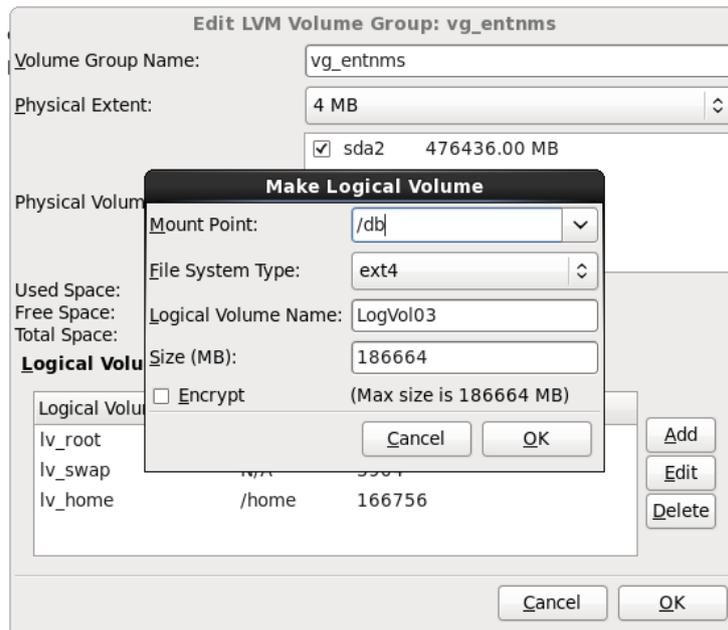
4) After specifying the city, specify a password for the root account. Then, you can specify the disk partition on the screen, as shown below. After checking the ‘Review and modify partitioning layout (V)’ checkbox, partition the disk according to the ratios shown below using the [Create] and [Edit (E)] buttons.

- /boot: 200 MB (If already specified, you may use the specified size).
- /swap: Twice the size of the total memory is recommended.
- /: 25 %
- /home: 35 %
- /db: 40 %

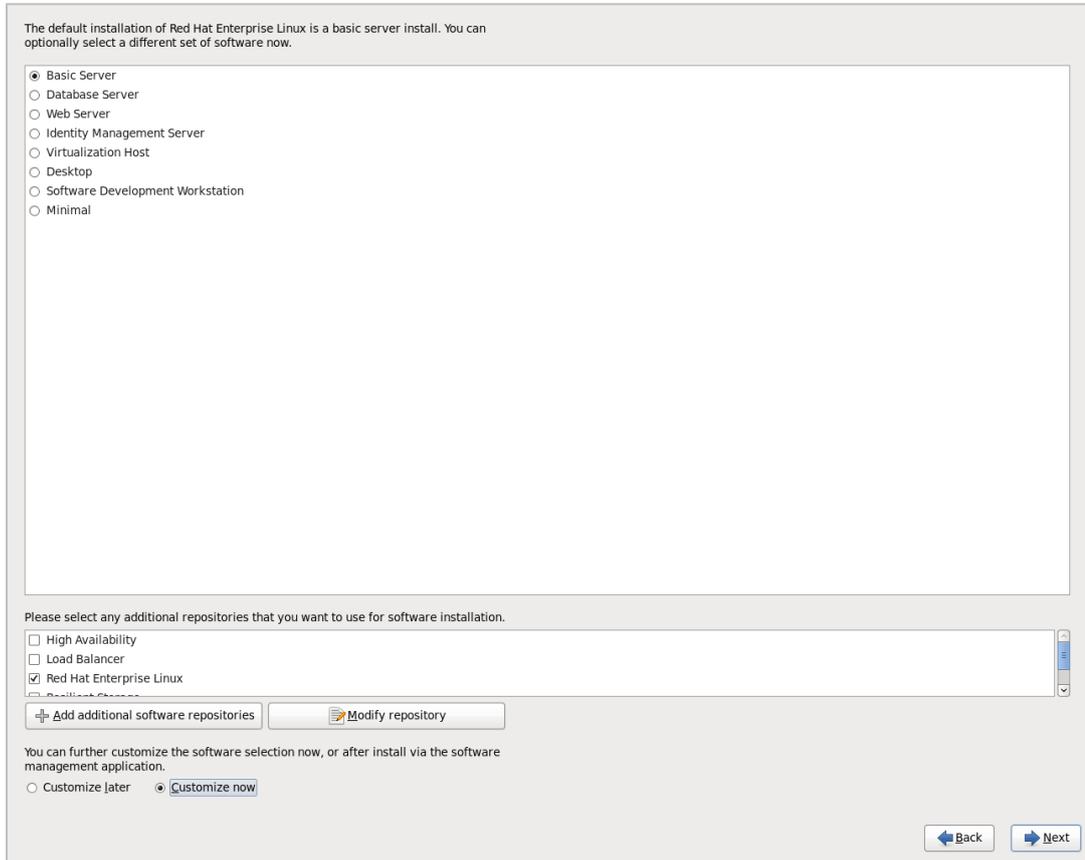


When you double-click an item or click on the [Edit (E)] bottom, a window opens, as shown below. After checking 'Mount Point (M)', enter a size into the 'Size (MB) (S)' field by referring to the disk ratios.





- 5) Select the type of Linux you want to install. Select 'Basic Server' and 'Red Hat Enterprise Linux' and then select the 'Customize now (C)' item as shown below to install the required software.

