

**Megisto Mobile Services Delivery Platform**  
**MS950**  
**CLI Reference Guide**  
**Release 2.0**

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# Chapter 1: About this Guide

## Objective

This document describes the commands contained in the Megisto Mobile Service Delivery Platform (MS950) Command Line Interface (CLI). It provides the syntax for each command, defines its parameters, and provides an example.

## Related Publications

The Megisto Systems documentation set consists of:

- *MS950 CLI Configuration Guide* which should be used in conjunction with this manual. It provides the configuration tasks in which these commands are used.
- *MS950 Installation and Maintenance Guide*: Provides instructions to install and maintain the MS950.
- *MS950-ES Installation and Maintenance Guide*: Provides instructions to install and maintain the MS950-ES.

## Intended Audience

This guide is intended for use by system and network administrators who are experienced with general networking hardware/software architecture and basic TCP/IP. It assumes that you are familiar with the hardware configuration, specifically the cards, and that the MS950 and MS950-ES are installed (and

## In This Chapter

- Objectives
- Related Publications
- Intended Audience
- Conventions
- Getting Help

## Conventions




---

### About this Guide

initially configured) as described their respective Installation and Maintenance Guides. You need hardware configuration information to perform some configuration tasks.

## Conventions

The following conventions are used when describing CLI commands.

Convention	Description
Courier	Indicates CLI inputs or outputs.
<b>Bold</b>	Command names or indicates you should type data exactly as shown.
<i>Italics</i>	Arguments in which you must supply a value.
[]	Optional arguments.
{ }	Required arguments.
A   B	The pipe indicates alternative parameters (A or B).
>	Indicates Operator exec mode.
#	Indicates Administrator or Superuser mode.
<b>SSN</b>	 Indicates the command is only used for SSN or is not used for SSN.
<b>GGSN</b>	 Indicates the command is only used for GGSN or is not used for GGSN.
<b>CDMA</b>	 Indicates the command is only used for SSN or is not used for CDMA.

## Getting Help

CLI help is available by typing a question mark (?) at any command line. Context-sensitive help is provided for the command or the command mode. You may also use the **help** command as described in “help” on page 6-13.

If you need further assistance, please contact Megisto immediately by e-mail at [support@megisto.com](mailto:support@megisto.com). Megisto’s URL is <http://>

www.megisto.com. You also can send correspondence to the addresses in the table below.

Megisto USA	Megisto Europe
20251 Century Boulevard Suite 120 Germantown, MD 20874 USA +1 (301) 444-1700	Thames Court 1 Victoria Street Windsor Berkshire SL4 1YB United Kingdom

## Getting Help

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### About this Guide

# Chapter 2: Understanding the User Interface

## Operator Mode

Operator mode provides display-level access to the MS950 file system. You can view folder contents and display status information but cannot make any changes to system configuration.

To perform operator operations:

1. Access the CLI via Telnet or serial port.
2. Enter your operator *username* and *password*.

The username and password is set by the User Administrator. You are placed in operator mode as indicated by the **MS>** prompt.

**Note:** Throughout this guide the prompt is shown as **MS**. If you assigned an SNMP hostname via the **snmp server** command, the configured hostname is displayed in the prompt.

## Administrator Mode

Administrator (admin) mode allows you to modify configuration settings. You can add and change a variety of physical and virtual settings. You cannot modify users.

To perform administrator operations:

1. Access the CLI via Telnet or serial port.
2. Enter your administrator *username* and *password*.

### In This Chapter

- Operator mode
- Administrator mode
- Superuser mode
- Prompt Structure
- Command Entry
- History and Editing

## Superuser Mode

---

### Understanding the User Interface

The username and password is set by the User Administrator. You are placed in Administrator mode as indicated by the **MS#** prompt.

**Note:** Throughout this guide the prompt is shown as **MS**. If you assigned an SNMP hostname via the **snmp server** command, the configured hostname is displayed in the prompt.

To perform administrator operations after logging in as operator:

1. Access the CLI via Telnet or serial port.
2. Enter your *username* and *password*.

The username and password is set by the User Administrator. You are placed in Operator mode as indicated by the **MS>** prompt.

You are placed in Administrator mode as indicated by the **MS#** prompt.

The changes you make in this mode are recorded in the configuration file.

**Note:** Throughout this guide the prompt is shown as **MS**. If you assigned an SNMP hostname via the **snmp server** command, the configured hostname is displayed in the prompt.

## Superuser Mode

User administrator (superuser) mode allows you to modify configuration settings as well as modify users. You can add and change a variety of physical and virtual settings.

To perform superuser operations:

1. Access the CLI via Telnet or serial port.
2. Enter your superuser *username* and *password*.

The initial username and password was determined in your initial setup as described in the *MS950 Installation and Maintenance Guide*.

You are placed in Superuser mode as indicated by the **MS#** prompt.

**Note:** Throughout this guide the prompt is shown as **MS**. If you assigned an SNMP hostname via the **snmp server** command, the configured hostname is displayed in the prompt.

## Prompt Configuration and Structure

System prompts are in the form `hostname (parent command) privilege_level`. The mode expands to indicate sub-levels. For example, the prompt `MS (config-sub-apn) #` indicates that you are on the machine named MS, are in administrator (or superuser) mode, and are configuring the access point name (APN) parameters for a subscriber partition.

Mode Prompt	Description	Example
>	Operator mode	MS>
#	Administrator	MS(config-sub-apn)#
#	Superuser - prompt is the same as Administrator mode.	MS(config-sub-apn)#

**Note:** Throughout this guide the prompt is shown as `MS`. If you assigned an SNMP hostname via the `snmp server` command, the configured hostname is displayed in the prompt.

## Entering Configuration Commands

You must be in administrator or superuser mode to perform configuration tasks. To perform configuration tasks, type `configure` prior to the first configuration command in the group. For example, if you want to configure SNMP parameters, use `configure snmp`. You are placed in `(config-snmp)` from this point forward.

```
MS# configure snmp
MS (config-snmp) #
```

You may also enter `configure` alone and then enter the next-level command. For example:

```
MS# configure
MS (config)# snmp
MS (config-snmp) #
```

## History and Editing

---

### Understanding the User Interface

So long as you are entering SNMP commands, you do not need to type the words **configure** or **snmp** again (unless they are part of another command). You need to back out of the existing command structure using the **exit** or **exit all** commands to enter a new command structure.

You can type part of a command and press the **tab** key for command completion.

```
MS# con [tab]
MS# con [tab] figure
```

In most cases, the CLI recognizes the first two to three letters of a command.

## History and Editing

You can navigate the command structure by entering commands or keystrokes. To go back up one level in the command structure type **exit**. To go back to the top level (for example, administrator (**MS#**)) type **exit all** or press **ctrl-z**. You can use the **history** command to list the most recent 30 commands entered. All hot keys are listed in the table below.

Key	Action
backspace	move left and delete the character
ctrl-a	move to the beginning of the line
ctrl-b or left arrow	move cursor left over characters without deleting the character
ctrl-d	delete the current character
ctrl-e	move to the end of the line
ctrl-f or right arrow	move cursor right over characters without deleting the character
ctrl-k	delete the text after the cursor
ctrl-n or down arrow	get the next command history
ctrl-p or up arrow	get prior command history
ctrl-t	transpose current and previous character
ctrl-u	delete all the text prior to the cursor

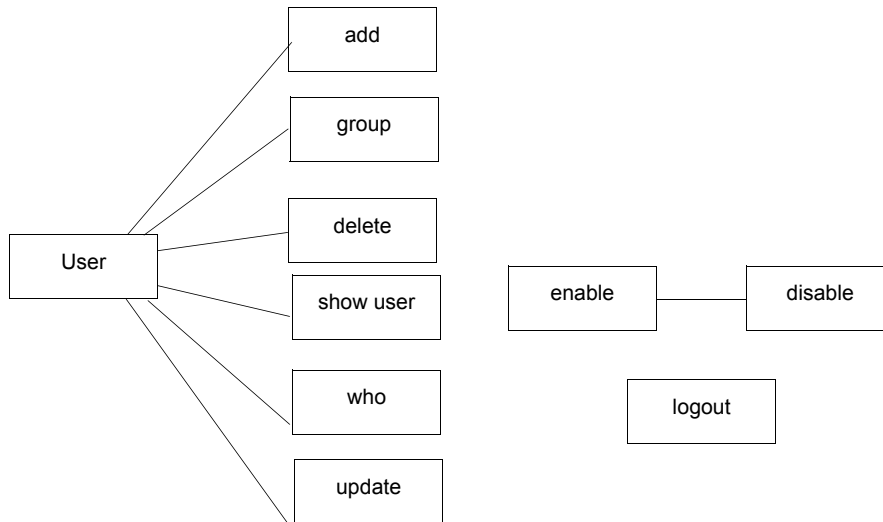


Key	Action
ctrl-w	delete the word prior to the cursor
ctrl-z	enter the command and return to root prompt
enter	execute the command and enter intermediate mode
esc-b	move back one word
esc-d	delete the remainder of the word
esc-f	move forward one word
tab	command completion. After you type the first few unique letter of the command, the rest of the command is typed for you.



# Chapter 3: User Access Commands

The commands listed in this section provide access to the MS950.



## In This Chapter

- add
- delete
- disable
- enable
- group
- logout
- show user
- update
- user
- group
- who

### add

```
add name name level {operator | admin | superuser}  
      {group name} [password-hash name]
```

#### Purpose

This command adds a user to the system. It also provides a password and access level.

**Note:** The password-hash option is used in the startup-config script to set the hash value directly.

#### Command Mode

Superuser - user

#### Syntax Description

Parameter	Description
<b>name</b> <i>name</i>	The name of the user. Alphanumeric up to 16 characters. Once a name is added, it cannot be changed.
<b>level</b> {operator   admin   superuser}	The desired access level of the user. Operator has limited privileges. Admin can enter all commands except user privileges. Superuser can perform all configuration functions.
<b>group</b> <i>name</i>	Optional: The name of the user group. Alphanumeric up to 16 characters.
<b>password-hash</b> <i>name</i>	Optional: The password is pre-hashed password string. Alphanumeric up to 16 characters. You may not use this keyword if password is used.

#### Related Commands

user, delete, update, show users

## Example

The following example adds a new user to the system.

```
MS# user
MS (user)# add name john level operator group
           installers
Enter new password: *****
Confirm new password: *****
```

## delete

`delete name`

### Purpose

This command deletes a user from the system.

### Command Mode

Superuser - user

### Syntax Description

Parameter	Description
<code>name</code>	The name of the user. Alphanumeric up to 16 characters. The name of the User Administrator cannot be deleted.

### Related Commands

user, add, update, show users

### Example

The following example deletes the user named john from the system.

```
MS# user
MS(user)# delete john
```

## group

```
group rename groupname newname
```

### Purpose

This command renames a user group.

### Command Mode

Administrator or Superuser - config

### Syntax Description

Parameter	Description
<i>groupname</i>	The existing name of a group.
<i>newname</i>	The new name of the group.

### Related Commands

none

### Example

The following example renames a user group.

```
MS# group rename cdr-admin chargingguy
```

## logout

logout

### Purpose

This command exits a current user session and returns you to the login prompt.

### Command Mode

Operator or Administrator or Superuser

### Syntax Description

No parameters

### Related Commands

none

### Example

The following example exits the current user session.

```
MS# logout
```



## show groups

`show groups`

### Purpose

This command displays information about all configured user groups.

### Command Mode

Operator or Administrator or Superuser

### Syntax Description

No parameters

### Related Commands

group, file, update

### Example

The following example displays configured groups.

---

## User Access Commands

### show user

MG# **show groups**

User Group Names:

```
-----  
  custom0  
  custom1  
  custom2  
  custom3  
  custom4  
  custom5  
  custom6  
  custom7  
  cdr-admin  
  security-admin  
  config-admin  
  feature-admin  
  limited-access  
  stats-monitor  
  legal-intercept  
  device-admin
```

Sub System File Creation Group Masks:

```
-----  
  Sub System Name          Groups  
-----  
software-release          Write Groups: device-admin  
                           Read Groups: device-admin  
configuration              Write Groups: config-admin device-admin  
                           Read Groups: config-admin device-admin  
security                   Write Groups: security-admin device-admin  
                           Read Groups: security-admin device-admin  
system                    Write Groups: device-admin  
                           Read Groups: device-admin  
accounting                 Write Groups: custom0  cdr-admin device-admin  
                           Read Groups: custom0  cdr-admin device-admin
```

**show user**

### Purpose

This command displays a list of all created users and their group assignments.

### Command Mode

Operator or Administrator or Superuser

### Syntax Description

No parameters.

### Related Commands

user, add, delete, update, who

### Example

The following example displays all users.

```
MG# show user
Username                Level                Group
=====
      admin                Other                NO GROUP
      tim                  useradmin           cdr-admin
```

## update

```
update name [level {operator | admin | superuser}]  
           [password] [password-hash name] [group name]
```

### Purpose

This command configures a user's logon level of access, group, and password.

### Command Mode

Superuser - user

### Syntax Description

Parameter	Description
<i>name</i>	The name of the user. Alphanumeric up to 16 characters.
<b>level</b> {operator   admin   superuser}	Optional: The desired access level of the user. Operator has limited privileges. Admin can enter all commands except user privileges. Superuser can perform all configuration functions.
<b>password</b>	Optional: The password of the user. Alphanumeric up to 16 characters. You may not use this keyword if password-hash is used. You will be prompted for the actual password.
<b>password-hash</b> <i>name</i>	Optional: The password is pre-hashed password string. Alphanumeric up to 16 characters. You may not use this keyword if password is used.
<b>group</b> <i>name</i>	Optional: The name of the user group. Alphanumeric up to 16 characters.

### Related Commands

user, add, delete, group, show users

### Example

The following example changes the user access level from operator to administrator.

```
MS# user  
MS(user)# add john level operator  
Enter new password: *****  
Confirm new password: *****  
MS(user)# update name john level admin group installer
```

## user

`user`

### Purpose

This command enters you into user mode, in which you can configure users.

### Command Mode

Superuser

### Syntax Description

No parameters.

### Related Commands

add, delete, update, show users

### Example

The following example enters user mode.

```
MS# user  
MS (user) #
```

## who

who

### Purpose

This command displays a list of users who are currently logged in.

### Command Mode

Operator or Administrator or Superuser

### Syntax Description

No parameters

### Related Commands

show users

### Example

The following example shows current users.

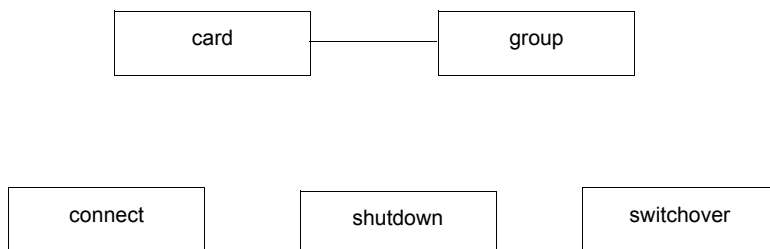
```
MS# who
      serial port
admin 10.128.0.253
admin 10.170.0.1
```





# Chapter 4: Card Configuration Commands

The commands listed in this section configure the cards in the MS950.



## In This Chapter

- card
- connect
- group
- show card
- show connect
- shutdown
- switchover

### card

```
card {line-card | service-card | fabric-card}
    slot_number
```

#### Purpose

This command configures a specified card for operation. A line card or service card must be configured before it becomes operational.

**Note:** The fabric card must be configured before you can connect line cards to service cards.

#### Command Mode

Administrator or Superuser - config

#### Syntax Description

Parameter	Description
<b>line-card   service-card   fabric-card</b>	Indicates the type of card to be configured.
<i>slot_number</i>	The number of the slot in which the card resides. Valid values are 1-4 and 15-18 for line cards, 5-7 and 12-14 for service cards, 9 or 10 for control cards, or 8 and 11 for fabric cards.

#### Related Commands

group, show card

#### Example

The following example configures line card 2.

```
MS# configure card line-card 2
MS(config-card-slot2)#
```

## connect

```
connect line-card slot_number service-card slot_number
no connect line-card slot_number service-card
slot_number
```

### Purpose

This command connects a line card to a specific service card. This must be done before configuring any interfaces. The no form of the command removes the connection.

You can delete the association between cards only if all interfaces on those cards have first been deleted.

**Note:** The fabric card must be configured before you can connect line cards to service cards.

### Command Mode

Administrator or Superuser - config

### Syntax Description

Parameter	Description
line card <i>slot_number</i>	The slot number of the line card. Valid values are 1-4 and 15-18.
service card <i>slot_number</i>	The slot number of the service card. Valid values are 5-7 and 12-14.

### Related Commands

show connect

### Example

The following example connects line card 1 to service card 5.

---

## Card Configuration Commands

```
MS# configure
```

```
MS(config)# connect line-card 1 service-card 5
```

## group

```
group group_name role {active | standby}
no group
```

### Purpose

This command assigns the card to a redundancy group. It is executed after the configure card command. The no form of the command removes the card group assignment.

A card can be removed from a redundancy group only if the connection to the card has been deleted first. See “connect” on page 4-3. The card can also be removed from a redundancy group only if it is not currently involved in a past switchover/failover event. You must first switch the current traffic of the card back so that the card is in its original redundancy mode.

### Command Mode

Administrator or Superuser - config - card

### Syntax Description

Parameter	Description
<i>group_name</i>	The group identity. Groups can contain two or more like cards. Valid values are: service cards - s1, s2, s3 line-cards - l1, l2, l3, l4 fabric cards - f1
<b>active   standby</b>	The mode of the card.

### Related Commands

card, show card

### Example

The following example configures the line card on slot 2. It places the card in standby mode and assigns it to group L4.

```
MS# configure card line-card 2  
MS(config-card-slot2)# group 14 role standby
```

## show card

```
show card
```

### Purpose

This command displays all information about all cards in the system.

### Command Mode

Operator or Administrator or Superuser

### Syntax Description

No parameters

### Related Commands

card, group

### Example

The following example shows all cards.

```
MS# show card
```

Slot	Card	Type	Status Mode	Admin	Oper	Redundancy Role	Group	Host Card
1	--	---	---	----	----	---	--	----
2	--	---	---	----	----	---	--	----
3	LC	GigE	Active	Unlocked	Enabled	Active	L1	__LC3
4	--	---	---	----	----	---	--	----
5	SC	MSE	Active	Unlocked	Enabled	Active	S1	__SC5
6	--	---	---	----	----	---	--	----
7	SC	MSE	Active	Unlocked	Enabled	Active	S2	__SC7
8	FC	Fab	Active	Unlocked	Enabled	Active	F1	__FC8
9	CC	Ctrl	Active	Unlocked	Enabled	Active	C1	__CC9

## show connect

`show connect`

### Purpose

This command displays the current configuration of connected line cards and service cards.

### Command Mode

Operator or Administrator or Superuser

### Syntax Description

No parameters

### Related Commands

`connect`

### Example

The following example shows the connect configuration.

```
MG# show connect
Line-card   Service-card
           17           12
           18           7
```



## shutdown

```
shutdown  
no shutdown
```

### Purpose

This command enables or disables card operation. The no form is the enabling mechanism.

### Command Mode

Administrator or Superuser - config - card

### Syntax Description

No parameters

### Related Commands

card, group

### Example

The following example enables line card 2.

```
MS# configure card line-card 2  
MS(config-card-slot2)# group 14 role standby  
MS(config-card-slot2)# no shutdown
```

## switchover

```
switchover [line-card | service-card | control-card |  
fabric-card] slot_number
```

### Purpose

This command toggles between standby and active mode for the specified card.

### Command Mode

Administrator or Superuser

### Syntax Description

Parameter	Description
<b>line-card   service-card   control-card   fabric-card</b>	The type of card to switch over.
<i>slot_number</i>	Valid values are: line cards 1-4 and 15-18, service cards 5-7 and 12-14, fabric cards 8 and 11, and control cards 9 and 10.

### Related Commands

show card

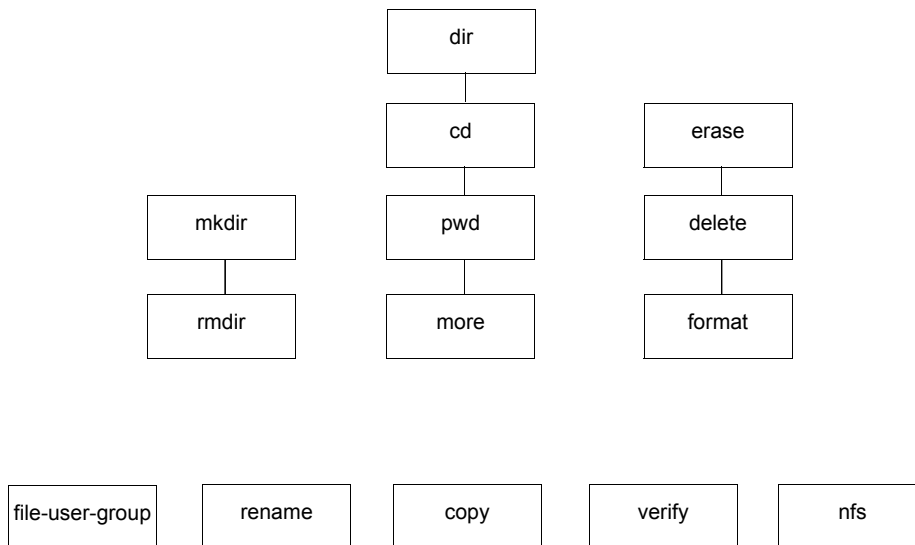
### Example

The following example toggles the mode for line card 6.

```
MS# switchover line-card 6
```

# Chapter 5: File System Commands

The commands listed in this section provide access to the file system.



## In This Chapter

- cd
- copy
- copy running-config
- delete
- dir
- erase
- file-user-group
- format
- mkdir
- more
- nfs
- pwd
- rename
- rmdir
- verify

## cd

`cd directory`

### Purpose

This command changes the current directory for the file system.

### Command Mode

Operator or Administrator or Superuser

### Syntax Description

Parameter	Description
<i>directory</i>	The filesystem, directory URL, or alias.

### Related Commands

`pwd`, `more`

### Example

The following example changes to the cert directory.

```
MS# cd cert
```

## copy

```
copy source_url destination_url [noconfirm]
```

### Purpose

This command copies a file from one location to another. It also provides FTP service in that either the source or the destination file may reside on a remote server.

**Note:** The destination must be a file, not a directory.

### Command Mode

Administrator or Superuser

### Syntax Description

Parameter	Description
<i>source_url</i>	The source URL in one of the following forms: /devicename[/directory]/filename.ext or ftp://username:passwd@ip-address   hostname[/directory]/filename.ext ftip://username:passwd@ip-address   hostname[/directory]/filename.ext.
<i>destination_url</i>	The destination url in one of the following forms: /devicename[/directory]/filename.ext or ftp://username:passwd@ip-address   hostname[/directory]/filename.ext ftip://username:passwd@ip-address   hostname[/directory]/filename.ext.
<b>noconfirm</b>	Optional: The file is overwritten without prompting for confirmation.

### Related Commands

none

## Example

The following example copies a file from one location to another.

```
MS# copy host:/mscert.der fs1:user0/mscert.der
Do you want to copy source file host:mscert.der
to destination file fs1:user0/mscert.der ?(yes|no)yes
```

## copy running-config

```
copy running-config startup-config
```

### Purpose

This command saves the environment variables from your running configuration file to your startup configuration file. The running config file is named `system:running.cfg` and the startup config file is named `system:/startup.cfg`.

### Command Mode

Administrator or Superuser

### Syntax Description

No parameters

### Related Commands

```
show running-config
```

### Example

The following example copies the running configuration file to the startup configuration file.

```
MS# copy running-config startup-config
```

## delete file

```
delete file file_url [noconfirm]
```

### Purpose

This command deletes a file.

### Command Mode

Administrator or Superuser

### Syntax Description

Parameter	Description
<i>file_url</i>	The file URL in the following form: <i>/device//directory/filename.ext</i> .
<b>noconfirm</b>	Optional: The file is deleted without prompting for confirmation.

### Related Commands

erase, format

### Example

The following example deletes a file.

```
MS# delete file fs1:user0/ms950.bin
```



## dir

```
dir file_url [groups]
```

### Purpose

This command displays the files in the specified location.

### Command Mode

Operator or Administrator or Superuser

### Syntax Description

Parameter	Description
<i>file_url</i>	The source URL in the following form: <i>/device[/directory]</i> . If no file URL is specified, the current working directory is used. Alphanumeric up to 16 characters.
<b>groups</b>	Optional: Displays the file's group permissions.

### Related Commands

cd, pwd, more

### Example

The following examples display the contents of the CompactFlash directory and then shows group director privileges.

```
MS# dir
  size          date          time          name
  -----
  16384         JAN-01-2000   00:02:04     CM_01020.16   <DIR>
  16384         JAN-01-2000   00:02:04     etc            <DIR>
  14812         JAN-01-2000   00:02:06     radius.dct
  2255         MAY-29-2002   23:56:10     exec_script.txt
2 File(s), 17067 bytes, 2 Dir(s), 506003456 bytes free

MS# dir groups
```

---

## File System Commands

Name	Group Association
-----	-----
.	Write Groups: device-admin Read Groups: ALL
..	Write Groups: device-admin Read Groups: ALL
image	Write Groups: device-admin Read Groups: device-admin
etc admin device-admin  admin device-admin	Write Groups: cdr-admin security-  Read Groups: cdr-admin security-
radius.dct	Write Groups: cdr-admin device-admin Read Groups: cdr-admin device-admin
gtpcrst.ctr	Write Groups: device-admin Read Groups: device-admin
bulk	Write Groups: cdr-admin device-admin Read Groups: cdr-admin device-admin

## erase

```
erase fs2 [noconfirm]
```

### Purpose

This command deletes all files from the file system, but does not format a file system.

### Command Mode

Administrator or Superuser

### Syntax Description

Parameter	Description
fs2	The name of the CompactFlash device.
noconfirm	Optional: The file system is deleted without prompting for confirmation.

### Related Commands

delete, format

### Example

The following example completely erases the fs2 file system.

```
MS# erase fs2
```

## file-user-group

```
file-user-group {add | remove} {filename filename |  
sub-system subsystem} [groupname groupname] [read-  
only]
```

### Purpose

This command adds or deletes a user group from a local file's user access list.

### Command Mode

Superuser - user

### Syntax Description

Parameter	Description
{ <i>add</i>   <i>remove</i> }	Specifies whether to add or remove a user group.
<i>filename filename</i>	The name of the file. Alphanumeric up to 36 characters.
<i>sub-system subsystem</i>	The name of the subsystem. Valid values are: software-release - software release management files configuration - changeable configuration files security - security files accounting - accounting and statistics files system - general system operational files user-created-files - the set of groups that are automatically added to files that users create nfs - nfs files
<i>groupname groupname</i>	Optional: Specifies whether to apply the change to all groups or the specified group.
<i>read-only</i>	Optional: Specifies whether file permissions are read-only.

### Related Commands

user, add, delete, update, show users

## **Example**

The following example allows the specified group read-only access to the specified file.

```
MS# file-user-group add filename fs1:/user0/cert/  
    log.doc groupname security-admin read-only
```

## format

```
format fs2
```

### Purpose

This command formats a file system.

**Note:** All files within the formatted file system are deleted.

### Command Mode

Administrator or Superuser

### Syntax Description

Parameter	Description
fs2	The name of the file system.

### Related Commands

delete, erase

### Example

The following example reformats the fs2 flash device.

```
MS# format fs2
```

## nfs

```
nfs [local_mount_point] [remote-dir
    exported_file_system] [ip-address ip_address] [uid
    user_id] [gid group_id]
no nfs [local_mount_point]
```

### Purpose

This command formats a network file system (NFS).

The no form of this command removes a previously specified NFS mount.

### Command Mode

Administrator or Superuser - config

### Syntax Description

Parameter	Description
<i>local_mount_point</i>	The name of the local directory. Must start with "nfs".
<b>remote-dir</b> <i>exported_file_system</i>	The name of the directory on the NFS server to be mounted.
<b>ip-address</b> <i>ip_address</i>	The IPv4 address of the NFS server.
<b>uid</b> <i>user_id</i>	The ID of the user according to the NFS server.
<b>gid</b> <i>group_id</i>	The group ID of the user according to the NFS server.

### Related Commands

cd, mkdir, charging ftp-pull, show nfs

### Example

The following example mounts NFS and configures CDRs and FTP-Pull to use that NFS.

---

## File System Commands

```
MS(config)# nfs uid 500 gid 501 ip-address  
           192.168.20.157 remote-dir nfs:/MS/cdr  
MS(config)# cd nfs:/MS  
MS(config)# mkdir cdr  
MS(config)# mkdir dbg_trace  
MS(config)# charging ftp-pull source-dir nfs:/MS/cdr
```



## mkdir

```
mkdir name
```

### Purpose

This command creates a new directory.

### Command Mode

Administrator or Superuser

### Syntax Description

Parameter	Description
<i>name</i>	The name of the new directory in the form: <i>/device[parent]/directory</i> .

### Related Commands

```
rmdir
```

### Example

The following example creates a directory named input.

```
MS# mkdir input
```

## more

```
more file_url
```

### Purpose

This command displays the contents of the specified file.

### Command Mode

Operator or Administrator or Superuser

### Syntax Description

Parameter	Description
<i>file_url</i>	The file URL in the following form: <i>/device[directory]filename.ext.</i>

### Related Commands

cd, pwd, dir

### Example

The following example displays the contents of the file `exec_script.txt`.

```
MS# more exec_script.txt
config connect line-card 1 service-card 14
exit all
config connect line-card 2 service-card 13
exit all
config interface gigethernet 1/0 network ran
ip-address 10.128.2.1 255.255.255.0
no shut
exit all
config interface gigethernet 2/0 network internet
ip-address 10.128.4.1 255.255.255.0
no shutdown
```

```
exit all
config int loopback 9/0.1
ip-address 10.128.1.9 255.255.255.0 ms-id
no shutdown
exit all
```

## pwd

pwd

### Purpose

This command displays the current working directory.

### Command Mode

Operator or Administrator or Superuser

### Syntax Description

No parameters

### Related Commands

cd, more, dir

### Example

The following example displays the current directory.

```
MS# pwd
fs1:user0
```

## show nfs

```
show nfs
```

### Purpose

This command displays NFS-related information.

### Command Mode

Operator or Administrator or Superuser

### Syntax Description

No parameters

### Related Commands

nfs, mount

### Example

The following example displays the current directory.

```
MS(config)# show nfs
User      UID  GID  IP                Remote-Dir      Local-Dir
nfsuser   500  501  192.168.20.157   myserver:/MS    nfs:/MS
```

## rename

```
rename original_url new_url
```

### Purpose

This command changes the name of an existing file.

### Command Mode

Administrator or Superuser

### Syntax Description

Parameter	Description
<i>original_url</i>	The existing name of the file.
<i>new_url</i>	The new name of the file.

### Related Commands

### Example

The following example changes the name of the file local to remote.

```
MS# rename local remote
```

## rmdir

```
rmdir directory
```

### Purpose

This command deletes a directory from the local file system. The directory to be removed must be empty.

### Command Mode

Administrator or Superuser

### Syntax Description

Parameter	Description
<i>directory</i>	The name of the directory in the form: <i>/devicename[/parent]/directory.</i>

### Related Commands

mkdir

### Example

The following example removes the directory storage.

```
MS# rmdir storage
```

## verify

```
verify file_url
```

### Purpose

This command verifies the existence of the specified file.

### Command Mode

Administrator or Superuser

### Syntax Description

Parameter	Description
<i>file_url</i>	The file URL in the following form: <i>/device[/directory]/filename.ext.</i>

### Related Commands

none

### Example

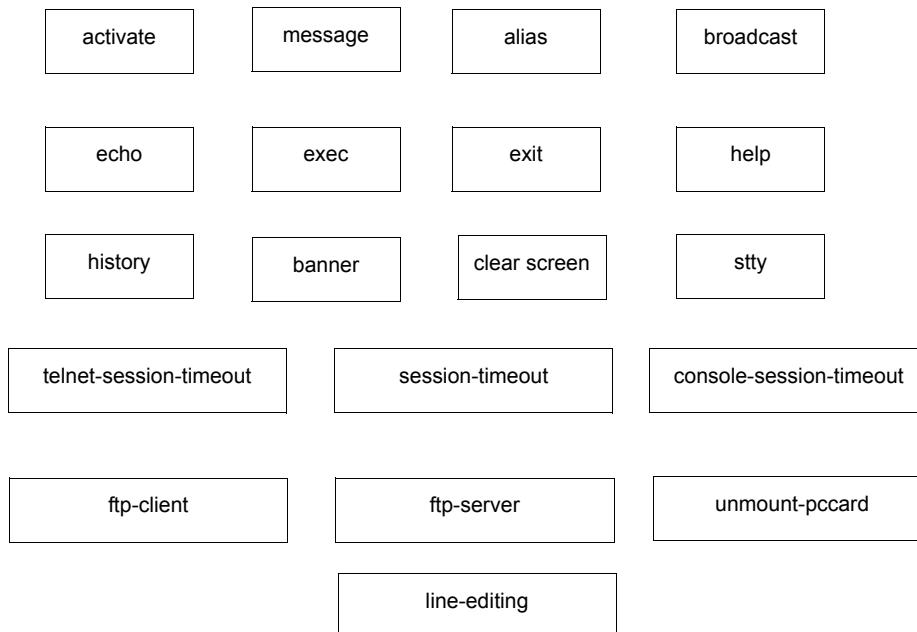
The following example verifies the file `exec_script.txt`.

```
MS# verify exec_script.txt  
Verified:  exec_script.txt
```



# Chapter 6: Basic CLI Commands

The commands listed in this section perform basic CLI functions.



## In This Chapter

- activate
- alias
- broadcast
- clear screen
- console-session-timeout
- echo
- exec
- exit
- ftp client
- ftp server
- help
- history
- line-editing
- message
- session-timeout
- stty
- telnet-session-timeout
- unmount-pccard

## activate

```
activate {dashes | retries | echo | paged-output}  
no activate {dashes | retries | echo | paged-output}
```

### Purpose

This command allows you to specify the way that errors are output. The no form of the command turns off the set parameter.

### Command Mode

Operator or Administrator or Superuser

### Syntax Description

Parameter	Description
dashes	Error lines use dashes instead of spaces.
retries	On error, reprint input with cursor at error.
echo	Commands are echoed on the screen.
paged-output	Output is displayed in a paged format.

### Related Commands

none

### Example

The following example specifies use of dashes for error lines.

```
MS# activate dashes
```

## alias

```
alias old_name new_name
```

### Purpose

This command replaces the name of an existing function with a new name. The function remains the same. The alias is lost when the session ends; it is not saved. Using this command without parameters displays aliases.

### Command Mode

Operator or Administrator or Superuser

### Syntax Description

Parameter	Description
<i>old_name</i>	The existing name of the command function.
<i>new_name</i>	A new name for the command function.

### Related Commands

none

### Example

The following example changes the name of the logout command to bye.

```
MS# alias logout bye
```

## banner

```
banner motd message
```

### Purpose

This command creates a message of the day (motd) banner. Double quotes are needed for messages that contain spaces.

### Command Mode

Operator or Administrator or Superuser

### Syntax Description

Parameter	Description
<i>message</i>	The text message to send.

### Related Commands

```
show motd-banner
```

### Example

The following example displays a message of the day.

```
MS# banner motd "carpe diem"
```

## broadcast

`broadcast message`

### Purpose

This command simultaneously sends a text message to all users who are currently logged in. Double quotes are needed for messages that contain spaces.

### Command Mode

Operator or Administrator or Superuser

### Syntax Description

Parameter	Description
<i>message</i>	The text message to send.

### Related Commands

none

### Example

The following example sends a message to all users.

```
MS# broadcast "welcome to megisto"
```

## clear screen

```
clear screen
```

### Purpose

This command erases the contents displayed on the screen. It lists the currently active prompt at the top of the screen display.

### Command Mode

Operator or Administrator or Superuser

### Syntax Description

No parameters

### Related Commands

none

### Example

The following example clears the contents of the screen.

```
MS# clear screen
```

## close

`close`

### Purpose

This command closes an open stream.

### Command Mode

Operator or Administrator or Superuser

### Syntax Description

No parameters

### Related Commands

none

### Example

The following example closes an open stream.

```
MS# close
```

## console-session-timeout

`console-session-timeout minutes`

### Purpose

This command configures the console session timeout.

### Command Mode

Operator or Administrator or Superuser

### Syntax Description

Parameter	Description
<i>minutes</i>	The number of minutes until the console times out. Valid values are 0-1440 (24 hours).

### Related Commands

telnet-session-timeout, session-timeout, console-session-timeout

### Example

The following example ends the console session.

```
MS# console-session-timeout 1430
```



## exec

```
exec [-echo] filename
```

### Purpose

This command executes the specified file. The file must contain executable commands. Instructions for creating a script file are located in the *MS950 Configuration Guide*.

### Command Mode

Operator or Administrator or Superuser

### Syntax Description

Parameter	Description
<code>-echo</code>	Optional: Echo the contents of the file while executing.
<code>filename</code>	The name of the file to be executed.

### Related Commands

none

### Example

The following example executes the file cli.txt.

```
MS# exec -echo cli.txt
```

## exit

```
exit [all | modename]
```

### Purpose

This command steps back, either one level or all levels, in the command hierarchy.

### Command Mode

Operator or Administrator or Superuser

### Syntax Description

Parameter	Description
<b>all</b>	Optional: Returns to highest level command prompt, either operator or administrator or superuser.
<i>modename</i>	Optional: Exits the given mode

### Related Commands

none

### Example

The following example moves to the previous command prompt.

```
MS(config-subst-apn)# exit  
MS(config-subst)#
```

## ftp client

```
ftp client ip_address
```

### Purpose

This command configures parameters for the FTP client.

### Command Mode

Operator or Administrator or Superuser - config

### Syntax Description

Parameter	Description
<i>ip_address</i>	The IPv4 address of the client.

### Related Commands

```
ftp server
```

### Example

The following example configures the FTP client address.

```
MS# configure ftp client 192,160.32.4  
MS(config)#
```

## ftp server

```
ftp server ip_address [immediate]
```

### Purpose

This command configures parameters for the FTP server.

### Command Mode

Operator or Administrator or Superuser - config

### Syntax Description

Parameter	Description
<i>ip_address</i>	The IPv4 address of the client.
<i>immediate</i>	Kill the server; ignore possibly incomplete sessions .

### Related Commands

ftp client

### Example

The following example configures the FTP server address.

```
MS# configure ftp server 192,160.32.5  
MS(config#
```

## help

```
help [edit | commands]
```

### Purpose

This command provides helpful information about commands or editing techniques.

### Command Mode

Operator or Administrator or Superuser

### Syntax Description

Parameter	Description
<code>edit</code>	Optional: Displays editing keys.
<code>commands</code>	Optional: Displays global command syntax.

### Related Commands

none

### Example

The following example displays general help.

```
MS# help
boot-image      - Specify boot image for the system
cd              - Change the default directory or system
configure      - Enter configuration mode
copy           - Copy source to destination
debug          - Enable or disable debug logging
diag           - Use the diagnostic manager
dir            - List files on a local file system
eng-debug      - eng-debug
erase          - Erase a file system
exec           - Execute a script file
```

## history

history

### Purpose

This command shows the most recent 30 commands entered.

### Command Mode

Operator or Administrator or Superuser

### Syntax Description

No parameters

### Related Commands

none

### Example

The following example shows recent command history.

```
MS# history
 1 configure snmp server hostname MS
 2 pwd
 3 dir
 4 cd etc
 5 pwd
 6 cd ..
 7 who
 8 mkdir input
 9 more exec_script.txt
10 verify exec_script.txt
11 help
12 history
```

## line-editing

`line-editing`

### Purpose

This command enables or disables line editing features. The setting is on by default when a user starts a CLI session. (Each CLI session has its own independent control setting.) Line editing is the feature that allows you to enter long commands on a single line. When the cursor goes beyond column 80 on the screen, the input line "scrolls" to the left. This allows the you to continue typing on the same line. But when automating control of the MS-950 via the CLI, this is inconvenient since the escape sequences and redisplay of input text confuse other programs. So by turning off line-editing, an automated system can disable this feature and simplify its input processing.

### Command Mode

Operator or Administrator or Superuser

### Syntax Description

No parameters

### Related Commands

`show line-editing`

### Example

The following example disables line editing.

```
MS# line-editing off
```

## message

```
message user username text message
```

### Purpose

This command sends a message to a specified user. Double quotes are needed for messages that contain spaces.

### Command Mode

Operator or Administrator or Superuser

### Syntax Description

Parameter	Description
<b>user</b> <i>username</i>	The login name of the user to receive the message. Name is any text up to 256 characters.
<b>text</b> <i>message</i>	The text message to be sent. Message is any text up to 256 characters.

### Related Commands

none

### Example

The following example sends John a message that reads hello.

```
MS# message user "john text hello"
```



## show line-editing

line-editing

### Purpose

This command show the current setting for line-editing.

### Command Mode

Operator or Administrator or Superuser

### Syntax Description

No parameters

### Related Commands

line-editing

### Example

The following example displays line editing setting.

```
MS# show line-editing
off
```

## show motd-banner

```
show motd-banner
```

### Purpose

This command displays the current message of the day banner (motd).

### Command Mode

Operator or Administrator or Superuser

### Syntax Description

No parameters

### Related Commands

banner

### Example

The following example displays the message of the day.

```
MS# show motd-banner  
Carpe diem
```

## session-timeout

`session-timeout minutes`

### Purpose

This command configures the session timeout.