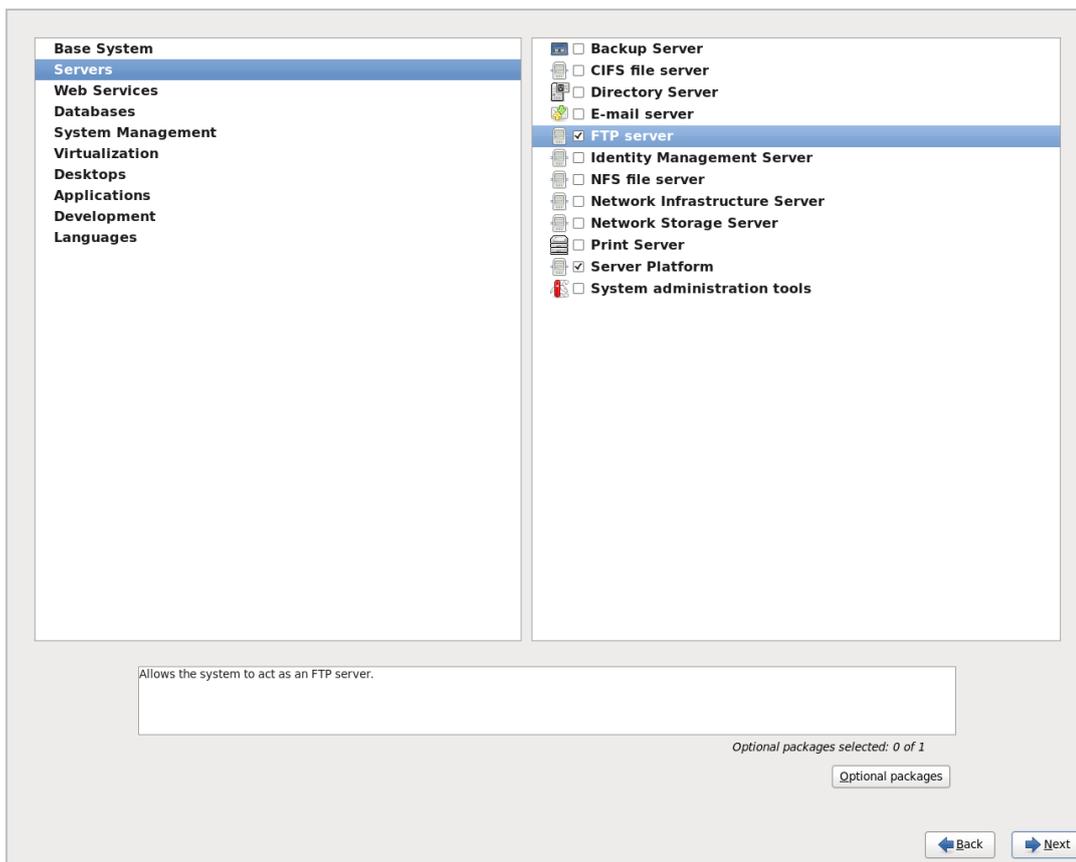


- 6) Select and install the FTP server, Telnet server, and other required environments.
 Items that cannot be installed in this stage may be installed later using the ‘Software add/delete’ feature.



NOTE

- Base System → Legacy Unix Compatibility → Select ‘telnet’
- Base System → Uncheck ‘Java Platform’
- Servers → Select ‘FTP Server’
- Applications → Select ‘Internet Browser’
- Desktops → Select ‘X Window System’
- Desktops → Select ‘Graphic based Administration Tools’
- Desktops → Select ‘Desktops’
- ‘Desktops’ → Select ‘Desktop Platform’
- Desktops → Select ‘Universal Desktops’
- Development → Development Tools → Select ‘gcc’



Base System
Servers
 Web Services
 Databases
 System Management
 Virtualization
 Desktops
 Applications
 Development
 Languages

- Backup Server
- CIFS file server
- Directory Server
- E-mail server
- FTP server**
- Identity Management Server
- NFS file server
- Network Infrastructure Server
- Network Storage Server
- Print Server
- Server Platform
- System administration tools

Allows the system to act as an FTP server.

Optional packages selected: 0 of 1

7) The 'Create User' window is depicted below. Create a user account if necessary.

Create User

You must create a 'username' for regular (non-administrative) use of your system. To create a system 'username', please provide the information requested below.

Username:

Full Name:

Password:

Confirm Password:

If you need to use network authentication, such as Kerberos or NIS, please click the Use Network Login button.

If you need more control when creating the user (specifying home directory, and/or UID), please click the Advanced button.

CHAPTER 3. Installing WEM Server

This chapter describes the procedure for installing the WEM server. (WEM v3.1.3 or higher).

Installation in a remote access environment (such as Telnet or SSH) is also possible.

3.1 Copying WEM Package

Create a WEM server account.

- 1) Log in with the root account in the Linux server console terminal.
- 2) Copy the package and license file from the CD using the following command.
The version of the WEM can be different.

```
# cp /media/xxxx/WEM_v3.1.3_install.zip /root/ ← Copy the WEM package
file.
# unzip WEM_v3.1.3_install.zip
# cd Linux
# chmod +x *
# cp ActivationKey.key /root/ ← Copy the license file.
The file name must be 'ActivationKey.key'. (after v2.0)
```

- 3) If you want to configure WEM Environment and install the WEM package, you can execute the below command. If not, please refer to '3.2 Configuring WEM Environment', '3.3 Installing Package'.

```
# cd /root/Linux
# ./install.sh
```

3.2 Configuring WEM Environment

- 1) Log in with the root account to the WEM server.
- 2) Start the Configuring WEM Environment with below command.

```
# cd /root/Linux
# install.sh env
```

- 3) Input the three values as follow: IP, gateway, subnet-MASK

```
Enter a ip-address: (input your IP)
Enter a gateway-address: (input your gateway)
Enter a subnet-MASK: (input your subnet-MASK)
```

- 4) If three values is entered correctly, preferences in the following order is automatically performed.
 - Stop NetworkManager service
 - Set the IP-address, hostname
 - firewall set to disable
 - set the ftp, telnet
 - xinetd service restart
 - pre-Installed MySQL package delete



CHECK

Precautions when Configuring WEM Environment

- IP input is available in Ipv4.
- Check the Network Interface Name. It can check with “# ifconfig” command.
When setting the IP-address, it use the first in the set of network interface with names beginning with “e”.(ex. eth0, eth1, em0, em1, ...)
If your WEM server have other network interface name, it is recommended that you don't use this script.

3.3 Installing WEM Package

- 1) Log in with the root account to the WEM server.
- 2) Start the Installing WEM Package with below command.

```
# cd /root/Linux
# install.sh wem
```

- 3) Install process is performed automatically as follow.
 - >> Making account (entnms, mysql)..... [1/12]
 - >> Installing JDK..... [2/12]
 - >> Installing cronolog..... [3/12]
 - >> Installing tomcat..... [4/12]"
 - >> Installing lz4..... [5/12]
 - >> Installing WEM..... [6/12]
 - >> Copying MySQL..... [7/12]
 - >> Installing MySQL..... [8/12]
 - >> Making ID for MySQL..... [9/12]
 - >> Making database..... [10/12]
 - >> Starting tomcat..... [11/12]
 - >> Starting WEM..... [12/12]

(There are WEM auto-start feature is included in the 12th step.)

If the installation is not proceed in the 12th step with below log, please enter “Ctrl + C”.

```
>> Starting WEM .....
[12/12]
WEM will be started. plz wait...
EMS system started.
-----
entnms  10208      1 21 10:08 ?      00:00:03 launcher
-----
entnms  10251 10208 37 10:08 ?      00:00:02 us
-----
entnms  10396 10208 44 10:08 ?      00:00:02 mf.cm
entnms  10436 10208 49 10:08 ?      00:00:02 mf.dbld
entnms  10323 10208 32 10:08 ?      00:00:02 mf.fm
entnms  10279 10208 46 10:08 ?      00:00:03 mf.gm
entnms  10364 10208 48 10:08 ?      00:00:02 mf.pm
entnms  10489 10208 51 10:08 ?      00:00:02 mf.report
entnms  10523 10208 46 10:08 ?      00:00:01 mf.spectrum
entnms  10624 10208 35 10:08 ?      00:00:00 mf.spot
entnms  10591 10208 47 10:08 ?      00:00:01 mf.vqm
-----
entnms  10549 10208 52 10:08 ?      00:00:02 ni.snmp
-----
WEM license file is already exist in "/root".
```

```
letter.version=Ver.3.1.5.R

Press "Ctrl + c" ~~!!
```

4) If you see the below log, WEM installation is finished.

```
mysqld process is running correctly.
tomcat process is running correctly.
#####
#      wem installation is Finished!!!      #
#####
```

5) Enable FTP server manually.

```
#service vsftpd status <-to check the running status
#chkconfig vsftpd on <-to start ftp at boot
#service vsftpd start <-to start ftp service
```



NOTE

- Configuring the WEM environment and installing WEM package is save the log with below path in the WEM server.
/tmp/wem_install.log: WEM package installation log
/tmp/wem_envConfig.log: WEM environment configuration log

3.4 E-mail Configuration and WEM host Configuration (Optional)

For the e-mail transmission function to work in case of an alarm occurrence, the e-mail settings must be configured on the server.

After logging in with the root account, open the '/etc/hosts' file and add the IP address and host name of the server you want to use as the e-mail server.

```
# su - root
# vi /etc/hosts
# Do not remove the following line, or various programs
# that require network functionality will fail.
127.0.0.1 localhost
xxx.xxx.xxx.xxx ENTNMS ENTNMS. localhost ← WEM IP and hostname
xxx.xxx.xxx.xxx mailServer ← E-mail server IP address and
hostname
→ Ensure that localhost is placed at the beginning of all the aliases
of 127.0.0.1.
```

Open the '\$NMS_HOME/data/properties/project-resources.properties' file and modify the host name of the e-mail server. At this point, the host name must be identical to the host name of the e-mail server set in the '/etc/hosts' file.

```
# vi $NMS_HOME/data/properties/project-resources.properties
fm.tt.email.host=mailServer
```

Reboot the server when the host file configuration is complete.

CHAPTER 4. Upgrading WEM

This chapter describes the procedure for upgrading the operating WEM to a higher version. The upgrade package is different from the new installation package, so make sure to check the package file before upgrading.

- 1) Log in with the entnms account and copy the package file for the upgrade. (Assume that the package file is on a USB memory stick.)

```
# cp /media/disk/v3.1.8.R.tar.gz /home/entnms/
```

- 2) Stop the WEM server and back up the existing directory, and then install the upgrade package.

```
# EMS stop
# cp /home/wem/data/license/ActivationKey.key .          ← Back up the
license file to the current directory. (Only the first time.)
# mv wem wem_yymmdd                                     ← Back up the existing
WEM directory
# tar -xvfz v3.1.8.R.tar.gz                             ← Install the upgrade
file.
# cp ActivationKey.key /home/wem/data/license/          ← Restore the license
file.
# cp wem_yymmdd/web/map/*.png wem/web/map/             ← Restore the background
file used in the RF map.
# cd /home/wem/dbschema
# ./patch_db_wem_3_1_8_R.sh                             ← Run a DB patch file
whose version is higher than the current one. If there is none, skip
this step.
```

- 3) Run the WEM server.

```
# EMS start
```

CHAPTER 5. Operating WEM

This chapter describes the procedure for running the WEM server after rebooting. You can set and operate the WEM server in one of two modes: automatic running and manual running.

5.1 Manual Running

After booting the WEM server, the user runs the applications in the following order: MySQL → Tomcat → WEM.

- 1) Log in with the MySQL account and run the database daemon.

```
# su - mysql
passwd : *****
$ app/support-files/mysql.server start
```

- 2) Log in with the root account and run Tomcat.

```
$ su -
passwd : *****
# cd /usr/local/tomcat/bin/
# ./startup.sh
```

- 3) Log in with the entnms account and run the Web server.

```
$ su - entnms
passwd : *****
# EMS start
```

- 4) When shutting down the server, make sure to shut down the server only after executing EMS stop. If the server is shut down while DB tasks are being performed, the DB table can be damaged.

```
$ su - entnms
passwd : *****
# EMS stop
```

5.2 Automatic Running (Preferred)

When the WEM server is booted, the procedure required to operate the WEM is executed automatically, without any additional configuration by the operator. The following procedure needs to be executed only once.

- 1) Log in with the root account and execute the script.

```
$ su -  
passwd : *****  
# ./auto_start.sh
```

- 2) When shutting down the server, make sure to shut down the server only after executing the command below.

```
$ su -  
passwd : *****  
# service wemd stop
```

CHAPTER 6. Connecting to WEM

This chapter describes the procedure for connecting to the WEB from the client.

The WEM program provides a Web-based Graphic User Interface (GUI). The operator can conveniently manage the WEB management program using Microsoft Internet Explorer; JAVA and Flash Player of Adobe must be installed for this operation.

6.1 Java Installation

Java that should be installed to the client PC for WEM operation can be downloaded from WEM. WEM currently supports Java 6 only. Java 7 will be supported from WEM V2.0. Since Java tends to have version compatibility issues, it is strongly recommended to download Java from WEM server in order to use WEM without any problem.

- 1) Execute Internet Explorer and enter WEM URL to open the login window.
- 2) Click on the 'here' at the bottom of the login window to open the WEM Helper page window.