### Command Mode

Operator or Administrator or Superuser

### Syntax Description

Parameter	Description
<i>minutes</i>	The number of minutes until the session times out. Valid values are 0-1440 (24 hours).

### Related Commands

telnet-session-timeout, session-timeout, console-session-timeout

### Example

The following example ends the session.

```
MS# session-timeout 1430
```

## stty

```
stty [rows rows] [columns columns] [hardwrap] [status]
      [baud rate]
```

### Purpose

This command sets the visible screen parameters.

### Command Mode

Operator or Administrator or Superuser

### Syntax Description

Parameter	Description
<b>rows</b> <i>rows</i>	Optional: The desired number of visible rows. Valid values are 10-256.
<b>columns</b> <i>columns</i>	Optional: The desired number of visible columns. Valid values are 20-255.
<b>hardwrap</b>	Optional: Wrap text at screen width.
<b>status</b>	Optional: Show terminal status.
<b>baud</b> <i>rate</i>	Optional: Sets the serial port baud rate. Valid values are 2400, 4800, 9600, 14400, 19200, 38400, 76000, 115200

### Related Commands

none

### Example

The following example sets the height and width of the screen display.

```
MS# stty rows 30 columns 25
```

## telnet-session-timeout

```
telnet-session-timeout minutes
```

### Purpose

This command configures the telnet session timeout.

### Command Mode

Operator or Administrator or Superuser

### Syntax Description

Parameter	Description
<i>minutes</i>	The number of minutes until the telnet session times out. Valid values are 0-1440 (24 hours).

### Related Commands

telnet-session-timeout, session-timeout, console-session-timeout

### Example

The following example ends the telnet session.

```
MS# telnet-session-timeout 1430
```

## tree

tree

### Purpose

This command shows the current command tree.

### Command Mode

Operator or Administrator or Superuser

### Syntax Description

No parameters

### Related Commands

none

### Example

The following example displays the command tree.

```
MS# tree
|
+---activate
|   |
|   +---dashes
|   |
|   +---echo
|   |
|   +---paged-output
|   |
|   +---retries
|
+---alias
|
```

```
+---boot-image
|
+---broadcast
|
+---cd
|
+---clear
|   |
|   +---alarm
|   |
|   +---debug-gtp
Press any key to continue (Q to quit)
```

## unmount-pccard

```
unmount-pccard slot0 | slot1
```

### Purpose

This command terminates all access to a CompactFlash and unmounts the card. It must be executed prior to ejecting the card. To remount the card, eject it and reinsert it.

### Command Mode

Operator or Administrator or Superuser

### Syntax Description

Parameter	Description
slot0   slot1	The PC Card slot. If only one slot is visible, select slot 1 for fs2 pc card

### Related Commands

none

### Example

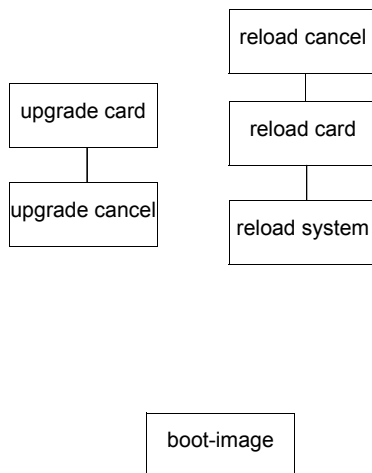
The following example terminates all sessions on slot1.

```
MS# unmount pccard slot1
```



# Chapter 7: Release Management Commands

The commands listed in this section are related to booting the system.



## In This Chapter

- boot-image
- reload cancel
- reload card
- reload system
- show boot-image
- show reload
- show upgrade
- show version
- upgrade card
- upgrade cancel

## boot-image

```
boot-image file_name secondary file_name
```

### Purpose

This command specifies a primary and optionally a secondary boot image file. This command is also used to confirm or roll back the boot image after a software upgrade.

### Command Mode

Administrator or Superuser

### Syntax Description

Parameter	Description
<i>file_name</i>	Specifies the filename of the boot image file in the format: <i>dir/filename</i> .
<i>secondary file_name</i>	Specifies the filename of the secondary boot image file in the format: <i>/dir/filename</i> .

### Related Commands

show boot-image, show release-info

### Example

The following example specifies a primary and secondary boot image.

```
MS# boot-image fs1:user0/image/MS0102016.bin secondary  
fs1:user0/image/MS0102015.bin
```

## reload cancel

```
reload cancel
reload cancel all
reload cancel card slot_number
```

### Purpose

This command cancels all card reloads or a specified card reload.

### Command Mode

Administrator or Superuser

### Syntax Description

Parameter	Description
<b>card</b> <i>slot_number</i>	Specifies the slot to which to cancel the software reload. Valid values are: line cards 1-4 and 15-18, service cards 5-7 and 12-14, and control cards 9 and 10.
<b>all</b>	Cancels the reload on all cards.

### Related Commands

reload card, reload system, show reload

### Example

The following example cancels a software reload for the line card in slot 3.

```
MS# reload cancel card 3
```

## reload card

```
reload card slot_number [at time] [month] [day]
```

### Purpose

This command performs an immediate system boot (or reset) of a specified card. The reload can be immediate or scheduled.

### Command Mode

Administrator or Superuser

### Syntax Description

Parameter	Description
<i>slot_number</i>	Specifies the slot to which to perform the software reload. Valid values are: line cards 1-4 and 15-18, service cards 5-7 and 12-14, and control cards 9 and 10.
<i>at time</i>	Optional: Sets a specific time for a reload in <i>hh:mm</i> format.
<i>month</i>	Optional: The full name of the month. Default is current month.
<i>day</i>	Optional: The day of the month is numeric. Valid values are 1-31. Default is current day.

### Related Commands

reload cancel, reload system, show reload

### Example

The following example sets a system reload time to the line card in slot 3.

```
MS# reload card 3 jun 23 at 23:00
```

## reload system

```
reload system {at time} {month} {day}
```

### Purpose

This command performs an immediate system boot of all cards. It resets all cards, simultaneously. This command is also used to issue system-level software upgrades. The reload can be immediate or scheduled.

### Command Mode

Administrator or Superuser

### Syntax Description

Parameter	Description
<i>at time</i>	Sets a specific time for a reload in <i>hh:mm</i> format.
<i>month</i>	The full name of the month. Default is current month.
<i>day</i>	The day of the month is numeric. Valid values are 1-31. Default is current day.

### Related Commands

reload cancel, reload card, show reload

### Example

The following example sets a system reload time.

```
MG# reload system jun 23 at 23:00  
Are you sure ?(yes|no) yes
```

## show boot-image

`show boot-image`

### Purpose

This command displays the primary and secondary boot-image file names.

### Command Mode

Operator or Administrator or Superuser

### Syntax Description

No parameters

### Related Commands

`boot-image`

### Example

The following example displays the primary and secondary boot-image file names.

```
MS# show boot-image
Primary System Image      : fs1:/boot/SWRL/CM_01020.14
Secondary System Image    :
Boot Option                : 1
Upgrade Status            : SWRL_NORMAL
```

## show release-info

```
show release-info file_url
```

### Purpose

This command shows release information about the specified file.

### Command Mode

Operator or Administrator or Superuser

### Syntax Description

Parameter	Description
<i>file_url</i>	The URL of the desired file.

### Related Commands

show boot-image, boot-image

### Example

The following example displays information about a file.

```
MS# show release-info
Megisto System Software
Release version      : R0102012
Release date        : 05/21/2002

Release feature

PPC Build 20 , Iteration 12
Copyright by Megisto Systems, Inc.

Hardware Requirements
CONTROL_CARD card required version  :
SERVICE_CARD card required version  :
```

---

## Release Management Commands

```
LINE_CARD    card required version    :  
FABRIC_CARD  card required version    :
```

### Release Compatibility

```
Backward Compatable Release Base      : R0  
Listed Compatable Releases            :  
[R0102000]
```

Release includes the following 11 packages

```
Package Name      : ccWorks  
Package Type      : 1  
Package Version   : P0102012  
Package Feature   :  
Basic features of OSS all included  
Basic features line2 OSS  
Package Date      : 05/21/2002  
  
Package Name      : scWorks  
Package Type      : 2  
Package Version   : P0102012  
Package Feature   :  
Basic features of OSS all included  
Basic features line2 OSS  
Pacakge Date     : 05/21/2002  
  
Package Name      : AppsCC_P.out  
Package Type      : 3  
Package Version   : P0102012  
Package Feature   :  
Package Date      : 05/21/2002  
  
Package Name      : AppsSC_P.out  
Package Type      : 4  
Package Version   : P0102012  
Package Feature   :  
Package Date      : 05/21/2002  
  
Package Name      : cccf.rbf  
Package Type      : 5  
Package Version   : V000.000.0035.00  
Package Feature   :  
CCCF_V000.000.0035.00
```



```
Package Date      : 05/21/2002
Package Name      : epf.rbf
Package Type      : 6
Package Version   : V000.003.0011.00
Package Feature   :
EPF_V000.003.0011.00
Package Date      : 05/21/2002
Package Name      : ipf_top.rbf
Package Type      : 7
Package Version   : V001.000.0005.00
Package Feature   :
Press any key to continue (Q to quit)
```

## show reload

```
show reload
```

### Purpose

This command displays the current software reload schedule.

### Command Mode

Operator or Administrator or Superuser

### Syntax Description

No parameters

### Related Commands

reload card, reload system, reload cancel

### Example

The following example displays the current software reload schedule.

```
MG# show reload
```

```
The system reload scheduled for 23:00 GMT Sun Jun 23,  
2002
```

## show upgrade

`show upgrade`

### Purpose

This command displays the current software upgrade schedule.

### Command Mode

Operator or Administrator or Superuser

### Syntax Description

No parameters

### Related Commands

upgrade card, upgrade cancel, show version

### Example

The following example displays the current software upgrade schedule.

```
MG# show upgrade
LINE_CARD on slot 1 upgrade scheduled for 23:30:51
GMT Tue Jun 25, 2002
```

## show version

`show version`

### Purpose

This command displays the current version information about specified software or all loaded software.

### Command Mode

Operator or Administrator or Superuser

### Syntax Description

No parameters

### Related Commands

`upgrade card`

### Example

The following example displays the current software upgrade schedule.

```
MS# show version
SW: Version R0102012 Copyright (c) 2001-2010 Megisto
    Systems Inc.
    Compiled on Jan 01 2000 at 00:03:26
    (16384 bytes) from Primary CC fs1:user0/
    CM_01020.12.
HW: Chassis 950
=====
    SL  2  : LINE_CARD      Module, R0102012, Active
=====
    SL  6  : SERVICE_CARD  Module, R0102012, Active
    1152MB RAM
SCVXWORKS  Package Version P0102012
APPS_SC    Package Version P0102012
```

```

FPGA_EPF      Package Version V000.003.0011.00
FPGA_IPF      Package Version V001.000.0005.00
FPGA_HIF      Package Version V000.001.0001.00
FPGA_MCF      Package Version V000.001.0003.04
NPU           Package Version P0102012
HIFN          Package Version P0102012

```

```

=====
SL 8 : FABRIC_CARD Module, R0102012, Active
=====

```

```

SL 9 : CONTROL_CARD Module, R0102012, Active
      1152MB RAM

```

```

CCVXWORKS    Package Version P0102012
APPS_CC      Package Version P0102012
FPGA_CCF     Package Version V000.000.0035.00
HIFN         Package Version P0102012

```

```

=====
SL 11 : FABRIC_CARD Module, R0102012, Standby
=====

```

```

SL 14 : SERVICE_CARD Module, R0102012, Active
       1152MB RAM

```

```

SCVXWORKS    Package Version P0102012
APPS_SC      Package Version P0102012
FPGA_EPF     Package Version V000.003.0011.00
FPGA_IPF     Package Version V001.000.0005.00
FPGA_HIF     Package Version V000.001.0001.00
FPGA_MCF     Package Version V000.001.0003.04
NPU          Package Version P0102012
HIFN         Package Version P0102012

```

```

=====
SL 18 : LINE_CARD      Module, R0102012, Active
The system uptime is 15 hours 17 minutes 11 seconds.

```

## upgrade cancel

```
upgrade cancel all
upgrade cancel card slot_number
```

### Purpose

This command cancels all card upgrades or a specified a card upgrade.

### Command Mode

Administrator or Superuser

### Syntax Description

Parameter	Description
<b>card</b> <i>slot_number</i>	Specifies the slot to which to cancel the software reload. Valid values are: line cards 1-4 and 15-18, service cards 5-7 and 12-14, and control cards 9 and 10.
<b>all</b>	Cancels the upgrade on all cards.

### Related Commands

show upgrade, upgrade card

### Example

The following example cancel a software upgrade for the line card in slot 3.

```
MS# upgrade cancel card 3
```

## upgrade card

```
upgrade card slot_number {at time} {month} {day}
```

### Purpose

This command performs an immediate card software upgrade or sets the time of an upgrade. This command can be used only with backward-compatible upgrades.

### Command Mode

Administrator or Superuser

### Syntax Description

Parameter	Description
<i>slot_number</i>	Specifies the slot to which to perform the software upgrade. Valid values are: line cards 1-4 and 15-18, service cards 5-7 and 12-14, and control cards 9 and 10.
<i>at time</i>	Sets a specific time for an upgrade in <i>hh:mm</i> format.
<i>month</i>	The full name name of the month. Default is current month.
<i>day</i>	The day of the month is numeric. Valid values are 1-31. Default is current day.

### Related Commands

show upgrade, upgrade cancel, switchover

### Example

The following example sets a system upgrade time for the line card in slot 1.

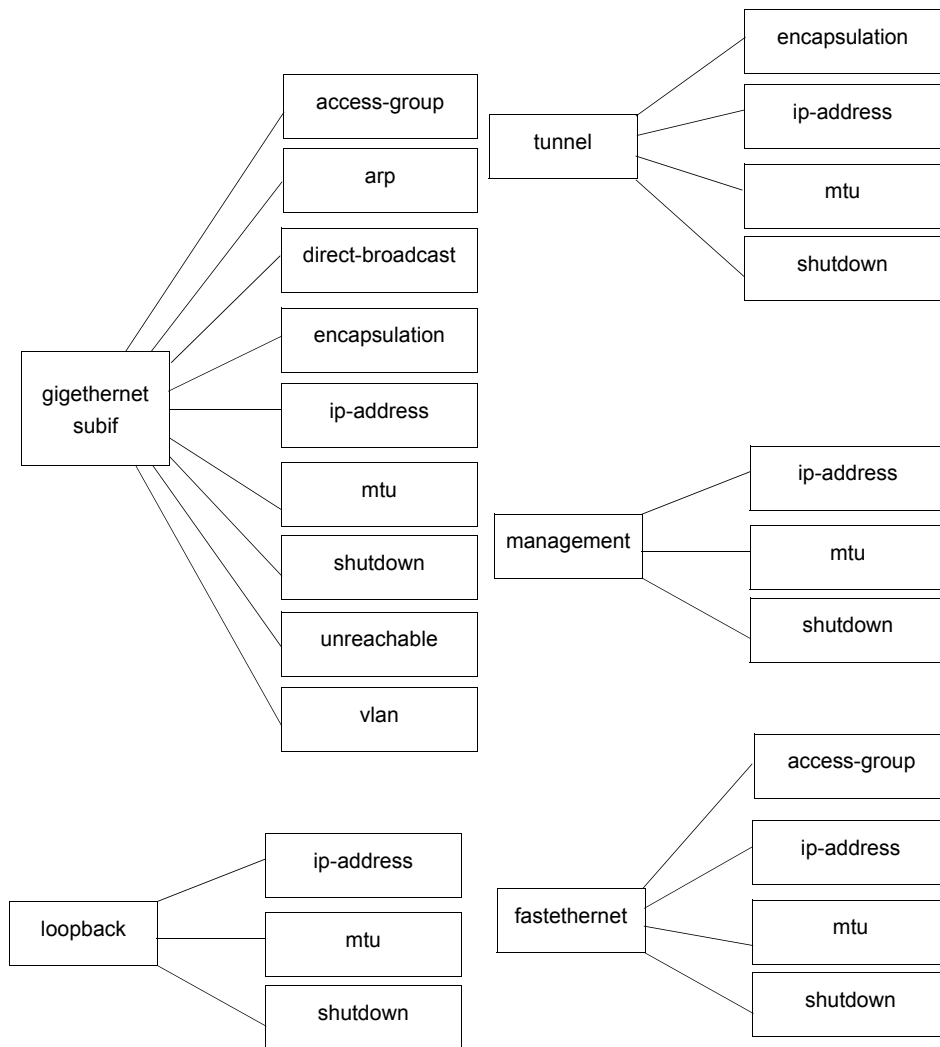
```
MG# upgrade card 1 at 23:30 jun 25
```





# Chapter 8: Interface Commands

The commands listed in this section create and configure physical and virtual interfaces.



## In This Chapter

- access-group
- arp
- direct-broadcast
- encapsulation
- fastethernet
- gigethernet
- gigethernet (subif)
- interface
- ip-address
- ipsec
- loopback
- management
- mtu
- show interface
- show interface name
- shutdown
- snmp
- tunnel
- unreachable
- vlan

## access-group

```
access-group access_list_name {in | out}  
no access-group access_list_name
```

### Purpose

This command specifies an access control list to be used by Gigabit Ethernet, FastEthernet, and sub-interface interfaces. The no form of the command removes the access list from this interface.

### Command Mode

Administrator or Superuser - config - if

### Syntax Description

Parameter	Description
<i>access_list_name</i>	The access list name. Name can be any text up to 32 characters.
<b>in   out</b>	Indicates whether the access list is applied to the inbound or outbound direction in an interface.

### Related Commands

gigethernet, gigethernet (subif)

### Example

The following example sets the MS950 in config mode, creates a Gigabit Ethernet interface on slot 1 named gige1/0, and describes it as megisto-int. It then binds the access list acl25 to the interface.

```
MS# configure interface gigethernet 1/0 megisto-int  
MS(config-if-gige1/0)# access-group acl25 in
```

## arp

```
arp  
no arp
```

### Purpose

This command enables or disables ARP for Gigabit Ethernet interfaces and sub-interfaces. The no form disables ARP.

### Command Mode

Administrator or Superuser - config - if

### Syntax Description

No parameters

### Related Commands

gigethernet, gigethernet (subif)

### Example

The following example sets the MS950 in config mode, creates a Gigabit Ethernet interface on slot 1 named gige1/0, and describes it as megisto-int. It then enables ARP for the interface.

```
MS# configure interface gigethernet 1/0 megisto-int  
MS(config-if-gige1/0)# arp
```

## direct-broadcast

```
direct-broadcast
no direct-broadcast
```

### Purpose

This command enables or disables forwarding of directed broadcast for physical Gigabit Ethernet interface or sub-interfaces. The no form disables directed broadcasts.

### Command Mode

Administrator or Superuser - config - if

### Syntax Description

No parameters

### Related Commands

gigethernet, gigethernet (subif)

### Example

The following example sets the MS950 in config mode, creates a Gigabit Ethernet interface on slot 1 named gige1/0, and describes it as megisto-int. It then enables forwarding of directed broadcast for the interface.

```
MS# configure interface gigethernet 1/0 megisto-int
MS(config-if-gige1/0)# direct-broadcast
```

## encapsulation

```
encapsulation {gtp | ipsec | dix | 802.3 | mip | ip-ip}
no encapsulation
```

### Purpose

This command specifies the encapsulation mechanism for tunnel or gigethernet interfaces. The no form turns encapsulation off for an interface.

### Command Mode

Administrator or Superuser - config - if

### Syntax Description

Parameter	Description
<b>gtp</b>	Use GTP as the encapsulation protocol for the tunnel interface.
<b>ipsec</b>	Use IPSec as the encapsulation protocol for the tunnel interface.
<b>dix</b>	Use DIX as the encapsulation protocol for the gigethernet interface.
<b>802.3</b>	Use 802.3 as the encapsulation protocol for the gigethernet interface.
<b>mip</b>	Use MIP as the encapsulation protocol for the tunnel interface.
<b>ip-ip</b> <b>SSN</b>	Use IP-IP as the encapsulation protocol for the tunnel interface.

### Related Commands

gigethernet, tunnel

### Example

---

## Interface Commands

The following example creates a tunnel interface and sets the tunnel encapsulation to IPSec.

```
MS# configure interface tunnel 14/0.1 name megisto-  
tunnel  
MS(config-if-tun14/0.1)# encapsulation ipsec
```

## fastethernet

```
interface fastethernet slot_number/port_number
    [description]
no interface fastethernet slot_number/port_number
```

### Purpose

This command creates or modifies FastEthernet interfaces. FastEthernet interfaces provide a physical connection to FastEthernet ports. The no form deletes the interface.

### Command Mode

Administrator or Superuser - config - if

### Syntax Description

Parameter	Description
<i>slot_number/port_number</i>	The number of the slot/port in which the card resides. Valid values are slot number 9 and port numbers 0 to 2.
<i>description</i>	Optional: ASCII description for a MS950 interface. Description can be any text up to 80 characters.

### Related Commands

ip-address, mtu, shutdown

### Example

The following example sets the MS950 in config mode, creates a fastethernet interface on slot 9 port 1 named fei9/1, and describes it as megisto-cc-int.

```
MS# configure interface fastethernet 9/1 megisto-cc-
    int
MS(config-if-fei9/1)#
```

## gigethernet

```
interface gigethernet slot_number/port_number  
    [description] network [ran | internet | both]  
no interface gigethernet slot_number/portnumber  
    network [ran | internet | both]
```

### Purpose

This command creates or modifies gigethernet physical interfaces. gigethernet interfaces provide a physical connection to Gigabit Ethernet devices. The no form deletes the interface.

### Command Mode

Administrator or Superuser - config - if

### Syntax Description

Parameter	Description
<i>slot_number/port_number</i>	The number of the slot/port in which the line card resides. Valid values are: slot numbers 1-4 and 15-18, and port number 0.
<i>description</i>	Optional: ASCII description for a MS950 interface. Description can be any text up to 80 characters.
<b>network ran   internet   both</b>	The type of network. RAN (radio access network) indicates a PLMN or wireless network. Internet indicates a PDN or wired network. Both indicates that information comes from both network types.

### Related Commands

access-group, arp, broadcast-address, direct-broadcast, encapsulation, ip-address, mtu, shutdown, unreachable

### Example



The following example sets the MS950 in config mode, creates a Gigabit Ethernet interface on slot 1 named gige1/0, and describes it as megisto-int.

```
MS# configure interface gigetherenet 1/0 megisto-int  
    network ran  
MS (config-if-gige1/0)#
```

## gigetherneT (subif)

```
interface gigetherneT slot_number/port_number.subif
  [description] network [ran | internet | both]
no interface gigetherneT slot_number/port_number.subif
  network [ran | internet | both]
```

### Purpose

This command creates or modifies sub-interfaces. A sub-interface is a virtual instance of a physical interface. The no form deletes the interface.

### Command Mode

Administrator or Superuser - config

### Syntax Description

Parameter	Description
<i>slot_number/</i> <i>port_number.subif</i>	The number of the slot/port in which the line card resides. Valid values are: slot numbers 1-4 and 15-18, port number 0, and sub-interface numbers 1-50.
<i>description</i>	Optional: ASCII description for a MS950 interface. Description can be any text up to 80 characters.
<b>network ran   internet   both</b>	The type of network. RAN (radio access network) indicates a PLMN or wireless network. Internet indicates a PDN or wired network. Both indicates information comes from both network types. Internet must be used if creating the sub-interfaces for a VLANVPN.

### Related Commands

access-group, arp, broadcast-address, direct-broadcast, encapsulation, ip-address, mtu, shutdown, unreachable, vlan

### Example

The following example sets the MS950 in config mode, creates a sub-interface on slot 1 named gige1/0.2, and describes it as megisto-int.

```
MS# configure interface gigethernet 1/0.2 megisto-sub  
MS(config-subif-gige1/0.2)# gigethernet 1/0.2 megisto-  
sub network ran
```

## ip-address

```
ip-address ip_address mask [secondary] [ms-id]
no ip-address ip_address
```

### Purpose

This command assigns an IP address. It is used for each physical or virtual interface. The no form removes the IP address.

### Command Mode

Administrator or Superuser - config - if

### Syntax Description

Parameter	Description
<i>ip_address</i>	IPv4 address in dotted-decimal format.
<i>mask</i>	The network mask. Default is 255.255.255.255.
<b>secondary</b>	Optional only for gigethernet physical interfaces and sub-interfaces. This term indicates a secondary IP address.
<b>ms-id</b>	Optional only for loopback virtual interfaces. Keyword indicates the use of the MS950 ID. The MS-ID is the globally routable address of the MS950 that is used for control purposes.

### Related Commands

fastethernet, gigethernet, gigethernet (subif), loopback, tunnel, management

### Example

The following example sets the MS950 in config mode, creates a Gigabit Ethernet interface on slot 1 named gige1/0, and describes it as megisto-int. It then sets a primary and secondary IP address for the interface.

```
MS# configure interface gigethernet 1/0 megisto-int  
MS(config-if-gige1/0)# ip-address 192.168.40.2  
                  255.255.255.0  
MS(config-if-gige1/0)# ip-address 10.0.0.1  
                  255.255.255.0 secondary
```

## loopback

```
interface loopback slot_number/port_number.instance  
    [description]  
no interface loopback slot_number/port_number.instance
```

### Purpose

This command creates or modifies virtual loopback interfaces. Loopback interfaces are virtual interfaces used for data processing. The no form deletes the interface.

### Command Mode

Administrator or Superuser - config - if

### Syntax Description

Parameter	Description
<i>instance</i>	A number used for indexing assigned to each virtual interface. Valid values are 1-1000.
<i>slot_number/port_number</i>	The number of the slot/port in which the service card or control card resides. Valid values are 1-4 and 15-18 for service cards or 9 for a control card. Port number is 0.
<i>description</i>	Optional: ASCII description for a MS950 interface. Description can be any text up to 80 characters.

### Related Commands

ip-address (with ms-id), mtu, shutdown

### Example

The following example sets the MS950 in config mode, creates a loopback interface on the service card in slot 17 named lo17/0.145, and describes it as megisto-loop.

```
MS# configure interface loopback 17/0.145 name  
    megisto-loop  
MS(config-if-lo17/0.145)#
```

## management

```
interface management instance [description]
no interface management instance
```

### Purpose

This command creates or modifies virtual management interfaces. Management interfaces are virtual interfaces used in conjunction with sub-interfaces to receive or send MS950 management traffic.

### Command Mode

Administrator or Superuser - config - if

### Syntax Description

Parameter	Description
<i>instance</i>	A number used for indexing assigned to each virtual interface. Valid values are 1-1000.
<i>description</i>	Optional: ASCII description for the interface. Description can be any text up to 80 characters.

### Related Commands

ip-address, mtu, shutdown

### Example

The following example sets the MS950 in config mode, creates a management interface named management, and describes it as megisto-management.

```
MS# configure interface management 32 name megisto-
management
MS(config-if-mgmt32)#
```



## mtu

`mtu size`

### Purpose

This command specifies the amount of maximum transmission unit (MTU) bytes for IP packets. It is used for each physical or virtual interface. IP packets larger than this size become fragmented.

### Command Mode

Administrator or Superuser - config - if

### Syntax Description

Parameter	Description
<i>size</i>	The number of bytes allocated for MTU. Valid values are 128-16384. Default is 1500.

### Related Commands

fastethernet, gigethernet, gigethernet (subif), loopback, tunnel, management

### Example

The following example sets the MS950 in config mode, creates a Gigabit Ethernet interface on slot 1 named gige1/0, and describes it as megisto-int. It then sets the amount of MTU bytes.

```
MS# configure interface gigethernet 1/0 megisto-int  
MS(config-if-gige1/0)# mtu 1000
```

## show interface

```
show interface {interface_type} [brief]
```

### Purpose

This command displays all or the specified interface type.

### Command Mode

Operator or Administrator or Superuser

### Syntax Description

Parameter	Description
<i>interface_type</i>	The type of interface. Valid values are: gigethernet, fastethernet, tunnel, management, loopback, and sub-interface.
<b>brief</b>	Applies only to <i>interface_type</i> parameter. Shows information in a summary format.

### Related Commands

fastethernet, gigethernet, gigethernet (subif), loopback, tunnel, management

### Example

The following example displays only tunnel interfaces.

```
MS# show interface
```

Interface	IP-Address	Tag	Oper	Admin	Encap	Description
fastethernet9/0	10.128.0.1	No	Up	Up	*	FastEthernet
loopback9/0	127.0.0.1	No	Up	Up	*	loopback
gigethernet2/0	10.128.2.1	No	Up	Up	*	Ran Only
gigethernet18/0	10.128.4.1	No	Up	Up	*	Internet Only

## show interface name

```
show interface name interface_name
```

### Purpose

This command displays detailed information about the specified interface.

### Command Mode

Operator or Administrator or Superuser

### Syntax Description

Parameter	Description
<i>interface_name</i>	The name of the interface.

### Related Commands

fastethernet, gigethernet, gigethernet (subif), loopback, tunnel, management

### Example

The following example displays detailed information about a gigethernet interface.

```
MG# show interface name gige17/0

Interface                : gigethernet17/0
IP Address                : 10.128.2.1
Broadcast IP Address     : 10.128.2.255
Netmask                  : 255.255.255.0
Ethernet Address         : 00:50:c2:12:d0:35
MTU (bytes)              : 1500
ARP                      : Enabled
Operational State       : Up
Admin State              : Up
```

---

## Interface Commands

```
VLAN : Untagged
Encapsulation : DIX
Network Type : Ran Only
Direct Broadcast : Disabled
Input Stats:
  high octets : 0x0
  low octets : 0x34d7ec2
  unicast packets : 474730
  non-unicast packets : 7
  discarded : 0
  errors : 0
Output Stats:
  high octets : 0x0
  low octets : 0xb42261
  unicast packets : 133220
  non-unicast packets : 1
  discarded : 0
  errors : 0
```

## show vlanvpn

```
show vlanvpn interface subinterface_name
```

### Purpose

This command displays detailed information about the specified sub-interface.

### Command Mode

Operator or Administrator or Superuser

### Syntax Description

Parameter	Description
<b>interface</b> <i>subinterface_name</i>	The name of the sub-interface. Alphanumeric up to 32 characters

### Related Commands

gigetherenet (subif), vlan

### Example

The following example displays detailed information about a sub-interface.

```
MG# show vlanvpn interface gige17/0
```

```
Interface                               : gigetherenet17/0
```

## shutdown

```
shutdown  
no shutdown
```

### Purpose

This command enables or disables physical or virtual interfaces. Interfaces are created in the locked state (shutdown). The no form of the command disables the interface.

### Command Mode

Administrator or Superuser - config - if

### Syntax Description

No parameters

### Related Commands

fastethernet, gigethernet, gigethernet (subif), loopback, tunnel, management

### Example

The following example creates a Gigabit Ethernet interface and then enables the interface.

```
MS# configure interface gigethernet 1/0 megisto-int  
MS(config-if-gige1/0) # no shutdown
```

## tunnel

```
tunnel slot_number/port_number.instance [description]
no tunnel slot_number/port_number.instance
```

### Purpose

This command creates or modifies virtual tunnel interfaces. Tunnel interfaces are virtual interfaces used by tunneling mechanisms as end points for IP tunnels. The no form deletes the interface.

### Command Mode

Administrator or Superuser - config - if

### Syntax Description

Parameter	Description
<i>instance</i>	A number used for indexing assigned to each virtual interface. This parameter does not apply to physical interfaces. Valid values are 1 or 2.
<i>slot_number/port_number</i>	The number of the slot/port in which the line card resides. Valid values are 1-4 and 15-18. Port number is 0.
<i>description</i>	Optional: ASCII description for a MS950 interface.

### Related Commands

ip-address, mtu, shutdown, encapsulation

### Example

The following example sets the MS950 in config mode, creates a tunnel interface named tun14/0.1, and describes it as megisto-tunnel.

```
MS# configure interface tunnel 14/0.1 name megisto-
tunnel
MS(config-if-tun14/0.1)#
```

## unreachable

```
unreachable
no unreachable
```

### Purpose

This command enables or disables the sending of ICPM unreachable messages for Gigabit Ethernet interfaces and sub-interfaces. The no form of the command disables unreachable.

### Command Mode

Administrator or Superuser - config - if

### Syntax Description

No parameters

### Related Commands

gigetherenet, gigetherenet (subif)

### Example

The following example sets the MS950 in config mode, creates a Gigabit Ethernet interface on slot 1 named gige1/0, and describes it as megisto-int. Unreachables are enabled.

```
MS# configure interface gigetherenet 1/0 megisto-int
MS(config-if-gige1/0)# unreachable
```



## vlan

```
vlan number [vpn-name name]  
no vlan
```

### Purpose

This command enables or disables VLANs for sub-interfaces. The no form of the command disables the VLAN.

**Note:** The sub-interface network must be set to **internet** to use a VLANVPN.

### Command Mode

Administrator or Superuser - config - subif

### Syntax Description

Parameter	Description
<i>number</i>	VLAN tag number. Valid values are 1-1023.
<i>vpn-name name</i>	Optional: The name of the VLANVPN. Only used when creating a VPN for an APN.

### Related Commands

gigetherenet (subif), show vlanvpn

### Example

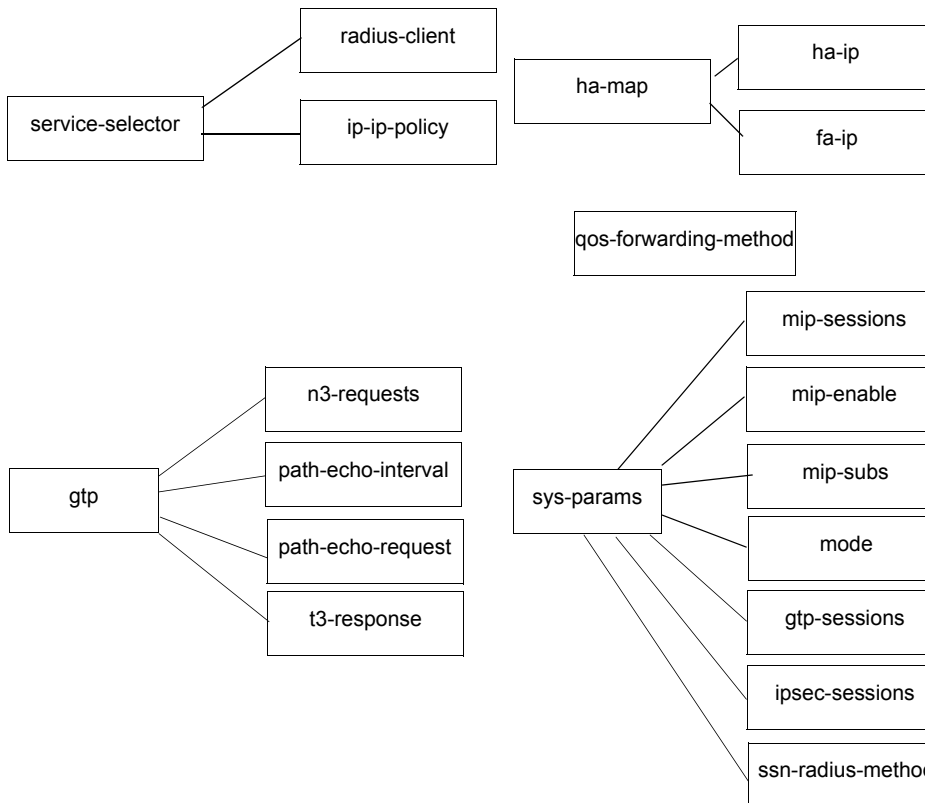
The following example sets the MS950 in config mode and creates a sub-interface with VLAN3 enabled.

```
MS# configure interface gigetherenet 1/0.2 megisto-sub  
MS(config-subif-gige1/0.2)# vlan 3 vpn-name myvpn
```



# Chapter 9: Mode of Operation Commands

The commands listed in this section configure the mode of operation (GGSN, CDMA HA, Service Selector) for the MS950.



## In This Chapter

- service selector
- radius-client
- ip-ip-policy
- delete gtp imsi
- delete gtp pdp-context
- gtp
- n3-requests
- path-echo-interval
- qos-forwarding-method
- show gtp counters
- show gtp imsi
- show gtp params
- show gtp pdp-context
- show gtp statistics
- show gtp status
- t3-response
- sys-params
- gtp-sessions
- mip-sessions
- ipsec-sessions

## delete context

SSN ~~CDMA~~ ~~GGSN~~

```
delete context [apn name] [[imsi value] [nsapi]] [all]
```

### Purpose

This command deletes all subscribers or subscribers based on their IMSI or APN.

### Command Mode

Administrator or Superuser

### Syntax Description

Parameter	Description
<b>apn name</b>	The name of the APN.
<b>imsi value</b> [nsapi]	The IMSI string and NSAPI string.
<b>all</b>	Delete all PDP-contexts

### Related Commands

radius-client, service-selector, show radius-client, ip-ip-policy, show ip-ip-policy, ingress-treatment, encapsulation

### Example

The following example deletes the subscriber with the specified APN.

```
MS# delete context megisto.com
```

## delete gtp imsi

GGSN ~~CDMA~~ ~~SSN~~

```
delete gtp imsi cntx_imsi [cntx_nsapi]
```

### Purpose

This command deletes the PDP context with the specified IMSI and NSAPI.

### Command Mode

Administrator or Superuser

### Syntax Description

Parameter	Description
<i>cntx_imsi</i>	The IMSI of a PDP context. Numeric up to 15 characters.
<i>cntx_nsapi</i>	Optional: The NSAPI of a PDP context. When deleting a single context, NSAPI is a mandatory parameter. Valid values are 5-15. Default is 0.

### Related Commands

delete gtp pdp-context, gtp, n3-requests, path-echo-interval, show gtp counters, show gtp imsi, show gtp params, show gtp pdp-context, show gtp statistics, show gtp status, t3-response

### Example

The following example deletes all PDP contexts with the specified IMSI and NSAPI.

```
MS# delete gtp imsi 444021234567921 7
```

## delete gtp pdp-context

GGSN~~CDMA~~ ~~SSN~~

```
delete gtp pdp-context [apn apn]
```

### Purpose

This command deletes all existing PDP contexts or the context for the specified APN.

### Command Mode

Administrator or Superuser

### Syntax Description

Parameter	Description
<code>apn</code> <i>apn</i>	Optional: Delete the contexts for the specified APN.

### Related Commands

delete gtp imsi, gtp, n3-requests, path-echo-interval, show gtp counters, show gtp imsi, show gtp params, show gtp pdp-context, show gtp statistics, show gtp status, t3-response

### Example

The following example deletes all PDP-contexts for GTP.

```
MS# delete gtp pdp-context
```

## gtp

GGSN~~CDMA~~ ~~SSN~~

gtp

### Purpose

This command enters GTP configuration mode.

### Command Mode

Administrator or Superuser - config

### Syntax Description

No parameters

### Related Commands

delete gtp imsi, delete gtp pdp-context, n3-requests, path-echo-interval, show gtp counters, show gtp imsi, show gtp params, show gtp pdp-context, show gtp statistics, show gtp status, t3-response

### Example

The following example enters GTP configuration mode.

```
MS# configure gtp  
MS (config-gtp) #
```

## **gtp-sessions**

`gtp-sessions sessions`

### **Purpose**

This command sets the maximum number of GTP sessions.

### **Command Mode**

Superuser - config - sysparams

### **Syntax Description**

Parameter	Description
<i>sessions</i>	The number of sessions allowed.

### **Related Commands**

gtp-sessions, ipsec-session, mip-sessions, mip-enable, mip-subs, mode, ssn-radius-method

### **Example**

The following example sets the maximum number of GTP sessions.

```
MS# config sys-params  
MS (config-sysparams) # gtp-sessions 400
```



## ha-map

CDMA ~~GGSN~~ ~~SSN~~

```
ha-map name
no ha-map name
```

### Purpose

This command configures the name of the HA map and enters.

### Command Mode

Administrator or Superuser - config

### Syntax Description

Parameter	Description
<i>name</i>	The name of the HA map.

### Related Commands

bind ha-map, ha-map, ha-ip-addr, fa-ip-addr, generic-subscriber-info, home-agent, show ha-map

### Example

The following example configures the CDMA HA map.

```
MS# configure
MS(config)# ha-map hamap1
MS(config-map)#
```

## ha-ip

CDMA ~~GGSN~~ ~~SSN~~

```
ha-ip-addr address [spi spi] [shared-key key]
no ha-map name [ha-ip-addr address] [address [spi
address] [shared-key key]]
```

### Purpose

This command configures home agent (HA addresses) to HA authentication parameters. The no form of the command deletes either the entire map or the individual HA or FA addresses.

### Command Mode

Administrator or Superuser - config

### Syntax Description

Parameter	Description
<b>ha-ip-address</b> <i>address</i>	The IP address which identifies the HA.
<b>spi</b> <i>spi</i>	The SPI for the HA. This is common to all HAs in the map.
<b>shared -key</b> <i>key</i>	The shared-key between the FA and the HA. This is common to all HAs in the map.

### Related Commands

bind ha-map, ha-map, ha-ip-addr, fa-ip-addr, generic-subscriber-info, home-agent, show ha-map

### Example

The following example configures the CDMA HA map.

```
MS# configure
MS(config)# ha-map hamap1
MS(config-map)# ha-ip-address 10.1.0.3 spi 123 shared-
key xyz
```

## fa-ip

CDMA ~~GCSN~~ ~~SSN~~

```
fa-ip-addr address [spi spi] [shared-key key]
no ha-map name [fa-ip-addr address [spi address]
               [shared-key key]]
```

### Purpose

This command configures and foreign agent (FA) to HA authentication parameters. The no form of the command deletes either the entire map or the individual HA or FA addresses.

### Command Mode

Administrator or Superuser - config

### Syntax Description

Parameter	Description
<b>fa-ip-address</b> <i>address</i>	The IP address which identifies the FA.
<b>spi</b> <i>spi</i>	The SPI for the HA. This is common to all HAs in the map.
<b>shared -key</b> <i>key</i>	The shared-key between the FA and the HA. This is common to all HAs in the map.

### Related Commands

bind ha-map, ha-map, ha-ip-addr, fa-ip-addr, generic-subscriber-info, home-agent, show ha-map

### Example

The following example configures the CDMA HA map FA address.

```
MS# configure
MS(config)# ha-map hamap1
MS(config-map)# fa-ip-address 10.1.0.3 spi 123 shared-
key xyz
```

## ip-ip-policy

SSN ~~CDMA~~ ~~GGSN~~

```
ip-ip-policy name [ggsn nas-ip-addr] [remote-end-point  
address] [local-end-point address]  
no ip-ip-policy name
```

### Purpose

This command configures an external GGSN as a RADIUS client. The no form of the command deletes the policy.

### Command Mode

Administrator or Superuser - config-ssn

### Syntax Description

Parameter	Description
<i>name</i>	The name of the policy set. The name must be unique; if the named policy set already exists, this command appends this rule to the policy set name. The set can contains rules for multiple GGSNs, however there can only be one rule for a given GGSN (identified by the nas-ip-addr). Alphanumeric up to 32 characters.
<i>ggsn nas_ip_adress</i>	The IP address that identifies the GGSN. This IP address is received in the RADIUS messages as the nas-ip-address attribute. This is the key that is used to determine which IP-IP tunnel is used for data traffic to a GGSN for a particular APN.
<i>remote-endpoint address</i>	The IP address of the IP-IP tunnel on the GGSN.
<i>local-endpoint address</i>	The IP address of the IP-IP tunnel on the MS950.

### Related Commands

radius-client, service-selector, show radius-client, ip-ip-policy, show ip-ip-policy, ingress-treatment, encapsulation

## Example

The following example enters configures the IP-IP policy for a service selector.

```
MS# configure service-selector  
MS(config-ssn)# ip-ip-policy ippolocy1 ggsn 10.1.0.3  
          remote-end-point 10.15.67.8 local-end-point  
          130.20.15.15.2
```

## ipsec-sessions

`ipsec-sessions sessions`

### Purpose

This command sets the maximum number of IPSec sessions.

### Command Mode

Superuser - config - sysparams

### Syntax Description

Parameter	Description
<i>sessions</i>	The number of sessions allowed.

### Related Commands

gtp-sessions, ipsec-session, mip-sessions, mip-enable, mip-subs, mode, ssn-radius-method

### Example

The following example sets the maximum number of IPSec sessions.

```
MS# config sys-params  
MS (config-sysparams) # ipsec-sessions 400
```

## mip-enable

```
mip-enable [on | off]
```

### Purpose

This command enables or disables MIP support.

### Command Mode

Superuser - config - sysparams

### Syntax Description

Parameter	Description
on   off	Enables or disables support.

### Related Commands

gtp-sessions, ipsec-session, mip-sessions, mip-enable, mip-subs, mode, ssn-radius-method

### Example

The following example enables MIP support.

```
MS# config sys-params  
MS (config-sysparams) # mip-enable on
```

## mip-sessions

`mip-sessions sessions`

### Purpose

This command sets the maximum number of active MIP sessions.

### Command Mode

Superuser - config - sysparams

### Syntax Description

Parameter	Description
<i>sessions</i>	The number of sessions allowed.

### Related Commands

gtp-sessions, ipsec-session, mip-sessions, mip-enable, mip-subs, mode, ssn-radius-method

### Example

The following example sets the maximum number of MIP sessions.

```
MS# config sys-params  
MS (config-sysparams) # mip-sessions 400
```



## mip-subs

`mip-subs number`

### Purpose

This command sets the maximum number of MIP subscribers.

### Command Mode

Superuser - config - sysparams

### Syntax Description

Parameter	Description
<i>number</i>	The number of subscribers allowed.

### Related Commands

gtp-sessions, ipsec-session, mip-sessions, mip-enable, mip-subs, mode, ssn-radius-method

### Example

The following example sets the maximum number of MIP subscribers.

```
MS# config sys-params  
MS (config-sysparams) # mip-subs 400
```

## mode

```
mode [ggsn | cdma-ha | ssn-native-ip | ssn-ip-ip]
```

### Purpose

This command sets the system mode.

### Command Mode

Superuser - config - sysparams

### Syntax Description

Parameter	Description
<code>ggsn   cdma-ha   ssn-native-ip   ssn-ip-ip</code>	The desired mode.

### Related Commands

`gtp-sessions`, `ipsec-session`, `mip-sessions`, `mip-enable`, `mip-subs`, `mode`, `ssn-radius-method`

### Example

The following example sets the maximum number of GTP sessions.

```
MS# config sys-params
MS(config-sysparams)# mode ggsn
```

## n3-request

GGSN ~~CDMA~~ ~~SSN~~`n3-request value`

### Purpose

This command specifies the number of times that the MS950 attempts to send a signaling request.

### Command Mode

Administrator or Superuser - config - gtp

### Syntax Description

Parameter	Description
<i>value</i>	The number of times a request is attempted. Valid values are 1-10. Default is 5.

### Related Commands

delete gtp imsi, delete gtp pdp-context, gtp, path-echo-interval, show gtp counters, show gtp imsi, show gtp params, show gtp pdp-context, show gtp statistics, show gtp status, t3-response

### Example

The following example sets the MS950 in config mode and tries 5 times to send signaling requests.

```
MS# configure gtp
MS(config-gtp)# n3-request 5
```

## path-echo-interval

GGSN~~CDMA~~ ~~SSN~~

`path-echo-interval value`

### Purpose

This command specifies the number of seconds that the MS950 waits before it sends an echo-request message to check for GTP path failure.

### Command Mode

Administrator or Superuser - config - gtp

### Syntax Description

Parameter	Description
<i>value</i>	The number of seconds the MS950 waits to respond to a signaling request message. Valid values are 60 to 65535. Default is 60.

### Related Commands

delete gtp imsi, delete gtp pdp-context, gtp, n3-requests, show gtp counters, show gtp imsi, show gtp params, show gtp pdp-context, show gtp statistics, show gtp status, t3-response

### Example

The following example sets the MS950 in config mode and waits 60 seconds between echo-requests.

```
MS# configure gtp  
MS(config-gtp)# path-echo-interval 60
```

## path-echo-request

GGSN ~~CDMA~~ ~~SSN~~`path-echo-request`

### Purpose

This command enables or disables transmitting of echo-request messages to the SGSN.

### Command Mode

Administrator or Superuser - config - gtp

### Syntax Description

No parameters

### Related Commands

delete gtp imsi, delete gtp pdp-context, gtp, n3-requests, show gtp counters, show gtp imsi, show gtp params, show gtp pdp-context, show gtp statistics, show gtp status, t3-response

### Example

The following example enables path echo requests.

```
MS# configure gtp  
MS(config-gtp)# path-echo-request
```

## qos-forwarding-method

GGSN~~CDMA~~ ~~SSN~~

```
qos-forwarding-method {requested | system}
```

### Purpose

This command allows you to specify the source of the Quality Of Service (QoS) Information Element field values sent (to the RADIUS server, for example). The QoS value may be specified in the PDP Create message or it may be a default value specified by the GGSN.

### Command Mode

Administrator or Superuser - config - gtp

### Syntax Description

Parameter	Description
<code>requested</code>	QoS field value is passed through from incoming packets. This is the default.
<code>system</code>	QoS field is set to a fixed value by the MS-950

### Related Commands

none

### Example

The following example send MS950 QoS values.

```
MS# configure gtp  
MS(config-gtp)# qos-forwarding-method system
```

## radius-client

SSN ~~CDMA~~ ~~GGSN~~

```
radius-client name [key shared-secret] [ip-address
  address] [acct-message [drop | forward]]
no radius-client name
```

### Purpose

This command configures an external GGSN as a RADIUS client. The no form of the command deletes the RADIUS client.

### Command Mode

Administrator or Superuser - config - ssn

### Syntax Description

Parameter	Description
<i>name</i>	The name of the RADIUS client. Alphanumeric up to 32 characters.
<i>key shared-secret</i>	Optional: Pre-shared key string between MS950 and the external GGSN. The key is mandatory when the GGSN is created. It is optional for updates. On creation, a null key is not permitted. This is the key used for radius server authentication.
<i>ip-address address</i>	The IP address of the GGSN acting as a RADIUS client. All messages from this client should use this address as the source address. The source address in the received packets is used to identify the client. All responses are sent to this address.
<i>acct-messages drop   forward</i>	Optional: Specifies if the RADIUS accounting messages sent by the GGSN should be forwarded to the RADIUS server or dropped. Default is drop. If set to forward, the messages will be forwarded to the RADIUS server configured for accounting for that APN.

### Related Commands

---

## Mode of Operation Commands

radius-client, service-selector, show radius-client, ip-ip-policy, show ip-ip-policy, ingress-treatment, encapsulation

### Example

The following example enters configure the RADIUS client as a service selector.

```
MS# configure service-selector  
MS(config-ssn)# radius-client ggsn1 key testing123 ip-  
                  address 130.20.15.2
```



## service-selector

SSN ~~CDMA~~ ~~GGSN~~

```
configure service-selector
```

### Purpose

This command enters service selector configuration mode.

### Command Mode

Administrator or Superuser

### Syntax Description

No parameters

### Related Commands

radius-client, service-selector, show radius-client, ip-ip-policy, show ip-ip-policy, ingress-treatment, encapsulation

### Example

The following example enters service selector configuration mode.

```
MS# configure service-selector
MS (config-ssn) #
```

## show gtp counters

GGSN~~CDMA~~ ~~SSN~~

`show gtp counters`

### Purpose

This command displays all GTP message counter values or the values for the specified APN.

### Command Mode

Operator or Administrator or Superuser

### Syntax Description

No parameters

### Related Commands

delete gtp imsi, delete gtp pdp-context, gtp, n3-requests, path-echo-interval, show gtp imsi, show gtp params, show gtp pdp-context, show gtp statistics, show gtp status, t3-response

### Example

The following example displays all GTP counters.

```
MS# show gtp counters
GTP Control Message Counts
Create PDP Context Requests Received           : 799509
Create PDP Context Responses Transmitted        : 799504
Update PDP Context Requests Received           : 0
Update PDP Context Responses Transmitted        : 0
Update PDP Context Requests Transmitted        : 0
Update PDP Context Responses Received          : 0
Delete PDP Context Requests Received           : 690137
Delete PDP Context Responses Transmitted       : 690137
Delete PDP Context Requests Transmitted        : 5
Delete PDP Context Responses Received          : 0
Echo Requests Received                          : 154
```

Echo Responses Transmitted	: 154
Echo Requests Transmitted	: 0
Echo Responses Received	: 0
Error Indications Received	: 0
Error Indications Transmitted	: 45

## show gtp imsi

GGSN~~CDMA~~ ~~SSN~~

```
show gtp imsi imsi_string [nsapi_number]
```

### Purpose

This command displays the PDP contexts for the specified IMSI and NSAPI.

### Command Mode

Operator or Administrator or Superuser

### Syntax Description

Parameter	Description
<i>imsi_string</i>	The IMSI of a PDP context. The value is a decimal string.
<i>nsapi_number</i>	Optional: The NSAPI of a PDP context. Valid values are 5-15.

### Related Commands

delete gtp imsi, delete gtp pdp-context, gtp, n3-requests, path-echo-interval, show gtp counters, show gtp params, show gtp pdp-context, show gtp statistics, show gtp status, t3-response

### Example

The following example shows the specified PDP context summary.

```
MG# show gtp imsi 444021234567921
MSISDN                : 1122334455667788
Imsi                   : 444021234567921
Nsapi                   : 5
PDP Address            : 14.0.0.32
APN                     : tim1.com
GGSN Control Address   : 10.128.1.9
```

```
GGSN Data Address           : 10.128.1.2
SGSN Control Address        : 192.168.33.246
SGSN Data Address          : 192.168.33.246
TEID for User Traffic-Self  : 64
TEID for Control Traffic-Self : 63
TEID for User Traffic-Peer  : 32
TEID for Control Traffic-Peer : 31
Number of Packet Filters    : 0
Charging Id                 : 32
Charging Characteristics    : None Specified
Selection Mode               : MS/NW Provided APN,
    Subscription Verified
Version                      : GPRS
PDP State                    : ACTIVE
```

## show gtp params

GGSN~~CDMA~~ ~~SSN~~

`show gtp params`

### Purpose

This command displays current GTP parameters, such as maximum number of calls supported, n3-requests, t3-request, echo-interval, and enable/disabled status.

### Command Mode

Operator or Administrator or Superuser

### Syntax Description

No parameters

### Related Commands

delete gtp imsi, delete gtp pdp-context, gtp, n3-requests, path-echo-interval, show gtp counters, show gtp imsi, show gtp pdp-context, show gtp statistics, show gtp status, t3-response

### Example

The following example displays GTP parameters.

```
MS# show gtp params
Core Stack Configuration
Maximum Number of PDP Contexts to Support      : 170000
Number of Attempts to Send Signaling REQUEST   : 5
Maximum Wait Time (in Seconds) for Reply       : 5
Interval (in Seconds) to Issue Echo Request    : 60
Echo Request                                    : Disable
```

## show gtp statistics

GGSN ~~CDMA~~ ~~SSN~~

```
show gtp statistics [apn]
```

### Purpose

This command displays all GTP GGSN control plane count statistics.

### Command Mode

Operator or Administrator or Superuser

### Syntax Description

Parameter	Description
<i>apn</i>	Optional: Displays statistics for the specified APN.

### Related Commands

delete gtp imsi, delete gtp pdp-context, gtp, n3-requests, path-echo-interval, show gtp counters, show gtp imsi, show gtp params, show gtp pdp-context, show gtp status, t3-response

### Example

The following example displays all GTP statistics.

```
MS# show gtp statistics
GGSN Control Plane Statistics Counts

Current Activated PDP Contexts                : 0
PDP Context Creates Success                   : 46000
PDP Context Updates Success                   : 0
PDP Context Deletes Success                   : 0
PDP Context Creates Rejected                  : 0
PDP Context Updates Rejected                  : 0
PDP Context Deletes Rejected                  : 0
PDP Context Parser Errors (other than TFT)    : 0
PDP Contexts Rejected (PDP Address)          : 0
```

---

## Mode of Operation Commands

PDP Contexts Rejected (Resource)	: 0
PDP Contexts Rejected (System Failure)	: 0
PDP Contexts Rejected (Service Not Supported)	: 0
PDP Contexts Rejected (Non Existent)	: 0
PDP Contexts Rejected (Context Not Found)	: 0
PDP Contexts Rejected (User Authentication)	: 0
PDP Contexts Rejected (TFT Parse Error)	: 0
Unexpected Signalling Messages Received	: 0
T3 Timer Expirations	: 0
Signalling Messages Received	: 46004
Signalling Messages Transmitted	: 46327



## show gtp status

GGSN ~~CDMA~~ ~~SSN~~

```
show gtp status
```

### Purpose

This command displays such GTP status as the latest GTP version supported, ID of last SGSN that failed to respond to an echo request sent, reject reason for last unexpected PDP context, ID of last SGSN that had recovered, tunnel ID of last unexpected PDP context received, and ID of last SGSN from which the unexpected PDP context was received.

### Command Mode

Operator or Administrator or Superuser

### Syntax Description

No parameters

### Related Commands

delete gtp imsi, delete gtp pdp-context, gtp, n3-requests, path-echo-interval, show gtp counters, show gtp imsi, show gtp params, show gtp pdp-context, show gtp statistics, t3-response

### Example

The following example displays GTP status.

```
MS# show gtp status
```

```
    GGSN Status Information
```

```
GTP Version Supported           : GTP-
    V1 Release 4.1.0
ID of Last SGSN Failed to Respond to Echo Req  :
Reject Reason for Last Unexpected PDP Context  :
ID of Last SGSN Recovered         : 192.168.33.246
Tunnel ID of Last Unexpected PDP Context Received :
```

---

## Mode of Operation Commands

ID of Last SGSN, Unexpected PDP Context Received :



## show ip-ip-policy

SSN **CDMA** **GGSN**

```
show ip-ip-policy [name]
```

### Purpose

This command displays the IP-IP policies.

### Command Mode

Operator or Administrator or Superuser

### Syntax Description

Parameter	Description
<i>name</i>	Optional: The name of the IP-IP client. Alphanumeric up to 32 characters.

### Related Commands

radius-client, service-selector, show radius-client, ip-ip-policy, show ip-ip-policy, ingress-treatment, encapsulation

### Example

The following example displays the IP-IP policy.

```
MS# show ip-ip-policy
Configured IP-IP Policies:
Policy1
Policy2
Policy3
Policy4
```

```
MS# show ip-ip-policy Policy1
Policy Name : Policy1
GGSN NAS           Remote Endpoint           Local
Endpoint
172.16.0.1         11.11.11.1           12.12.12.1
```

## show radius-client

SSN ~~CDMA~~ ~~GGSN~~

```
show radius-client [name]
```

### Purpose

This command displays the RADIUS client.

### Command Mode

Operator or Administrator or Superuser

### Syntax Description

Parameter	Description
<i>name</i>	Optional: The name of the RADIUS client. Alphanumeric up to 32 characters.

### Related Commands

radius-client, service-selector, show radius-client, ip-ip-policy, show ip-ip-policy, ingress-treatment, encapsulation

### Example

The following example enters service selector configuration mode.

```
MS# show radius-client
Configured RADIUS clients :
Krypton
Neon

MS# show radius-client Krypton
Name                       : Krypton
IP Address                  : 172.16.0.4
Accounting Messages        : Drop
```

## show service-selector-cdr

SSN **CDMA** **GGSN**

```
show service-selector-cdr [number]
```

### Purpose

This command displays a detailed listing of CDR statistics.

### Command Mode

Operator or Administrator or Superuser

### Syntax Description

Parameter	Description
number	Optional:the number of the CDR.

### Related Commands

show service-selector-cdr, show service-selector-contexts, show service-selector-statistics select, show service-selector-statistics control

### Example

The following displays cdr statistics.

```
MS# show service-selector-cdr
##### ASE 1 #####
CDR for MSISDN : 1000000520
```

```
Charging Data Record      :
  Record Type              : 19
  SGSNs                    : 0.0.0.0
  GGSN Address             : 192.168.29.2
  Charging ID              : 6
  Access Point NI         : megisto.com
  PDP Type                 : ipv4
```

```

Prepaid : Yes
Differential Charging : Yes
Charging Profile : Profile2
Roaming Group : Local
Promotion Charging : No
Step Charging : No
Offnet Filtering : Disabled
Offnet Traffic Allowed : No
Accounting Interim Interval : 1800
Credit Reservation Timeout : 0
  Low Balance Threshold : 50
Record Opening Time : 040218103152
Duration : 3476
Cause for Closing : Normal Release
Remaining Credit Balance : 200

```

```

Volume Containers :
  UplinkVol      DownlinkVol      ChangeCond
ChangeTime
B0  0            0            Unknown
040218103152
B1  0            0
B2  0            0
B3  0            0
B4  0            0
B5  0            0
B6  0            0
B7  0            0

```

```

Optional CDR Parameters :
  Network Initiated : No
  Served PDP Address : 10.225.2.8
  Dynamic Address : No
  Diagnostics : 0
  Record Sequence Number : 1
  Node Id : MS650-Default
  Local Sequence Number : 5
  APN Selection Mode :
MS_OR_NETWORK_PROVIDED_SUBSCRIPTION_VERIFIED
  Charging Characteristics : 0

```

-----  
 -----

---

## Mode of Operation Commands

```
##### ASE 9 #####  
Context for MSISDN 100000520 not found
```



## show service-selector-context

SSN ~~CDMA~~ ~~GGSN~~

```
show service-selector-cdr
```

### Purpose

This command displays a detailed listing of PDP statistics for GTP control messages aggregated over the entire MS650. The interval time is specified in the **interval** command.

### Command Mode

Operator or Administrator or Superuser

### Syntax Description

Parameter	Description
<b>last-interval</b>	Optional: Displays only the data computed over the most recently expired interval. The interval time is specified in the <b>interval</b> command.

### Related Commands

show service-selector-cdr, show service-selector-contexts, show service-selector-statistics select, show service-selector-statistics control

### Example

The following displays control statistics.

```
MS# show MS650-pdp-statistics control
##### ASE 1 #####
```

```
-----
Subscriber Contexts
-----
MSISDN                IP Address            APN
-----
-----
```

---

## Mode of Operation Commands

```
1000000520      10.225.2.8      megisto.com
1000000521      10.225.2.9      megisto.com
1000000522      10.225.2.10     megisto.com
1000000523      10.225.2.11     megisto.com
1000000524      10.225.2.12     megisto.com
1000000525      10.225.2.13     megisto.com
1000000516      10.225.2.4      megisto.com
1000000517      10.225.2.5      megisto.com
1000000518      10.225.2.6      megisto.com
1000000519      10.225.2.7      megisto.com
##### ASE 9 #####
No Active Contexts
```

## show service-selector-statistics control

SSN ~~CDMA~~ ~~GGSN~~

```
show service-selector-statistics control [last-
interval]
```

### Purpose

This command displays a detailed listing of PDP statistics for GTP control messages aggregated over the entire MS650. The interval time is specified in the **interval** command.

### Command Mode

Operator or Administrator or Superuser

### Syntax Description

Parameter	Description
<b>last-interval</b>	Optional: Displays only the data computed over the most recently expired interval. The interval time is specified in the <b>interval</b> command.

### Related Commands

show service-selector-cdr, show service-selector-contexts, show service-selector-statistics select, show service-selector-statistics control

### Example

The following displays control statistics.

```
MS# show MS650-pdp-statistics control
##### ASE 1 #####
Service Selector Statistics - Control

Total Number of Active Contexts          : 10
Messages Discarded (Congestion)         : 0
Messages Discarded (Protocol)           : 0
Messages Discarded (Invalid Client)     : 0
```

---

## Mode of Operation Commands

```
Messages Discarded (Parse Error)      : 0
Messages Processed (Bad Authenticator) : 10
Messages Processed (No Authenticator)  : 0
Context Create, Success                : 10
Last Context Create Success Time       : Wed Feb 18 05:31:53 2004
Context Create, Fail                   : 0
Context Create, Fail, Parse Error      : 0
Context Create, Fail, No Resources     : 0
Context Create, Fail, No Service      : 0
Context Create, Fail, Authentication   : 0
Context Create, Fail, Address Assignment: 0
Context Create, Fail, Internal Error   : 0
Context Create, Duplicate Requests     : 0
Last Context Create Fail Time          : Wed Dec 31 19:00:00 1969
Context Update, Success                : 0
Last Context Update Success Time       : Wed Dec 31 19:00:00 1969
Context Update, Fail                   : 0
Last Context Update Fail Time          : Wed Dec 31 19:00:00 1969
Context Delete, Success                : 0
Last Context Delete Success Time       : Wed Dec 31 19:00:00 1969
Context Delete, Fail                   : 0
Context Delete, Fail, Parse Error      : 0
Context Delete, Fail, Internal Error   : 0
Context Delete, Fail, No Resources     : 0
Context Delete, Fail, No Context      : 0
Last Context Delete Fail Time          : Wed Dec 31 19:00:00 1969
Context Delete, Null Session Id        : 0
Context Delete, Duplicate, Mismatch    : 0
Context Start, Duplicate, Mismatch     : 0
```

```
##### ASE 9 #####
Service Selector Statistics - Control
```

```
Total Number of Active Contexts      : 0
Messages Discarded (Congestion)       : 0
Messages Discarded (Protocol)         : 0
Messages Discarded (Invalid Client)   : 0
Messages Discarded (Parse Error)      : 0
Messages Processed (Bad Authenticator) : 0
Messages Processed (No Authenticator)  : 0
Context Create, Success                : 0
Last Context Create Success Time       : Wed Dec 31 19:00:00 1969
Context Create, Fail                   : 0
Context Create, Fail, Parse Error      : 0
Context Create, Fail, No Resources     : 0
Context Create, Fail, No Service      : 0
Context Create, Fail, Authentication   : 0
Context Create, Fail, Address Assignment: 0
Context Create, Fail, Internal Error   : 0
Context Create, Duplicate Requests     : 0
Last Context Create Fail Time          : Wed Dec 31 19:00:00 1969
Context Update, Success                : 0
```

---

## Mode of Operation Commands

Last Context Update Success Time	: Wed Dec 31 19:00:00 1969
Context Update, Fail	: 0
Last Context Update Fail Time	: Wed Dec 31 19:00:00 1969
Context Delete, Success	: 0
Last Context Delete Success Time	: Wed Dec 31 19:00:00 1969
Context Delete, Fail	: 0
Context Delete, Fail, Parse Error	: 0
Context Delete, Fail, Internal Error	: 0
Context Delete, Fail, No Resources	: 0
Context Delete, Fail, No Context	: 0
Last Context Delete Fail Time	: Wed Dec 31 19:00:00 1969
Context Delete, Null Session Id	: 0
Context Delete, Duplicate, Mismatch	: 0
Context Start, Duplicate, Mismatch	: 0

## show service-selector-statistics data

SSN ~~CDMA~~ ~~GGSN~~

```
show stats MS650-mip-statistics data [last-interval]
```

### Purpose

This command displays a detailed listing of MIP statistics for MIP subscriber packet traffic aggregated over the entire MS650. The interval time is specified in the **interval** command.

### Command Mode

Operator or Administrator or Superuser

### Syntax Description

Parameter	Description
<b>last-interval</b>	Optional: Displays only the data computed over the most recently expired interval. The interval time is specified in the <b>interval</b> command.

### Related Commands

show service-selector-cdr, show service-selector-contexts, show service-selector-statistics select, show service-selector-statistics control

### Example

The following displays data statistics.

```
MS# show MS650-mip-statistics data
```

**show service-selector-statistics signaling-count**SSN ~~CDMA~~ ~~GGSN~~`show service-selector-statistics signaling-count`**Purpose**

This command displays a detailed listing of PDP statistics for only signaling traffic processed by the entire MS650. The interval time is specified in the `interval` command.

**Command Mode**

Operator or Administrator or Superuser

**Syntax Description**

No parameters

**Related Commands**

`show service-selector-cdr`, `show service-selector-contexts`, `show service-selector-statistics select`, `show service-selector-statistics control`

**Example**

The following displays signaling statistics information.

```
MS# show MS650-pdp-statistics signaling-count
##### ASE 1 #####
Service Selector Statistics - Signaling Counts

Total Signaling Messages Transmitted      : 10
Total Signaling Messages Received         : 10
Accounting-Start Requests Received        : 10
Accounting-Interim Requests Received      : 0
Accounting-Stop Requests Received         : 0
Accounting-Responses Transmitted          : 10
Disconnect Requests Transmitted           : 0
Disconnect Responses Received              : 0
```

---

## Mode of Operation Commands

```
##### ASE 9 #####  
Service Selector Statistics - Signaling Counts
```

```
Total Signaling Messages Transmitted      : 0  
Total Signaling Messages Received         : 0  
Accounting-Start Requests Received        : 0  
Accounting-Interim Requests Received      : 0  
Accounting-Stop Requests Received         : 0  
Accounting-Responses Transmitted          : 0  
Disconnect Requests Transmitted           : 0  
Disconnect Responses Received             : 0
```



## ssn-radius-method

```
ssn-radius-method [proxy | broadcast]
```

### Purpose

This command sets the desired RADIUS mode for SSN operation.

### Command Mode

Superuser - config - sysparams

### Syntax Description

Parameter	Description
proxy   broadcast	The desired RADIUS mode.

### Related Commands

gtp-sessions, ipsec-session, mip-sessions, mip-enable, mip-sub, mode, ssn-radius-method

### Example

The following example sets the desired RADIUS mode for SSN operation.

```
MS# config sys-params
MS(config-sysparams)# mode proxy
```

## sys-params

`sys-params`

### Purpose

This command allows you to enter system parameter commands including the designation for mode of operation of the MS950.

### Command Mode

Superuser - config

### Syntax Description

No parameters

### Related Commands

gtp-sessions, ipsec-session, mip-sessions, mip-enable, mip-subs, mode, ssn-radius-method

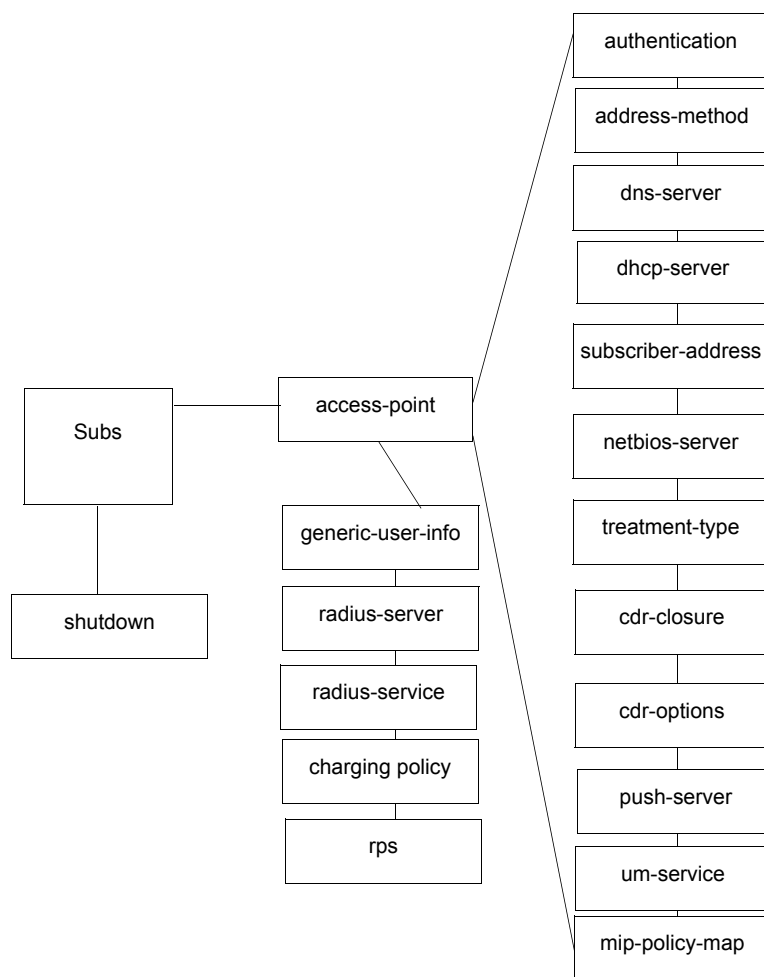
### Example

The following example enters system parameters mode.

```
MS# configure sys-params
```

# Chapter 10: Subscriber Partition Commands

The commands listed in this section enable subscriber partition configuration for the MS950.



## In This Chapter

- address-method
- authentication
- access point
- charging-policy
- cdr-closure-threshold
- cdr-options
- dhcp-server
- dns-server
- mip-policy-m-map
- push-server
- radius-server
- radius-service
- rps
- subscriber-address-pool
- subscriber-partition
- treatment-type
- um-service
- vlanvpn

## access-point

`access-point name [vpn]`

### Purpose

This command specifies an access point name and enters APN configuration mode.

### Command Mode

Administrator or Superuser - config - subs

### Syntax Description

Parameter	Description
<i>name</i>	The access point name. Name can be any text up 100 characters.
<b>vpn</b>	Indicates that this APN is used for VPN.

### Related Commands

access-point, subscriber-partition

### Example

The following example sets the MS950 in config mode, creates the subscriber-partition named megistosystems, and establishes the access point name.

```
MS# configure subscriber-partition megistosystems  
MS(config-subs)# access-point megisto-engineering.gprs  
MS(config-subs-apn)#
```

## address-method

```
address-method { dhcp-proxy-client | radius-client |
               local-pool | static | disable }
```

### Purpose

This command specifies a dynamic address allocation method for the subscribers in the partition.

### Command Mode

Administrator or Superuser - config - subs - apn

### Syntax Description

Parameter	Description
<b>dhcp-proxy-client</b>	Uses DHCP to obtain the IP address of the mobile subscriber.
<b>radius-client</b>	Uses RADIUS to obtain the IP address of the mobile subscriber.
<b>local-pool</b>	Uses a local-pool to obtain the IP address of the mobile subscriber.
<b>static</b>	The mobile subscriber uses their own static IP address.
<b>disable</b>	Turns off dynamic address allocation for this subscriber partition.

### Related Commands

access-point

### Example

The following example sets the MS950 in config mode, creates the subscriber-partition named megisto systems, and selects the address method local-pool.

---

## Subscriber Partition Commands

```
MS# configure subscriber-partition megistosystems  
MS(config-subs)# access-point megisto-engineering.gprs  
MS(config-subs-apn)# address-method local-pool
```

## accounting

```
accounting {none | radius}
```

### Purpose

This command specifies whether the MS950 requests accounting at the access point to a PDN.

### Command Mode

Administrator or Superuser - config - subs - apn

### Syntax Description

Parameter	Description
<b>radius</b>	RADIUS is used for authentication.
<b>none</b>	MS950 acts as a proxy for authenticating mobile users. No authentication is used.

### Related Commands

access-point

### Example

The following example sets the MS950 in config mode, creates the subscriber-partition named megistosystems, establishes the access point, establishes the access point list, and sets the accounting to RADIUS.

```
MS# configure subscriber-partition megistosystems  
MS(config-sub)# access-point megisto-engineering.gprs  
MS(config-sub-apn)# accounting radius
```

## authentication

```
authentication {none | radius}
```

### Purpose

This command specifies whether the MS950 requests user authentication at the access point to a PDN.

### Command Mode

Administrator or Superuser - config - subs - apn

### Syntax Description

Parameter	Description
<b>radius</b>	RADIUS is used for authentication.
<b>none</b>	MS950 acts as a proxy for authenticating mobile users. No authentication is used.

### Related Commands

access-point

### Example

The following example sets the MS950 in config mode, creates the subscriber-partition named megistosystems, establishes the access point, establishes the access point list, and sets the authentication to RADIUS.

```
MS# configure subscriber-partition megistosystems  
MS(config-sub)# access-point megisto-engineering.gprs  
MS(config-sub-apn)# authentication radius
```



## bind-redirect

```
bind-redirect name
no bind-redirect name
```

### Purpose

This command binds a redirect rule set to an APN. This enables redirection for the APN based on the rules and servers defined in the rule set.

### Command Mode

Administrator or Superuser - config - subs - apn

### Syntax Description

Parameter	Description
<i>name</i>	The name of the rule set, Name can be any text up to 100 characters.

### Related Commands

access-point, subscriber-partition, redirect-rule-set, show redirect-rule-set

### Example

The following example sets the MS950 in config mode, creates the subscriber-partition named megistosystems, and establishes the access point name.

```
MS# configure subscriber-partition megistosystems
MS(config-sub)# access-point megisto-engineering.gprs
MS(config-sub-apn)# bind rule1
```

## charging-policy

```
charging-policy policy_name  
no charging-policy
```

### Purpose

This command associates a named charging policy with a named APN. The no form of the command removes the association.

### Command Mode

Administrator or Superuser – config - subs - apn

### Syntax Description

Parameter	Description
<i>policy_name</i>	The name of the charging policy.

### Related Commands

policy, profile

### Example

The following example names the charging policy to use.

```
MS# configure subscriber-partition user1  
MS(config-sub)# access-point company1  
MS(config-sub-apn)# charging-policy ppayPlanBPolicy
```

## dhcp-server

```

dhcp-server prim_ip_address [prim_server_name] [sec-ip
sec_ip_address] [sec-name sec_server_name]
[tunneling]
no dhcp-server

```

### Purpose

This command specifies a primary and backup DHCP server that the MS950 uses at a particular access point to configure mobile users for access to a PDN. The no form of the command indicates not to use the specified server.

### Command Mode

Administrator or Superuser - config - subs - apn

### Syntax Description

Parameter	Description
<i>prim_ip_address</i>	The IPv4 address in dotted-decimal format for the primary server.
<i>prim_server_name</i>	Optional: The name of the primary DHCP server. Name can be any text up to 32 characters.
<b>sec-ip</b> <i>sec_ip_address</i>	Optional: The IPv4 address in dotted-decimal format for the secondary server.
<b>sec-name</b> <i>sec_server_name</i>	Optional: The name of the secondary DHCP server. Name can be any text up to 32 characters.
<b>tunneling</b>	Optional: Indicates that the IP tunnel specified in the APN is used to access this server.

### Related Commands

access-point

### Example

---

## Subscriber Partition Commands

The following example sets the MS950 in config mode, creates a subscriber partition, and configures DHCP server parameters.

```
MS# configure subscriber-partition user1  
MS(config-subs)# access-point company1  
MS(config-subs-apn)# dhcp-server 192.168.10.10  
                  DHCP_PRIMARY
```

## dns-server

```
dns-server ip_address [sec-ip ip_address]
no dns-server
```

### Purpose

This command specifies a primary and backup DNS server for the current APN. The no form of the command removes the DNS server address.

### Command Mode

Administrator or Superuser - config - subs - apn

### Syntax Description

Parameter	Description
<i>ip_address</i>	The IPv4 address in dotted-decimal format for the server.

### Related Commands

access-point

### Example

The following example sets the MS950 in config mode, creates a subscriber partition, and configures DNS server parameters.

```
MS# configure subscriber-partition user1
MS(config-sub) # access-point company1
MS(config-sub-apn) # dns-server 128.89.1.112 sec-ip
                    4.0.0.2
```

## generic-user-info

```
generic-user-info name name password password
                    [override]
no generic-user-info
```

### Purpose

This command sets default user information for the APN. The no form of the command deletes the user information.

When the override parameter is used the APN becomes a wildcard APN. The wildcard APN is provisioned throughout the entire network. This APN must be configured for RADIUS authentication.

### Command Mode

Administrator or Superuser - config - subs - apn

### Syntax Description

Parameter	Description
<b>name</b> <i>name</i>	The name of the user. Name can be any text up to 32 characters.
<b>password</b> <i>password</i>	The password of the user. Password can be any text up to 32 characters.
<b>override</b>	Optional: A default password is used for the initial wildcard access request. It overrides any incoming passwords. Password can be any text up to 32 characters.

### Related Commands

access-point, radius-server

### Example

The following example sets the user name and password for the APN.

```
MS# configure subscriber-partition user1  
MS(config-subs)# access-point company1  
MS(config-subs-apn)# generic-user-info name john  
                  password secret
```

## bind ha-map

CDMA ~~GGSN~~ ~~SSN~~

```
bind ha-map name
no bind ha-map name
```

### Purpose

This command binds the configures HA map to the APN. The no form of the command deletes the association.

### Command Mode

Administrator or Superuser - config - subs - apn

### Syntax Description

Parameter	Description
<i>name</i>	The name of the HA map.

### Related Commands

bind ha-map, ha-map, generic-subscriber-info, home-agent, show ha-map

### Example

The following example binds the HA map to the APN.

```
MS# configure subscriber-partition user1
MS(config-sub) # access-point company1
MS(config-sub-apn) # bind ha-map hamap1
```



## ingress-treatment

SSN ~~CDMA~~ ~~GGSN~~

```
ingress-treatment {simple-ip | gre tunnel_policy| ip-
ip tunnel_policy}
```

### Purpose

This command specifies the ingress treatment type and binds a GRE tunnel or IP-IP policy to an APN.

### Command Mode

Administrator or Superuser - config - subs - apn

### Syntax Description

Parameter	Description
<b>simple-ip</b>   <b>gre</b> <i>tunnel-policy</i>	Specifies the tunneling method to be used toward the GGSN for data traffic. The tunnel policy specifies the name of the tunnel to use. Default is Simple IP.
<b>ip-ip</b> <i>tunnel-policy</i>	

### Related Commands

radius-client, service-selector, show radius-client, ip-ip-policy, show ip-ip-policy, ingress-treatment, encapsulation

### Example

The following example enters configure the RADIUS client as a service selector.

```
MS# configure subscriber-partition user1
MS(config-subs)# access-point company1
MS(config-subs-apn)# ingress-treatment ip-ip ippoll
```

## mip-policy-map

```
mip-policy-map policy_name  
no mip-policy-map policy_name
```

### Purpose

This command associates a named MIP policy with the APN. The no form of the command removes the association.

### Command Mode

Administrator or Superuser – config - subs - apn

### Syntax Description

Parameter	Description
<i>policy_name</i>	The name of the MIP policy.

### Related Commands

um-service, mip policy-map, mip-policy-map

### Example

The following example names the MIP policy to use.

```
MS# configure subscriber-partition user1  
MS(config-sub) # access-point company1  
MS(config-sub-apn) # mip-policy-map mippol3
```

## netbios-server

```
netbios-server ip_address [sec-ip ip_address]
no netbios-server
```

### Purpose

This command specifies a primary and backup NETBIOS server for the current APN. The no form of the command sets the IP address to null.

### Command Mode

Administrator or Superuser - config - subs - apn

### Syntax Description

Parameter	Description
<i>ip_address</i>	The IPv4 address in dotted-decimal format for the server.

### Related Commands

access-point

### Example

The following example sets the MS950 and configures NETBIOS server parameters for the partition.

```
MS# configure subscriber-partition user1
MS(config-sub) # access-point company1
MS(config-sub-apn) # netbios-server 128.89.20.112 sec-
ip 192.234.68.2
```

## push-server

```
push-server ip_address [port port_number] [tunneling
  on | off] [client-address {ip_address | ms-id |
  mgmt-id}]
no push-server ip_address [port port_number]
```

### Purpose

This command configures push server settings for this access point.