Figure 1. WEM Login Window

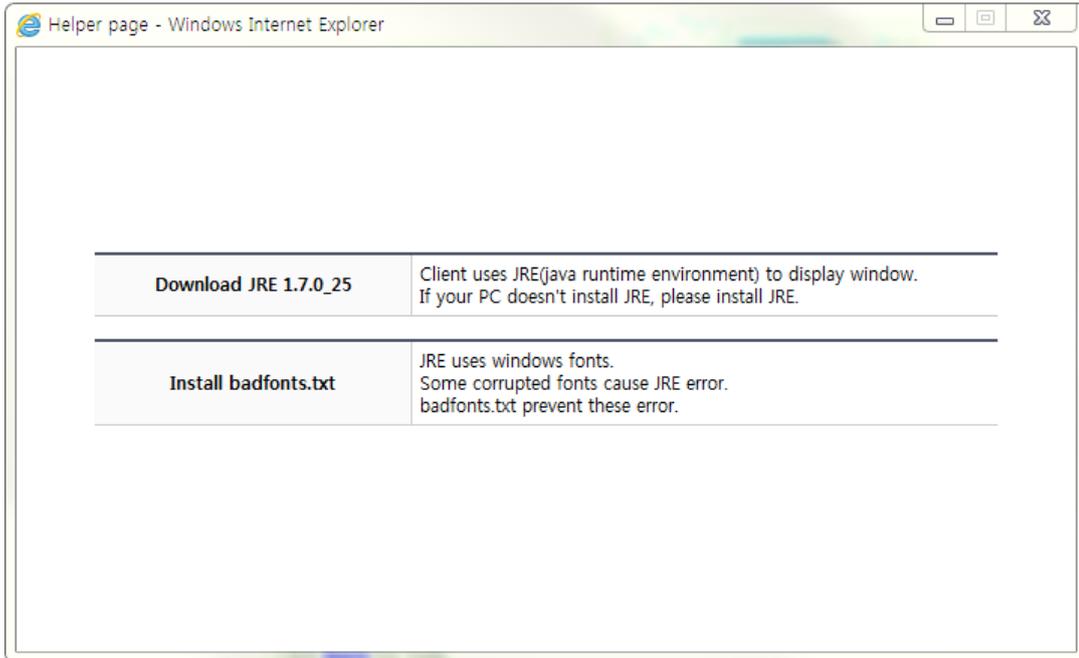


Figure 2. JRE File Download Window

- 3) Click on the 'Download JRE 1.7.0.55' and install Java.
- 4) If error occurs (e.g., fonts garbled) due to compatibility issue with window fonts, fix the error by clicking on the 'Install adfont.txt'. (Generally it does not need to be executed.)
- 5) If the network uses firewall or redundant equipment, or WEM connection does not proceed from the figure below due to security issues, change Java Security setting in Java Control Panel.



Figure 3. WEM Connection in Progress

6.2 Flash Player Installation

Flash Player that should be additionally installed to the client PC for WEM operation can be downloaded from <http://get.adobe.com/kr/flashplayer>.

Since Flash Player seldom has version compatibility issue, install version 11 or above.

6.3 Java Settings

If WEM connection does not continue or the connection is slow, change the Java and Explorer settings as follows.

6.3.1 Java Network Settings

Go to program page of window control panel. Open Java control panel by clicking on the Java icon and select 'general' window.

- 1) If the WEM server and the operator PC are on the same network, select 'Direct connection' as shown below.

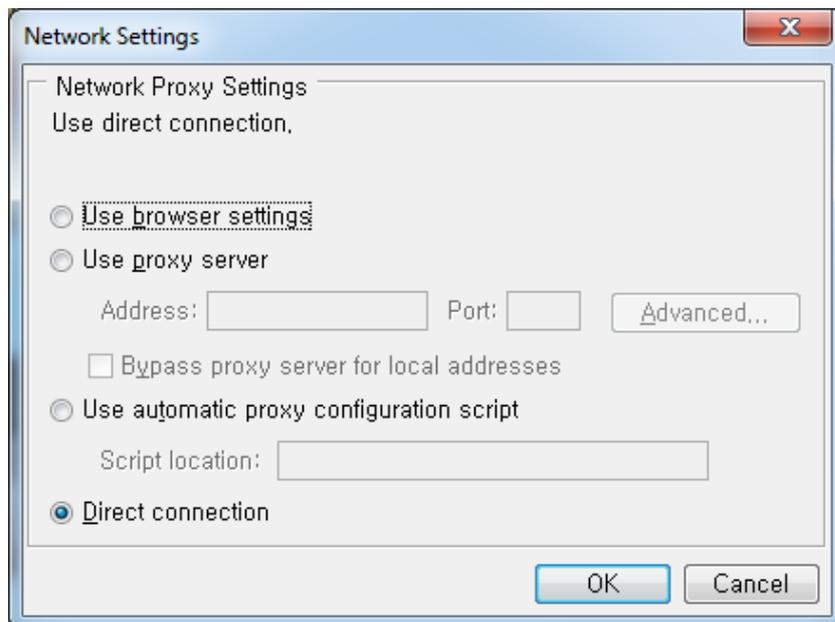


Figure 4. Java Network Settings Window

- 2) If the WEM server and the operator PC are on different networks (e.g., connection via proxy), select 'Use browser settings' or 'Use proxy server'.

6.3.2 Java Temporary Internet Files Settings

If some screens (such as Tree screen on the left of WEM) of the WEM connection screen are not displayed properly, change Java temporary files settings by unchecking the box that says ‘Keep temporary files on my computer’ as shown below.

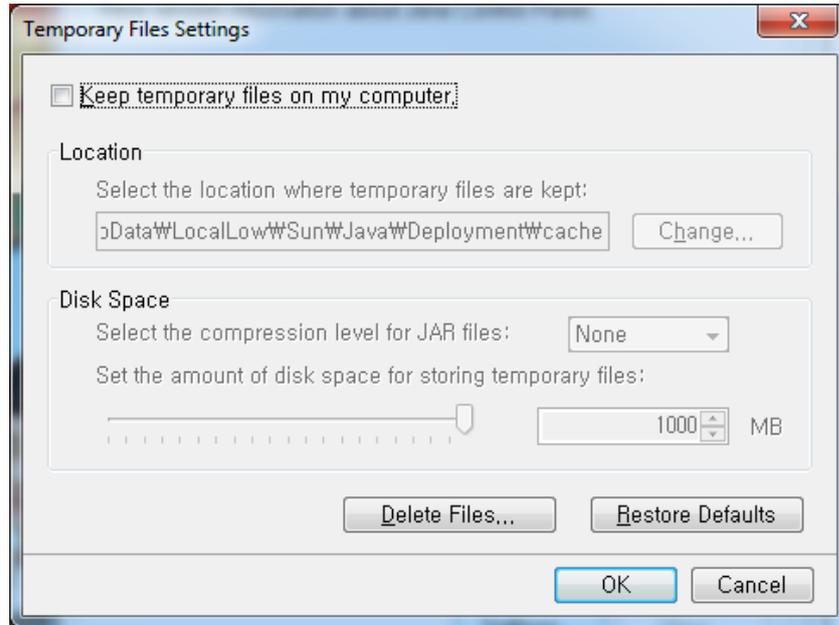


Figure 5. Java Temporary Files Settings Window

6.3.3 Java Security Settings

For Security reasons, change security levels to middle (bottom of slide bar) in security tab.