### Command Mode

Administrator or Superuser - config - subs - apn

### Syntax Description

Parameter	Description
<i>ip_address</i>	The IP address and of the push server.
<b>port</b> <i>port_number</i>	Optional: The port number of the push server. Default is 10950.
<b>client-address</b> <i>ip_address</i>   <b>ms-id</b>   <b>mgmt-id</b>	Optional: The IP address of client tunnel. Default is <i>ms_id</i> . <i>ip_address</i> can be used only if tunneling is selected.
<b>tunneling</b> on   off	Optional: Turns client addressing (via a tunnel) on or off. Default value is off.

### Related Commands

none

### Example

The following example configures a push server.

```
MS# configure subscriber-partition megisto_systems
MS(config-subs-apn)# push-server 192.184.92.0 port
  5001 tunneling on client-address 192.184.84.1
```

## radius-server

```
radius-server [auth | acct] {ip_address} [name name]
             [key key_string] [auth-port port] [acct-port port]
             [secondary] [timeout seconds] [retransmit retries]
             [interim seconds] [no-forwarding] {tunneling}
             [client-address {ms-id | mgmt-id | ip_address}]
no radius-server [auth | acct] [secondary]
```

### Purpose

This command specifies a RADIUS accounting or authentication server for the subscriber partition. The no form of the command removes the RADIUS settings from the partition.

### Command Mode

Administrator or Superuser - config - subs - apn

### Syntax Description

Parameter	Description
<b>auth   acct</b>	The type of RADIUS server, either accounting or authentication. If not specified, both apply.
<i>ip_address</i>	The IPv4 address of the server or the client address.
<b>name name</b>	Optional: The name of the server. Name can be any text up to 32 characters.
<b>key key_string</b>	Optional: Indicates use of pre-shared keys between the MS950 and the RADIUS server. Alphanumeric up to 80 characters.
<b>auth-port port</b>	Optional: The port number for RADIUS authorization. Valid values are 1-65535. Default is 1812.
<b>acct-port port</b>	Optional: The port number for RADIUS accounting. Valid values are 1-65535. Default is 1813.
<b>secondary</b>	Optional: Indicates the server is the secondary server.
<b>timeout seconds</b>	Optional: The timeout in seconds for the server. Valid values are 1-255. Default is 5.

---

## Subscriber Partition Commands

Parameter	Description
<b>retransmit</b> <i>retries</i>	Optional: The number of retries. Valid values are 1-255. Default is 3.
<b>tunneling</b>	Optional: Indicates that the IP tunnel specified in the APN is used to access this server for VPN. Default is no tunneling.
<b>interim</b> <i>seconds</i>	Optional: Used only for accounting servers. The number of seconds of interim update interval for RADIUS accounting. Valid values are 0-3600. Default is 0.
<b>no-forwarding</b>	Optional: Used only for accounting servers. Indicates no forwarding before RADIUS accounting. Default is forwarding.
<b>client-address</b> [ <i>ms-id</i>   <i>mgmt-id</i>   <i>ip_address</i> ]	Optional: Specifies which address is to be used as the RADIUS client address. <i>ms-id</i> is the default.

## Related Commands

access-point, show radius-server, generic-user-info

## Example

The following example specifies the RADIUS authentication server for the subscriber partition.

```
MS# configure subscriber-partition megisto_systems
MS(config-subs-apn)# radius-server auth ip
    192.168.10.10 name funk key funky
```

## radius-service

```
radius-service {acct}  
no radius-service {acct}
```

### Purpose

This command is used to trigger sending of the "ACCT-ON" messages to the RADIUS accounting server. The no form of the command sends the "ACCT-OFF" message. The "ACCT-OFF" message is useful during a graceful shutdown. RADIUS accounting is enabled when the **radius-server acct** command is issued.

### Command Mode

Administrator or Superuser - config - subs - apn

### Syntax Description

Parameter	Description
acct	Indicates that RADIUS accounting service is enabled for the subscriber partition.

### Related Commands

access-point, show radius-server

### Example

The following example enables RADIUS accounting service for the subscriber partition.

```
MS# configure subscriber-partition megistosystems  
MS(config-subsys-apn)# radius-service
```

## redirect-rule-set

```
redirect-rule-set name [ip-address ip_address]
                    [netmask netmask] [protocol tcp | udp | icmp |
                    number] [port port] nexthop ip_address
```

### Purpose

This command allows you to redirect packet data traffic of subscribers matching a profile and filter to a different destination address than that which is listed in the destination address of the packet.

### Command Mode

Administrator or Superuser - config

### Syntax Description

Parameter	Description
<i>name</i>	The name of the rule set. Alphanumeric up to 32 characters.
<b>ip-address</b> <i>ip_address</i>	The IPv4 address for the subscriber.
<b>netmask</b> <i>mask</i>	The IPv4 subnet mask of the subscriber.
<b>protocol</b> <i>tcp   udp   icmp   number</i>	Optional: The type of protocol.
<b>port</b> <i>port</i>	Optional: The UDP destination port on the primary server. Valid values are 1- 65535.
<b>nexthop</b> <i>ip_address</i>	The IPv4 address to which to redirect packets.

### Related Commands

access-point, subscriber-partition, redirect-rule-set, show redirect-rule-set

### Example

The following example sets the MS950 and configures NETBIOS server parameters for the partition.



```
MS# configure  
MS(config)# redirect-rule-set rule1 10.10.10.2  
          255.255.0.0 protocol tcp 205.123.54.0
```

## rps

```
rps [credit-reservation-timeout timeout] [default-  
interim interval] [low-credit-threshold balance]  
no rps
```

### Purpose

The RADIUS Prepay System (RPS) defines default prepaid parameters and behavior of the RADIUS prepaid system. This configuration is for extended capabilities of a prepaid system that standard RADIUS systems do not have.

The no form of the command applies the default values for credit-reservation-timeout, default-interim-interval, and low-credit-threshold.

### Command Mode

Administrator or Superuser - config - subs - apn

### Syntax Description

Parameter	Description
<b>credit-reservation-timeout</b> <i>timeout</i>	The amount of session duration to wait before reauthorizing credit. The timeout is specified in seconds. Valid values are 300-3600. The default value is 300, meaning that there is no credit-reservation-timeout.
<b>default-interim</b> <i>interval</i>	The amount of time in seconds between interim accounting messages. Valid values are 0-3600. 0 disables interim accounting messages unless overridden by the radius-server configuration.
<b>low-credit-threshold</b> <i>balance</i>	When the subscriber's credit balance falls below the specified value, a low credit threshold event is generated. The default value is 0, meaning that this event is never generated. Valid values are 0-65536.

### Related Commands

prepay-policy, holiday-calender, tariff-period, show prepay, rates, rps,  
charging-unit

### Example

```
MS# configure subscriber-partition megistosystems
MS(config-subs-apn)# rps credit-reservation-timeout
    1800 default-interim 600 low-credit-threshold 100
```

## show redirect-rule-set

```
show redirect-rule-set [name]
```

### Purpose

This command displays all redirect rule sets the specified rule set.

### Command Mode

Administrator or Superuser - config

### Syntax Description

Parameter	Description
<i>name</i>	The name of the rule set. Alphanumeric up to 32 characters.

### Related Commands

access-point, subscriber-partition, redirect-rule-set, show redirect-rule-set

### Example

The following example shows all rules sets.

```
MS# show redirect-rule-set myrule  
rule-list name : myrule  
Dst-ip Dst-Mask P Dp NextHop  
* * 1 * 172.16.5.44
```

## show subscriber-partition

```
show subscriber-partition apn
```

### Purpose

This command displays all subscriber partitions or the specified subscriber partition.

### Command Mode

Operator or Administrator or Superuser

### Syntax Description

Parameter	Description
<i>apn</i>	Displays information about the specified subscriber partition.

### Related Commands

subscriber-partition

### Example

The following example displays the subscriber partition and then information about the subscriber partition named static.

```
MS# show subscriber-partition
```

```
Configured Subscriber Partitions:
```

```
acme1  
acme2  
acme3  
vpn1  
static
```

```
MS# show subscriber-partition static
```

---

## Subscriber Partition Commands

```
Partition                : static
APN                      : static.megisto.com
RANType                  : gtp
TreatmentType            : simpleip
AccessMode                : transparent
Addr Mode                : static
Tunnel                   :
VPN y/n                  : No
Primary Dns Server       : 0.0.0.0
Secondary Dns Server     : 0.0.0.0
Primary NetBios Server   : 0.0.0.0
Secondary Dns Server     : 0.0.0.0
Default UserName         :
Default User Password    :
Locked y/n               : No
Subscriber Pools Context : default
```

## shutdown

```
shutdown  
no shutdown
```

### Purpose

This command locks or unlocks a subscriber partition for serving traffic. Subscriber partitions are created in a shutdown state. The no form of the command unlocks the partition.

### Command Mode

Administrator or Superuser - config - subs

### Syntax Description

No parameters

### Related Commands

subscriber-partition

### Example

The following example shuts down the subscriber partition.

```
MS# configure subscriber-partition megistosystems  
MS(config-subs)# shutdown
```

## subscriber-address-pool

```
subscriber-address-pool ip_address netmask {service-card slot_number}  
no subscriber-address-pool ip_address {service-card slot_number}
```

### Purpose

This command creates and configures address pools for a specific APN. You can add or delete pools. If you want to modify a pool, you must delete it and then recreate it. The no form of the command deletes the pool.

### Command Mode

Administrator or Superuser - config - subs - apn

### Syntax Description

Parameter	Description
<i>ip_address</i>	The IP address in IPv4 dotted-decimal format of the first available address in the pool.
<i>netmask</i>	The IPv4 network mask of the IP pool.
<b>service-card</b> <i>slot_number</i>	The slot number of the service card. Valid values are 5-7 and 12-14.

### Related Commands

show subscriber-address-pool, dhcp-server, radius-server

### Example

The following example creates a subscriber partition, names its access point, and assigns an address pool.

```
MS# configure subscriber-partition megistosystems  
MS(config-subs)# access-point megisto-engineering.gprs
```



```
MS(config-subst-apn)# address-method local-pool
MS(config-subst-apn)# subscriber address-pool
192.234.40.1 255.255.255.20 service-card 5
```

## subscriber-partition

```
subscriber-partition name  
no subscriber-partition name
```

### Purpose

This command creates a subscriber partition. A subscriber partition relates to a set of subscribers that are associated with an APN and designates a physical area of the MS950 used for that subscriber's access to information. The no form of the command deletes the partition.

### Command Mode

Administrator or Superuser - config

### Syntax Description

Parameter	Description
<i>name</i>	The name of the subscriber partition. Name can be any text up to 32 characters.

### Related Commands

show subscriber-partition, shutdown, access-point

### Example

The following example names the subscriber partition.

```
MS# configure subscriber-partition megistosystems  
MS (config-subs) #
```

## subscription-required

```
subscription-required
no subscription-required
```

### Purpose

This command allows the PDP context setup only if the subscription has been verified by the SGSN. The no form of the command allows the PDP context setup regardless of whether the subscription is verified by the SGSN.

### Command Mode

Administrator or Superuser - config-subs-apn

### Syntax Description

No parameters

### Related Commands

access-point

### Example

The following example names the subscriber partition.

```
MS# configure subscriber-partition megistosystems
MS(config-subs)# access-point megisto-engineering.gprs
MS(config-subs)# subscription-required
```

## **treatment-type**

```
treatment-type {simple-ip | vlanvpn vlanname | ipsec  
                  policy_name}
```

### **Purpose**

This command specifies a treatment type for the subscriber partition.

### **Command Mode**

Administrator or Superuser - config - subs

### **Syntax Description**

<b>Parameter</b>	<b>Description</b>
<b>simple-ip</b>	The treatment type is simple IP. This is the default.
<b>vlanvpn</b> <i>vlanname</i>	The treatment type is vlan for VPNs, and the vlan name is specified. The name is created via the vlan command for sub-interfaces.
<b>ipsec</b> <i>policy_name</i>	The treatment type is IPSec, and the IPSec policy name is specified.

### **Related Commands**

access-point

### **Example**

The following example sets the MS950 in config mode, creates the subscriber-partition named megistosystems, creates an access point, and sets the treatment type to SIP.

```
MS# configure subscriber-partition megistosystems  
MS(config-sub) # access-point megisto-  
                  engineering.gprs.vodafone  
MS(config-sub-apn) # treatment-type simple-ip
```

## um-service

```
um-service
no um-service
```

### Purpose

This command enables or disables UM service for the APN.

### Command Mode

Administrator or Superuser - config - subs - apn

### Syntax Description

No Parameters

### Related Commands

um-service, mip policy-map, mip-policy-map

### Example

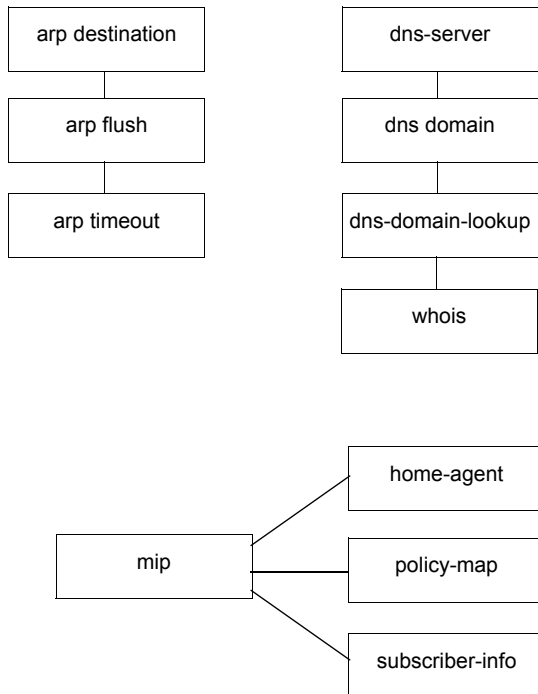
The following example enables UM service

```
MS# configure subscriber-partition user1
MS(config-sub) # access-point company1
MS(config-sub-apn) # um-service
```



# Chapter 11: IP Services Commands

The commands listed in this section configure IP services for the MS950.



## In This Chapter

- address-pool
- arp destination
- arp flush
- arp timeout
- dns domain
- dns domain-lookup
- dns servers
- home-agent
- policy-map
- subscriber-info
- clear mip counts
- delete mip context
- show mip home-agent
- show mip context
- show mip subscriber-info
- show arp
- show host
- show ip dns servers
- show ip dns domain

## arp destination

```
arp destination ip_address hw-address mac_address  
interface-address interface_address  
no arp destination ip_address interface-address  
interface_address
```

### Purpose

This command adds an entry into the ARP table used by a gigethernet or sub-interface. The no form of the command deletes the entry.

### Command Mode

Administrator or Superuser - config - ip

### Syntax Description

Parameter	Description
<i>ip_address</i>	The IP address of the primary server.
<b>hw-address</b> <i>mac_address</i>	The MAC address in the format 00:00:0A:0B:0C:0D.
<b>interface-address</b> <i>interface_address</i>	The IP address of an interface that serves as the outgoing interface from the ARP entry.

### Related Commands

arp flush, arp timeout, show arp

### Example

The following example adds an entry to the ARP table for the 4.0.0.1 interface.

```
MS# configure ip arp destination 192.168.20.1 hw-  
address 0a:02:01:00:10:bc interface-address 4.0.0.1
```



## arp flush

```
arp flush interface-address interface_address
```

### Purpose

This command flushes all entries from an ARP table used by a gigethernet or sub-interface.

### Command Mode

Administrator or Superuser - config - ip

### Syntax Description

Parameter	Description
<b>interface-address</b> <i>interface_address</i>	The IP address of a numbered interface that serves as the outgoing interface for the ARP entry.

### Related Commands

arp destination, arp timeout, show arp

### Example

The following example flushes all ARP entries for the 4.0.0.1 interface.

```
MS# configure ip arp flush interface-address 4.0.0.1
```

## arp timeout

```
arp timeout timeout
```

### Purpose

This command configures ARP timeout for gigethernet interfaces.

### Command Mode

Administrator or Superuser - config - ip

### Syntax Description

Parameter	Description
<i>timeout</i>	Number of minutes before timeout. Valid values are 1-65535.

### Related Commands

arp flush, arp destination, show arp

### Example

The following example sets the ARP timeout at 11 minutes

```
MS# configure ip arp timeout 11
```

## dns domain

```
dns domain [name]
no dns domain
```

### Purpose

This command specifies the domain name of the MS950. The MS950 uses the domain name to identify the local domain and to complete domain name requests. You can specify a single domain name. Any IP host name that does not contain a domain name has the specified domain name appended to it for a DNS lookup. The no form of this command removes the existing domain name.

### Command Mode

Administrator or Superuser - config - ip

### Syntax Description

Parameter	Description
<i>name</i>	The domain name of the MS950.

### Related Commands

dns-server, dns domain-lookup, show dns-domain

### Example

The following example specifies a global domain name.

```
MS# configure ip
MS(config-ip)# dns domain megisto.com
```

## dns domain-lookup

```
dns domain-lookup
no dns domain-lookup
```

### Purpose

This command enables or disables IP domain name system hostname translation. The no form of the command disables DNS.

### Command Mode

Administrator or Superuser - config - ip

### Syntax Description

No parameters

### Related Commands

dns-domain, dns-server, show dns-domain

### Example

The following example enables DNS.

```
MS# configure ip
MS(config-ip)# dns domain-lookup
```

## dns server

```
dns server prim_ip [sec-ip ip_address]
```

### Purpose

This command specifies IP addresses of primary and, optionally, secondary name servers.

### Command Mode

Administrator or Superuser - config - ip

### Syntax Description

Parameter	Description
<i>prim_ip</i>	The address of the primary name server.
<b>sec-ip</b> <i>ip_address</i>	Optional: Indicates that the address is secondary.

### Related Commands

dns-domain, dns-domain-lookup, show dns-server

### Example

The following example specifies a primary and secondary DNS server.

```
MS# configure ip
MS(config-ip)# dns server 192.168.20.1 sec-ip
192.168.20.1
```

## clear mip counts

```
clear mip counts {type apn name | imsi value| msisdn  
value| nai value | ip-address address}
```

### Purpose

This command clears MIP counts based on subscriber information.

### Command Mode

Administrator or Superuser

### Syntax Description

Parameter	Description
<code>type apn name   imsi value   msisdn value   nai value   ip-address address</code>	The type of identifier and value for that identifier.

### Related Commands

home-agent, policy-map, subscriber-info, clear mip counts, delete mip context, show mip home-agent, show mip context, show mip subscriber-info

### Example

The following example clears MIP subscriber counts.

```
MS# clear mip counts type ip-address 10.1.2.3
```

## delete mip context

```
delete mip context {type apn name | imsi value| msisdn
value| nai value | ip-address address}
```

### Purpose

This command deletes MIP counts based on subscriber information.

### Command Mode

Administrator or Superuser

### Syntax Description

Parameter	Description
<code>type apn name   imsi value  msisdn value  nai value   ip-address address</code>	The type of identifier and value for that identifier.

### Related Commands

home-agent, policy-map, subscriber-info, clear mip counts, delete mip context, show mip home-agent, show mip context, show mip subscriber-info

### Example

The following example deletes MIP subscriber context.

```
MS# delete mip context type ip-address 10.1.2.3
```

## home-agent

```
home-agent {enable | disable} [registration-lifetime
seconds] [replay seconds] [registration-flags
values] [holder-timer hours] [keep-alive seconds]
```

### Purpose

This command configures a MIP home agent with global configuration parameters.

### Command Mode

Administrator or Superuser - config - mip

### Syntax Description

Parameter	Description
<b>enable   disable</b>	Enables or disables the home agent
<b>registration-lifetime</b> <i>seconds</i>	The maximum registration lifetime allowed by the home agent. Valid values are 0 - 4294967295 .
<b>replay</b> <i>seconds</i>	The replay interval. Valid values are 0 - 4294967295 .
<b>registration-flags</b> <i>values</i>	The bit setting in the flag in registration requests. Valid values are ccoafa   ccoonly   faonly.
<b>holder-timer</b> <i>hours</i>	The timer for holding resources (address allocated) when using UM service. Valid values are 0 - 4294967295.
<b>keep-alive</b> <i>seconds</i>	The Keep alive time for NAT traversal. Valid values are 0 - 4294967295.

### Related Commands

home-agent, policy-map, subscriber-info, clear mip counts, delete mip context, show mip home-agent, show mip context, show mip subscriber-info

### Example



The following example configures a mip home agent.

```
MS# configure mip  
MS(config-mip)# home agent enable keep-alive 32
```

## mip

`configure mip`

### Purpose

This command enters MIP configuration mode.

### Command Mode

Administrator or Superuser

### Syntax Description

No parameters

### Related Commands

home-agent, policy-map, subscriber-info, clear mip counts, delete mip context, show mip home-agent, show mip context, show mip subscriber-info

### Example

The following example enters MIP configuration mode.

```
MS# configure mip  
MS (config-mip) #
```

## policy-map

```

policy-map name [registration-lifetime seconds]
               [replay seconds] [registration-flags values]
               [enable | disable]
no policy-map name

```

### Purpose

This command configures a MIP policy-map.

### Command Mode

Administrator or Superuser - config - mip

### Syntax Description

Parameter	Description
<i>name</i>	The name of the map. Alphanumeric up to 32 characters.
<b>registration-lifetime</b> <i>seconds</i>	The maximum registration lifetime allowed by the home agent. Valid values are 0 - 4294967295.
<b>replay</b> <i>seconds</i>	The replay interval. Valid values are 0 - 4294967295 .
<b>registration-flags</b> <i>values</i>	The bit setting in the flag in registration requests. Valid values are ccoafa, ccoafa, and faonly.
<b>enable</b>   <b>disable</b>	Enables or disables the policy map.

### Related Commands

home-agent, policy-map, subscriber-info, clear mip counts, delete mip context, show mip home-agent, show mip context, show mip subscriber-info

### Example

The following example configures a MIP policy-map.

---

## IP Services Commands

```
MS# configure mip  
MS(config-mip)# policy-map mippol3 registration-  
                  lifetime 32 enable
```

## subscriber-info

```
subscriber-info {type imsi value| msisdn value| nai
value} [enable | disable]
```

### Purpose

This command configure MIP subscriber information.

### Command Mode

Administrator or Superuser - config - mip

### Syntax Description

Parameter	Description
<b>enable   disable</b>	Enables or disables the identified subscriber.
<b>type imsi value  msisdn value  nai value</b>	The type of identifier and value for that identifier.

### Related Commands

home-agent, policy-map, subscriber-info, clear mip counts, delete mip context, show mip home-agent, show mip context, show mip subscriber-info

### Example

The following example configure subscriber information.

```
MS# configure mip
MS(config-mip)# subscriber-info type imsi 12345678
```

## show mip home-agent

```
show mip home-agent
```

### Purpose

This command mip home agent global profile.

### Command Mode

Operator or Administrator or Superuser

### Syntax Description

No parameters

### Related Commands

home-agent, policy-map, subscriber-info, clear mip counts, delete mip context, show mip home-agent, show mip context, show mip subscriber-info

### Example

The following example global MIP profiles.

```
MS# show mip home-agent
Universal Mobility Global Information:
Registration lifetime: 60 seconds
Replay protection interval: 7 seconds
IP Address lifetime: 86400 seconds
Keep alive interval: 110 seconds
Registration flags: CCOA
Home agent state: Enabled
```

## show mip context

```
show mip context {type apn name | imsi value| msisdn
value| nai value
```

### Purpose

This command displays the specified MIP context.

### Command Mode

Operator or Administrator or Superuser

### Syntax Description

Parameter	Description
<code>type apn name   imsi value  msisdn value  nai value</code>	The type of identifier and value for that identifier.

### Related Commands

home-agent, policy-map, subscriber-info, clear mip counts, delete mip context, show mip globals, show mip context, show mip subscriber-info

### Example

The following example displays the specified context.

```
MS# show mip context
```

```
Universal Mobility Active Context Information:
```

```
NAI: 7034441700@umcs2.com HaAddress: 64.254.114.35
```

```
IMSI: 123456787654321 MSISDN: 7034441700 APN: umcs2.com
```

```
mnAddress: 10.128.0.1 COA: 10.135.0.1
```

```
srcAddress: 10.135.0.1 srcPort: 1234 TunnelType: IP_IP
```

```
Identification: c2d260876b8b4567 Flags: S:0 B:0 D:1 M:0 G:0 T:1
```

```
GrantedLifetime: 7200 seconds, RemainingLifetime: 4360 seconds
```

```
IMSI: 123456787654324 MSISDN: 7034441703 APN: umcs2.com
```

```
mnAddress: 10.128.0.4 COA: 10.135.0.4
```

---

## IP Services Commands

```
srcAddress: 10.135.0.4 srcPort: 1234 TunnelType: IP_IP  
Identification: c2d260872ae8944a Flags: S:0 B:0 D:1 M:0 G:0 T:1  
GrantedLifetime: 7200 seconds, RemainingLifetime: 4360 seconds
```



## show mip policy-map

```
show mip policy-map
```

### Purpose

This command displays the specified policy map.

### Command Mode

Operator or Administrator or Superuser

### Syntax Description

Parameter	Description
<i>name</i>	The name of the policy-map. Alphanumeric up to 32 characters.

### Related Commands

home-agent, policy-map, subscriber-info, clear mip counts, delete mip context, show mip home-agent, show mip context, show mip subscriber-info

### Example

The following example displays policy maps.

```
MS# show mip policy-map
Universal Mobility Policy Information: UMPOLICY
  Registration lifetime: 600 seconds
  Replay protection interval: 65535 seconds
  Registration flags: CCOA
  Home agent state: Enabled

Universal Mobility Policy Information: m1
  Registration lifetime: 60 seconds
```

---

## IP Services Commands

```
Replay protection interval: 7 seconds  
Registration flags: CCOA  
Home agent state: Enabled
```

## show mip subscriber-info

```
show mip subscriber-info {type imsi value| msisdn
value| nai value}
```

### Purpose

This command displays the specified subscriber information.

### Command Mode

Operator or Administrator or Superuser

### Syntax Description

Parameter	Description
type imsi value  msisdn value  nai value	The type of identifier and value for that identifier.

### Related Commands

home-agent, policy-map, subscriber-info, clear mip counts, delete mip context, show mip home-agent, show mip context, show mip subscriber-info

### Example

The following example displays MIP subscriber information.

```
MS# show mip subscriber-info type imsi 12345678
Universal Mobility Subscriber Information:
NAI: 3014441700@megistoum.com SPI1: 500 SPI2: 501
IMSI: 123456781234567 MSISDN: 3014441700 APN: megistoum.com
HaAddress: 64.254.114.17 state: Enabled cfgVersion: 1
Key: 123456789012345678901234567890ab

Universal Mobility Subscriber Information:
NAI: 3014441701@megistoum.com SPI1: 502 SPI2: 503
IMSI: 123456781234568 MSISDN: 3014441701 APN: megistoum.com
```

---

## IP Services Commands

```
HaAddress: 64.254.114.17 state: Enabled cfgVersion: 1  
Key: 123456789012345678901234567890ab
```

Universal Mobility Subscriber Information:

```
NAI: 3014441702@megistoum.com SPI1: 504 SPI2: 505  
IMSI: 123456781234569 MSISDN: 3014441702 APN: megistoum.com  
HaAddress: 64.254.114.17 state: Enabled cfgVersion: 1  
Key: 123456789012345678901234567890ab
```

Universal Mobility Subscriber Information:

```
NAI: 3014441703@megistoum.com SPI1: 506 SPI2: 507  
IMSI: 123456781234570 MSISDN: 3014441703 APN: megistoum.com  
HaAddress: 64.254.114.17 state: Enabled cfgVersion: 1  
Key: 123456789012345678901234567890ab
```

Universal Mobility Subscriber Information:

```
NAI: 3014441704@megistoum.com SPI1: 508 SPI2: 509  
IMSI: 123456781234571 MSISDN: 3014441704 APN: megistoum.com  
HaAddress: 64.254.114.17 state: Enabled cfgVersion: 1  
Key: 123456789012345678901234567890ab
```

Universal Mobility Subscriber Information:

```
NAI: 3014441705@megistoum.com SPI1: 510 SPI2: 511  
IMSI: 123456781234572 MSISDN: 3014441705 APN: megistoum.com  
HaAddress: 64.254.114.17 state: Enabled cfgVersion: 1
```

## show arp

```
show arp
```

### Purpose

Displays the ARP table.

### Command Mode

Operator or Administrator or Superuser

### Syntax Description

No parameters

### Related Commands

arp destination, arp flush, arp timeout

### Example

The following example displays the ARP table.

```
MS# show arp
  Destination      HW Address      Type      Age      Interface
-----
10.128.0.253      00:b0:d0:ab:aa:3a  Dynamic   19      wancom9/0
10.128.0.254      00:01:30:17:35:00 Dynamic    9      wancom9/0
10.128.2.254      00:01:30:17:35:00 Dynamic    7      gige2/0
10.128.4.254      00:04:80:29:23:04 Dynamic   15      gige18/0
-----
```

## show ip dns domain

```
show ip dns domain
```

### Purpose

This command displays the current DNS.

### Command Mode

Operator or Administrator or Superuser

### Syntax Description

No parameters

### Related Commands

dns domain, dns-domain-lookup

### Example

The following example displays the DNS.

```
MS# show ip dns domain
    DNS lookup is enabled
    Domain Name
```

## show ip dns servers

```
show ip dns servers
```

### Purpose

This command displays all configured DNS servers.

### Command Mode

Operator or Administrator or Superuser

### Syntax Description

No parameters

### Related Commands

dns server

### Example

The following example displays DNS servers.

```
MS# show ip dns servers  
Primary: 192.234.68.0 Secondary: 192.345.45.1
```

## show host

```
show host hostname
```

### Purpose

This command shows DNS information about the specified host.

### Command Mode

Operator or Administrator or Superuser

### Syntax Description

Parameter	Description
<i>hostname</i>	The name of the desired host.

### Related Commands

dns-server, dns-domain, dns domain-lookup

### Example

The following example displays information about the megisto host.

```
MS# show host ms
DNS lookup is enabled

Domain Name megisto.com

Primary: 192.345.20.5 Secondary: 192.245.20.3

Hostname                               IP Address
-----
megistoms                               192.20.20.1
-----
```



## whois

```
whois [domain_name] [ip ip_address]
```

### Purpose

This command displays DNS lookup information.

### Command Mode

Operator or Administrator or Superuser

### Syntax Description

Parameter	Description
<i>domain_name</i>	Displays the domain name of a node.
<b>ip</b> <i>ip_address</i>	Displays the IP address of a node.

### Related Commands

dns-server, dns domain, dns-domain-lookup

### Example

The following example shows information about www.megisto.com.

```
MS# whois www.megisto.com
```



# Chapter 12: Default Addressing Mechanism Commands

The commands listed in this section create addressing mechanisms.

dhcp-server

subscriber-address-pool

aaa

radius-server

radius-service

## In This Chapter

- aaa
- dhcp-server
- radius server
- radius service
- subscriber-address-pool

## aaa

aaa

### Purpose

This command enables the entry of AAA commands.

### Command Mode

Operator or Administrator or Superuser

### Syntax Description

No parameters

### Related Commands

radius-server, show radius-server

### Example

The following example enters AAA mode.

```
MS# configure aaa  
MS (config-aaa) #
```

## dhcp-server

```
dhcp-server prim_ip_address [prim_server_name] [sec-ip
sec_ip_address] [sec-name sec_server_name]
```

### Purpose

This command specifies a primary and backup DHCP server that the GGSN uses at a particular access point to authenticate mobile users for access to a PDN.

### Command Mode

Administrator or Superuser - config - ip

### Syntax Description

Parameter	Description
<i>prim_ip_address</i>	The IPv4 address in dotted-decimal format for the primary server.
<i>prim_server_name</i>	Optional: The name of the DHCP primary server. Name can be any text up to 32 characters.
<b>sec-ip</b> <i>sec_ip_address</i>	Optional: The IPv4 address in dotted-decimal format for the secondary server.
<b>sec-name</b> <i>sec_server_name</i>	Optional: The name of the DHCP secondary server. Name can be any text up to 32 characters.

### Related Commands

```
show ip dhcp
```

### Example

The following example sets the MS950 in config mode, places you in IP configuration mode, and configures DHCP server parameters.

```
MS# configure ip
```

---

## Default Addressing Mechanism

```
MS(config-ip)# dhcp-server 192.168.10.10 DHCP_PRIMARY  
sec-ip 4.0.0.2 sec-name wsp-megisto-dhcp
```

## radius-server

```
radius--server [auth | acct] {ip ip_address} [name
name] [key key-string] [auth-port port] [acct-port
port] [secondary] [timeout seconds] [retransmit
retries] [interim seconds] [no-forwarding] [client-
address ms-id | mgmt-id | ip_address]
no radius-server [auth | acct] [secondary]
```

### Purpose

This command specifies a RADIUS accounting or authentication server for mobile subscribers.

### Command Mode

Administrator or Superuser - config - aaa

### Syntax Description

Parameter	Description
<b>auth   acct</b>	The type of RADIUS server, either accounting or authentication. If not specified, both apply.
<b>ip ip_address</b>	The IPv4 address of the server.
<b>name name</b>	Optional: The name of the server. Name can be any text up to 32 characters.
<b>key key-string</b>	Optional: Indicates use of pre-shared keys between the MS950 and the RADIUS server. Alphanumeric up to 80 characters.
<b>auth-port port</b>	Optional: The port number for RADIUS authorization. Valid values are 1-65535.
<b>acct-port port</b>	Optional: The port number for RADIUS accounting. Valid values are 1-65535.
<b>secondary</b>	Optional: Indicates the server is the secondary server.
<b>timeout seconds</b>	Optional: The timeout in seconds for the server. Valid values are 1-255.
<b>retransmit retries</b>	Optional: The number of retries. Valid values are 1-255.

---

## Default Addressing Mechanism

Parameter	Description
<b>tunneling</b>	Optional: Indicates that the IP tunnel specified in the APN is used to access this server for VPN. Requires an IP address for client addressing.
<b>interim <i>seconds</i></b>	Optional: Used only for accounting servers. The number of seconds of interim update interval for RADIUS accounting. Valid values are 0-3600.
<b>client-address [ms-id   mgmt-id] <i>ip_address</i></b>	Optional: Specifies which address is to be used as the RADIUS client address. ms-id is the default. Tunneling requires the IP address; otherwise specify the ms-id or mgmt-id.

## Related Commands

aaa, show radius-server

## Example

The following example specifies the global RADIUS authentication server.

```
MS# configure aaa  
MS(config-aaa)# radius-server auth ip 192.168.10.10  
                  name funk key funky
```



## radius-service

```
radius-service {acct}  
no radius-service {acct}
```

### Purpose

This command enables RADIUS service for accounting or authorization. The no form of the command disables the service. RADIUS accounting is enabled when the `radius-server acct` command is issued.

### Command Mode

Administrator or Superuser - config - aaa

### Syntax Description

Parameter	Description
acct	Indicates RADIUS accounting service.

### Related Commands

aaa, show radius-server

### Example

The following example enables RADIUS accounting service.

```
MS# configure aaa  
MS(config-aaa)# radius-service acct
```

## show dhcp-server

```
show dhcp-server {access-point apn | global}
```

### Purpose

This command displays DHCP settings for all APNs or the specified APN.

### Command Mode

Operator or Administrator or Superuser

### Syntax Description

Parameter	Description
<b>access-point</b> <i>apn</i>	Displays DHCP settings for the specified APN.
<b>global</b>	Displays global DHCP settings as set in config-ip.

### Related Commands

dhcp-server

### Example

The following example show DHCP settings for acme.com.

```
MS# show dhcp-server access-point acme.com
Access Point Name : acme.com
Primary Server Name : DHCP_PRIMARY
Primary Server Address : 192.168.10.10
Secondary Server Name : secondary_server
Secondary Server Address : 192.168.10.12
Tunneling : No
```

## show radius-server

```
show radius-server {access-point apn | global}
```

### Purpose

This command displays information about the primary or secondary RADIUS authentication and accounting servers.

### Command Mode

Operator or Administrator or Superuser

### Syntax Description

Parameter	Description
<b>global</b>	Displays global RADIUS server settings.
<b>access-point</b> <i>apn</i>	Displays RADIUS server settings for the specified access point.

### Related Commands

aaa, radius-server

### Example

The following example displays the RADIUS authentication server for the APN acme.com.

```
MG# show radius-server access-point acme.com
RADIUS information for      : acme.com Auth Primary
  Server Address           : 192.168.10.10
  Server Name              : funk
  Auth Port                : 1812
  Number of retries       : 3
  Timeout                  : 5 secs
  Tunneling                : No
```

## show subscriber-address-pool

```
show subscriber-address-pool [apn_name]
```

### Purpose

This command displays all address pools or information about a specific pool.

### Command Mode

Operator or Administrator or Superuser

### Syntax Description

Parameter	Description
<i>apn_name</i>	Optional: The APN for the pool as set in config-subs-APN.

### Related Commands

subscriber-address-pool

### Example

The following example displays the current IP address pools.

```
MS# show subscriber-address-pool
Network-Address Netmask      Free    Assigned Reserved Service-
Card
-----
megisto.com
  16.16.16.0      255.255.255.0    254      0        2        5
-----
acme4.com
  14.0.0.0        255.0.0.0        16747214 30000    2        5
-----
acme5.com
  15.0.0.0        255.255.0.0      45565    19969    2        5
-----
```

acme6.com	172.16.22.1	255.255.255.0	68	185	3	5
-----						
acme7.com	172.22.0.0	255.255.0.0	65534	0	2	5
-----						
vpn1.com	172.16.23.0	255.255.255.0	254	0	2	5
-----						

## subscriber-address-pool

```
subscriber-address-pool ip_address netmask {service-  
card slot_number} (type {local | dhcp | radius |  
static})  
no subscriber-address-pool ip_address {service-card  
slot_number} (type {local | dhcp | radius |  
static})
```

### Purpose

This command creates and configures global address pools in the MS950. You can add or delete pools. If you want to modify a pool, you must delete it and then recreate it.

### Command Mode

Administrator or Superuser - config - ip

### Syntax Description

Parameter	Description
<i>ip_address</i>	The IP address in IPv4 dotted-decimal format of the first available address in the pool.
<i>netmask</i>	The IPv4 network mask of the IP pool.
<b>service-card</b> <i>slot_number</i>	The slot number of the service card. Valid values are 5-7 and 12-14.
<b>type</b> { <b>local</b>   <b>dhcp</b>   <b>radius</b>   <b>static</b> }	The type of pool.

### Related Commands

show subscriber-address-pool

### Example

The following example creates a DHCP address pool on service card 5.

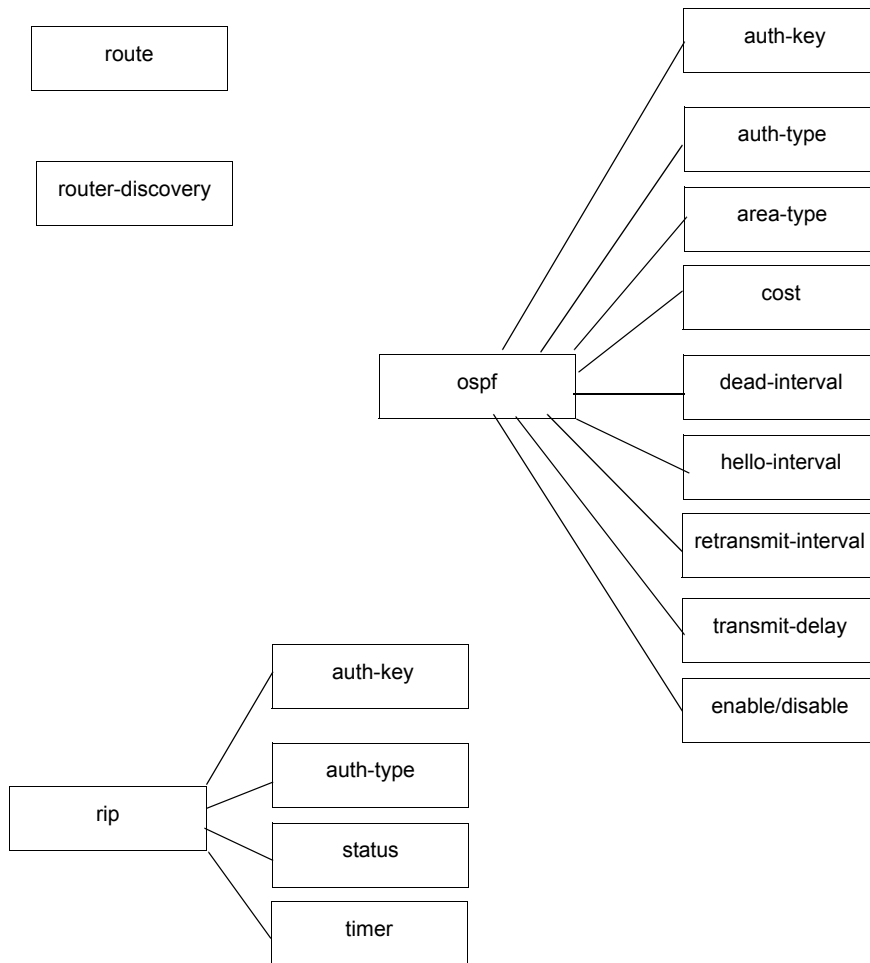
```
MS# configure ip  
MS(config-ip)# subscriber-address-pool 192.234.40.1  
                  255.255.255.0 service-card 5 type dhcp
```





# Chapter 13: Routing Commands

The commands listed in this section configure IP services for the MS950.



## In This Chapter

- auth-key
- auth-type
- ospf
- route
- router-discovery
- show ip default gateway
- show ip route
- show ip router-discovery
- show rip configuration
- show rip statistics
- status
- timer
- area-type
- cost
- disable
- dead-interval
- enable
- hello-interval
- retransmit-interval
- transit-delay

## area-type

```
area-type {normal | stub}
```

### Purpose

This command specifies the OSPF area type.

### Command Mode

Administrator or Superuser - config - ospf

### Syntax Description

Parameter	Description
area   stub	The type of OSPF area.

### Related Commands

area-type, auth-key, auth-type, dead-interval, cost, disable, enable, hello-interval, retransmit-interval, transit-delay, show ospf area, show ospf debug, show ospf general, show ospf interface, show ospf links, show ospf lsdb, show ospf neighbor

### Example

The following example sets the area type to stub.

```
MS# configure ospf  
MS(config-ospf)# area-type stub
```

## auth-key

```
auth-key key [interface-name name]
```

### Purpose

This command provides the authentication key for RIP and OSPF configuration for an interface in which Simple IP was chosen as the authentication type.

### Command Mode

Administrator or Superuser - config-rip

### Syntax Description

Parameter	Description
<i>key</i>	Authentication key. String can be any text up to 16 characters.
<b>interface</b> <i>name</i>	The name of the sub-interface. Name is alphanumeric up to 20 characters. This parameter is required for RIP but does not apply to OSPF.

### Related Commands

show rip configuration, show rip statistics, auth-key, auth-type, status, timer, debug rip, area-type, auth-key, auth-type, cost, disable, dead-interval, enable, hello-interval, retransmit-interval, transit-delay, show ospf area, show ospf debug, show ospf general, show ospf ospf, show ospf links, show ospf lsd, show ospf neighbor

### Example

The following example provide a RIP authentication key.

```
MS# configure rip
MS(config-rip)# auth-type simple-password interface-
name gigethernet2/0.1
```

---

## Routing Commands

```
MS(config-rip)# auth-key qwertyuiop interface-name  
gigethernet2/0.1
```

## auth-type

```
auth-type {none | simple-password} [interface-name
name]
```

### Purpose

This command creates provides the authentication type for RIP and OSPF configuration for an interface.

### Command Mode

Administrator or Superuser - config-rip

### Syntax Description

Parameter	Description
<b>none   simple-password</b>	The type of authentication. If selected, an authentication key is needed. Default is none.
<b>interface name</b>	The name of the sub-interface. Name is alphanumeric up to 20 characters. This parameter is required for RIP but does not apply to OSPF.

### Related Commands

show rip configuration, show rip statistics, auth-key, auth-type, status, timer, debug rip, area-type, auth-key, auth-type, cost, disable, dead-interval, enable, hello-interval, retransmit-interval, transit-delay, show ospf area, show ospf debug, show ospf general, show ospf interface, show ospf links, show ospf lsd, show ospf neighbor

### Example

The following example provide a RIP authentication key.

```
MS# configure rip
MS(config-rip)# auth-type simple-password interface-
name gigethernet2/0.1
```

## cost

`cost cost`

### Purpose

This command specifies cost of using an interface.

### Command Mode

Administrator or Superuser - config - ospf

### Syntax Description

Parameter	Description
<code>cost</code>	The cost of using an interface. Valid values are 0-65535.

### Related Commands

area-type, auth-key, auth-type, cost, disable, dead-interval, enable, hello-interval, retransmit-interval, transit-delay, show ospf area, show ospf debug, show ospf general, show ospf interface, show ospf links, show ospf lsdb, show ospf neighbor

### Example

The following example sets cost for the interface.

```
MS# configure ospf  
MS(config-ospf)# cost 50
```

## dead-interval

```
dead-interval interval
```

### Purpose

This command specifies the time to wait to see a Hello packet from a neighbor before declaring a neighbor to be down.

### Command Mode

Administrator or Superuser - config - ospf

### Syntax Description

Parameter	Description
<code>interval</code>	Number of seconds that the router's Hello packets have not been seen before neighbors declare down. Valid values are 1-2147483647. Default value is 40.

### Related Commands

area-type, auth-key, auth-type, cost, disable, dead-interval, enable, hello-interval, retransmit-interval, transit-delay, show ospf area, show ospf debug, show ospf general, show ospf interface, show ospf links, show ospf lsdb, show ospf neighbor

### Example

The following example sets the dead interval.

```
MS# configure ospf  
MS(config-ospf)# dead-interval 49
```

## enable

`enable`

### Purpose

This command creates enables OSPF on the sub-interface.

### Command Mode

Administrator or Superuser - config - ospf

### Syntax Description

No parameters

### Related Commands

area-type, auth-key, auth-type, cost, disable, dead-interval, enable, hello-interval, retransmit-interval, transit-delay, show ospf area, show ospf debug, show ospf general, show ospf interface, show ospf links, show ospf lsdb, show ospf neighbor

### Example

The following example enables OSPF on a sub-interface.

```
MS# configure ospf  
MS(config-ospf)# enable
```



## disable

`disable`

### Purpose

This command disables OSPF on the sub-interface.

### Command Mode

Administrator or Superuser - config - ospf

### Syntax Description

No parameters

### Related Commands

area-type, auth-key, auth-type, cost, disable, dead-interval, enable, hello-interval, retransmit-interval, transit-delay, show ospf area, show ospf debug, show ospf general, show ospf interface, show ospf links, show ospf lsdb, show ospf neighbor

### Example

The following example disable OSPF on a sub-interface.

```
MS# configure ospf  
MS(config-ospf)# disable
```

## hello-interval

```
hello-interval interval
```

### Purpose

This command specifies the interval in which hello packets are transmitted.

### Command Mode

Administrator or Superuser - config - ospf

### Syntax Description

Parameter	Description
interval	Number of seconds between hello packet transmissions. Valid values are 1-65535. Default value is 10.

### Related Commands

area-type, auth-key, auth-type, cost, disable, dead-interval, enable, hello-interval, retransmit-interval, transit-delay, show ospf area, show ospf debug, show ospf general, show ospf interface, show ospf links, show ospf lsdb, show ospf neighbor

### Example

The following example sets the hello interval.

```
MS# configure ospf
MS(config-ospf)# hello-interval 49
```

## ospf

```
ospf address | all  
no ospf address | all
```

### Purpose

This command creates the OSPF command entry mode in which you can enter OSPF configuration commands and selects the sub-interface to which the configuration applies.

### Command Mode

Administrator or Superuser - config

### Syntax Description

Parameter	Description
<i>address</i>	The IP address of the sub-interface for OSPF traffic.
<i>all</i>	All sub-interfaces receive OSPF traffic.

### Related Commands

area-type, auth-key, auth-type, cost, disable, dead-interval, enable, hello-interval, retransmit-interval, transit-delay, show ospf area, show ospf debug, show ospf general, show ospf interface, show ospf links, show ospf lsdb, show ospf neighbor

### Example

The following example enters OSPF configuration mode.

```
MS# configure ospf 192.53.222.3  
MS(config-ospf)#
```

## retransmit-interval

```
retransmit-interval interval
```

### Purpose

This command specifies the time to wait before transmitting unacknowledged OSPF packets.

### Command Mode

Administrator or Superuser - config - ospf

### Syntax Description

Parameter	Description
<code>interval</code>	Number of seconds between transmissions. Valid Values are 1-3600. Default value is 5.

### Related Commands

area-type, auth-key, auth-type, cost, disable, dead-interval, enable, hello-interval, retransmit-interval, transit-delay, show ospf area, show ospf debug, show ospf general, show ospf interface, show ospf links, show ospf lsdb, show ospf neighbor

### Example

The following example sets the retransmit interval.

```
MS# configure ospf  
MS(config-ospf)# retransmit-interval 49
```

## rip

```
configure rip
```

### Purpose

This command creates the RIP command entry mode in which you can enter RIP configuration commands.

### Command Mode

Administrator or Superuser - config

### Syntax Description

No parameters

### Related Commands

show rip configuration, show rip statistics, auth-key, auth-type, status, timer, debug rip

### Example

The following example enters RIP configuration mode.

```
MS# configure rip  
MS(config-rip)#
```

## route

```
route ip_address network_mask ip_address [cost
      cost_number]
no route ip_address network_mask ip_address
```

### Purpose

This command adds a static route to the routing table. The no form of the command deletes a route.

**Note:** If you enter multiple routes to the same destination IP address, the routes are ordered based on the cost parameter. However, if two of these routes have the same cost value, then whichever route was entered first has priority.

### Command Mode

Administrator or Superuser - config - ip

### Syntax Description

Parameter	Description
<i>ip_address</i>	The IP address of the destination router.
<i>network_mask</i>	Network mask of the destination router.
<i>ip_address</i>	IP address of the next-hop router.
<b>cost</b> <i>cost_number</i>	Optional: Cost of the route. Valid values are 0-20. Default is 0.

### Related Commands

show route

### Example

The following example adds a static route.

```
MS# configure ip
```

```
MS(config-ip)# route 128.89.1.0 255.255.255.0 4.0.0.1
```

## router-discovery

```
router-discovery [interface interface_name]  
no router-discovery [interface interface_name]
```

### Purpose

This command enables or disables router discovery on all interfaces or the specified interface. The no form of the command disables discovery.

### Command Mode

Administrator or Superuser - config - ip

### Syntax Description

Parameter	Description
<b>interface</b> <i>interface_name</i>	Optional: Name of the interface through which to discover routers.

### Related Commands

show ip router-discovery

### Example

The following example adds a static route.

```
MS# configure ip  
MS(config-ip)# router-discovery gig1/0
```



## show ip default-gateway

```
show ip default-gateway
```

### Purpose

This command displays the default gateway.

### Command Mode

Operator or Administrator or Superuser

### Syntax Description

No parameters

### Related Commands

default-gateway

### Example

The following example displays the default gateway.

```
MS# show ip default-gateway  
Default-gateway : 10.128.4.254
```

## show ip route

```
show ip route {connected | static}
```

### Purpose

This command shows the current static-routing parameters and discovered and configured routers.

### Command Mode

Operator or Administrator or Superuser

### Syntax Description

Parameter	Description
connected	Displays only connected routes.
static	Displays only static routes.

### Related Commands

route

### Example

The following example displays all routing table information.

```
MS# show ip route
```

Type C - Connected S - Static Route I - ICMP REDIRECT R - RIP

Destination	Mask	Gateway	Interface	Type	Cost
0.0.0.0	0.0.0.0	10.128.4.254	gige18/0	S	0
10.128.0.0	255.255.255.0	10.128.0.1	wancom9/0	C	0
10.128.2.0	255.255.255.0	10.128.2.1	gige2/0	C	0
10.128.4.0	255.255.255.0	10.128.4.1	gige18/0	C	0
10.128.2.1	255.255.255.255	10.128.2.254	gige2/0	S	0
10.128.4.1	255.255.255.255	10.128.4.254	gige18/0	S	0
0.0.0.0	0.0.0.0	10.128.2.254		C	1501

## show ip router-discovery

```
show ip router-discovery [interface interface_name]
```

### Purpose

This command displays information about discovered routers on all interfaces or the specified interface. It displays the current router discovery configuration.

### Command Mode

Administrator or Superuser - config - ip

### Syntax Description

Parameter	Description
<b>interface</b> <i>interface_name</i>	Optional: Name of the interface through which to discover routers.

### Related Commands

router-discovery

### Example

The following example displays discovered routers.

```
MS# show ip router-discovery gigel/0  
MG is enabled for IRDP in the global-IRDP mode.
```

## show rip configuration

```
show rip configuration [interface-name interface_name
| default]
```

### Purpose

This command displays the RIP configuration for all sub-interfaces or the specified sub-interface or the system.

### Command Mode

Operator or Administrator or Superuser

### Syntax Description

Parameter	Description
<b>interface</b> <i>interface_name</i>	Optional: Displays the RIP configuration for the specified interface.
<b>default</b>	Optional: Displays the default RIP configuration for the system.

### Related Commands

show rip configuration, show rip statistics, auth-key, auth-type, status, timer, debug rip

### Example

The following examples display the RIP configuration.

```
MS# show rip configuration interface-name
    gigethernet2/0.1
```

```
RIP Interface Configuration
```

```
Interface Name           = gigethernet2/0.1
```

---

## Routing Commands

```
Primary Interface Addr    = 10.3.3.1
Secondary Interface Addr  = 0.0.0.0

RipStatus                 = RIP-DISABLED
RipDomain                 = 0
RipAuthType               = SIMPLE-PASSWORD
RipAuthKey                = *****
RipSendVersion            = RIP-V1-COMPAT
RipReceiveVersion         = DO-NOT-RCV
RipDefaultMetric          = 1
RipUpdateTimer            = 30 sec
RipDebugMode              = RIP-DBG-DISABLED
```

MS# **show rip configuration**

RIP Interface Configuration

```
Interface Name           = gigethernet2/0
Primary Interface Addr    = 10.3.1.1
Secondary Interface Addr  = 10.3.2.1

RipStatus                 = RIP-DISABLED
RipDomain                 = 0
RipAuthType               = NO-AUTHENTICATION
RipAuthKey                =
RipSendVersion            = RIP-V1-COMPAT
RipReceiveVersion         = DO-NOT-RCV
RipDefaultMetric          = 1
RipUpdateTimer            = 30 sec
RipDebugMode              = RIP-DBG-ENABLED
```

```
Interface Name           = gigethernet2/0.1
Primary Interface Addr    = 10.3.3.1
Secondary Interface Addr  = 0.0.0.0

RipStatus                 = RIP-DISABLED
RipDomain                 = 0
RipAuthType               = SIMPLE-PASSWORD
RipAuthKey                = *****
```

```

RipSendVersion      = RIP-V1-COMPAT
RipReceiveVersion   = DO-NOT-RCV
RipDefaultMetric    = 1
RipUpdateTimer      = 30 sec
RipDebugMode        = RIP-DBG-DISABLED
  
```

```

Interface Name      = gigetherenet2/0.2
Primary Interface Addr = 10.3.4.1
Secondary Interface Addr = 0.0.0.0
  
```

```

RipStatus           = RIP-DISABLED
RipDomain           = 0
RipAuthType         = NO-AUTHENTICATION
RipAuthKey          =
RipSendVersion      = RIP-V1-COMPAT
RipReceiveVersion   = DO-NOT-RCV
RipDefaultMetric    = 1
RipUpdateTimer      = 30 sec
RipDebugMode        = RIP-DBG-DISABLED
  
```

```

MS# show rip configuration global
RIP Interface Configuration
  
```

```

Interface Name      = default
Primary Interface Addr = 0.0.0.0
Secondary Interface Addr = 0.0.0.0
  
```

```

RipStatus           = RIP-DISABLED
RipDomain           = 0
RipAuthType         = NO-AUTHENTICATION
RipAuthKey          =
RipSendVersion      = RIP-V1-COMPAT
RipReceiveVersion   = DO-NOT-RCV
RipDefaultMetric    = 16
RipUpdateTimer      = 30 sec
RipDebugMode        = RIP-DBG-DISABLED
  
```

## show ospf area

```
show ospf area
```

### Purpose

This command displays the OSPF area setting.

### Command Mode

Operator or Administrator or Superuser

### Syntax Description

No parameters

### Related Commands

area-type, auth-key, auth-type, cost, disable, dead-interval, enable, hello-interval, retransmit-interval, transit-delay, show ospf area, show ospf debug, show ospf general, show ospf interface, show ospf links, show ospf lsdb, show ospf neighbor

### Example

The following example displays area settings.

```
MS# show ospf area
OSPF Area Configuration for Interface 10.3.1.1:

Area Id                = 1.1.1.1
Area Type               = NSSA
Area LSA Count         = 1
Area LSA ChksumSum     = 0x0000d353

OSPF Area Configuration for Interface 10.3.2.1:

Area Id                = 0.0.0.0
Area Type               = Normal
```



```
Area LSA Count           = 6  
Area LSA ChksumSum      = 0x000380e7
```

```
OSPF Area Configuration for Interface 10.3.3.1:
```

```
Area Id                  = 2.1.1.1  
Area Type                = Normal  
Area LSA Count          = 1  
Area LSA ChksumSum      = 0x0000abd9
```

## show ospf general

```
show ospf general
```

### Purpose

This command displays the OSPF general configuration.

### Command Mode

Operator or Administrator or Superuser

### Syntax Description

No parameters

### Related Commands

area-type, auth-key, auth-type, cost, disable, dead-interval, enable, hello-interval, retransmit-interval, transit-delay, show ospf area, show ospf debug, show ospf general, show ospf interface, show ospf links, show ospf lsdb, show ospf neighbor

### Example

The following example displays general settings.

```
MS# show ospf general
```

```
OSPF General Configuration for Instance
10.3.1.1:

Admin Status           = Disable
Version                = 2
Extern LSA Count       = 0
Extern LSA ChecksumSum = 0
LSA Transmit Count     = 0
LSA Receive Count      = 0
```

## OSPF General Configuration for Instance

10.3.2.1:

Admin Status	= Enable
Version	= 2
Extern LSA Count	= 0
Extern LSA ChecksumSum	= 0
LSA Transmit Count	= 2
LSA Receive Count	= 4

## OSPF General Configuration for Instance

10.3.3.1:

Admin Status	= Enable
Version	= 2
Extern LSA Count	= 0
Extern LSA ChecksumSum	= 0
LSA Transmit Count	= 0
LSA Receive Count	= 0

## show ospf debug

```
show ospf debug
```

### Purpose

This command displays the OSPF debug configuration.

### Command Mode

Operator or Administrator or Superuser

### Syntax Description

No parameters

### Related Commands

area-type, auth-key, auth-type, cost, disable, dead-interval, enable, hello-interval, retransmit-interval, transit-delay, show ospf area, show ospf debug, show ospf general, show ospf interface, show ospf links, show ospf lsdb, show ospf neighbor

### Example

The following example displays debug settings.

```
MS# show ospf debug
OSPF Debug Configuration for Interface 10.3.1.1:
```

TYPE	PACKET-TYPE	STATUS
Events	NA	Disable
Packets	HELLO	Rx_Enable/Tx_Enable
Packets	DD	Rx_Enable/Tx_Enable
Packets	LSA	Rx_Enable/Tx_Enable

```
OSPF Debug Configuration for Interface
10.3.2.1:
```

TYPE	PACKET-TYPE	STATUS
Events	NA	Disable
Packets	HELLO	Rx_Disable/Tx_Disable
Packets	DD	Rx_Disable/Tx_Disable
Packets	LSA	Rx_Disable/Tx_Disable

## OSPF Debug Configuration for Interface

10.3.3.1:

TYPE	PACKET-TYPE	STATUS
Events	NA	Disable
Packets	HELLO	Rx_Enable/Tx_Disable
Packets	DD	Rx_Enable/Tx_Disable
Packets	LSA	Rx_Enable/Tx_Enable

## show ospf interface

```
show ospf interface
```

### Purpose

This command displays the OSPF interface configuration.

### Command Mode

Operator or Administrator or Superuser

### Syntax Description

No parameters

### Related Commands

area-type, auth-key, auth-type, cost, disable, dead-interval, enable, hello-interval, retransmit-interval, transit-delay, show ospf area, show ospf debug, show ospf general, show ospf interface, show ospf links, show ospf lsdb, show ospf neighbor

### Example

The following example displays interface settings.

```
MS# show ospf interface
OSPF Interface Configuration for 10.3.1.1:

Interface Name           = gige1024
Admin Status             = Disable
Area Id                  = 1.1.1.1
Interface Type           = BROADCAST
Interface Cost           = 1
Router Priority           = 0
Transit Delay            = 1 sec
Retransmit Interval      = 5 sec
Hello Interval           = 10 sec
```

```

Dead Interval                = 40 sec
Interface State              = Down
Neighbor Count              = 0
Designated Router           = 0.0.0.0
Backup Designated Router    = 0.0.0.0
Interface Events            = 0
Authentication Type         = No-Authentication
Authentication Key          =

```

OSPF Interface Configuration for

10.3.2.1:

```

Interface Name              = gige1025
Admin Status                = Enable
Area Id                    = 0.0.0.0
Interface Type              = BROADCAST
Interface Cost              = 1
Router Priority             = 0
Transit Delay               = 1 sec
Retransmit Interval        = 5 sec
Hello Interval              = 10 sec
Dead Interval               = 40 sec
Interface State             = DROther
Neighbor Count              = 1
Designated Router           = 10.3.2.254
Backup Designated Router    = 0.0.0.0
Interface Events            = 2
Authentication Type         = No-Authentication
Authentication Key          =

```

OSPF Interface Configuration for

10.3.3.1:

```

Interface Name              = gige1026
Admin Status                = Enable
Area Id                    = 2.1.1.1
Interface Type              = BROADCAST
Interface Cost              = 1
Router Priority             = 0

```

---

## Routing Commands

Transit Delay	= 1 sec
Retransmit Interval	= 5 sec
Hello Interval	= 10 sec
Dead Interval	= 40 sec
Interface State	= Waiting
Neighbor Count	= 0
Designated Router	= 0.0.0.0
Backup Designated Router	= 0.0.0.0
Interface Events	= 3
Authentication Type	= Simple-Password
Authentication Key	= *****



## show ospf interface links

```
show ospf interface links
```

### Purpose

This command displays the OSPF used to build the router LSA.

### Command Mode

Operator or Administrator or Superuser

### Syntax Description

Parameter	Description
<i>interface_address</i>	The address of the interface.

### Related Commands

area-type, auth-key, auth-type, cost, disable, dead-interval, enable, hello-interval, retransmit-interval, transit-delay, show ospf area, show ospf debug, show ospf general, show ospf interface, show ospf links, show ospf lsdb, show ospf neighbor

### Example

The following example displays link settings.

```
MS# show ospf links
MS# show ospf 10.3.2.1 links
OSPF Links for Interface 10.3.2.1:
```

Address	Mask	Status	Cost
10.3.9.1	255.255.255.255	Enabled	0
10.3.21.1	255.255.255.0	Enabled	0
10.3.31.1	255.255.255.0	Enabled	0

## show ospf interface lsdb

```
show ospf interface lsdb [ls-type router | network |  
summary | asbr-summary | external | nssa-external]  
[ls-id address] [advertising-router address]  
[brief]
```

### Purpose

This command displays the OSPF Link State Database configuration.

### Command Mode

Operator or Administrator or Superuser

### Syntax Description

Parameter	Description
<i>interface_address</i>	The address of the interface.
<b>ls-type</b> router   network   summary   asbr-summary   external   nssa-external	Optional: The type of LSA
<b>ls-id</b> <i>address</i>	Optional: The IP address for the Link State ID.
<b>advertising-router</b> <i>address</i>	Optional: The IP address for the advertising router.
<b>brief</b>	Optional: Displays a summary of the LSDB table.

### Related Commands

area-type, auth-key, auth-type, cost, disable, dead-interval, enable, hello-interval, retransmit-interval, transit-delay, show ospf area, show ospf debug, show ospf general, show ospf interface, show ospf links, show ospf lsdb, show ospf neighbor

### Example

The following example displays LSDB settings.

MS# **show ospf 10.3.2.1 lsdb**

OSPF Link State Database for Instance  
10.3.2.1: (Detail)

Router LSAs (Area 0)

LSA ID	ADV Router	Age	Seq#	Chksum	
Links					
10.0.0.3	10.0.0.3	2370	0x80000002	0x7A6C	1
---- Links ----					
TRANS	10.1.3.8	10.1.3.9	0001		
10.3.2.1	10.3.2.1	2366	0x80000002	0xE497	4
---- Links ----					
TRANS	10.3.2.254	10.3.2.1	0001		
STUB	10.3.21.1	255.255.255.0	0000		
STUB	10.3.9.1	255.255.255.255	0000		
STUB	10.3.31.1	255.255.255.0	0000		
10.3.2.254	10.3.2.254	2361	0x80000004	0x1BA3	2
---- Links ----					
TRANS	10.3.2.254	10.3.2.254	0001		
TRANS	10.1.3.8	10.1.3.1	0001		
10.33.0.2	10.33.0.2	2370	0x80000002	0xE5C1	1
---- Links ----					
TRANS	10.1.3.8	10.1.3.8	0001		

Network LSAs (Area 0)

LSA ID	ADV Router	Age	Seq#	Chksum	
Links					
10.1.3.8	10.33.0.2	2362	0x80000002	0xC8DC	3
---- Links ----					
	10.33.0.2				
	10.3.2.254				
	10.0.0.3				
10.3.2.254	10.3.2.254	2367	0x80000001	0x57A4	2
---- Links ----					
	10.3.2.254				
	10.3.2.1				

## show ospf interface neighbor

```
show ospf interface neighbor address [brief]
```

### Purpose

This command displays neighbor information for the sub-interface.

### Command Mode

Operator or Administrator or Superuser

### Syntax Description

Parameter	Description
<i>interface_address</i>	The address of the interface.
<i>address</i>	Optional: The IP address for the neighbor.
<b>brief</b>	Optional: Displays summary neighbor configuration.

### Related Commands

area-type, auth-key, auth-type, cost, disable, dead-interval, enable, hello-interval, retransmit-interval, transit-delay, show ospf area, show ospf debug, show ospf general, show ospf interface, show ospf links, show ospf lsdb, show ospf neighbor

### Example

The following example displays neighbor settings.

```
MS# show ospf 10.3.2.1 neighbor
```

```
OSPF Neighbors for Interface 10.3.2.1:
```

```
(Detail)
```

```
Interface Name           = gige1025
Nbr IP Address           = 10.3.2.254
Nbr Router Id            = 10.3.2.254
```

```
Option                = O-0; DC-0;
                      EA-0; NP-0;
                      MC-1; E-1
State                 = NBR_FULL
Events                = 2
LSA ReTx QLen        = 0

DD Summary List (0 entries)
LS Request List (0 entries)
LS Request Re-transmission List (0 entries)
LS Update Re-transmission List (0 entries)
Delayed Ack List (0 entries)
```

## show rip statistics

```
show rip statistics [interface-name interface_name |  
global]
```

### Purpose

This command displays the RIP-v2 statistics for all sub-interfaces or the specified sub-interface or global RIP statistics settings.

### Command Mode

Operator or Administrator or Superuser

### Syntax Description

Parameter	Description
<b>interface</b> <i>interface_name</i>	Optional: Displays the RIP configuration for the specified interface.
<b>global</b>	Optional: Displays the global RIP statistics counters.

### Related Commands

show rip configuration, show rip statistics, auth-key, auth-type, status, timer, debug rip

### Example

The following examples display the RIP statistics.

```
MS# show rip statistics  
RIP Interface Statistics  
  
Interface Name          = gigethernet2/0  
Primary Interface Addr  = 10.3.1.1  
  
RcvBadPackets          = 00000000  
RcvBadRoutes           = 00000000
```

```
SentUpdates          = 00000000  
SentTrigUpdates     = 00000000
```

```
Interface Name       = gigethernet2/0.1  
Primary Interface Addr = 10.3.3.1
```

```
RcvBadPackets       = 00000000  
RcvBadRoutes        = 00000000  
SentUpdates         = 00000000  
SentTrigUpdates     = 00000000
```

```
Interface Name       = gigethernet2/0.2  
Primary Interface Addr = 10.3.4.1
```

```
RcvBadPackets       = 00000000  
RcvBadRoutes        = 00000000  
SentUpdates         = 00000000  
SentTrigUpdates     = 00000000
```

```
MS# show rip statistics global  
RIP Global Statistics
```

```
GlobalRouteChanges  = 0  
GlobalQueries       = 0
```

## status

```
status {enable | disable} interface-name name
```

### Purpose

This command enables or disables RIP for the specified sub-interface.

### Command Mode

Administrator or Superuser - config - rip

### Syntax Description

Parameter	Description
<b>enable   disable</b>	Specifies enable or disable function of the sub-interface.
<b>interface name</b>	The name of the sub-interface. Name is alphanumeric up to 20 characters.

### Related Commands

show rip configuration, show rip statistics, auth-key, auth-type, status, timer, debug rip

### Example

The following enables RIP.

```
MS# configure rip
MS(config-rip)# status enable interface-name
gigetherenet2/0.1
```



## transit-delay

```
transit-delay interval
```

### Purpose

This command specifies the delay in transmitting an LSA to an adjacent router on a sub-interface.

### Command Mode

Administrator or Superuser - config - ospf

### Syntax Description

Parameter	Description
<b>interval</b>	Number of seconds to transmit a link state update packet over subinterface. Valid Values are 0-3600. Default value is 5.

### Related Commands

area-type, auth-key, auth-type, cost, disable, dead-interval, enable, hello-interval, retransmit-interval, transit-delay, show ospf area, show ospf debug, show ospf general, show ospf interface, show ospf links, show ospf lsdb, show ospf neighbor

### Example

The following example sets the transit delay.

```
MS# configure ospf  
MS(config-ospf)# transit-delay 49
```

## timer

`timer seconds`

### Purpose

This command sets the global timer for RIP.

### Command Mode

Administrator or Superuser - config - rip

### Syntax Description

Parameter	Description
<code>timer seconds</code>	The number of seconds between RIP updates. Valid values are 10-65536.

### Related Commands

show rip configuration, show rip statistics, auth-key, auth-type, status, timer, debug rip

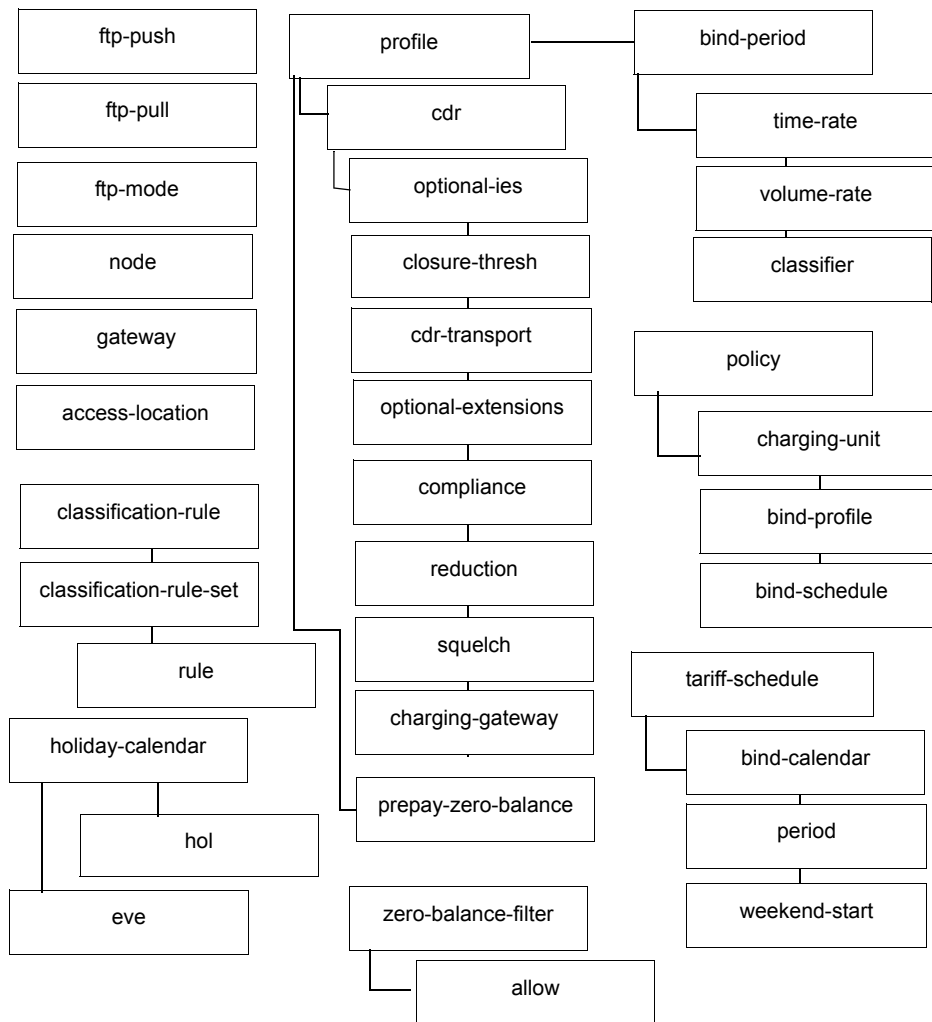
### Example

The following example sets the RIP timer.

```
MS# configure rip  
MS(config-rip)# timer 45
```

# Chapter 14: Charging Commands

The commands listed in this section configure charging parameters for the MS950



## In This Chapter

- access-location
- cdr
- classification-rule
- cdr-options
- charging
- charging-unit
- ftp-pull
- ftp-push
- holiday-calender
- gateway
- node
- period
- profile
- policy
- reduction
- tariff-schedule
- time-rate
- volume-rate
- zero-balance-filter

## access-location

GGSN SSN ~~CDMA~~

```
access-location ip ip_address mask netmask roaming-
group roaming-group [type sgsn | coa]
no access-lication ip_address netmask
```

### Purpose

The list of home SGSNs is used to identify whether the SGSN address signaled in the create-pdp-context or update-pdp-context is in the local network or some external network. A maximum of 20 home SGSN addresses can be configured to identify which subscribers are roaming. The no form of the command removes the SGSN from the list.

### Command Mode

Administrator or Superuser - config - charging

### Syntax Description

Parameter	Description
<b>ip-address</b> <i>ip_address</i>	The IPv4 address of the SGSN.
<b>mask</b> <i>netmask</i>	The IPv4 subnet mask of the SGSN.
<b>roaming-group</b> <i>group</i>	The name of the roaming group.
<b>type</b> <i>sgsn   coa</i>	The type of access-location. coa is care-of address.

### Related Commands

show access-location

### Example

```
MS# configure charging
MS(config-charging)# access-location ip-address
122.134.94.6 mask 255.255.255.255 type sgsn
roaming-group slagroup5
```

## allow

```
allow id id [ip-address ip_address] [netmask netmask]
        [protocol tcp | udp | icmp] [port port]
no sgsn ip_address netmask
```

### Purpose

This command specifies zero balance filter rules.

### Command Mode

Administrator or Superuser - config - charging - filter

### Syntax Description

Parameter	Description
<b>ip-address</b> <i>ip_address</i>	The IPv4 address for the Internet-side remote node.
<b>netmask</b> <i>mask</i>	The IPv4 subnet mask to be applied to the Internet-side node's IP address.
<b>protocol</b> <i>tcp   udp   icmp</i>	Optional: The type of protocol.
<b>port</b> <i>port</i>	Optional: The UDP destination port on the primary server. Valid values are 1-65535.

### Related Commands

allow, zero-balance-filter, period, prepay-zero-balance-action, show charging zero-balance-filter, show charging prepay-rates

### Example

```
MS# configure
MS(config-charging)# zero-balance-filter zbf1
MS(config-charging-filter)# allow id 1 ip-address
10.0.0.0 netmask 255.0.0.0
```

## **bind-period**

```
bind-period name  
no bind-period name
```

### **Purpose**

This command names a period and allows entry of period-related commands. It is used to bind differential charging rules and prepaid rates to tariff periods. The bind operation is effective for the given period. The profile must be bound to a tariff schedule that contains the periods.

Before you can enter this command, you must bind a profile to a policy, the policy to a schedule, and a period to a schedule. The no form of the commands deletes the association.

### **Command Mode**

Administrator or Superuser - config - charging - profile - period

### **Syntax Description**

<b>Parameter</b>	<b>Description</b>
<i>name</i>	The name of the period. Alphanumeric up to 32 characters.

### **Related Commands**

classifier, time-rate, volume-rate, prepay-zero-balance-action

### **Example**

The following example names a period.

```
MS# configure charging profile diff1  
MS(config-charging-pro)# bind-period per1  
MS(config-charging-pro-per)#
```

## bind-calendar

```
bind-calendar name  
no bind-calendar name
```

### Purpose

This command binds the holiday calendar to the tariff schedule.

### Command Mode

Administrator or Superuser - config - charging - pol - tar

### Syntax Description

Parameter	Description
<i>name</i>	The name of the calendar.

### Related Commands

holiday-calendar, eve, hol, show charging holiday-calendar

### Example

The following examples sets December 25 as a holiday.

```
MS# configure charging  
MS(config-charging)# policy ppayPlanBPolicy  
MS(config-charging-pol)# tariff-schedule sked1  
MS(config-charging-pol-tar)# bind-calendar holl
```

## bind-profile

```
bind-profile name [charging-characteristics n | h | f
| p | z] {roaming-group name} {access-network gprs
| wlan | both}
no bind-profile name
```

### Purpose

This command binds a charging profile to a policy and selects its charging characteristics, access network, and roaming group.

### Command Mode

Administrator or Superuser - config - charging - pol

### Syntax Description

Parameter	Description
<i>name</i>	The name of the profile. Alphanumeric up to 32 characters.
charging-characteristics <i>n</i>   <i>h</i>   <i>f</i>   <i>p</i>   <i>z</i>	Charging characteristics flags. <i>n</i> is normal, <i>h</i> is hot, <i>f</i> is flat, <i>p</i> is prepaid, <i>z</i> states that no charging characteristic IE is received. Multiple characteristics can be used in conjunction. They are listed together with no spaces. Default is nhfpz.
access-network <i>gprs</i>   <i>wlan</i>   <i>both</i>	The type of access network.
roaming-group <i>group</i>	The name of the roaming group. Alphanumeric up to 32 characters.

### Related Commands

policy, charging-unit, profile, tariff-schedule, show policy



## Example

The following example sets prepaid charging rates.

```
MS# configure charging
MS(config-charging)# policy ppayPlanBPolicy
MS(config-charging-pol)# bind-profile wlan charging-
characteristics n access-network wlan roaming-group
roam1
```

## **bind-schedule**

```
bind-schedule name  
no bind-schedule
```

### **Purpose**

This command binds a tariff schedule to a policy. All profiles bound to a policy share the tariff schedule. The no form of the command clears the binding of the tariff schedule from the policy.

### **Command Mode**

Administrator or Superuser - config - charging - policy

### **Syntax Description**

<b>Parameter</b>	<b>Description</b>
<i>name</i>	The name of the schedule. Alphanumeric up to 32 characters.

### **Related Commands**

tariff-schedule, holiday-calendar, weekend-start, show tariff-schedule

### **Example**

The following example sets a prepaid charging tariff period.

```
MS# configure charging  
MS(config-charging)# policy ppayPlanBPolicy  
MS(config-charging-pol)# bind-schedule sched1
```

## cdr

`cdr`

### Purpose

This command enters CDR configuration mode and allows you to enter CDR commands.

### Command Mode

Administrator or Superuser config - charging - profile

### Syntax Description

No parameters

### Related Commands

`cdr`, `closure-thresh`, `compliance`, `cdr-transport`, `generation`, `optional-ext`, `optional-ies`, `reduction`, `squelch`, `node`, `charging-gateway`, `show charging-gateway`, `charging statistics`

### Example

The following example enters charging configuration mode.

```
MS# configure charging
MS(config-charging)# profile prof1 prepay
MS(config-charging-prof)# cdr
MS(config-charging-prof-cdr)#
```

## charging-gateway

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```
charging-gateway name priority priority  
no charging-gateway name
```

### Purpose

This command binds a GTPP charging gateway to a profile.

### Command Mode

Administrator or Superuser - config - charging - profile - cdr

### Syntax Description

Parameter	Description
<i>name</i>	The name of the charging gateway. Alphanumeric up to 32 characters.
<b>priority</b> <i>priority</i>	The priority of the charging gateway. Valid values are 1-16.

### Related Commands

profile

### Example

The following example sets the sets the charging gateway.

```
MS# configure charging profile diff1  
MS (config-charging-pro) # cdr  
MS (config-charging-pro-cdr) # charging-gateway cg1  
                                  priority 1
```

## charging-unit

```
charging-unit {time time_charging_unit} {uplink
uplink_charging_unit} {downlink
downlink_charging_unit}
no charging-unit
```

### Purpose

This command defines the minimum amount of service that incurs a charge. Charging units are expressed as connect time or uplink/downlink data volume. The no version of the command reverts to system default values of the charging units.

### Command Mode

Administrator or Superuser - config - charging - policy

### Syntax Description

Parameter	Description
<b>time</b>	The number of seconds. Valid values are 60-3600. Entry is suggested in multiple of 60. Default is 0.
<b>uplink</b>	A power of two number of kilobytes (1024 bytes). Valid values are 1, 2, 4, 8, 16, 32, 64, 128, 256, 512, and 1024. Default is 0.
<b>downlink</b>	A power of two number of kilobytes (1024 bytes). Valid values are 1, 2, 4, 8, 16, 32, 64, 128, 256, 512, and 1024. Default is 0.

### Related Commands

policy, show charging-unit

### Example

The following example sets prepaid charging unit parameters.

---

## Charging Commands

```
MS# configure charging  
MS(config-charging)# policy ppayPlanBPolicy  
MS(config-charging-pol)# charging-unit time 1800  
                  uplink 32 downlink 256
```

## classifier

```
classifier base base [step step] [promotion promotion]
no classifier
```

### Purpose

This command binds a set of classification rules and other parameters to the tariff period. The rules are ordered promotion first, step second, and base third. The total number of rules cannot exceed 32. The no form of the command unbinds the tariff period from any packet classification. All packets are counted against the default bucket.

### Command Mode

Administrator or Superuser - config - charging - profile

### Syntax Description

Parameter	Description
<b>base</b> <i>base</i>	The name of the base classification rule set. Alphanumeric up to 32 characters.
<b>step</b> <i>step</i>	The name of the step-charging classification rule set. Alphanumeric up to 32 characters.
<b>promotion</b> <i>promotion</i>	The name of the promotional charging classification rule set. Alphanumeric up to 32 characters.

### Related Commands

period, classification-rule, classification-rule-set, show charging classification-rule, show charging classification-rule-xref

### Example

The following example sets binds the period to classification rules.