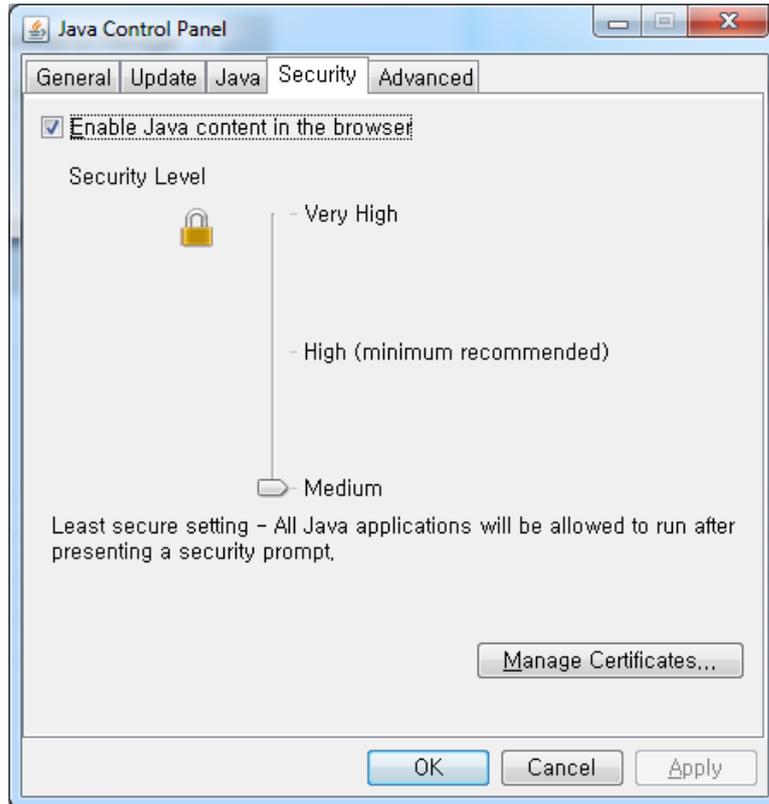


Figure 6. Java Security Settings Window

6.3.4 Java Advanced Settings

If your client PC was not connected to Internet, Change check “Perform certificate revocation check on ” to Do not check.

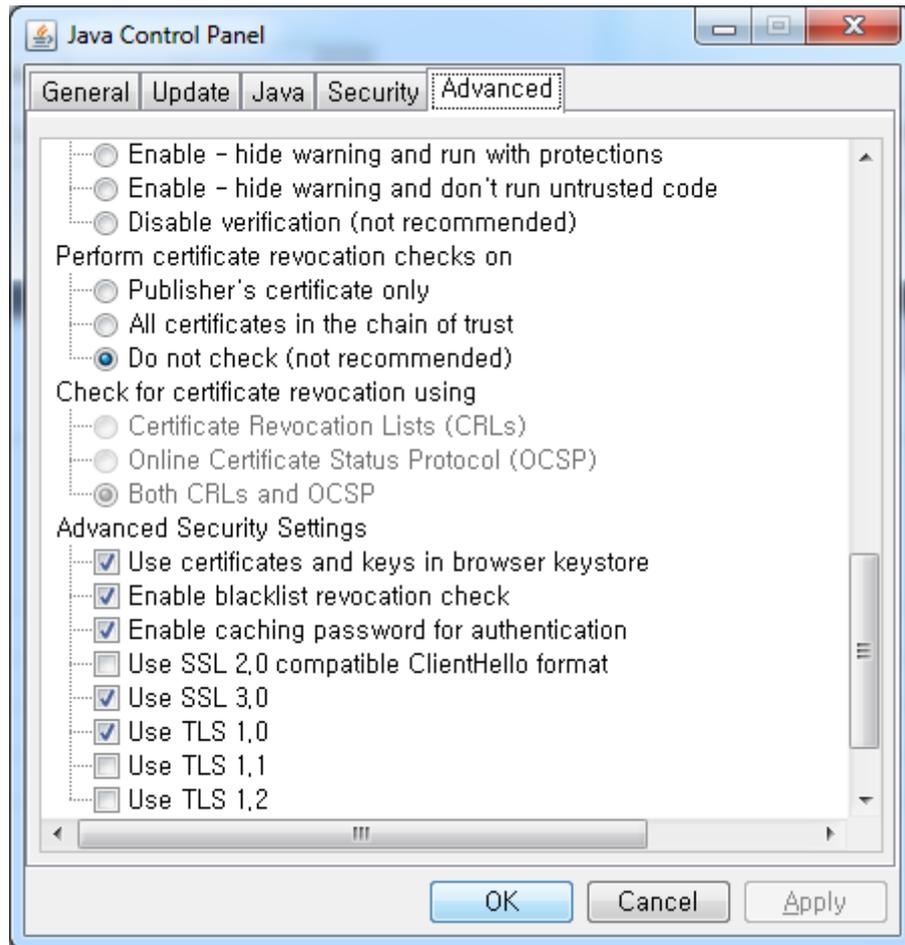


Figure 7. Java Advanced Settings Window

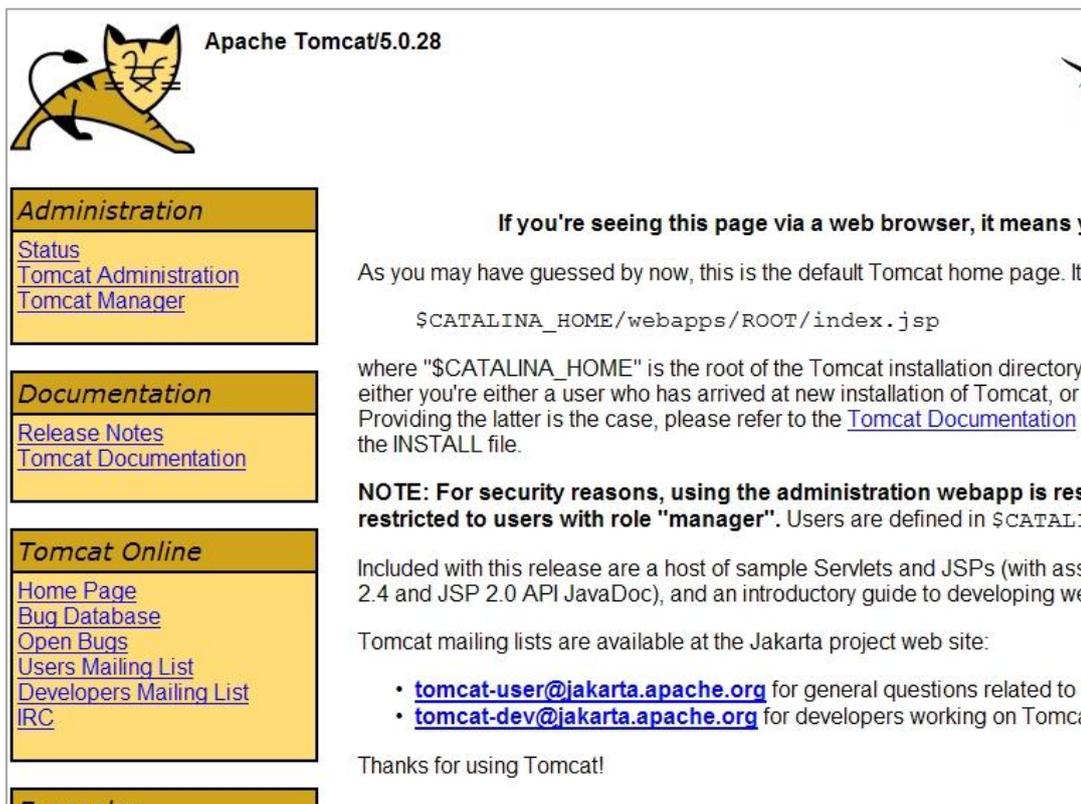
CHAPTER 7. Checking WEM Operation

This chapter describes the procedure for checking whether the WEM has been installed normally.

7.1 Checking WEB Server

Type the following URL into the browser and verify that the project initial window appears. If the window appears, this indicates that Tomcat installation has been successfully completed.

```
http://WEM IP/manager.jsp
```



Message:	OK
----------	----

Manager			
List Applications	HTML Manager Help	Manager Help	Server Status

Applications					
Path	Display Name	Running	Sessions	Commands	
/	Welcome to Tomcat	true	0	Start	Stop Reload Undeploy
/admin	Tomcat Administration Application	true	0	Start	Stop Reload Undeploy
/balancer		true	0	Start	Stop Reload Undeploy
/entnms		false	0	Start	Stop Reload Undeploy
/jsp-examples	JSP 2.0 Examples	true	0	Start	Stop Reload Undeploy
/manager	Tomcat Manager Application	true	0	Start	Stop Reload Undeploy
/servlets-examples	Servlet 2.4 Examples	true	0	Start	Stop Reload Undeploy
/tomcat-docs	Tomcat Documentation	true	0	Start	Stop Reload Undeploy
/webdav	Webdav Content Management	true	0	Start	Stop Reload Undeploy

Click 'Tomcat Manager' in the window and enter the password (tomcat/tomcat) to go to the window below. Click on 'Start' in the Commands item of '/entnms' to start the WEB server.

Message:	OK
----------	----

Manager			
List Applications	HTML Manager Help	Manager Help	Server Status

Applications					
Path	Display Name	Running	Sessions	Commands	
/	Welcome to Tomcat	true	0	Start	Stop Reload Undeploy
/admin	Tomcat Administration Application	true	0	Start	Stop Reload Undeploy
/balancer		true	0	Start	Stop Reload Undeploy
/entnms		false	0	Start	Stop Reload Undeploy
/jsp-examples	JSP 2.0 Examples	true	0	Start	Stop Reload Undeploy
/manager	Tomcat Manager Application	true	0	Start	Stop Reload Undeploy
/servlets-examples	Servlet 2.4 Examples	true	0	Start	Stop Reload Undeploy
/tomcat-docs	Tomcat Documentation	true	0	Start	Stop Reload Undeploy
/webdav	Webdav Content Management	true	0	Start	Stop Reload Undeploy

7.2 Checking Process

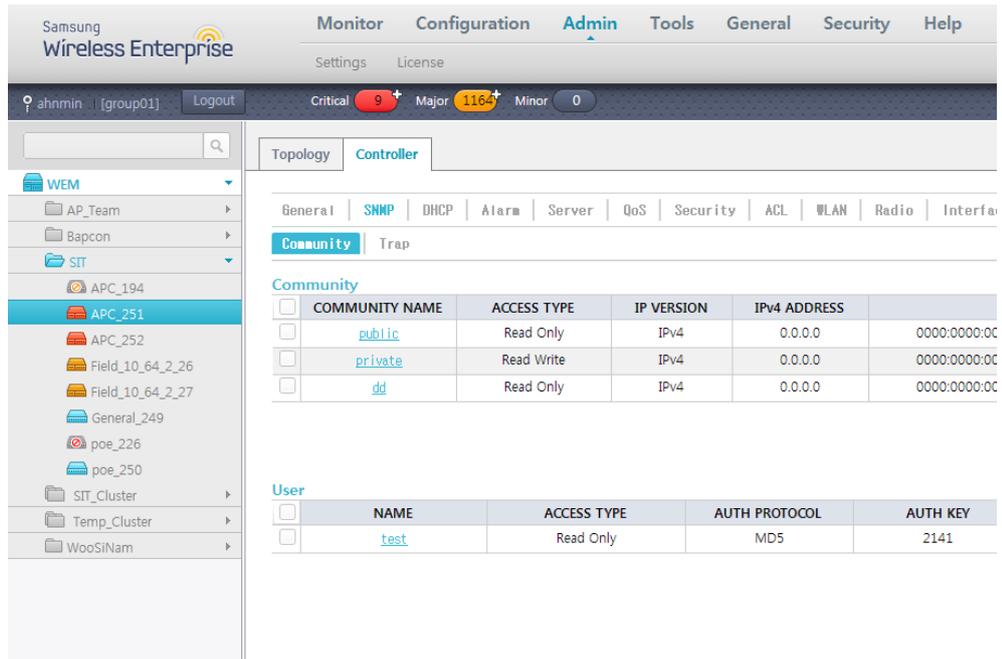
Log in with the entnms account to the terminal and check the status of the WEM process.

```
# PS      ← Capital
-----
entnms    4214    1 0 Sep24 ?      00:00:25 java -Dproc.name=launcher
-----
entnms    4261   4214 0 Sep24 ?      00:04:57 java -Dproc.name=us
-----
entnms    4367   4214 0 Sep24 ?      00:16:44 java -Dproc.name=mf.pm
entnms    4288   4214 0 Sep24 ?      00:13:49 java -Dproc.name=mf.gm
entnms    4324   4214 0 Sep24 ?      00:00:23 java -Dproc.name=mf.fm
entnms    4412   4214 0 Sep24 ?      00:00:20 java -Dproc.name=mf.cm
entnms    4461   4214 0 Sep24 ?      00:02:31 java -Dproc.name=mf.dbld
entnms    4494   4214 0 Sep24 ?      00:00:14 java -
Dproc.name=mf.report
entnms    4550   4214 0 Sep24 ?      00:00:14 java -
Dproc.name=mf.spectrum
entnms    4620   4214 0 Sep24 ?      00:00:19 java -Dproc.name=mf.vqm
-----
entnms    4587   4214 0 Sep24 ?      00:00:37 java -Dproc.name=ni.snmp
-----
```