```
MS# configure charging profile diff1
MS (config-charging-pro) # bind-period p1
```

---

## Charging Commands

```
MS(config-charging-pro-per)# classifier base crs1 step  
step0 promotion promol
```



## classification-rule

```

classification-rule name [ip-address ip_address]
    [netmask mask] [protocol tcp | udp | icmp] [tos
    tos] [port port]
no classification-rule name

```

### Purpose

This command configures a named packet classification rule. The no form of the command deletes the rule.

**Note:** These rules are order dependent. The first rule in the list takes priority.

### Command Mode

Administrator or Superuser - config - charging

### Syntax Description

Parameter	Description
<i>name</i>	The name of the rule.
<b>ip-address</b> <i>ip_address</i>	Optional: The IP address of the destination router.
<b>netmask</b> <i>mask</i>	Optional: Network mask of the destination router.
<b>port</b> <i>port</i>	Optional: The UDP destination port on the primary server. Valid values are 1-65535.
<b>protocol</b> <b>tcp</b>   <b>udp</b>   <b>icmp</b>	Optional: The type of protocol.
<b>port</b> <i>port</i>	Optional: The UDP destination port on the primary server. Valid values are 1-65535.
<b>tos</b> <i>tos</i>	Optional: The type of service. Valid values are 0-7.

### Related Commands

period, classification-rule, classification-rule-set, show charging classification-rule, show charging classification-rule-xref

### Example

---

## Charging Commands

The following example creates classification rules.

```
MS# configure charging
MS(config-charging)# classification-rule name rule1
   ip-address 10.0.0.0 netmask 255.0.0.0
MS(config-charging)# classification-rule name rule2
   ip-address 203.15.22.0 netmask 255.255.255.0
   protocol tcp port 80
```

## classification-rule-set

```
classification-rule-set name {id id} [type base | step
| promotion]
no classification-rule-set name
```

### Purpose

This command creates set of classification rules. The rule set contains the IP header matching rules used to tag packets with a differential charging bucket. The no form of the command deletes the rule set.

### Command Mode

Administrator or Superuser - config - charging

### Syntax Description

Parameter	Description
<i>name</i>	The name of the rule set.
<i>id id</i>	The rule set numeric identifier. Valid values are 0-255.
<i>type base</i>   <i>step</i>   <i>promotion</i>	Optional: The type of rule-set.

### Related Commands

period, classification-rule, classification-rule-set, show charging classification-rule, show charging classification-rule-xref

### Example

The following example creates a classification rule set.

```
MS# configure charging
MS (config-charging) # classification-rule-set name crs1
id 37 type base
MS (config-charging-crs) #
```

## closure-thresh

```
closure-thresh [volume volume] [time-limit limit]  
               [sgsn-limit limit] [container-limit limit]  
no closure-thresh
```

### Purpose

This command specifies the thresholds to close CDRs and start transfer to the charging gateway. During FTP transfer, the CDR is written to the CDR file. During GTPP transfer, the CDR is sent directly to the charging gateway. The no form of the command removes the profile setting and resets the profile to normal default values.

### Command Mode

Administrator or Superuser - config - charging - profile - cdr

### Syntax Description

Parameter	Description
<b>volume</b> <i>volume</i>	Optional: The threshold value in bytes. Valid values are 0-4294967295. Default is 0, which disables volume-based closure.
<b>time-limit</b> <i>limit</i>	Optional: The maximum time, in minutes, that a CDR can remain open. Valid values are 1-480. Default is 0, which disables time-based closure.
<b>sgsn-limit</b> <i>limit</i>	Optional: The maximum number of SGSN changes permitted on a single CDR. Valid values are 1-32. Default is 0, which disables SGSN-based closure.
<b>container-limit</b> <i>limit</i>	Optional: The maximum number of volume containers allowed in a CDR. A volume container is a record that contains the packet counts for the uplink and downlink on a particular PDP context. Valid values are 1-32. Default is 0, which disables container-based closure.

## Related Commands

cdr, closure-thresh, compliance, cdr-transport, generation, optional-ext, optional-ies, reduction, squelch, node, charging-gateway, show charging-gateway, charging statistics

## Example

The following example specifies closure threshold values.

```
MS# configure charging profile diff1
MS(config-charging-pro)# cdr
MS(config-charging-pro)# closure-thresh volume 64000
time-limit 200 sgsn-limit 3 container-limit 4
```

## compliance

```
compliance rel97 | rel99 | rel14 [root-tag tag_number]
```

### Purpose

This command identifies the governing 3GPP spec for CDR transport and specifies the ASN.1 root tag number for charging servers. The no form of the command reverts to the default.

### Command Mode

Administrator or Superuser - config - charging - profile - cdr

### Syntax Description

Parameter	Description
rel97   rel99   rel14	The specification to use for CDRs. The full names of the specifications are Release'97 12.15, Release'99 32.015, and Release 4 32.215. Default is Release'99.
tag_number	The root tag number. Valid values are 0-255. Default is 161.

### Related Commands

cdr, closure-thresh, compliance, cdr-transport, generation, optional-ext, optional-ies, reduction, squelch, node, charging-gateway, show charging-gateway, charging statistics

### Example

The following example set compliance to Release 4.

```
MS# configure charging profile diffpro
MS(config-charging-pro)# cdr
MS(config-charging-pro)# compliance rel14 root-tag 173
```

## eve

```
eve {MM/DD}
no eve {MM/DD}
```

### Purpose

The evening definition for the holiday calendar.

### Command Mode

Administrator or Superuser - config - charging - holiday-calendar

### Syntax Description

Parameter	Description
<i>mm/dd</i>	Specifies a particular date as a holiday eve. Two-digit month of the year followed by two-digit day of the month.

### Related Commands

holiday-calendar, eve, hol, show charging holiday-calendar

### Example

The following example sets December 24 as a holiday eve.

```
TMS# configure charging
MS(config-charging)# holiday-calendar call
MS(config-charging-cal)# eve 12/24
```

## ftp-pull

```
ftp-pull {source-dir dir_name} [file-size bytes] {dir-size bytes} [pull-interval minutes]  
no ftp-pull
```

### Purpose

This command specifies the information for an FTP charging client to retrieve files from the MS950. The no form of the command disables FTP-Pull. FTP-Pull is the default charging mode for the MS950.

### Command Mode

Administrator or Superuser - config - charging

### Syntax Description

Parameter	Description
<b>source-dir</b> <i>dir_name</i>	The directory in which CDR files are to be stored, and from which they can be retrieved. Any text up to 40 characters. It must specify a directory that exists and is writable. Also, the internal drives (fs1: and fs2:) may not be used. The RAM disk (system:/cdr) or an NFS-mounted device may be used.
<b>file-size</b> <i>bytes</i>	Optional: The maximum file size in kilobytes. Valid values are 0-10000. Default is 1000.
<b>dir-size</b> <i>bytes</i>	Optional: The maximum directory size in kilobytes. Valid values are 0-10000. Default is 10000.
<b>pull-interval</b> <i>minutes</i>	Optional: The amount of time, in minutes, in which to close the CDR file. Valid values are 1-10. Default is 10.

### Related Commands

ftp-pull, ftp-push, cdr-transport, cdr, show charging ftp



## Example

The following example configures FTP-Pull.

```
MS# configure charging  
MS(config-charging)# ftp-pull source-dir system:/cdr  
                  file-size 200 dir-size 2000 pull-interval 8
```

## ftp-push

```
ftp-push {ip ip_address} {dest-dir dir_name} {user
user_name} {password password} [file-size bytes]
[dir-size bytes] [push-interval minutes] [retry-
interval seconds] [retransmit retries] [secondary]
[source-dir dir_name]
no ftp-push
```

### Purpose

This command specifies information about a FTP charging client, so that the mobile subscriber can push files to it. The no form of the command disables FTP-Push.

### Command Mode

Administrator or Superuser - config - charging

### Syntax Description

Parameter	Description
<b>dest-dir</b> <i>dir_name</i>	The destination directory on the remote server. Any text up to 40 characters.
<b>user</b> <i>user_name</i>	The user name on the remote server. Alphanumeric up to 20 characters.
<b>password</b> <i>password</i>	The user's password on the remote server. Alphanumeric up to 20 characters.
<b>file-size</b> <i>bytes</i>	Optional: The maximum file size in kilobytes. Valid values are 0-10000. Default is 1000.
<b>dir-size</b> <i>bytes</i>	Optional: The maximum directory size in kilobytes. Valid values are 0-10000. Default is 10000.
<b>ip</b> <i>ip_address</i>	The IPv4 address of the FTP charging server.
<b>retry-interval</b> <i>seconds</i>	Optional: The interval, in seconds, of retransmit events. Valid values are 5-180. Default is 30.
<b>push-interval</b> <i>minutes</i>	Optional: The interval, in minutes, of push events. Valid values are 1-10. Default is 10.

Parameter	Description
<b>retransmit</b> <i>retries</i>	Optional: The number of retransmit attempts. Valid values are 0-5. Default is 3.
<b>secondary</b>	Optional: Indicates that this is a secondary charging server.
<b>source-dir</b> <i>dir_name</i>	The directory in which CDR files are to be stored, and from which they can be retrieved. Any text up to 40 characters. It must specify a directory that exists and is writable. Also, the internal drives (fs1: and fs2:) may not be used. The RAM disk (system:/cdr) or an NFS-mounted device may be used.

## Related Commands

ftp-pull, ftp-push, cdr-transport, cdr, show charging ftp

## Example

The following example configures FTP-Push.

```
MS# configure charging
MS(config-charging)# ftp-push ip 192.168.20.34 dest-
dir /home/iv/cdr user iv password iv push-interval
1 file-size 1000 dir-size 100000
```

## ftp-mode

```
ftp-mode {off | push | pull}
```

### Purpose

This command configures the FTP transport mode.

### Command Mode

Administrator or Superuser - config - charging

### Syntax Description

Parameter	Description
off   push   pull	Indicates whether to execute FTP-Push or FTP-Pull.

### Related Commands

ftp-pull, ftp-push, cdr-transport, show charging ftp

### Example

The following example the FTP mode to Push.

```
MS# configure charging  
MS(config-charging-pro)# ftp-mode push
```

## cdr-transport

```
cdr-transport { ftp | gtp | none }
```

### Purpose

This command enables or disables FTP, GTP or no transport method for CDRs for the profile.

### Command Mode

Administrator or Superuser - config - charging - profile - cdr

### Syntax Description

Parameter	Description
<code>ftp   gtp   none</code>	The type of CDR transport.

### Related Commands

ftp-pull, ftp-push, cdr-transport, cdr, show charging ftp

### Example

The following example enables FTP transport for CDRs.

```
MS# configure charging profile diff1  
MS (config-charging-pro) # cdr  
MS (config-charging-pro-cdr) # cdr-transport ftp
```

## gateway

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```
gateway name ip-address ip_address [port port]
      [timeout seconds] [retransmit times] [path-echo-
      interval seconds] [path-retransmit retries]
no gateway name
```

### Purpose

This command specifies a GTPP charging gateway server to charge mobile subscribers as they enter an MS950 access point. The no form of the command deletes the gateway.

### Command Mode

Administrator or Superuser - config - charging

### Syntax Description

Parameter	Description
<b>ip-address</b> <i>ip_address</i>	The IPv4 address in dotted-decimal format for the primary charging server.
<b>port</b> <i>port</i>	Optional: The UDP destination port on the primary server. Valid values are 1-65535. Default is 3386.
<b>timeout</b> <i>seconds</i>	Optional: Time, in seconds, between retries. Valid values are 1-255. Default is 5.
<b>retransmit</b> <i>seconds</i>	Optional: Number of retries. Valid values are 1-255. Default is 3.
<b>path-retransmit</b> <i>retries</i>	The number of times the MS950 tries before it sends the echo request. Valid values are 1-10. Default is 3.
<b>path-echo-interval</b> <i>seconds</i>	The number of seconds the MS950 waits before it sends the echo request. Valid values are 60-65535. Default is 300.

## **Related Commands**

none

## **Example**

The following example configures the charging gateway.

```
MS# configure charging  
MS(config-charging)# gateway charge1 ip-address  
                  128.89.0.112 port 5001
```

## holiday-calendar

```
holiday-calendar name  
no holiday-calendar name
```

### Purpose

The holiday calendar defines the days of the year that are to be treated as holidays and holiday eves. The no version deletes all holidays and holiday eves from the calendar.

### Command Mode

Administrator or Superuser - config - charging

### Syntax Description

Parameter	Description
<i>name</i>	The name of the calendar.

### Related Commands

holiday-calendar, eve, hol, show charging holiday-calendar

### Example

The following examples sets December 25 as a holiday.

```
MS# configure charging  
MS (config-charging) # holiday-calendar cal1  
MS (config-charging-cal) #
```



## hol

```
hol {MM/DD}  
no hol {MM/DD}
```

### Purpose

The holiday definition for the holiday calendar. The no form of the command removes the holiday setting.

### Command Mode

Administrator or Superuser - config - charging - holiday-calendar

### Syntax Description

Parameter	Description
<i>mm/dd</i>	Specifies a particular date as a holiday. Two-digit month of the year followed by two-digit day of the month.

### Related Commands

holiday-calendar, eve, hol, show charging holiday-calendar

### Example

The following examples sets December 25 as a holiday.

```
MS# configure charging  
MS(config-charging)# holiday-calendar cal1  
MS(config-charging-cal)# hol 12/25
```

## list

`list`

### Purpose

This command lists the current settings under the current command mode.

### Command Mode

Administrator or Superuser - config - charging - classification-rule-set

Administrator or Superuser - config - charging - holiday-calendar

Administrator or Superuser - config - charging - classification-rule-set

Administrator or Superuser - config - charging - policy

Administrator or Superuser - config - charging - profile

Administrator or Superuser - config - charging - profile - cdr

Administrator or Superuser - config - charging - profile - period

Administrator or Superuser - config - charging - tariff-schedule

Administrator or Superuser - config - charging - zero-balance-filter

### Syntax Description

No parameters

### Related Commands

classification-rule-set, holiday-calendar, classification-rule-set, policy, profile, cdr, period, tariff-schedule, zero-balance-filter

## Example

The following example displays the specified charging profile.

```
MS# configure charging profile profile123 postpay
MS(config-charging-prof)# list
Profile : profile123
Profile type : Postpay
Zero Balance Action:
Action : Terminate
Poll interval (secs) : 120
Retries : 3
No bound gateways.
3GPP Compliance : Rel99
Root Tag : 255
Cdr-transport : None
Reduction : Off
Squelch : Off
Optional-IEs:
Apn : Off
Apn-selection-mode : Off
Charging-char-selection-mode : Off
Diagnostics : Off
Dynamic-address-flag : Off
Extensions : Off
Local-sequence-no : Off
Msisdn : Off
Network-initiated : Off
Node-id : Off
Pdp-address : Off
Pdp-type : Off
Volume-list : Off
Optional-extensions:
Access-network : Off
Nai : Off
Policy-name : Off
Profile-name : Off
Promotion-id : Off
Roaming-group : Off
Step-name : Off
CDR Closure Thresholds:
Container-limit : 4
Sgsn-limit : 1
```

---

## Charging Commands

Time-limit (minutes) : 0  
Volume-limit (KBtyes) : 0

## node

GGSN ~~SSN~~ ~~CDMA~~

```
node {id string} {mcc number} {mnc number}
```

### Purpose

This command specifies MS950 node identification.

### Command Mode

Administrator or Superuser - config - charging

### Syntax Description

Parameter	Description
<i>id string</i>	The mobile node ID. The ID can be the DNS domain name of MS950 or another identifier. Any text up to 40 characters.
<i>mcc number</i>	The mobile country code. Numeric up to 3 characters.
<i>mnc number</i>	The mobile network code. Numeric up to 3 characters.

### Related Commands

cdr, closure-thresh, compliance, cdr-transport, generation, optional-ext, optional-ies, reduction, squelch, node, charging-gateway, show charging-gateway, charging statistics

### Example

The following example specifies the charging node.

```
MS# configure charging
MS(config-charging)# node id www.megisto.com mcc 234
mnc 456
```

## optional-extensions

```
optional-extensions [policy-name on | off] [profile-  
name on | off] [access-network on | off] [roaming-  
group on | off] [nai on | off] [promotion-id on |  
off] [step-number on | off] [qos-negotiated on |  
off]  
no optional-extensions
```

### Purpose

This command specifies whether to include a variety of optional information elements in CDRs generated by the system. The no form of the command removes the configuration of CDR fields for the profile.

### Command Mode

Administrator or Superuser - config - charging - profile - cdr

### Syntax Description

Parameter	Description
<b>policy-name on   off</b>	Optional: Turns policy ID field on or off for the CDR. Default value is off.
<b>profile-name on   off</b>	Optional: Turns profile ID field on or off for the CDR. Default value is off.
<b>access-network on   off</b>	Optional: Turns access network field on or off for the CDR. Default value is off.
<b>roaming-group on   off</b>	Optional: Turns roaming group field on or off for the CDR. Default value is off. Not supported in CDMA HA.
<b>nai on   off</b>	Optional: Turns NAI field on or off for the CDR. Default value is off.
<b>promotion -id on   off</b>	Optional: Turns promotion ID field selection on or off for the CDR. Default value is off.

Parameter	Description
<b>step-number on   off</b>	Optional: Turns step-number field on or off for the CDR. Default value is off.
<b>qos-negotiated on   off</b>	Optional: Turns QoS negotiated field on or off for the CDR. Default value is off. Not supported in CDMA HA.

## Related Commands

cdr, closure-thresh, compliance, cdr-transport, generation, optional-ext, optional-ies, reduction, squelch, node, charging-gateway, show charging-gateway, charging statistics

## Example

The following example sets CDR extensions.

```
MS# configure charging profile diff1
MS (config-charging-pro) # cdr
MS (config-charging-pro-cdr) # optional-extensions
policy-name on profile-name on
```

## optional-ies

```
optional-ies [network-initiated on | off] [apn on |  
off] [pdp-type on | off] [pdp-address on | off]  
[dynamic-address-flag on | off] [volume-list on |  
off] [diagnostics on | off] [extensions on | off]  
[msisdn on | off] [apn-selection-mode on | off]  
[node-id on | off] [local-sequence-number on | off]  
[charging-char-selection-mode on | off]  
no optional-ies
```

### Purpose

This command specifies whether to include a variety of optional information elements in CDRs generated by the system. The no form of the command removes the configuration of CDR fields for the APN.

### Command Mode

Administrator or Superuser - config - charging - profile - cdr

### Syntax Description

Parameter	Description
<b>network-initiated on   off</b>	Optional: Turns network-initiated field on or off for the CDR. Default value is off.
<b>apn on   off</b>	Optional: Turns APN field on or off for the CDR. Default value is off.
<b>pdp-type on   off</b>	Optional: Turns pdp-type field on or off for the CDR. Default value is off. Not supported in CDMA HA.
<b>pdp-address on   off</b>	Optional: Turns pdp-address field on or off for the CDR. Default value is off. Not supported in CDMA HA.
<b>dynamic-address-flag on   off</b>	Optional: Turns dynamic-dress-flag field on or off for the CDR. Default value is off.
<b>volume-list on   off</b>	Optional: Turns volume-list filed selection on or off for the CDR. Default value is off.
<b>diagnostics on   off</b>	Optional: Turns diagnostics field on or off for the CDR. Default value is off.



Parameter	Description
<b>msisdn on   off</b>	Optional: Turns MSISDN field on or off for the CDR. Default value is off.
<b>apn-selection-mode on   off</b>	Optional: Turns APN selection field on or off for the CDR. Default value is off. Not supported in CDMA HA.
<b>msisdn on   off</b>	Optional: Turns MSISDN field on or off for the CDR. Default value is off. Not supported in CDMA HA.
<b>node-id on   off</b>	Optional: Turns node ID field on or off for the CDR. Default value is off.
<b>extensions on   off</b>	Optional: Turns extensions field on or off for the CDR. Default value is off.
<b>local-sequence-number on   off</b>	Optional: Turns local sequencing field on or off for the CDR. Default value is on.
<b>charging-char - selection-mode on   off</b>	Optional: Turns charging-char - selection-mode field on or off for the CDR. Default value is on.

## Related Commands

cdr, closure-thresh, compliance, cdr-transport, generation, optional-ext, optional-ies, reduction, squelch, node, charging-gateway, show charging-gateway, charging statistics

## Example

The following example sets CDR options.

```
MS# configure charging
MS(config-charging-pro)# cdr
MS(config-charging-pro-cdr)# optional-ies msisdn on
apn-selection-mode on node-id on local-sequence-
number off
```

## period

```
period period_name {wkday | wkend1 | wkend2 | hol |  
  eve} start-time start_time end-time end_time  
no period period_name
```

### Purpose

The tariff-period associates a calendar day type with a time span and a name. For each of the five supported day types, 24-hour days are divided into one, two, three, or four tariff periods. The no form of this command deletes the named tariff-period.

### Command Mode

Administrator or Superuser - config - charging - tar

### Syntax Description

Parameter	Description
<i>period_name</i>	A string identifier for the tariff period. Alphanumeric up to 32 characters.
<b>wkday</b>   <b>wkend1</b>   <b>wkend2</b>   <b>hol</b>   <b>eve</b>	The day type. wkend1 is Saturday and wkend2 is Sunday, unless otherwise specified. See “weekend-start” on page 14-69.
<b>start-time</b> <i>start_time</i>	Start time of the tariff period for the given day type. A time string of the form HH24:MM. Valid values are 00:00-23:59.
<b>end-time</b> <i>end_time</i>	End time of the tariff period for the given day type. A time string of the form HH24:MM. Valid values are 00:00-23:59. The end time must be greater than the start time. If end time is specified as 00:00, it is considered 24:00.

### Related Commands

tariff-schedule, holiday-calendar, weekend-start, show tariff-schedule

## Example

The following example sets a prepaid charging tariff period.

```
MS# configure charging
MS(config-charging# tariff-schedule sched1
MS(config-charging-tar)# period wkdayNight wkday
start-time 00:00 end-time 07:59
```

### policy

```
policy name  
no policy name
```

#### Purpose

This command creates a charging policy and allows entry of policy-related commands that govern the charging behavior for a subscriber.

#### Command Mode

Administrator or Superuser - config - charging

#### Syntax Description

Parameter	Description
<i>name</i>	The name of the charging policy. Alphanumeric up to 32 characters.

#### Related Commands

policy, charging-unit, profile, tariff-schedule, show policy

#### Example

The following example sets prepay charging rates.

```
MS# configure charging  
MS(config-charging)# policy ppayPlanBPolicy  
MS(config-charging-pol)#
```

## prepay-zero-balance-action

```
prepay-zero-balance-action terminate | discard |
  filter | continue [filter name] [poll-interval
  seconds] [retries number]
no prepay-zero-balance-action
```

### Purpose

This command defines the behavior after the prepaid balance is exhausted. The no form of the command performs the terminates the connection.

### Command Mode

Administrator or Superuser - config - charging - profile

### Syntax Description

Parameter	Description
<b>terminate   discard   filter   continue</b>	The type of action to take. Terminate ends the session immediately. Discard deletes all subscriber data packets. Filter deletes all subscriber data packets that fail to match a filter rule. If discard is chosen, then the MS950 polls the RADIUS prepaid system at the specified interval and retries the specified times. If the credit is not recharged within the interval, then the session is terminated. Default is terminate.
<b>filter name</b>	The name of the zero-balance filter. Alphanumeric up to 32 characters.
<b>poll-interval seconds</b>	The amount of time for credit reauthorization. Valid values are 60-300. Default is 120.
<b>retries number</b>	The number of times to attempt credit reauthorization. Valid values are 1-5. Default is 3.

### Related Commands

allow, zero-balance-filter, period, prepay-zero-balance-action, show charging zero-balance-filter, show charging prepay-rates

## Example

The following example sets the zero balance action to filter.

```
MS# configure charging profile diff1  
MS (config-charging-pro)# prepay-zero-balance-action  
    filter filter-name zbf1 poll-interval 180 retries 3
```

## profile

```
profile name post | prepay | differential | prepay-
differential]
no profile name
```

### Purpose

This command creates a charging profile. The profile becomes a container that consists of many charging characteristics. As many as 256 profiles can be defined. Profiles are bound to policies, which provide charging behavior to subscribers.

### Command Mode

Administrator or Superuser - config - charging

### Syntax Description

Parameter	Description
<i>name</i>	The name of the profile. Alphanumeric up to 32 characters.
post   prepay   differential   prepay-differential	The type of charging profile.

### Related Commands

cdr, period, profile

### Example

The following example creates and names a profile.

```
MS# configure charging
MS(config-charging)# profile prof1 prepay
```

## reduction

```
reduction
no reduction
```

### Purpose

This command enables or disables the generation of reduced-partial CDRs. Reduced-partial CDRs are a 3GPP Release 4 feature. The charging gateway must support this feature for reporting some information elements in the first CDR only. Subsequent partial CDRs do not contain the IEs unless they have changed. The no form of the command disables the feature.

### Command Mode

Administrator or Superuser - config - charging - profile - cdr

### Syntax Description

No parameters

### Related Commands

cdr, closure-thresh, compliance, cdr-transport, generation, optional-ext, optional-ies, reduction, squelch, node, charging-gateway, show charging-gateway, charging statistics

### Example

The following example enables reduction.

```
MS# configure charging profile diff1
MS(config-charging-pro)# cdr
MS(config-charging-pro)# reduction
```



## rule

```
rule name {bucket number} [index number]
no rule name
```

### Purpose

This command creates a classification rule and associates with a differential charging bucket. The no form of the command deletes the rule.

### Command Mode

Administrator or Superuser - config - charging - crs

### Syntax Description

Parameter	Description
<i>name</i>	The name of the rule set.
<i>bucket number</i>	The bucket number is used to count and report traffic. Valid values are 0-7.
<i>index number</i>	Optional: An index number. Valid values are 0- 31.

### Related Commands

period, classification-rule, classification-rule-set, show charging classification-rule, show charging classification-rule-xref

### Example

The following example binds a classification rule to a rule set and bucket.

```
MS# configure charging
MS(config-charging)# classification-rule-set name crs1
    id 37 type base
MS(config-charging-crs)# rule rul1 bucket 1
MS(config-charging-crs)# rule rul5 bucket 5 index 17
```

## show charging charging-gateway

GGSN ~~SSN~~ ~~CDMA~~

```
show charging charging-gateway [name name] [profile
                               name]
```

### Purpose

This command displays the all charging gateways or the one specified.

### Command Mode

Operator or Administrator or Superuser

### Syntax Description

Parameter	Description
<b>name</b> <i>name</i>	Optional: The name of the desired gateway. Alphanumeric up to 32 characters.
<b>profile</b> <i>name</i>	Optional: The name of the desired profile. Alphanumeric up to 32 characters.

### Related Commands

cdr, closure-thresh, compliance, cdr-transport, generation, optional-ext, optional-ies, reduction, squelch, node, charging-gateway, show charging-gateway, charging statistics

### Example

The following example displays the charging-gateway.

```
MG# show charging charging-gateway
```

```
Gateway IP Address Port TO RTx PRTx Echo
Status
```

```
-----
gateway123 172.16.2.0 234 5 3 3 300 dead
-----
```

```
Number of gateways = 1
MS# show charging charging-gateway gateway123
Gateway : gateway123
IP Address : 172.16.2.0
Port : 234
Timeout (secs) : 5
Retransmit : 3
Path retransmit : 3
Path echo interval (secs) : 300
Status : dead
```

## show charging classification-rule

```
show charging classification-rule [name]
```

### Purpose

This command displays all rules or the specified rule.

### Command Mode

Operator or Administrator or Superuser

### Syntax Description

Parameter	Description
<i>name</i>	Optional: The desired rule name. Alphanumeric up to 32 characters.

### Related Commands

period, classification-rule, classification-rule-set, show charging classification-rule, show charging classification-rule-xref

### Example

The following example displays classification rules.

```
MS# show charging classification-rule rule123
IP Address Netmask Port Pro TOS Rule
-----
12.56.3.0 255.255.255.0 231 6 * rule123
```

## show charging classification-rule-xref

```
show charging classification-rule-xref [rule name]
```

### Purpose

This command displays a rule to rule-set cross-reference or a cross reference to all rules.

### Command Mode

Operator or Administrator or Superuser

### Syntax Description

Parameter	Description
<code>rule name</code>	Optional: The desired rule name. Alphanumeric up to 32 characters.

### Related Commands

period, classification-rule, classification-rule-set, show charging classification-rule, show charging classification-rule-xref

### Example

The following example displays rule cross references.

```
MS# show charging classification-rule-xref rule123
Sets referencing rule123
CRS_PROMO
```

## show charging ftp

```
show charging ftp
```

### Purpose

This command displays settings for FTP-related CDRs.

### Command Mode

Operator or Administrator or Superuser

### Syntax Description

No parameters

### Related Commands

ftp-push, ftp-pull, cdr-transport

### Example

The following example displays FTP configuration.

```
MS# show charging ftp
FTP
```

## show charging holiday-calendar

```
show charging holiday-calendar [name]
```

### Purpose

This command displays all calendars or the specified calendar.

### Command Mode

Operator or Administrator or Superuser

### Syntax Description

Parameter	Description
<i>name</i>	Optional: The desired calendar name. Alphanumeric up to 32 characters.

### Related Commands

holiday-calendar, eve, hol, show charging holiday-calendar

### Example

The following example displays the holiday calendar.

```
MS# show charging holiday-calendar
Configured Holiday Calendars:
holicy123

MS# show charging holiday-calendar holicy123
Month Day Day Type
-----
22    12  Holiday
-----
```

## show charging policy

```
show charging policy [name name] [apn name]
```

### Purpose

This command displays all classifiers or the specified classifier.

### Command Mode

Operator or Administrator or Superuser

### Syntax Description

Parameter	Description
<b>name</b> <i>name</i>	Optional: The desired policy name. Alphanumeric up to 32 characters.
<b>apn</b> <i>name</i>	Optional: The desired APN name. Alphanumeric up to 32 characters.

### Related Commands

policy, charging-unit, profile, tariff-schedule, show policy

### Example

The following example displays the charging policy.

```
MS# show charging policy
Configured Charging Policies:
Policy1
Prepaid
policy123
policy_qz

MS# show charging policy Policy1
Policy : Policy1
Bound schedule : TSch1
```



```
Block offnet access : Off
Charging units:
Time : 100
Downlink : 2
Uplink : 1
Profile ChgChrIE Access Roaming Group
```

```
-----
Profile1 h GPRS LOCAL
Profile1 h WLAN LOCAL
Profile1 f GPRS LOCAL
Profile1 f WLAN LOCAL
Profile1 p GPRS LOCAL
Profile1 p WLAN LOCAL
Profile1 n GPRS LOCAL
Profile1 n WLAN LOCAL
Profile1 z GPRS LOCAL
Profile1 z WLAN LOCAL
-----
```

## show charging prepay-rates

```
show charging prepay-rates profile_name [period-name
name]
```

### Purpose

This command displays rating information by profile.

### Command Mode

Operator or Administrator or Superuser

### Syntax Description

Parameter	Description
<i>profile_name</i>	Optional: The desired profile name. Alphanumeric up to 32 characters.
<b>period-name</b> <i>name</i>	Optional: The desired period name. Alphanumeric up to 32 characters.

### Related Commands

profile, period

### Example

The following example displays charging prepay rates.

```
MS# show charging prepay-rates profile123
Profile : profile123
Period : periodTwo
ID# Time Uplink Downlink Roaming Group
-----
0 0 0 0 roam1
1 0 0 0 home
2 0 0 0 roam2
3 0 0 0 home2
```

## show charging access-location

GGSN SSN ~~CDMA~~

```
show charging access-location roaming_group
```

### Purpose

This command displays SGSNs by roaming group.

### Command Mode

Operator or Administrator or Superuser

### Syntax Description

Parameter	Description
<i>roaming_group</i>	The name of the desired roaming group. Alphanumeric up to 32 characters.

### Related Commands

sgsn

### Example

The following example displays access-locations in the roaming group.

```
MS# show charging access-location roam1
```

## show charging statistics

`show charging statistics`

### Purpose

This command displays charging statistics for the APN.

### Command Mode

Operator or Administrator or Superuser

### Syntax Description

Parameter	Description
<i>apn_name</i>	The name of the desired APN. Alphanumeric up to 32 characters.

### Related Commands

`cdr`, `closure-thresh`, `compliance`, `cdr-transport`, `generation`, `optional-ext`, `optional-ies`, `reduction`, `sqlch`, `node`, `charging-gateway`, `show charging-gateway`, `charging statistics`, `profile`, `period`, `tariff-schedule`

### Example

The following example displays charging statistics.

```
MS# show charging statistics
```

```
Charging Statistics
```

```
Data Record Transmit Requests           : 0
Data Record Transmit Responses          : 0
Echo Requests Received                   : 0
Echo Requests Transmitted                : 0
Echo Responses Received                  : 0
Echo Responses Transmitted               : 0
Node Alive Requests Received             : 0
```

Node Alive Responses Transmitted	: 0
Redirection Requests Received	: 0
Redirection Responses Transmitted	: 0
CDRs Dropped Due to Unavailable CGF	: 0

## show charging tariff-schedule

```
show charging tariff-schedule name
```

### Purpose

This command displays a tariff schedule.

### Command Mode

Operator or Administrator or Superuser

### Syntax Description

Parameter	Description
<i>name</i>	The name of the desired tariff schedule. Alphanumeric up to 32 characters.

### Related Commands

tariff-schedule, holiday-calendar, weekend-start, show tariff-schedule

### Example

The following example displays the tariff schedule.

```
MS# show charging tariff-schedule TSch1
```

```
Schedule          : TSch1
Bound calendar    : None
Weekend start     : Saturday
```

```
Period            Start End   Day type
-----
Period1           00:00 00:00 Weekday
Period2           00:00 00:00 Weekend1
Period3           00:00 00:00 Weekend2
```

## show charging unit

```
show charging unit policy_name
```

### Purpose

This command displays charging unit information by policy.

### Command Mode

Operator or Administrator or Superuser

### Syntax Description

Parameter	Description
<i>policy_name</i>	The name of the desired policy. Alphanumeric up to 32 characters.

### Related Commands

policy, charging-unit

### Example

The following example displays the charging-unit.

```
MS# show charging charging-unit Policy1
```

```
Policy          : Policy1
```

```
Charging units:
```

```
Time           : 100
```

```
Downlink       : 2
```

```
Uplink         : 1
```

```
zbf_qz
```

```
Id   Address           Mask           Port   Protocol
-----
0 66.218.71.92      255.255.255.255      *      *
```

## show charging zero-balance-filter

```
show charging zero-balance-filter [name name]
```

### Purpose

This command displays information about all filters or the specified zero-balance filter.

### Command Mode

Operator or Administrator or Superuser

### Syntax Description

Parameter	Description
<i>name</i>	The name of the zero-balance filter. Alphanumeric up to 32 characters.

### Related Commands

allow, zero-balance-filter, period, prepay-zero-balance-action, show charging zero-balance-filter, show charging prepay-rates

### Example

The following example displays the zero-balance filter.

```
MS# show charging zero-balance-filter zbf_qz
```

```
Id      Address          Mask              Port  Protocol
-----
0 66.218.71.92    255.255.255.255  *      *
```



## squelch

```
squelch  
no squelch
```

### Purpose

This command enables or disables squelching of the generation of partial CDRs, so long as the context is idle and there has been no change (other than elapsed time) since the last partial CDR was generated. The no form of the command disables squelching.

### Command Mode

Administrator or Superuser - config - charging - profile - cdr

### Syntax Description

No parameters

### Related Commands

cdr, closure-thresh, compliance, cdr-transport, generation, optional-ext, optional-ies, reduction, squelch, node, charging-gateway, show charging-gateway, charging statistics

### Example

The following example enables squelching.

```
MS# configure charging profile diff1  
MS (config-charging-pro) # cdr  
MS (config-charging-pro) # squelch
```

## time-rate

```
time-rate time_rate {roaming-group group}  
no time-rate {roaming-group group}
```

### Purpose

This command binds a tariff period to a time rate and roaming group. This command is used only for prepaid charging. The no form of the commands deletes the association.

### Command Mode

Administrator or Superuser - config - charging - profile - period

### Syntax Description

Parameter	Description
<b>time-rate</b> <i>time_rate</i>	The number of credits to debit from the balance. Valid values are 0-255. Default is 0.
<b>uplink</b>	Optional: An integral number of credits per uplink charging unit. Valid values are 0-255 credits per unit.
<b>downlink</b>	Optional: An integral number of credits per downlink charging unit. Valid values are 0-255 credits per unit.
<b>roaming-group</b> <i>group</i>	The name of the bucket. Alphanumeric up to 32 characters.

### Related Commands

tariff-schedule, holiday-calendar, weekend-start, show tariff-schedule

### Example

The following example binds a rate to a period.

```
MS# configure charging profile diff1  
MS (config-charging-pro) # period wkdaypeak
```

```
MS(config-charging-pro-per)# time-rate rate 0 roaming-  
group slagroup5
```

## tariff-schedule

```
tariff-schedule name  
no tariff-schedule
```

### Purpose

This command creates a tariff schedule and allows entry of tariff schedule related commands. The no form of the command deletes the schedule.

### Command Mode

Administrator or Superuser - config - charging

### Syntax Description

Parameter	Description
<i>name</i>	The name of the schedule. Alphanumeric up to 32 characters.

### Related Commands

tariff-schedule, holiday-calendar, weekend-start, show tariff-schedule

### Example

The following example creates a charging tariff schedule.

```
MS# configure charging  
MS(config-charging)# tariff-schedule sked1  
MS(config-charging-tar)#
```

## volume-rate

```

volume-rate bucket number {uplink uplink_rate}
  {downlink downlink_rate} {roaming-group group}
no volume-rate bucket name {roaming-group group}

```

### Purpose

This command binds a tariff period and bucket to uplink and downlink volume rates. The binding applies to a single roaming state. This command applies only to prepaid charging. The no form of the command unbinds the association.

### Command Mode

Administrator or Superuser - config - charging - profile - period

### Syntax Description

Parameter	Description
<b>bucket</b> <i>number</i>	The number of the bucket. Valid values are 0-7. Valid only for prepay-differential profiles.
<b>uplink</b> <i>uplink_rate</i>	An integral number of credits per uplink charging unit. Valid values are 0-255 credits per unit.
<b>downlink</b> <i>downlink_rate</i>	An integral number of credits per downlink charging unit. Valid values are 0-255 credits per unit.
<b>roaming-group</b> <i>group</i>	The name of the roaming group. Alphanumeric up to 32 characters.

### Related Commands

tariff-schedule, holiday-calendar, weekend-start, show tariff-schedule

### Example

The following example binds a period to volume rates.

```

MS# configure charging profile diff1

```

---

## Charging Commands

```
MS(config-charging-pro)# period wkdaypeak  
MS(config-charging-pro-per)# volume-rate bucket 0  
    uplink-rate 0 downlink-rate 0 roaming-group  
    slagroup5
```

## weekend-start

```
weekend-start { fri | sat }  
no weekend-start
```

### Purpose

This commands configures the start day for the weekend tariff-schedule, which defaults to a Saturday. The no form of the command deletes the weekend settings.

### Command Mode

Administrator or Superuser - config - charging - tariff-schedule

### Syntax Description

Parameter	Description
fri   sat	The day type. If friday is chosen, then the wkend1 value is Friday and the wkend2 value is Saturday. If saturday is chosen, then the wkend1 value is Saturday and the wkend2 value is Sunday.

### Related Commands

holiday-calendar, eve, hol, show charging holiday-calendar

### Example

The following example sets the weekend start day to Friday.

```
MS# configure charging  
MS(config-charging)# tariff-schedule sched1  
MS(config-charging-tar)# weekend-start fri
```

## zero-balance-filter

```
zero-balance-filter name  
no zero-balance-filter name
```

### Purpose

This command creates a prepaid zero-balance filter and allows configuration of filter parameters. The no form of the command deletes the filter.

### Command Mode

Administrator or Superuser - config - charging

### Syntax Description

Parameter	Description
<i>name</i>	The name of the filter.