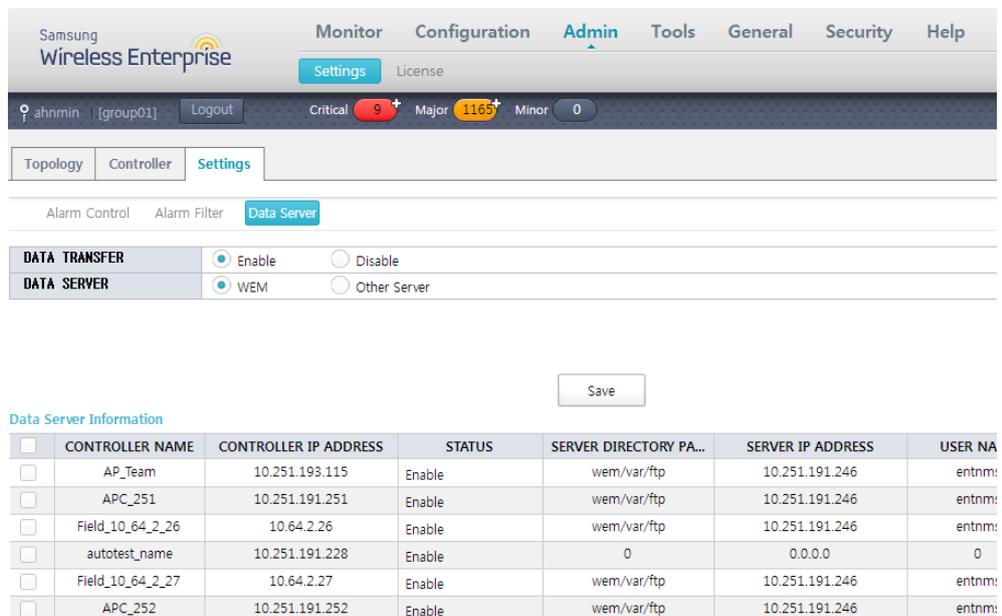
7.3 Check Trap Server and Data Server Settings

After logging in to the WEB:

- 1) Check if the trap server of the device is configured as the WEM IP address in Configuration → APC/Switch → SNMP → Trap.



- 2) Check if the data 'Server IP Address' of the device is configured as the WEM IP address in Admin → Data Server.



7.4 Checking Dashboard

Open Monitoring → Dashboard and check if each item is displayed appropriately. The values on the dashboard are calculated based on statistics data; therefore, this is a check for whether the controller forwards statistics data accurately.

CHAPTER 8. Configuring HTTPs

This chapter describes the process for creating a certificate for HTTP connections.

- 1) Log in with the entnms account and execute 'makeEmsServerKey.sh'.

```
# ./makeEmsServerKey.sh
→ clean old keystore and certificate file for server
→ Creating pkcs12 keystore and certificate file for server
→ Creating a private key and certificate request for our CA
Generating a 1024 bit RSA private key
.....+++++
.....+++++
writing new private key to 'server.key'
-----
You are about to be asked to enter information that will be
incorporated
into your certificate request.
What you are about to enter is what is called a Distinguished Name or
a DN.
There are quite a few fields but you can leave some blank
For some fields there will be a default value,
If you enter '.', the field will be left blank.
-----
Country Name (2 letter code) [AU]:KR
State or Province Name (full name) [Some-State]:GYEONGGI
Locality Name (eg, city) []:SUWON
Organization Name (eg, company) [Internet Widgits Pty Ltd]:SAMSUNG
Organizational Unit Name (eg, section) []:127.0.0.1
Common Name (eg, your name or your server's hostname) []:ENTNMS
Email Address []:someone@samsung.com

Please enter the following 'extra' attributes
to be sent with your certificate request
A challenge password []:changeit
An optional company name []:✓ (Enter)
→ Create a CA's self-signed certificate
Signature ok
subject=/C=KR/ST=GYEONGGI/L=SUWON/O=SAMSUNG/OU=127.0.0.1/CN=ENTNMS/ema
ilAddress=someone@samsung.com
Getting Private key
```

```

→ Import the CA certificate into the JDK certificate authorities
Owner: EMAILADDRESS=someone@samsung.com, CN=ENTNMS, OU=127.0.0.1,
O=SAMSUNG, L=SUWON, ST=GYEONGGI, C=KR
Issuer: EMAILADDRESS=someone@samsung.com, CN=ENTNMS, OU=127.0.0.1,
O=SAMSUNG, L=SUWON, ST=GYEONGGI, C=KR
Serial Number: bb22c70138f2e8e1
Start Date: Thu Apr 10 16:53:12 KST 2014, Expiration Date: Sat Apr 02
16:53:12 KST 2044
Certificate Fingerprint:
      MD5: 1B:22:31:55:EA:1A:28:05:6D:E5:F8:9E:7A:10:BC:D9
      SHA1:
61:9A:B7:7C:82:31:1F:7C:E1:E5:D2:95:64:54:08:70:66:04:97:0C

Do you trust this certificate? [No]: Y
Certification is added to keystore.
→ Creating pkcs12 file from server.pem and server.key
→ copy keystore and certificate file to keystore directory

```

2) Log in with the root account and execute 'makeWebServerKey.sh'.

```

# su -
passwd : *****
# ./makeWebServerKey.sh

[ Removing your keystore file... ]

[ Input IP address or DNS name. ]
10.251.195.105 ←(WEM Server IP address)

[ Generating keystore file... ]
Enter keystore password: changeit
Re-enter new password: changeit
Generating 2,048 bit RSA key pair and self-signed certificate
(SHA256withRSA) with a validity of 10,950 days
      for: CN=10.251.195.105, OU=TELECOM, O=SAMSUNG, L=SUWON,
ST=GYEONGGI, C=KR
Enter key password for <tomcat>
      (RETURN if same as keystore password): (press ENTER key)

[Storing /root/.keystore]

Do you want to certificate your key from Certificate Authority?
[y|n]
n
Keystore file is saved in your home directory. See you!

```

3) Re-run Tomcat to reflect the certificate.

```

# cd /usr/local/tomcat/bin
# ./shutdown.sh
# ./startup.sh

```

ANNEX A. First-Time Login

A.1 Logging in with Default Operator Account

After installing the WEM web client for the first time, you must first register an operator account; the root account is used for basic operator registration/deletion.