### Related Commands

allow, zero-balance-filter, period, prepay-zero-balance-action, show charging zero-balance-filter, show charging prepay-rates

### Example

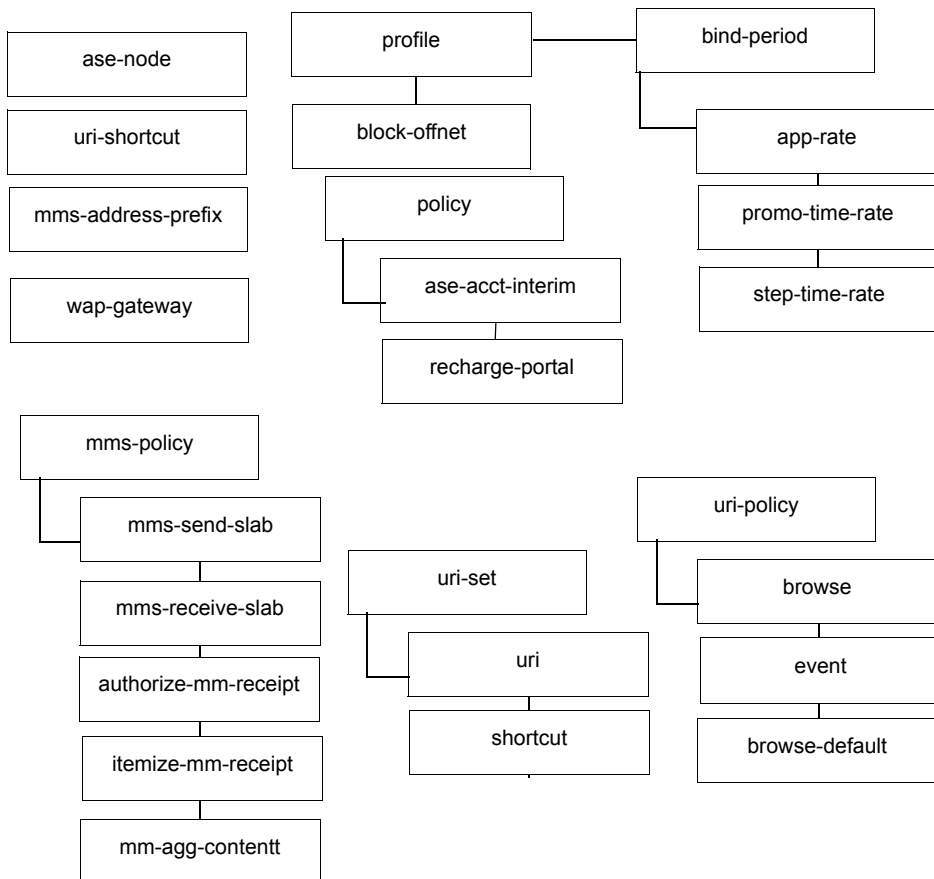
The following example creates a filter.

```
MS# configure charging  
MS(config-charging)# zero-balance-filter zbf1  
MS(config-charging-filter)#
```



# Chapter 15: Extension Shelf Charging Commands

The commands listed in this section configure charging parameters for the MS950-ES. They are accessible via the charging mode. These commands are available only if you have purchased the Extension Shelf and are performing differential billing.



## In This Chapter

- ase-node
- uri-shortcut
- mms-address-prefix
- mms-policy
- app-bearer-charge
- app-rates
- mm-agg-content
- mms-policy
- mms-send-slab
- mms-receive-slab
- block-offnet
- uri-rate
- browse default
- recharge-portal
- uri-set
- browse
- event
- uri-policy

## app-rates

```
app-rates [roaming-group | default] [mms-policy] [uri-  
policy] [bearer-rate rate] [default-tariff-period]  
no app-rates [roaming-group | default]
```

### Purpose

This command binds uri and mms charging policies to a tariff period and roaming group. The default option applies this configuration to all roaming-groups. To apply this policy to all unconfigured tariff periods, include the optional parameter default-tariff-period.

The no form of the command removes the specified application charging policies.

### Command Mode

Administrator or Superuser - config - charging - pro - per

### Syntax Description

Parameter	Description
<b>roaming-group   default</b>	The named roaming-group or default for all
<i>mms-policy</i>	The name of the MMS pre-rating policy
<i>uri-policy</i>	The name of the URI pre-rating policy
<b>bearer-rate rate</b>	The bearer rate in credits/Kb.
<b>[default-tariff-period]</b>	Apply this policy to all unconfigured tariff periods

### Related Commands

profile, bind-period, app-bearer-rate, app-rates, step-time-rate, promo-time-rate

### Example

The following example binds URI and MMS rates to the specified roaming group.

```
MS# configure charging  
MS(config-charging)# profile goldPro period wkdayEve  
MS(config-charging-pro-per)# app-rates roaming-group  
          rmGrp0 myMmsRates myUriRates  
MS(config-chg-pro-per)# app-rates roaming-group rmGrp0  
          myMmsRates myUriRates bearer-rate 1
```

## ase-acct-interim

```
ase-acct-interim [interval]
no acct-interim
```

### Purpose

This command configure the ASE interim accounting interval for the policy. The no form of the command disable interim accounting form the policy by the ASE.

### Command Mode

Administrator or Superuser - config - charging - pol

### Syntax Description

Parameter	Description
<code>interim</code>	The interim accounting interval in seconds. Valid values are 60-86400

### Related Commands

charging, policy

### Example

The following example configures the ASE accounting interim.

```
MS# configure charging policy goldPro
MS(config-chg-pol)# ase-acct-interim 7200
```

## ase-load-balancer

```
ase-load-balancer [r2i-vlan name] [i2r-vlan name]
no ase-load-balancer
```

### Purpose

This command enables the ASE load balancer feature which supports a redundant pair of ASE servers connected to a MS950Service Card.

The no form of the command disables the feature.

### Command Mode

Administrator or Superuser - config

### Syntax Description

Parameter	Description
<code>r2i-vlan name</code>	The previously configured name of the r2i VLAN. Both control and data traffic use this VLAN
<code>id name</code>	The previously configured name of the i2r VLAN. This VLAN is used to forward Internet to RAN traffic to the ASE blade.

### Related Commands

charging, ase-node, ase-load-balancer

### Example

The following example configures the ASE load balancer.

```
MS# configure ase-load-balancer r2i-vlan vlan1 i2r-
    vlan vlan2
MS(config)#
```

## ase-node

```
ase-node [ip-address address] id idname [i2r-ip-  
address address]  
no ase-node [ip-address address]
```

### Purpose

This command configures the IP address and name for the ASE blade. The no form removes identifying info for the ASE

### Command Mode

Administrator or Superuser - config

### Syntax Description

Parameter	Description
<b>ip-address</b> <i>address</i>	The IP Address of the node
<b>id</b> <i>name</i>	The string name of the MS320 (32 characters max)
<b>i2r-ip-address</b> <i>address</i>	A secondary loopback address of the ASE blade. This address should be on the RAN to internet VLAN.

### Related Commands

charging, ase-node, ase-load-balancer

### Example

The following example configures the ASE blade.

```
MS# configure ase-node 192.168.51.1 workhorse i2r-ip-  
address 192.168.52.7  
MS(config)#
```

## authorize-mm-charges

```
authorize-mm-charges  
no authorize-mm-charges
```

### Purpose

This command obtains credit authorization for each MM send. The no form of the command removes requirement to authorize.

### Command Mode

Administrator or Superuser - config - charging - mmspol

### Syntax Description

No parameters

### Related Commands

charging, mms-address-prefix, mms-policy, mms-send-slab, mms-receive-slab, authorize-mm-charges, itemize-mm-recipient-charges, authorize-mm-charges, itemize-mm-recipient-charges, mm-agg-content

### Example

The following examples obtains credit authorization for each MM send.

```
MS# configure charging mms-policy bronzePol  
MS(config-charging-mmspol)# authorize-mm-charges
```

## authorize-uri-charges

```
authorize-uri-charges [uri-set]
no uri-site-blocking
```

### Purpose

Obtain credit authorization for each URI transaction. The URI transaction can be initiation of a browse session, or a single uri event. Authorization is per configured URI-set. The default behavior for a URI-set is "no authorization required".

### Command Mode

Administrator or Superuser - config - charging - pol

### Syntax Description

Parameter	Description
<i>uri-set</i>	The URI-set requiring authorization.

### Related Commands

charging, policy, charging-advice portal, balance-advice-portal

### Example

The following example sets default prepay rates for URI browsing.

```
MS# configure charging policy goldPro
MS(config-charging-pol)# authorize-uri-charges
```



## balance-advice-portal

```
balance-advice-portal uri
no balance-advice-portal
```

### Purpose

A web server used by subscribers to obtain prepay balance and account information called a balance advice portal may be used. To make the user experience better, the ES intercepts HTTP/WSP get requests to this site and adds the user's MSISDN. The balance advice portal can automatically use tailored information.

### Command Mode

Administrator or Superuser - config - charging - pol

### Syntax Description

Parameter	Description
<i>uri</i>	The URI of the portal.

### Related Commands

charging, policy, charging-advice portal, balance-advice-portal

### Example

The following example sets default prepay rates for URI browsing.

```
MS# configure charging policy goldPro
MS(config-charging-pol)# balance-advice-portal
    www.mobo.com/ba-portal
MS(config-charging-pol)# no balance-advice-portal
```

## block-offnet

```
block-offnet
no block-offnet
```

### Purpose

This command configures the profile to block IP traffic to off-net destinations. When off-net access is attempted, a control message is sent to the RADIUS accounting server that handles the user's accounting-request messages. If the optional parameter default and a policy-name is provided the block-offnet action applies to all profiles contained in the policy.

The no form of the command causes the MSDS to pass offnet traffic.

### Command Mode

Administrator or Superuser - config - charging - pro

### Syntax Description

No parameters

### Related Commands

profile

### Example

The following example blocks offnet traffic.

```
MS# configure charging profile goldPro
MS(config-charging-pro)# block-offnet
```

## browse-default

```
browse-default [credits | kilobyte]
no browse-default
```

### Purpose

This command sets default prepay rates for URI browsing. The no form of the command zero rates default browsing

### Command Mode

Administrator or Superuser - config - charging - uripol

### Syntax Description

Parameter	Description
credits   kilobyte	Credit draw rate for volume-based browsing

### Related Commands

charging, uri-policy, browse, event

### Example

The following example sets default prepay rates for URI browsing.

```
MS# configure charging
MS (config-charging)# uri-policy bronzePol
MS (config-charging-uripol)# browse-default 10
MS (config-charging-uripol)# no browse-default
```

## browse

```
browse uri-set-name [credits | kilobyte]
no browse uri-set-name
```

### Purpose

This command configures volume-based charging for the specified uri-set. The no form of the command is used to remove the specified charging.

### Command Mode

Administrator or Superuser - config - charging - uripol

### Syntax Description

Parameter	Description
<i>uri-set-name</i>	The name of the URI set.
<b>credits   kilobyte</b>	The amount of prepay credit to charge. If not present, the default value is used but a separate browse-session CDR is generated

### Related Commands

charging, uri-policy, browse, event

### Example

The following example sets volume based charging rates for URI.

```
MS# configure charging uri-policy bronzePol
MS(config-charging-uripol)# browse redSet 1
MS(config-charging-uripol)# browse blueSet 10
MS(config-charging-uripol)# browse reallyExpensiveUri
100
MS(config-charging-uripol)# browse zeroUriSet 0
```

## charge-advice-portal

```
charge-advice-portal uri  
no charge-advice-portal
```

### Purpose

A web server used by subscribers to provide how much a service will cost called a charge advice portal may be used.

### Command Mode

Administrator or Superuser - config - charging - pol

### Syntax Description

Parameter	Description
<i>uri</i>	The URI of the portal.

### Related Commands

charging, policy, charging-advice portal, balance-advice-portal

### Example

The following example sets default prepay rates for URI browsing.

```
MS# configure charging policy goldPro  
MS (config-charging-pol)# charge-advice-portal  
          www.mobo.com/ca-portal  
MS (config-charging-pol)# no charge-advice-portal
```

## event

```
event uri-set-name {credits | HTTP GET}  
no event uri-set-name
```

### Purpose

This command configures event-based charging for URIs. The expectation is that the URI is a full URI and is not dynamically constructed. The no form of the command is used to remove the specified charging.

### Command Mode

Administrator or Superuser - config - charging - uripol

### Syntax Description

Parameter	Description
<i>uri-set-name</i>	The name of the URI set.
<b>credits   HTTP GET</b>	The amount of prepay credit to charge for this event.

### Related Commands

charging, uri-policy, browse, event

### Example

The following example sets event-based charging for URI.

```
MS# configure charging uri-policy bronzePol  
MS(config-charging-uripol)# event littleSet 10  
MS(config-charging-uripol)# event mediumSet 20  
MS(config-charging-uripol)# event zeroSet 0
```

## flagfall-charge

```
flagfall-charge [credits] [direction send| receive]
no flagfall-charge [direction send| receive]
```

### Purpose

This command configures a one-time charge levied against any MM, regardless of size. The no form of the command removes the flag fall charge.

### Command Mode

Administrator or Superuser - config - charging - mmspol

### Syntax Description

Parameter	Description
<i>credits</i>	The number of credits to charge.
<i>send   receive</i>	The direction of MM. Default is send.

### Related Commands

charging, mms-address-prefix, mms-policy, mms-send-slab, mms-receive-slab, authorize-mm-charges, itemize-mm-recipient-charges, authorize-mm-charges, itemize-mm-recipient-charges, mm-agg-content

### Example

The following example sets the flagfall-charge.

```
MS# configure charging mms-policy bronzeMmsPol
MS(config-chg-mmspol)# flagfall-charge 10000
MS(config-chg-mmspol)# no flagfall-charge
```

## fixed-charge

```
fixed-charge [credits] [direction send| receive]
no fixed-charge [direction send| receive]
```

### Purpose

This command configures a fixed charge for MM. All MM will be charged a fixed amount regardless of size or content type. If this command is entered, there is no need to configure Slab or tier rating.

### Command Mode

Administrator or Superuser - config - charging - mmspol

### Syntax Description

Parameter	Description
<i>credits</i>	The number of credits to charge.
<i>send   receive</i>	The direction of MM. Default is send.

### Related Commands

charging, mms-address-prefix, mms-policy, mms-send-slab, mms-receive-slab, authorize-mm-charges, itemize-mm-recipient-charges, authorize-mm-charges, itemize-mm-recipient-charges, mm-agg-content

### Example

The following example sets the flagfall-charge.

```
MS# configure charging mms-policy bronzeMmsPol
MS(config-chg-mmspol)# fixed-charge 10000
MS(config-chg-mmspol)# no fixed-charge
```



## itemize-mm-recipient-charges

```
itemize-mm--recipient-charges
no itemize-mm-charges
```

### Purpose

This command itemizes MM recipient charges in RADIUS request messages. The no form of the command removes requirement to itemize.

### Command Mode

Administrator or Superuser - config - charging - mmspol

### Syntax Description

No parameters

### Related Commands

charging, mms-address-prefix, mms-policy, mms-send-slab, mms-receive-slab, authorize-mm-charges, itemize-mm-recipient-charges, authorize-mm-charges, itemize-mm-recipient-charges, mm-agg-content

### Example

The following example itemizes MM recipient charges .

```
MS# configure charging mms-policy bronzePol
MS(config-charging-mmspol)# itemize-mm-recipient-
charges
```

## list uri-shortcut

**list uri-shortcut** [*shortcut-name*]

### Purpose

This command lists all uri-shortcuts, or if an optional shortcut-name is provided, list the specified uri-shortcut.

### Command Mode

Administrator or Superuser - config - charging

### Syntax Description

Parameter	Description
shortcut-name	List URI mapped to the given shortcut-name

### Related Commands

charging, uri-set, shortcut, uri, list-uri-shortcut

### Example

The following example lists the URI shortcut.

```
MS# configure charging  
MS(config-charging)# list uri-shortcut
```

## mm-aggregate-content

```
mm-aggregate-content tag_name [text | image | video |
audio]
```

### Purpose

This command configures the MM aggregate content type classifier. Each rule configures an aggregate tag for the content types that follow. The no form of the command deletes the classification tag

### Command Mode

Administrator or Superuser - config - charging - mmspol

### Syntax Description

Parameter	Description
tag_name	The name of the content type classifier.
[text   image   video   audio]	The type of content type classifier.

### Related Commands

charging, mms-address-prefix, mms-policy, mms-send-slab, mms-receive-slab, authorize-mm-charges, itemize-mm-recipient-charges, authorize-mm-charges, itemize-mm-recipient-charges, mm-agg-content

### Example

The following examples creates an MMS policy.

```
MS# configure charging mms-policy bronzeMmsPol
MS(config-charging-mmspol)# mm-aggregate-content
content1 image
```

## mms-address-prefix

```
mms-address-prefix {type [PLMN | SMTP | IPv4 | ANY]}  
  [prefix [PLMN prefix | Subnet [masklen]] [address-  
  category category-name]  
no mms-address-prefix {type [PLMN | SMTP | IPv4 |  
  ANY]} [prefix [PLMN prefix | Subnet [masklen]]  
  [address-category category-name]
```

### Purpose

Configure an MMS address classification rule. The rule matches an MM recipient address prefix and maps the match to a name. The named is used for pre-rating MM differently for different recipient networks.

The no form of the command deletes the prefix, or if the optional address-category is given, deletes the entire address category.

### Command Mode

Administrator or Superuser - config - charging

### Syntax Description

Parameter	Description
<b>type</b> PLMN   SMTP   IPv4   ANY	The type of address “ANY” means that the addresses not matching any other rules fall under this.
<b>prefix</b> PLMN prefix   Subnet   masklen	The prefix to match for PLMN addresses or the length of the subnet mask to match for IPv4 address prefix is only present for PLMN and SMTP. There can be multiple address prefixes defined under an address category.

### Related Commands

charging, mms-address-prefix, mms-policy, mms-send-slab, mms-receive-slab, authorize-mm-charges, itemize-mm-recipient-charges, authorize-mm-charges, itemize-mm-recipient-charges, mm-aggregate-authorize-mm-charges, itemize-mm-recipient-charges

## Example

The following examples configure MMS classification rules.

```
MS# config charging mms-address-prefix type PLMN
    prefix 6012 address-category local
MS (config-charging)# mms-address-prefix type PLMN
    prefix 6017 address-category local
MS (config-charging)# mms-address-prefix type PLMN
    prefix 60 address-category interop
MS (config-charging)# mms-address-prefix type SMTP
    address-category smtp
MS (config-charging)# mms-address-prefix type IPv4
    prefix 0.0.0.0/0 address-category ipv4
MS (config-charging)# mms-address-prefix type ANY
    address-category international >
```

**Note:** Note that the last line applies only to PLMN because any SMTP or IPv4 already match a rule.

## mms-policy

`mms-policy mms-policy-name`

### Purpose

Enter MMS policy configuration mode

### Command Mode

Administrator or Superuser - config - charging - mmspol

### Syntax Description

Parameter	Description
mms-policy-name	The name of the MMS charging policy

### Related Commands

charging, mms-address-prefix, mms-policy, mms-send-slab, mms-receive-slab, authorize-mm-charges, itemize-mm-recipient-charges, authorize-mm-charges, itemize-mm-recipient-charges, mm-agg-content

### Example

The following examples creates an MMS policy.

```
MS# configure charging mms-policy bronzeMmsPol  
MS(config-charging-mmspol)#
```

## mms-rate

```
mms-rate [type [slab | tier]] [direction [send |
recieve]] [content-type [text | image | audio |
video | mixed | any]] [max-size sz] [credits cr]
[address-category cname] [content-tag name]
```

### Purpose

This command configures rating for MM based on size, content type or tag, direction and address of the recipient.

When a message is slab rated the charge for an MM of size max-size or smaller is determined by which size bin it falls into. Each bin is charged a fixed amount. When a message is tier rated the number of prepay credits to charge for an MMS message of size max-size or smaller is given by the formula.

$$\text{tier0\_size} * \text{rate0} + \text{tier1\_size} * \text{rate1} + \text{tier2\_size} * \text{rate2} \\ + \dots + (\text{msgSize} - \text{tierN-1\_size}) * \text{rateN}$$

This command can be executed many times with different max-size parameters. All max-size params will be sorted and the MMS message will be placed into the correct bin for charging. The final bin should be configured with the max-size parameter = '\*' indicating that anything larger than the previous bin is charged accordingly.

The message content can be classified by content-type or content-tag. slab rating for receiving MM based on size and content type. When a message is slab rated the charge for an MM of size max-size or smaller is fixed. This command can be executed many times with different max-size parameters. All max-size paramaters will be sorted and the MMS message will be placed into the correct bin for charging.

The message is classified by content-type. If it is text plus one other type, it is the other type (a short note plus a picture is a picture). If it is multiple types, it is mixed. The no form of the command removes the configuration specified.

**Note:** Within a policy, the type (slab|tier) must be the same for all bins. Within a policy the choice of content-type or content-tag must be the same for all bins.

## Command Mode

Administrator or Superuser - config - charging - mmspol

## Syntax Description

Parameter	Description
[type [slab   tier]]	The type of rating to apply. Slab rating is a set of bins, the charge for the message is fixed based on the bin that it falls into. Tier rating is calculated as the area under a curve, bounded by the size of the message. The curve is a set connected lines with different slopes.
direction [send   receive]]	
content-type [text   image   audio   video   mixed   any]	Content type of the message. the message is text-only image - the message contains an image, or text and an image audio - the message contains audio, or text and audio video - the message contains video, or text and video mixed - the message contains mixed content any type. Either content-tag or content-type may be used.
max-size <i>sz</i>	The max size of the message in kilobytes
credits <i>cr</i>	The number of credits to charge for a message this size
address-category	<i>cname</i> The name of the address category
content-tag <i>name</i>	The aggregated content as classified by the rule configured under the mm-aggregate-content command. Either content-tag or content-type may be used.

## Related Commands

charging, mms-address-prefix, mms-policy, mms-send-slab, mms-receive-slab, authorize-mm-charges, itemize-mm-recipient-charges, authorize-mm-charges, itemize-mm-recipient-charges, mm-agg-content



## Example

The following examples sets MMM slab rating.

```
MS# configure charging mms-policy bronzePol
MS(config-chg-mmsspol)# mms-rate type slab direction
send content-type any max-size 30 credits 30
address-category local
MS(config-chg-mmsspol)# exit all
MS# configure charging mms-policy silverPol
MS(config-chg-mmsspol)# mms-rate type tier direction
send content-tag audiotext max-size 30 credits 30
address-category local
```

## promo-time-rate

```
promo-time-rate [rate rate] [roaming-group name]  
no step-time-rate [roaming-group name]
```

### Purpose

The prepay promo-time-rate command binds a time-rate to a tariff period and roaming-state. This time rate is used for charging if promotion charging is enabled for the subscriber. The no form of the command unbinds the rates from the tariff period and roaming state.

### Command Mode

Administrator or Superuser - config - charging - pro - per

### Syntax Description

Parameter	Description
<b>roaming-group</b> <i>name</i>	The name for the roaming group. It is assumed that each roaming-group will have a unique rating structure
<b>rate</b> <i>rate</i>	An integral number of credits to debit from the balance. The debit operation occurs each time the consumption of a new charging unit begins.

### Related Commands

profile, bind-period, app-bearer-rate, app-rates, step-time-rate, promo-time-rate

### Example

The following example sets the promotional time rate.

```
MS# configure charging  
MS(config-charging)# profile goldPro period wkdayEve
```

```
MS(config-charging-pro-per)# promo-time-rate rate 0  
                          roaming-group slaGroup5
```

## step-time-rate

```
step-time-rate [rate rate] [roaming-group name]  
no step-time-rate [roaming-group name]
```

### Purpose

The prepay step-time-rate command binds a time-rate to a tariff period and roaming-state. This time rate is used for charging if Step charging is enabled for the subscriber. The no form of the command unbinds the rates from the tariff period and roaming state.

### Command Mode

Administrator or Superuser - config - charging - pro - per

### Syntax Description

Parameter	Description
<b>roaming-group</b> <i>name</i>	The name for the roaming group. It is assumed that each roaming-group will have a unique rating structure
<b>rate</b> <i>rate</i>	An integral number of credits to debit from the balance. The debit operation occurs each time the consumption of a new charging unit begins.

### Related Commands

profile, bind-period, app-bearer-rate, app-rates, step-time-rate, promo-time-rate

### Example

The following example sets the step time rate.

```
MS# configure charging  
MS(config-charging)# profile goldPro period wkdayEve
```

```
MS(config-charging-pro-per)# step-time-rate rate 0  
                          roaming-group slaGroup5
```

## show charging mms-address-prefix

```
show charging mms-address-prefix
```

### Purpose

This command displays the MMS-address-prefix.

### Command Mode

Operator or Administrator or Superuser

### Syntax Description

No parameters

### Related Commands

mms-address-prefix

### Example

The following example displays the MMS address prefix

```
MS# show charging mms-address-prefix
```

```
Type Prefix Subnet Address Category
```

```
-----  
plmn cellular  
ipv4 0.0.0.0/0 ipaddr  
smtp email  
any any  
-----
```

```
Number of entries = 4
```

## show charging mms-policy

```
show charging mms-policy name [mms-send-slab name]
                        [mms-recv-slab name]
```

### Purpose

This command displays MMS policies.

### Command Mode

Operator or Administrator or Superuser

### Syntax Description

Parameter	Description
<b>mms-send-slab</b> <i>name</i>	Optional: The desired send-slab name. Alphanumeric up to 32 characters.
<b>mms-recv-slab</b> <i>name</i>	Optional: The desired receive-slab name. Alphanumeric up to 32 characters.

### Related Commands

mms-policy, authorize-mm-charges, itemize-mm-recipient-charges

### Example

The following example displays the MMS policy.

```
MS# show charging mms-policy MmsContentPolicy

MMS Policy : MmsContentPolicy
MMS Send Slabs:
Content Max Size Credits Address Category BC Failure
-----
text 999 1 any No
image 999 2 any No
audio 999 2 any No
```

---

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```
video 999 10 any No  
mixed 999 10 any No
```

```
-----  
Number of entries = 5
```

```
MMS Receive Slabs:
```

```
Content Max Size Credits Address Category BC Failure
```

```
-----  
text 10 0 No  
image 30 1 No  
audio 30 1 No  
video 30 10 No  
mixed 30 10 No
```

```
-----  
Number of entries = 5
```



## show charging uri-policy

```
show charging uri-policy name [browse] [event]
```

### Purpose

This command displays URI policies.

### Command Mode

Operator or Administrator or Superuser

### Syntax Description

Parameter	Description
<b>browse</b>	Optional: Display browse charging.
<b>event</b>	Optional: Display event charging.

### Related Commands

uri-policy, uri-set, uri-shortcut

### Example

The following example displays the URI policy by event.

```
MS# show charging uri-policy

UriContentRate
UriFlatRate
Hydrogen#show charging uri-policy UriContentRate
URI Policy : UriContentRate
Browse Default : 10
URI Set Browse Rate
-----
Free 0
Premium 20
-----
```

---

**Extension Shelf Charging Com-**

Number of entries = 2  
No event rates.

## show charging uri-set

```
show charging uri-set name [uri-shortcut name] [uri
uri]
```

### Purpose

This command displays URI sets.

### Command Mode

Operator or Administrator or Superuser

### Syntax Description

Parameter	Description
<b>uri-shortcut</b> <i>name</i>	Optional: The name of the shortcut.
<b>uri</b> <i>name</i>	Optional: The name of the URI.

### Related Commands

uri-policy, uri-set, uri-shortcut

### Example

The following example displays the URI set.

```
MS# show charging uri-set free
```

```
URI Set : Free
```

```
Shortcut
```

```
-----
megisto
-----
```

```
Number of entries = 1
```

```
URI
```

```
-----
http://wap.google.com*
-----
```

---

**Extension Shelf Charging Com-**

http://wap.yahoo.com\*

-----

Number of entries = 2

## show charging uri-shortcut

```
show charging uri-shortcut name
```

### Purpose

This command displays URI sets.

### Command Mode

Operator or Administrator or Superuser

### Syntax Description

Parameter	Description
<i>name</i>	Optional: The name of the shortcut.

### Related Commands

uri-policy, uri-set, uri-shortcut

### Example

The following example displays the URI shortcut.

```
MS# show charging uri-shortcut
```

```
Shortcut URI
```

```
-----  
megisto http://wap.megisto.com*  
-----
```

```
Number of entries = 1
```

## show charging wap-gateway

```
show charging wap-gateway
```

### Purpose

This command displays the WAP gateway.

### Command Mode

Operator or Administrator or Superuser

### Syntax Description

No parameters

### Related Commands

wap-gateway

### Example

The following example displays the WAP gateway

```
MS# show charging wap-gateway
IP Address Protocol Port
-----
10.0.96.7
10.0.96.8
                udp      9200
                udp      9201
-----
Number of entries = 4
```

## recharge-portal

```
recharge-portal [uri]
no recharge-portal
```

### Purpose

When the user runs out of prepaid balance, the next WSP Get method is redirected to the configured URI. This command specifies URI redirection. Each charging policy may have a distinct redirect URI.

### Command Mode

Administrator or Superuser - config - charging - pol

### Syntax Description

Parameter	Description
<i>uri</i>	The URI to redirect a WSP Get method to when the user's balance is expended

### Related Commands

policy, redirect-uri, offnet-uri

### Example

The following example specifies the offnet URI redirection.

```
MS# configure charging policy goldPro
MS(config-charging-pol)# recharge-portal www.mobo.com/
portal
```

## shortcut

```
shortcut uri_name  
no shortcut uri_name
```

### Purpose

This command adds or removes a uri-shortcut to/from the uri-set.

### Command Mode

Administrator or Superuser - config - charging - uriset

### Syntax Description

Parameter	Description
<i>name</i>	The name of the shortcut.

### Related Commands

charging, uri-set, shortcut, uri, list-uri-shortcut

### Example

The following example adds a URI shortcut to the set.

```
MS# configure charging uri-rule-set myUris  
MS (config-charging-uriset) # uri-shortcut cnn  
MS (config-charging-uriset) # uri http://www.cnn.com/  
weather*
```



## uri

```
uri name
no uri name
```

### Purpose

This command adds or removes a uri to/from the uri-set.

**Note:** You may use wildcards (\*) in URIs. If you try to configure a rule like \*.cnn.com\* you will get an error. However, the rule \*.cnn.com will effectively be treated as \*.cnn.com\* because all prefix match rules only compare the <scheme>://<authority> portion of the URI. Therefore, the URI http://goodstuff.cnn.com/games/index.html matches the \*.cnn.com rule.

### Command Mode

Administrator or Superuser - config - charging - uriset

### Syntax Description

Parameter	Description
<i>name</i>	The name of the uri.

### Related Commands

charging, uri-set, shortcut, uri, list-uri-shortcut

### Example

The following example adds and removes URIs from a set.

```
MS# configure charging uri-rule-set myUriS
MS(config-charging-uriset)# uri-shortcut cnn
MS(config-charging-uriset)# no uri-shortcut cnn
```

---

## Extension Shelf Charging Com-

```
MS(config-charging-uriset)# uri http://www.cnn.com/  
weather*
```

```
MS(config-charging-uriset)# no uri http://www.cnn.com/  
weather*
```

## uri-policy

```
uri-policy uri-policy-name
```

### Purpose

This command enters the uri policy configuration mode. This mode is used to manage uri rating policies

### Command Mode

Administrator or Superuser - config-charging

### Syntax Description

Parameter	Description
<i>name</i>	The name of the policy.

### Related Commands

charging, uri-policy, browse, event

### Example

The following example creates a URI policy.

```
MS# configure charging  
MS(config-charging)# uri-policy bronzeUriPol  
MS(config-charging-uripol)#
```

## uri-set

```
uri-set uri-set-name [onnet]  
no uri-set uri-set-name
```

### Purpose

Enter the uri-set configuration mode. A uri-set is a named set of URIs. The optional parameter `onnet` is used to specify that the set belongs to the operator's network. If the `onnet` keyword is absent, the URIs are considered off-net and off-net policies apply when the user attempts to visit those sites. A URI that does not match any configured set is handled by the default policy (described below), and is considered off-net.

The no form of the command will remove the uri-set

### Command Mode

Administrator or Superuser - config - charging

### Syntax Description

Parameter	Description
<i>uri-set-name</i>	Adds the named uri-set and enters the uriset configuration mode. If the uri-set exists, enters the mode.
<code>onnet</code>	Optional parameter specifying that this uri-set is on-net. If not present, the uri-set is off-net.

### Related Commands

charging, uri-set, shortcut, uri, list-uri-shortcut

### Example

The following example creates a URI set.

```
MS# configure charging uri-set myUris onnet
```

## uri-shortcut

```
uri-shortcut [shortcut-name] [uri]
no uri-shortcut [shortcut-name]
```

### Purpose

This command adds a map of shortcut names to fully qualified or wildcarded URIs. Note that only fully qualified URIs can be event charged.

The no form of the command removes the named shortcut.

**Note:** You may use wildcards (\*) in URIs. If you try to configure a rule like \*.cnn.com\* you will get an error. However, the rule \*.cnn.com will effectively be treated as \*.cnn.com\* because all prefix match rules only compare the <scheme>://<authority> portion of the URI. Therefore, the URI http://goodstuff.cnn.com/games/index.html matches the \*.cnn.com rule.

### Command Mode

Administrator or Superuser - config - charging

### Syntax Description

Parameter	Description
<i>shortcut-name</i>	The nickname of the shortcut
<i>uri</i>	fully qualified URI or a URI with either a prefix or postfix wildcard character '*' or both prefix and postfix are allowed.

### Related Commands

charging, uri-set, shortcut, uri, list-uri-shortcut

### Example

---

## Extension Shelf Charging Com-

The following example creates URI shortcuts.

```
MS# configure charging
MS(config-charging)# uri-shortcut picassoLaVie http://
www.clevelandart.org/museum/collect/highlights/
high26.html
MS(config-charging)# uri-shortcut cnnPrefixPostfix
*.cnn.com
MS(config-charging)# uri-shortcut msnPostfix http://
www.msn.com*
```

## uri-site-blocking

```
uri-site-blocking uri-set
no uri-site-blocking
```

### Purpose

The operator may block access to web sites. All blocked web sites are contained in a single uri-set.

### Command Mode

Administrator or Superuser - config - charging - pol

### Syntax Description

Parameter	Description
<i>uri-set</i>	The URI-set to be blocked.

### Related Commands

charging, policy, charging-advice portal, balance-advice-portal

### Example

The following example sets default prepay rates for URI browsing.

```
MS# configure charging policy goldPro
MS(config-charging-pol)# uri-site-blocking badURIs
```

## wap-gateway

```
wap-gateway [ip-address ip_address] [protocol tcp |  
udp] [port port]  
no wap-gateway name [ip-address ip_address] [netmask  
mask] [protocol tcp | udp] [port port]
```

### Purpose

This command configures the IP address, protocol and port of the WAP gateway. This information is used by ASE to identify packets destined for the WAP gateway.

### Command Mode

Administrator or Superuser - config

### Syntax Description

Parameter	Description
<b>ip-address</b> <i>ip_address</i>	Optional: The IP address of the wap gateway.
<b>port</b> <i>port</i>	Optional: The UDP destination port on the primary server. Valid values are 1-65535.
<b>protocol</b> <i>tcp   udp   icmp</i>	Optional: The type of protocol.

### Related Commands

none

### Example

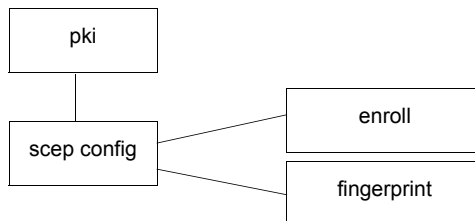
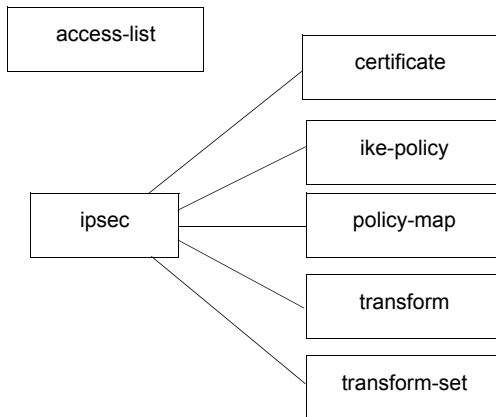
The following example creates classification rules.

```
MS# configure wap-gateway ip-address 192.168.51.1
```



# Chapter 16: Security Commands

The commands listed in this section enable security configuration.



## In This Chapter

- access-list
- certificate
- clear access-list
- delete ipsec tunnel
- enroll
- fingerprint
- ike-policy
- ipsec
- pki
- policy-map
- scep-configshow access-list
- show ipsec parameters
- show ssh
- transform
- transform-set

## access-list

```
access-list access_list_name src-ip number [src-mask
netmask] dest-ip number [dest-mask netmask]
protocol protocol sport number dport number {action
deny | permit}
no access-list access_list_name
```

### Purpose

This command creates an access control list and sets its parameters. The no form of the command deletes an access list.

**Note:** All access lists have an implicit “deny all” rule at the end of the list.

### Command Mode

Administrator or Superuser - config

### Syntax Description

Parameter	Description
<i>access_list_name</i>	A name of the access list. Name can be any text up to 32 characters.
<b>src-mask</b> <i>netmask</i>	Optional: The source network mask for the src-ip number.
<b>src-ip</b> <i>number</i>	The source IPv4 IP address. * indicates that all src-ip addresses are allowed.
<b>dest-mask</b> <i>netmask</i>	Optional: The source network mask for the dest-ip number. IPv4 /port format is valid.
<b>dest-ip</b> <i>number</i>	The destination IPv4 IP address. * indicates all source IP addresses are allowed.
<b>protocol</b> <i>protocol</i>	The protocol number. Valid values are: icmp, igmp, ggp, tcp, egp, pup, udp, tp, eor, ospf, encap, raw, or * (any). You may also enter the protocol number 1-255.
<b>sport</b> <i>number</i>	The source port number. Valid values are 1-65535. * means any.

Parameter	Description
<code>dport number</code>	The destination port number. Valid values are 1 to 65535. * means any.
<code>action permit   deny</code>	The action of the access list.

## Related Commands

show access-list, ipsec

## Example

The first example below creates an access list. The second stops all packets from 192.168.20.x subnet while allowing other packets to flow.

```
MS# configure access-list vpn1_acl src-ip 172.24.5.0
    src-mask 255.255.255.0 dest-ip 192.168.20.0 dest-
    mask 255.255.255.0 protocol * sport * dport *
    action permit
```

```
MS# configure access-list stopbadguys src-ip
    192.168.20.0 src-mask 255.255.255.0 dest-ip *
    protocol * sport * dport * action deny
```

```
MS# configure access-list stopbadguys src-ip *src-mask
    dest-ip * protocol * sport * dport * action permit
```

## certificate ca

~~SSN-SIP~~ GGSN CDMA SSN

```
certificate ca cert-name name certificate_file  
                filename
```

### Purpose

This command loads certificate authority (CA) digital certificates from certificate files. The creation of certificate files is discussed in the *MS950 Configuration Guide*.

### Command Mode

Administrator or Superuser - config - ipsec

### Syntax Description

Parameter	Description
<code>cert-name</code> <i>name</i>	The name of the certificate assigned by the operator. Name can be any text up to 256 characters.
<code>certificate-file</code> <i>filename</i>	The filename of the certificate file found in the local file system. Name can be any text up to 256 characters.

### Related Commands

certificate local, show ipsec cert-file, ipsec

### Example

The following example creates a CA certificate.

```
MS# configure ipsec  
MS(config-ipsec)# certificate ca cert-name vpn1_cert  
                certificate-file fs1:user0/cacert.der
```

## certificate local

~~SSN-SIP~~ GGSN CDMA SSN

```
certificate local cert-name name certificate-file
filename private-key-file filename
```

### Purpose

This command loads local certificate authority (CA) digital certificates from certificate files. The creation of certificate files is discussed in the *MS950 Configuration Guide*.

### Command Mode

Administrator or Superuser - config - ipsec

### Syntax Description

Parameter	Description
<b>cert-name</b> <i>name</i>	The name of the certificate assigned by the operator. Name can be any text up to 256 characters.
<b>certificate-file</b> <i>filename</i>	The filename of the certificate file found in the local file system. Name can be any text up to 256 characters.
<b>private-key-file</b> <i>filename</i>	The filename of the private key file found in the local file system. Name can be any text up to 256 characters.

### Related Commands

certificate ca, show ipsec cert-file, ipsec

### Example

The following example creates a CA certificate.

```
MS# configure ipsec
```

---

## Security Commands

```
MS(config-ipsec)# certificate local cert-name vpn_key  
certificate-file fs1:user0/pgncert.der private-key-  
file fs1:user0/pgnpriv.der
```

## delete ipsec-tunnel

```
delete ipsec-tunnel {gateway gateway | policy-map map  
| all}
```

### Purpose

This command deletes all IPsec tunnels or the specified IPsec tunnel.

### Command Mode

Administrator or Superuser

### Syntax Description

Parameter	Description
<b>gateway</b>	Deletes all tunnels indicated by the specified gateway.
<b>policy-map</b>	Deletes all tunnels indicated by the specified policy-map.
<b>all</b>	Deletes all tunnels.

### Related Commands

ipsec

### Example

The following example deletes all IPsec tunnels.

```
MS# delete ipsec-tunnel all
```

## enroll

```
enroll local-subject subject [noconfirm]
```

### Purpose

This command enrolls a certificate with the certificate authority.

### Command Mode

Administrator or Superuser - config - pki - scep

### Syntax Description

Parameter	Description
<b>local-subject</b> <i>subject</i>	The subject name for local certificate.
<b>noconfirm</b>	Optional: Executes command without confirmation message.

### Related Commands

scep-config, enroll, fingerprint, show pki scep-config, show pki enrollment-status

### Example

The following example enters pki configuration mode.

```
MS# configure pki
MS(config-pki)# scep-config ca-name entrust.com ca-
address http://vpncerts.entrust.com:80/cgi-bin/
pkiclient.exe passcode entrust crl-address ""
retry-timer 60 retry-count 10
MS(config-pki-scep-config)# enroll local-subject
"C=US,O=MegistoRock,OU=Lab,CN=Candi"
Current CA and Local identity certificates (if any)
will be deleted, proceed (yes|no) : yes
```



## fingerprint

```
fingerprint accept | reject
```

### Purpose

This command accepts or rejects a fingerprint.

### Command Mode

Administrator or Superuser - config - pki - scep

### Syntax Description

Parameter	Description
accept   reject	Indicates whether to accept or reject a fingerprint.

### Related Commands

scep-config, enroll, fingerprint, show pki scep-config, show pki enrollment-status

### Example

The following example enters accepts a fingerprint.