The root account allows you to only register or delete the initial operator information. The root account cannot be used to manage AP and APC devices.

Log in with the default user account 'root' and the default password '1234'. After logging in, change the password of the 'root' account. After the password change, you can use the 'root' account with the new password you have specified.



A.2 Registering User Privileges

The WEM web client can be operated only by an allowed user and an allowed terminal (the IP address of the PC). Therefore, the administrator must register an operator and configure the IP address after the initial installation.

A.2.1 Registering Operator

- 1) Click 'User Manager'.

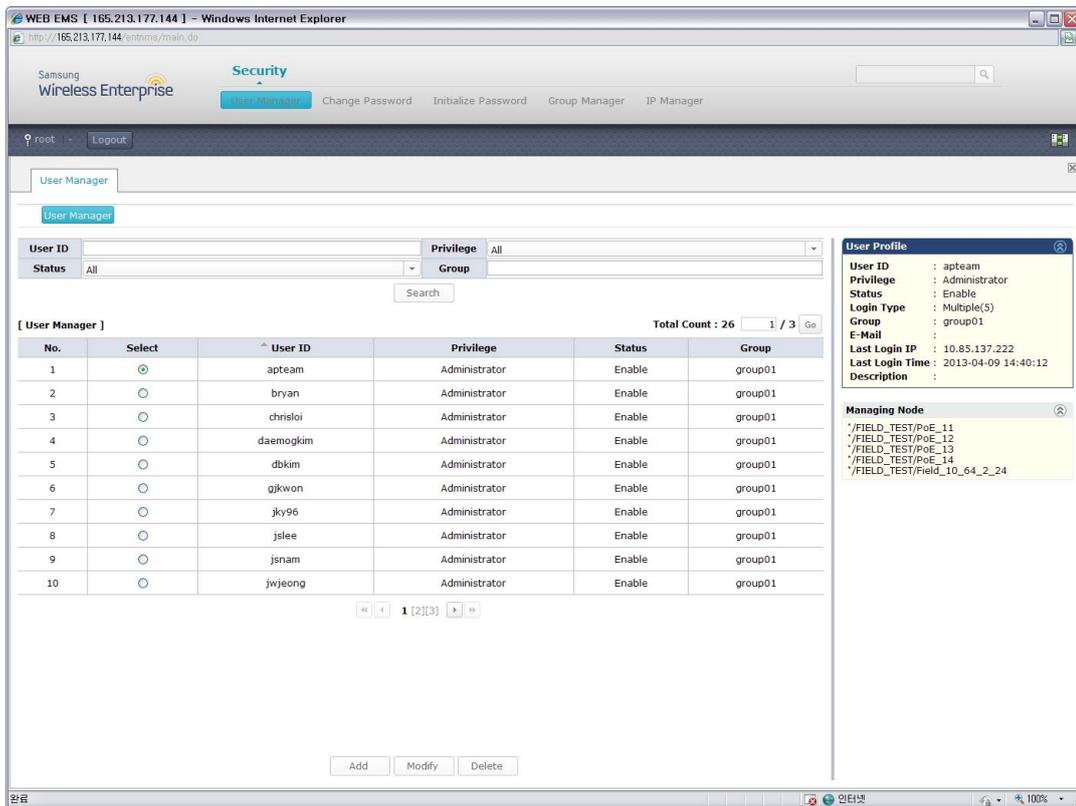


Figure 8. User Manager Window

- 2) Click the [Add] button; the [Register User] window will appear to the left. Fill in the required items and click the [OK] button.

Figure 9. Register User Window (Add)

Input Items	Description
User ID	Operator ID
Password	Operator password
Re-Password	Confirm the password
Privilege	Operator privileges for the following user types: Administrator, Operator, and Guest.
Network Group	Sets the NE group that an operator can manage. The operator of the highest rank must select the default group.
Login Type	Specifies whether to allow concurrent access with the same ID; if allowed, enter the number of access sessions allowed.
E-mail	E-mail address

For network groups, one default group is already registered. The administrator can register a network group and then change it later.

- 3) When a new operator is registered, it will be reflected in the result table.

A.2.2 Allowing Client IP Address

- 1) Select 'IP Manager'.



Figure 10. IP Manager Window

- 2) Enter the required information like the IP address range or the IP address of the computer you want to connect to (e.g. 192.168.25. *, 192.168.0.2). Then, click on the [OK] button.



Figure 11. Add IP Address Window (Add)

Item	Description
IP Address	Client IP information
Description	Description of the IP address you want to register.
Type	This parameter determines whether to allow or deny login. If the value is 'Allow', login from the registered IP is allowed. If the value is 'Deny', login from the registered IP is denied.
Session	The number of simultaneous login sessions, if login is allowed.

- 3) The registered IP address will be displayed in the top window.

ANNEX B. Changing WEM IP Address

B.1 Environment Settings

When changing the IP address of the WEM server, you must also change the required system environment information.

- 1) Log in with the root account in the terminal as shown below.

```
$ su-  
Passwd : *****
```

- 2) Change the IP address in the '/etc/hosts' file.

```
# vi /etc/hosts  
127.0.0.1 localhost  
# ENTNMS IP for management system  
192.168.25.116 ENTNMS ENTNMS.samsung.com loghost ← Change the IP  
address.
```

B.2 Configuring Devices

Change the trap server and data server information of the management object device to the changed IP address.

- 1) Change the existing trap server to the new trap server in Configuration → Controller → SNMP → Trap.
- 2) Update the data server to the new WEM server after selecting 'Controller' in Admin → Settings → Data Server.

ABBREVIATION

A

AP	Access Point
APC	Access Point Controller

D

DBMS	Database Management System
------	----------------------------

F

FTP	File Transfer Protocol
-----	------------------------

G

GUI	Graphic User Interface
-----	------------------------

H

HTTP	Hypertext Transfer Protocol
HTTPs	Hypertext Transfer Protocol over Secure Sockets Layer

I

ID	Identifier
IP	Internet Protocol

J

JDK	Java development kit
JRE	Java runtime environment
JVM	Java Virtual Machine

L

LAN	Local Area Network
-----	--------------------

N

NE	Network Element
----	-----------------

	NMS	Network Management System
O		
	OS	Operation System
S		
	SNMP	Simple Network Management Protocol
	SSH	Secure Shell
U		
	URL	Uniform Resource Locator
	USB	Universal Serial Bus
W		
	WEM	Wireless Enterprise WLAN Manager
	WLAN	Wireless Local Area Network

WEM Installation Manual

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