```
MS# configure pki
MS(config-pki)# scep-config ca-name test-ca1.ssh.com
                 ca-address http://pki.ssh.com:8080/scep/ passcode
                 ssh retry-count 10 retry-timer 120
MS(config-pki-scep-config)# fingerprint accept
```

## fingerprint view

`fingerprint view`

### Purpose

This command displays the fingerprint of the CA. If no CA certificate was retrieved, it displays “invalid CA identity”.

### Command Mode

Administrator or Superuser - config - pki - scep

### Syntax Description

No parameters

### Related Commands

scep-config, enroll, fingerprint, show pki scep-config, show pki enrollment-status

### Example

The following example views a fingerprint.

```
MS# configure pki
MS (config-pki) #scep-config ca-name test-ca1.ssh.com
ca-address http://pki.ssh.com:8080/scep/ passcode
ssh retry-count 10 retry-timer 120
MS (config-pki-scep-config) # fingerprint view
CA Certificate Fingerprint : 9b9651bb 290dc9e0
75c8030d 0d92606c
```

## ike-policy

~~SSN-SIP~~ GGSN CDMA SSN

```
ike-policy policy_name enc alg hash alg auth mech dh-
  group group [lifetime seconds seconds]
no ike-policy policy_name
```

### Purpose

This command configures an IKE phase 1 proposal. The no form of the command deletes the policy.

### Command Mode

Administrator or Superuser - config - ipsec

### Syntax Description

Parameter	Description
<i>policy_name</i>	The name of the IKE policy. Name can be any text up to 256 characters.
<b>enc</b> <i>alg</i>	The encryption algorithm. Valid values are: des - Specifies 56-bit Data Encryption Standard (DES) cipher 3des - Specifies triple DES, or 168-bit DES encryption
<b>hash</b> <i>alg</i>	The hash algorithm. Valid values are: sha1 - Specifies the Secure Hash Algorithm (SHA)-1. md5 - Specifies the Message Digest 5 hash algorithm.
<b>auth</b> <i>mech</i>	The authentication method. Valid values are: pre-shared - Specifies to use pre-shared keys. dss-sig - Specifies to use digital signature standard security model. rsa-sig - Specifies to use the RSA security model.
<b>dh-group</b> <i>group</i>	The Diffie-Hellman group identifier. Valid values are: modp-768 - Specifies 768-bit Diffie-Hellman. This is the default value. modp-1024 - Specifies 1024-bit Diffie-Hellman.

Parameter	Description
<b>lifetime</b>	Optional: The lifetime of the SA in seconds.
<b>seconds</b> <i>seconds</i>	Optional: SA lifetime of IKE policy in seconds. Valid values are 0-4000000. Default is 0.

### Related Commands

show ipsec ike sa, policy-map, transform, transform-set, access-list

### Example

The following example configures an IKE policy.

```
MS# configure ipsec  
MS(config-ipsec)# ike-policy vpn1_ike1 enc 3des hash  
                  sha1 auth rsa-sig dh-group modp-1024 lifetime  
                  seconds 100000
```

## ipsec

~~SSN-SIP~~ GGSN CDMA SSN

```
configure ipsec
```

### Purpose

This command allows you to enter a variety of IPSec-related commands.

### Command Mode

Administrator or Superuser - config

### Syntax Description

No parameters

### Related Commands

ike-policy, policy-map, transform, transform-set, access-list, certificate, show ipsec stats, show ipsec sa, show ipsec hw-engine, show ipsec ike sa, show ipsec policy-map, show ipsec transform, show ipsec transform-set

### Example

The following example enters IPSec configuration mode.

```
MS# configure ipsec
MS(config-ipsec)#
```

## pki

pki

### Purpose

This command allows you to enter a variety of public key infrastructure (PKI) related commands.

### Command Mode

Administrator or Superuser - config

### Syntax Description

No parameters

### Related Commands

scep-config, enroll, fingerprint, show pki scep-config, show pki enrollment-status

### Example

The following example enters PKI configuration mode.

```
MS# configure pki  
MS (config-pki) #
```

## policy-map

~~SSN-SIP~~ GGSN CDMA SSN

```
policy-map name access-list listid end-point endpoint
  ike-policy names [pre-shared string] transform-set
  name pfs {enable | disable}
no policy-map name
```

### Purpose

This command defines an IPSec policy. The no form of the command deletes the policy map.

### Command Mode

Administrator or Superuser - config - ipsec

### Syntax Description

Parameter	Description
<i>name</i>	The name of the IKE policy map. Name can be any text up to 32 characters.
<b>access-list</b> <i>listid</i>	This access list determines which traffic should be protected by IPSec and which traffic should not be protected by IPSec in the context of the current IPSec policy map entry.
<b>ike-policy</b> <i>names</i>	Specifies the IKE policies to use in this map. Names are comma delimited without spaces. Names can be any text up to 32 characters each. Up to 5 policies can be entered.
<b>end-point</b> <i>endpoint</i>	IPv4 address of the end point of the tunnel.
<b>pre-shared</b> <i>string</i>	Optional: Specifies the pre-shared keystring.
<b>transform-set</b> <i>name</i>	Specifies the names of the transform sets. Names are comma delimited without spaces. Names can be any text up to 32 characters each. Up to two sets can be entered.
<b>pfs</b> { <b>enable</b>   <b>disable</b> }	Specifies that perfect forward secrecy (PFS) should be used for this session.

## Related Commands

ike-policy, policy-map, transform, transform-set, access-list, certificate,  
show ipsec policy-map

## Example

The following example creates an IPSec policy map.

```
MS# configure ipsec  
MS(config-ipsec)# policy-map vpn_map access-list  
                  vpn1_acl end-point 192.168.41.3 ike-policy  
                  vpn1_ike1,vpn1_ike2 transform-set vpn1_TS pfs  
                  enable
```



## scep-config

```
scep-config ca-name name ca-address address passcode
  passcode [crl-address address] [retry-count count]
  [retry-timer timer]
no scep-config ca-name name
```

### Purpose

This command sets up a certificate authority and retrieves the CA (RA) certificate from the location specified. The fingerprint view command lists the retrieved CA. If the retrieval failed, it deletes this CA identity from the SCEP session storage

### Command Mode

Administrator or Superuser - config - pki

### Syntax Description

Parameter	Description
<b>ca-name</b> <i>name</i>	The name of the certificate authority.
<b>ca-address</b> <i>address</i>	The URL address of the CA.
<b>passcode</b> <i>passcode</i>	The passcode for the CA.
<b>crl-address</b> <i>address</i>	Optional: The LDAP address for CRL retrieval.
<b>retry-count</b> <i>count</i>	Optional: The number of times pki module will try to communicate with the CA. Default is 5.
<b>retry-timer</b> <i>timer</i>	Optional: How long pki module waits for the CA, before retrying in seconds. Default is 900.

### Related Commands

scep-config, enroll, fingerprint, show pki scep-config, show pki enrollment-status

### Example

---

## Security Commands

The following example enters PKI configuration mode.

```
MS# configure pki
MS(config-pki)#scep-config ca-name test-ca1.ssh.com
ca-address http://pki.ssh.com:8080/scep/ passcode
ssh retry-count 10 retry-timer 120
MS(config-pki-scep-config)#
```

## show access-list

```
show access-list [access_list_name]
```

### Purpose

This command displays the details for all access lists or the specified access list.

### Command Mode

Operator or Administrator or Superuser

### Syntax Description

Parameter	Description
<i>access_list_name</i>	The name of the access list.

### Related Commands

access-list, ipsec

### Example

The following example displays access lists.

```
MS# show access-list
Configured access-lists:

vpn1_acl
```

## show ipsec cert-file

~~SSN-SIP~~ GGSN CDMA SSN

```
show ipsec cert-file {ca | local}
```

### Purpose

This command displays all certificate filenames or the specified certificate file name.

### Command Mode

Operator or Administrator or Superuser

### Syntax Description

Parameter	Description
ca   local	Displays CA or local certificates.

### Related Commands

certificate ca, certificate local, ipsec

### Example

The following example displays all digital certificates.

```
MS# show ipsec cert-file
Certificate Type           : CA
Operator Assigned Name    : vpn1_cert
Certificate File Name     : fs1:user0/cacert.der
Private-key File Name     :
Certificate Type          : LOCAL
Operator Assigned Name    : vpn_key
Certificate File Name     : fs1:/user0/pgncert.der
Private-key File Name     : fs1:/user0/pgnpriv.derMS#
```

## show ipsec certificate

SSN-SIP GGSN CDMA SSN

```
show ipsec certificate {ca | local}
```

### Purpose

This command displays the contents of the certificate.

### Command Mode

Operator or Administrator or Superuser

### Syntax Description

Parameter	Description
ca   local	Displays CA or local certificates.

### Related Commands

certificate ca, certificate local, ipsec

### Example

The following example displays all digital certificates.

```
MS# show ipsec certificate
Certificate Authority Certificate :
  Serial Number : 12345678910
  Subject : C=US, O=Entrust, OU=Entrust PKI
  Demonstration
  Certificates
  Issuer : C=US, O=Entrust, OU=Entrust PKI
  Demonstration
  Certificates
  Validity :
  Not Before : 2001 Sep 7th, 20:04:13 GMT
  Not After : 2021 Sep 7th, 20:34:13 GMT
  Key Usage :
```

---

## Security Commands

```
Key Cert Sign
CRL Sign
Public Key Info :
Algorithm name (X.509) : rsaEncryption
Signature Algorithm : rsa-pkcs1-md5

Local Identity Certificate :
Serial Number : 999999999
Subject : C=US, O=Entrust, OU=Entrust PKI
Demonstration
Certificates,
OU=No Liability as per
http://freecerts.entrust.com/licens
e.htm, OU=Entrust/VPN Connector, CN=pgn
Issuer : C=US, O=Entrust, OU=Entrust PKI
Demonstration
Certificates
Validity :
Not Before : 2002 Feb 7th, 20:34:38 GMT
Not After : 2005 Feb 7th, 21:04:38 GMT
Key Usage :
Digital Signature
Key Encipherment
Public Key Info :
Algorithm name (X.509) : rsaEncryption
Signature Algorithm : rsa-pkcs1-md5

Certificate Authority Certificate :
Serial Number : 999999999
Subject : C=US, O=Entrust, OU=Entrust PKI
Demonstration
Certificates
Issuer : C=US, O=Entrust, OU=Entrust PKI
Demonstration
Certificates
Validity :
Not Before : 2001 Sep 7th, 20:04:13 GMT
Not After : 2021 Sep 7th, 20:34:13 GMT
Key Usage :
Key Cert Sign
CRL Sign
Public Key Info :
Algorithm name (X.509) : rsaEncryption
```

```
Signature Algorithm : rsa-pkcs1-md5

Local Identity Certificate :
Serial Number : 999999999
Subject : C=US, O=Entrust, OU=Entrust PKI
Demonstration
Certificates,
OU=No Liability as per
http://freecerts.entrust.com/licens
e.htm, OU=Entrust/VPN Connector, CN=pjn
Issuer : C=US, O=Entrust, OU=Entrust PKI
Demonstration
Certificates
Validity :
Not Before : 2002 Feb 7th, 20:34:38 GMT
Not After : 2005 Feb 7th, 21:04:38 GMT
Key Usage :
Digital Signature
Key Encipherment
Public Key Info :
Algorithm name (X.509) : rsaEncryption
Signature Algorithm : rsa-pkcs1-md5
```

## show ipsec hw-engine

~~SSN-SIP~~ GGSN CDMA SSN

```
show ipsec hw-engine slot_number
```

### Purpose

This command displays the hardware engine for the specified service card. The hardware engine consists of two cryptographic hardware accelerator modules, one for ingress traffic (engine 1), and one for egress traffic (engine 2).

### Command Mode

Operator or Administrator or Superuser

### Syntax Description

Parameter	Description
<i>slot_number</i>	The slot in which the service card resides. Valid values are 5-7 and 12-14.

### Related Commands

ike-policy, policy-map, transform, transform-set, access-list, certificate, show ipsec stats, show ipsec sa, show ipsec hw-engine, show ipsec ike sa, show ipsec policy-map, show ipsec transform, show ipsec transform-set

### Example

The following example displays the hardware engine for service card 7.

```
MG# show ipsec hw-engine 7
Slot                : 7
Engine 1           : Hifn (HW)
Serial Number      : 55AA
Boot Version       : 20
Runtime Version    : 1
Engine 2           : Hifn (HW)
```



Serial Number : 55AA  
Boot Version : 20  
Runtime Version : 1

## show ipsec ike sa

~~SSN-SIP~~ GGSN CDMA SSN

```
show ipsec ike sa
```

### Purpose

This command displays the IKE security association.

### Command Mode

Operator or Administrator or Superuser

### Syntax Description

### Related Commands

ike-policy, policy-map, transform, transform-set, access-list, certificate, show ipsec stats, show ipsec sa, show ipsec hw-engine, show ipsec ike sa, show ipsec policy-map, show ipsec transform, show ipsec transform-set

### Example

The following example displays the IKE SA.

```
MS# show ipsec ike sa
```

```
LOCAL GW    REMOTE GW    STATE    Encr    Hash Auth    Lifetime
10.128.5.2  192.168.41.3  QM_IDLE  3des-cbc  sha1 RSA Sig  445
Total : 1
```

## show ipsec policy-map

SSN-SIP GGSN CDMA SSN

```
show ipsec policy-map {policy_name}
```

### Purpose

This command displays the IPsec policy map.

### Command Mode

Operator or Administrator or Superuser

### Syntax Description

Parameter	Description
<i>policy_name</i>	Display the specified policy map.

### Related Commands

ike-policy, policy-map, transform, transform-set, access-list, certificate, show ipsec stats, show ipsec sa, show ipsec hw-engine, show ipsec ike sa, show ipsec policy-map, show ipsec transform, show ipsec transform-set

### Example

The following example displays a the IPsec policy map.

```
MS# show ipsec policy-map
Configured IPsec Policy Maps:

vpn_map
```

## show ipsec sa

~~SSN-SIP~~ GGSN CDMA SSN

```
show ipsec sa [tunnel interface] | [policy-map map]
```

### Purpose

This command displays detailed information about IPSec security associations.

### Command Mode

Operator or Administrator or Superuser

### Syntax Description

Parameter	Description
<b>tunnel</b> <i>interface</i>	The name of the interface.
<b>policy-map</b> <i>map</i>	The name of the policy map.

### Related Commands

ike-policy, policy-map, transform, transform-set, access-list, certificate, show ipsec stats, show ipsec sa, show ipsec hw-engine, show ipsec ike sa, show ipsec policy-map, show ipsec transform, show ipsec transform-set

### Example

The following example displays all SAs.

```
MG# show ipsec sa
```

```
IPSEC SA:
```

```
Tunnel Interface : tun16/0.1  
map : vpn_map
```

```
local endpt : 10.128.5.2  
remote endpt : 192.168.41.3
```

```
Inbound esp sas:
  SPI : 0x4ccd203e(1288511550)
  Transform: ESP 3des-cbc hmac-md5-96
  Mode = Tunnel,   conn id : 1
  remaining key lifetime (sec) : 9986
  IV size : 8 bytes
  replay detection support : Y
Outbound esp sas:
  SPI : 0x3472a5de(879928798)
  Transform: ESP 3des-cbc hmac-md5-96
  Mode = Tunnel,   conn id : 1
  Remaining key lifetime (sec) : 9986
  IV size : 8 bytes
  Replay detection support : Y
```

IPSEC SA Statistics

```
#pkts encaps : 0, #pkts encrypt : 0, #pkts digest : 0
#pkts decaps : 0, #pkts decrypt : 0, #pkts verify : 0
#send errors : 0, #recv errors  : 0, #pkt drops   : 0
```

## show ipsec stats

~~SSN-SIP~~ GGSN CDMA SSN

```
show ipsec stats {global | failure | ike-traffic | sa}
```

### Purpose

This command displays IPsec statistics.

### Command Mode

Operator or Administrator or Superuser

### Syntax Description

Parameter	Description
<b>global</b>	Displays global IKE protocol related statistics such as current and total number of attempts and SAs.
<b>failure</b>	Displays global IKE protocol failure statistics, which indicate total failures in initiator and responder cases.
<b>ike-traffic</b>	Displays global IKE protocol packet and byte counts, which indicate how many IKE control packets have been sent and received.
<b>sa</b>	Displays IKE protocol statistics, which indicate the current and total number of IPsec SAs.

### Related Commands

ike-policy, policy-map, transform, transform-set, access-list, certificate, show ipsec stats, show ipsec sa, show ipsec hw-engine, show ipsec ike sa, show ipsec policy-map, show ipsec transform, show ipsec transform-set

### Example

The following example displays IPsec failure statistics.

```
MS# show ipsec stats global
```

```
Current SAs                               : 0
```

```
Current Init SAs : 0
Current Resp SAs : 0
Total SAs : 0
Total Init SAs : 0
Total Resp SAs : 0
Total Attempts : 0
Total SA Init Attempts : 0
Total SA Resp Attempts : 0

Total Init Failures : 0
Total Init No Responses : 0
Total Responses Failures : 0

Total IN Packets : 0
Total OUT Packets : 0
Total IN Octets : 0
Total OUT Octets : 0

IPSec Esp Current Inbound SAs : 0
IPSec Esp Total Inbound SAs : 0
IPsec Esp Current Outbound SAs : 0
IPsec Esp Total outbound SAs : 0
```

## show ipsec transform

~~SSN-SIP~~ GGSN CDMA SSN

```
show ipsec transform [transform_name]
```

### Purpose

This command displays all transforms or the specified transform.

### Command Mode

Operator or Administrator or Superuser

### Syntax Description

Parameter	Description
<i>transform_name</i>	Optional: The specified transform.

### Related Commands

ike-policy, policy-map, transform, transform-set, access-list, certificate, show ipsec stats, show ipsec sa, show ipsec hw-engine, show ipsec ike sa, show ipsec policy-map, show ipsec transform, show ipsec transform-set

### Example

The following example displays the IPSec transforms.

```
MS# show ipsec transform
Configured Ike Phase 2 Transforms:

vpn1_trans1
vpn1_trans2
```



## show ipsec transform-set

~~SSN-SIP~~ GGSN CDMA SSN

```
show ipsec transform-set [transform_set_name]
```

### Purpose

This command displays all transform sets or the specified transform set.

### Command Mode

Operator or Administrator or Superuser

### Syntax Description

Parameter	Description
<i>transform_name</i>	Optional: The specified transform set.

### Related Commands

ike-policy, policy-map, transform, transform-set, access-list, certificate, show ipsec stats, show ipsec sa, show ipsec hw-engine, show ipsec ike sa, show ipsec policy-map, show ipsec transform, show ipsec transform-set

### Example

The following example displays all transform sets.

```
MS# show ipsec transform-set
Configured IPsec Transform Sets:

vpn1_TS
```

## show pki enrollment-status

```
show pki enrollment-status [ca-name name]
```

### Purpose

This command displays enrollment status for all or the specified CA.

### Command Mode

Operator or Administrator or Superuser

### Syntax Description

Parameter	Description
ca-name <i>name</i>	The name of the certificate authority.

### Related Commands

scep-config, enroll, fingerprint, show pki scep-config, show pki enrollment-status

### Example

The following example displays enrollment status for entrust.com.

```
MS# show pki enrollment status
CA test-cal.ssh.com - SCEP ENROLLMENT : SUCCESSFUL
(Local Certificate in fs1:/user0/local-cert.scep)
```

## show pki scep-config

```
show pki scep-config [ca-name name]
```

### Purpose

This command displays scep configuration for all CAs or the specified CA.

### Command Mode

Operator or Administrator or Superuser

### Syntax Description

Parameter	Description
<code>ca-name name</code>	The name of the certificate authority.

### Related Commands

scep-config, enroll, fingerprint, show pki scep-config, show pki enrollment-status

### Example

The following example displays scep configuration status for entrust.com.

```
MS# show pki scep-config ca-name ssh
SCEP Configuration for CA ssh
CA Address : http://pki.ssh.com:8080/scep/
<http://pki.ssh.com:8080/scep/>
Passcode : ssh
CRL Address :
Retry Timer : 120 secs
Max Retries : 10
```

## show ssh

```
show ssh
```

### Purpose

This command displays the current secure shell (SSH) configuration. See the *MS950 Configuration Guide* for information on changing current configuration settings.

### Command Mode

Operator or Administrator or Superuser

### Syntax Description

No parameters

### Related Commands

ssh key-generation

### Example

The following example shows information about SSH.

```
MS# show ssh
SSH Configuration
Keyword                               Value
-----
AllowedAuthentications                 publickey,password
AllowTcpForwarding                     yes
AuthorizationFile                      authfile
Ciphers                                AnyCipher
HostKeyFile                            hostkey
IdentityFile                           identif
IdleTimeOut                            1h
KeepAlive                              yes
MACs                                    AnyStdMAC
```

PasswordGuesses	3
PermitEmptyPasswords	no
Port	22
PublicHostKeyFile	hostkey.pub
QuietMode	yes
RandomSeedFile	rndseed
RequiredAuthentications	password
StrictHostKeyChecking	ask
subsystem-sftp	sftp-server
SyslogFacility	AUTH
UserConfigDirectory	"fs1:user0/etc/ssh2/"
VerboseMode	no

## transform

~~SSN-SIP~~ GGSN CDMA SSN

```
transform name protocol esp mode tunnel enc alg hash
alg
no transform name
```

### Purpose

This command creates transforms. A transform represents a certain combination of security protocols and algorithms. During the IPSec SA negotiation, the peers agree to use a particular transform to protect a particular data flow. The no form of the command deletes the transform.

### Command Mode

Administrator or Superuser - config - ipsec

### Syntax Description

Parameter	Description
<i>name</i>	Name of the IPSec transform. Alphanumeric up to 32 characters.
<b>protocol</b> <i>protocol</i>	IKE protocol. Only valid value is ESP.
<b>mode</b> <i>mode</i>	IPSec encapsulation mode. Only valid value is tunnel.
<b>enc</b> <i>alg</i>	The encryption algorithm. Valid values are: des - Specifies 56-bit DES-Cipher 3des - Specifies triple DES or 168-bit DES encryption none - no value specified
<b>hash</b> <i>alg</i>	The hash algorithm. Valid values are: sha-1 - Specifies the Secure Hash Algorithm (SHA)-1 md5 - Specifies the Message Digest 5 hash algorithm

### Related Commands

ike-policy, policy-map, transform, transform-set, access-list, certificate, show ipsec stats, show ipsec sa, show ipsec hw-engine, show ipsec ike sa, show ipsec policy-map, show ipsec transform, show ipsec transform-set

## Example

The following example creates a transform.

```
MS# configure ipsec  
MS(config-ipsec)# transform vpn1_trans1 protocol esp  
                  mode tunnel enc 3des hash sha1
```

## transform-set

~~SSN-SIP~~ GGSN CDMA SSN

```
transform-set name name transforms transforms lifetime
seconds seconds
no transform-set name
```

### Purpose

This command creates transform sets. A transform set represents a combination of possible transforms that peers can agree to use for protecting a particular data flow. The no form of the command deletes the transform set.

### Command Mode

Administrator or Superuser - config - ipsec

### Syntax Description

Parameter	Description
<i>name name</i>	Name of the transform set. Alphanumeric up to 32 characters.
<i>transforms</i>	Names of the transforms included in the set. Names are comma-delimited without spaces. Name can be any text up to 32 characters each. Up to two transforms can be entered.
<b>lifetime</b>	The security association of the transform set.
<b>seconds</b> <i>seconds</i>	Optional: Security association of the transform set in seconds.

### Related Commands

ike-policy, policy-map, transform, transform-set, access-list, certificate, show ipsec stats, show ipsec sa, show ipsec hw-engine, show ipsec ike sa, show ipsec policy-map, show ipsec transform, show ipsec transform-set

### Example



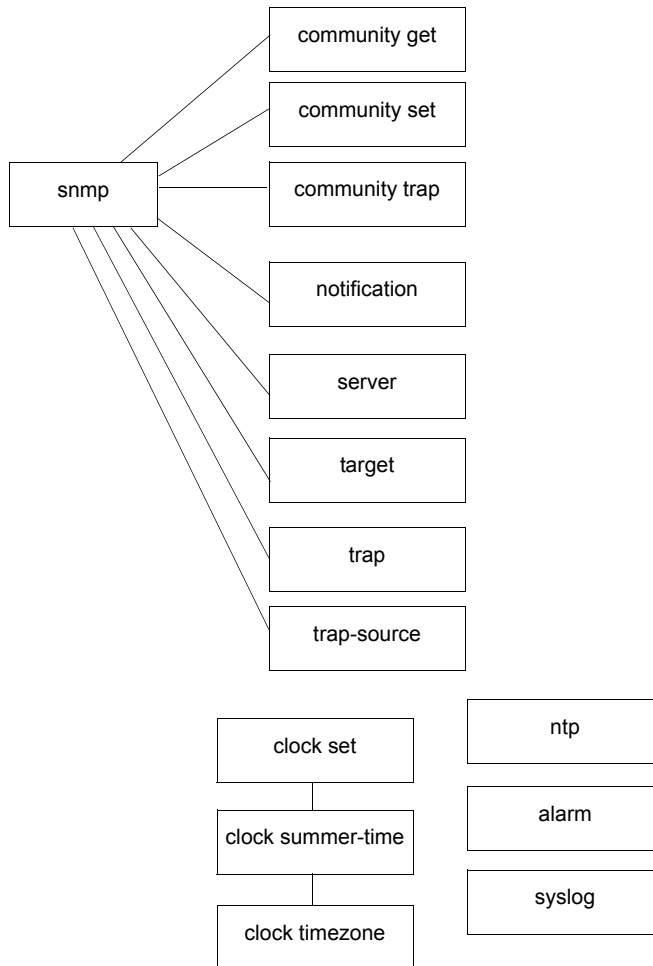
The following example creates a transform set.

```
MS# configure ipsec  
MS(config-ipsec)# transform-set name vpn1_TS  
          transforms vpn1_trans1,vpn1_trans2 lifetime seconds  
          100000
```



# Chapter 17: System Management Commands

The commands listed in this section enable system management functions.



## In This Chapter

- clear alarm
- clear local-log
- clock set
- community get
- community set
- community trap
- filter reset
- notifications
- ntp
- server
- show host
- show snmp
- show snmp log
- show startup-config
- shutdown
- snmp
- syslog
- target
- trap
- trap-source

## clear alarm

```
clear alarm [sequence_number | all | control-card  
            slot_number | line-card slot_number | service-card  
            slot_number | fabric-card slot_number]
```

### Purpose

This command deletes all alarms or the specified alarm from the alarm table.

### Command Mode

Operator or Administrator or Superuser

### Syntax Description

Parameter	Description
<i>sequence_number</i>	The number of the alarm to be cleared. Valid values are 1-4294967295.
<b>all</b>	Optional: Clears all alarms.
<b>control-card</b> <i>slot_number</i>	Optional: Clears alarms on the specified card. Valid values are 9 and 10.
<b>line-card</b> <i>slot_number</i>	Optional: Clears alarms on the specified card. Valid values are 1-4 and 15-18.
<b>fabric-card</b> <i>slot_number</i>	Optional: Clears alarms on the specified card. Valid values are 8 and 11.
<b>service-card</b> <i>slot_number</i>	Optional: Clears alarms on the specified card. Valid values are 5-7 and 12-14.

### Related Commands

show alarms, filter reset

### Example

The following example clears alarm 10 in the alarm table.

MS# `clear alarm 10`

## clear local-log

```
clear local-log
```

### Purpose

This command clears the local syslog.

### Command Mode

Operator or Administrator or Superuser

### Syntax Description

No parameters

### Related Commands

syslog local

### Example

The following example clears the local log.

```
MS# clear local-log
```

## clock set

```
clock set [date date] [time time]
```

### Purpose

This command sets the calendar date and time relative to the configured time zone if no NTP server is available.

### Command Mode

Administrator exec

### Syntax Description

Parameter	Description
<i>date</i>	Optional: The date in the format <i>yyyy/mm/dd</i> where <i>yyyy</i> is 2000 or greater; <i>mm</i> range is 1 to 12; <i>dd</i> range is dependent on month and year.
<i>time</i>	Optional: The time in the format <i>hh:mm[:ss]</i> . <i>hh</i> range is 0-23; <i>mm</i> range is 00-59; and <i>ss</i> range is 00-60.

### Related Commands

show clock, clock summer-time, clock timezone

### Example

The following example sets the system date.

```
MS# clock set date 2001/09/03 time 04:12:01
```

## clock summer-time

```
clock summer-time start-date date start-time time end-  
date date end-time time  
no clock summer-time
```

### Purpose

This command sets daylight savings time. The no form of the command deletes the summer time settings.

### Command Mode

Administrator exec

### Syntax Description

Parameter	Description
<b>start-date</b> <i>date</i>	The start date in the format <i>mm/dd</i> . Month range is 1-12. Day range varies by month.
<b>start-time</b> <i>time</i>	The start time in <i>hh:ss</i> format. Valid value is 0- 23.
<b>end-date</b> <i>date</i>	The start date in the format <i>mm/dd</i> . Month range is 1-12. Day range varies by month.
<b>end-time</b> <i>time</i>	The start time in <i>hh</i> format. Valid value is 0- 23.

### Related Commands

clock set, show clock, clock timezone

### Example

The following example sets daylight savings time.

```
MS# clock summer-time start-date 05/20 start-time 23  
end-date 10/30 end-time 23
```



## clock timezone

```
clock timezone zone hour_offset [minute-offset
    minutes_offset]
no clock timezone
```

### Purpose

This command sets the time zone for the system. The no form of the command deletes the settings for the zone specified.

### Command Mode

Administrator exec

### Syntax Description

Parameter	Description
<i>zone</i>	The name of the time zone. Any text up to 9 characters.
<i>hour_offset</i>	The hours difference from UTC. Valid values are -12 to +12.
<b>minute-offset</b> <i>minutes_offset</i>	Optional: Difference, in minutes, from UTC. Valid values are 0-59. If hour offset is 12 or -12, the minute offset must be 0.

### Related Commands

clock set, clock summer-time, show clock

### Example

The following example sets the time zone.

```
MS# clock timezone est -5
```

## community get

`community get string`

### Purpose

This command specifies community strings for get.

### Command Mode

Administrator or Superuser - config - snmp

### Syntax Description

Parameter	Description
<i>string</i>	The get community string. Any text up to 79 characters. Default is public.

### Related Commands

community set, community trap, show snmp

### Example

The following example configures the SNMP agent server contact information and location and then sets the community strings for get.

```
MS# configure snmp  
MS(config-snmp)# server contact joemegisto@megisto.com  
          location centuryblvd  
MS(config-snmp)# community get private
```

## community set

```
community set string
```

### Purpose

This command specifies community strings for set.

### Command Mode

Administrator or Superuser - config - snmp

### Syntax Description

Parameter	Description
<i>string</i>	The set community string. Any text up to 79 characters. Default is private.

### Related Commands

community get, community trap, show snmp

### Example

The following example configures the SNMP agent server and then sets the community strings for get, set, and traps.

```
MS# configure snmp  
MS(config-snmp)# server contact joemegisto@megisto.com  
          location centuryblvd  
MS(config-snmp)# community set public
```

## community trap

`community trap string`

### Purpose

This command specifies community strings for traps.

### Command Mode

Administrator or Superuser - config - snmp

### Syntax Description

Parameter	Description
<i>string</i>	The traps community string. Any text up to 79 characters. Default is public.

### Related Commands

community set, community get, show snmp

### Example

The following example configures the SNMP agent server and then sets the community strings for get, set, and traps.

```
MS# configure snmp  
MS(config-snmp)# server contact joemegisto@megisto.com  
          location centuryblvd  
MS(config-snmp)# community trap private
```

## filter interval

```
filter interval days
```

### Purpose

This command is used set the default number of days until the physical air filter alarm (LED) is activated.

### Command Mode

Administrator or Superuser

### Syntax Description

Parameter	Description
<i>days</i>	The number of days. Valid values are 1-90. Default is 90.

### Related Commands

clear alarm, show filter

### Example

The following example sets the default number of days for a filter alarm to 60.

```
MS# filter interval 60
```

## filter reset

```
filter reset [days]
```

### Purpose

This command is used reset the filter alarm for a specified number of days. If no number of days is specified, the default set in the `filter interval` command is used.

### Command Mode

Administrator or Superuser

### Syntax Description

Parameter	Description
<i>days</i>	Optional: The number of days. Valid values are 1-90. Default is 90.

### Related Commands

clear alarm, show filter

### Example

The following example resets the filter alarm.

```
MS# filter reset
```

## notification

```
notifications {information | notice | warning |
              disabled}
```

### Purpose

This command indicates whether an event received from the logging facility results in the posting of a notification trap.

### Command Mode

Administrator or Superuser - config - snmp

### Syntax Description

Parameter	Description
<b>information</b>	A trap is sent when an event log exists with severity level set to information, notice, and/or warning.
<b>notice</b>	A trap is sent when an event log exists with severity level set to notice and/or warning.
<b>warning</b>	A trap is sent when an event log exists with severity level set to warning.
<b>disabled</b>	No notification traps are sent. This is the default.

### Related Commands

snmp, trap-source, community trap.

### Example

The following example sends notification traps upon warning logs.

```
MS# configure snmp
MS(config-snmp)# notifications warning
```

## ntp-server

```
ntp-server ip_address source interface_name [poll-  
interval seconds] [prefer] [version number]
```

### Purpose

This command specifies the Network Time Protocol (NTP) server used to obtain time information for synchronizing internal timekeeping processes. The no form of the command disables usage of NTP.

The MS950 uses NTP as specified in RFC1305 to obtain time information from time servers to synchronize internal timekeeping processes. The NTP client contacts a primary, secondary, or other servers as specified in the configuration. A stratum number indicating the server's time accuracy identifies each server in the time service hierarchy.

### Command Mode

Administrator or Superuser - config - ip

### Syntax Description

Parameter	Description
<i>ip_address</i>	The IP address of the NTP server.
<b>prefer</b>	Optional: Indicates that this is the preferred NTP server. It is used instead of others specified.
<b>poll-interval</b> <i>seconds</i>	Optional: FTP polling intervals in seconds. Valid values are 32-1024. Default is 64.
<b>version</b> <i>number</i>	Optional: The version of NTP to be used. Valid values are 1-4. Default is 4.
<b>source</b> <i>interface_name</i>	The source interface used for communicating with configuration servers.

### Related Commands

show ntp, clock



## Example

The following example specifies a primary NTP server.

```
MS# configure ip  
MS(config-ip)# ntp-server source fei9/0 192.168.20.1  
          version 4 prefer
```

## server

```
server [contact syscontact] [location syslocation]  
      [hostname hostname]
```

### Purpose

This command enables SNMP and specifies the hostname parameter and assigns the machine name to the MS950. This is the name that appears in the prompt.

### Command Mode

Administrator or Superuser - config - snmp

### Syntax Description

Parameter	Description
<b>contact</b> <i>syscontact</i>	Optional: A contact name for notification of MIB problems.
<b>location</b> <i>syslocation</i>	Optional: The location of the device. Used for administrative purposes.
<b>hostname</b> <i>hostname</i>	Optional: The hostname of the chassis. This name appears in the prompt.

### Related Commands

snmp, target

### Example

The following example provides all needed SNMP server contact information.

```
MS# configure snmp  
MS(config-snmp)# server contact joemegisto@megisto.com  
                  location centuryblvd hostname MS100
```

## show alarm

```
show alarm seq_number
```

### Purpose

This command displays all active alarms or detailed information on a specified alarm.

### Command Mode

Operator or Administrator or Superuser

### Syntax Description

Parameter	Description
<i>seq_number</i>	Display the specified alarm.

### Related Commands

clear alarm

### Example

The following displays all active alarms.

---

## System Management Commands

MS# **show alarm**

Alarm Sequence	Fault Code	Fault Type	Fault Severity	Board on Slot	Date & Time
1	8019	SW	Major	9	Sat Jan 01 00:00:27.320 2000
2	8005	SW	Major	9	Sat Jan 01 00:00:27.370 2000
3	8096	SW	Major	9	Wed May 22 21:47:02.120 2002
4	3082	SW	Major	9	Wed May 22 21:47:34.230 2002
5	8005	SW	Major	6	Wed May 22 21:48:57.450 2002
6	8005	SW	Major	14	Wed May 22 21:49:09.850 2002
7	8005	SW	Major	9	Wed May 22 21:59:23.490 2002
8	1074	SW	Major	9	Wed May 22 22:50:32.380 2002
9	8082	SW	Major	14	Wed May 22 22:50:34.590 2002
10	8083	SW	Major	14	Wed May 22 22:50:34.590 2002

MG# **show alarm 1**

Alarm Sequence : 1  
Fault Code : 8019  
Fault Type : SW  
Fault Severity : Major  
Board on Slot : 9  
Date & Time : Sat Jan 01 00:00:27.320 2000  
Description :  
SerDesOCC::SerDesOCC: Unable to enable the SerDes interrupt Other CC .

## show clock

```
show clock
```

### Purpose

This command displays the clock settings.

### Command Mode

Operator or Administrator or Superuser

### Syntax Description

No parameters

### Related Commands

clock set, clock summer-time, clock timezone

### Example

The following displays clock settings.

```
MS# show clock
THU MAY 23 13:31:24 UTC 2002
```

## show filter

```
show filter
```

### Purpose

This command displays set filter notifications.

### Command Mode

Operator or Administrator or Superuser

### Syntax Description

No parameters

### Related Commands

filter reset, filter interval

### Example

The following displays filter settings.

```
MS# show filter
```

```
Filter change interval: 90 days
```

```
Time remaining in this period: 6 days
```

## show leds

```
show leds
```

### Purpose

This command displays LED status.

### Command Mode

Operator or Administrator or Superuser

### Syntax Description

No parameters

### Related Commands

none

### Example

The following example displays LED status.

```
MS# show leds
```

```
*****
CC 9
*****
--LED EXTRACT-- LED OFF
--LED STATUS--- COLOR GREEN NOT FLASHING
--LED MODE----- COLOR GREEN NOT FLASHING

*****
CC 10
*****
--LED EXTRACT-- LED OFF
--LED STATUS--- COLOR GREEN NOT FLASHING
```

---

## System Management Commands

```
--LED MODE----- COLOR YELLOW NOT FLASHING
```

```
*****  
FC 8
```

```
*****  
--LED EXTRACT-- LED OFF  
--LED STATUS--- COLOR Green  
--LED MODE----- COLOR Green
```

```
*****  
FC 11
```

```
*****  
--LED EXTRACT-- LED OFF  
--LED STATUS--- COLOR Green  
--LED MODE----- COLOR Yellow
```

```
*****  
SC 5
```

```
*****  
--LED EXTRACT-- LED OFF  
--LED STATUS--- COLOR GREEN NOT FLASHING  
--LED MODE----- COLOR GREEN NOT FLASHING
```

```
*****  
SC 14
```

```
*****  
--LED EXTRACT-- LED OFF  
--LED STATUS--- COLOR GREEN NOT FLASHING  
--LED MODE----- COLOR GREEN NOT FLASHING
```

```
*****  
LC 1
```

```
*****  
--LED EXTRACT-- LED OFF  
--LED STATUS--- COLOR Green  
--LED MODE----- COLOR Green  
--LED SYNC----- LED ON  
--LED SIGNAL--- LED ON
```



\*\*\*\*\*

LC 4

\*\*\*\*\*

```
--LED EXTRACT--    LED OFF
--LED STATUS---    COLOR      Green
--LED MODE-----    COLOR      Green
--LED SYNC-----    LED ON
--LED SIGNAL---    LED ON
```

\*\*\*\*\*

Display Card

\*\*\*\*\*

```
--TEMP-----    OFF
--SYS OK---      ON
--RED ALRM-      OFF
--YEL ALRM-      OFF
--FILTER---      OFF
--PWRA-----    COLOR      Yellow
--PWRB-----    COLOR      Green
--FAN1-----    COLOR      Green
--FAN2-----    COLOR      Green
```

## show ntp

```
show ntp {status | associations}
```

### Purpose

This command displays NTP configuration.

### Command Mode

Operator or Administrator or Superuser

### Syntax Description

Parameter	Description
status	Displays current status information.
association	Displays NTP associations.

### Related Commands

ntp server, clock

### Example

The following example shows NTP configuration.

```
MS# show ntp status
*****NTP STATUS *****
Stratum is 16, reference id is 0.0.0.0, precision is 0.000000

clock offset is 0.000000, root delay is 0.000000

root dispersion is 0.000480
MS# show ntp associations

Address      st    when  poll  reach  delay  offset  disp
192.168.20.34  0    0     32    0     0.000  0.000  0.000
```

## show running-config

```
show running-config
```

### Purpose

This command displays the contents of the current system configuration file.

### Command Mode

Operator or Administrator or Superuser

### Syntax Description

No parameters

### Related Commands

copy running-config, show startup-config

### Example

The following example displays the running configuration file.

```
MS# show running-config
#
configure
#
# =====
# Configure FTP Users
ftp-user ftpuser password-hash RcQbRbzRyc
#
# =====
# Configure Bulk Params
bulk collector ip-address 192.168.20.34 us
bulk params sampling-interval 2
bulk params transfer-interval 30
bulk params retention-period 24
```

---

## System Management Commands

```
bulk params transfer-method ftp
bulk params remote-path /home/michael/bulk
bulk params file-usage 10
bulk no shutdown
#
# =====
# Configure Bulk Schema
bulk map schema gige_if interface gige2/0
bulk map schema gige_if interface gige18/0
#
# =====
#
# Generating Redn script section.
card line-card 2 group l1 role active
card service-card 6 group s1 role active
card fabric-card 8 group f1 role active
card fabric-card 11 group f1 role standby
card service-card 14 group s1 role active
card line-card 18 group l1 role active
#
# Generating Connection script section.
connect service-card 14 line-card 2
connect service-card 6 line-card 18
#
# Generating Card script section.
#
# Generating IP Interface script section.
interface fastethernet 9/0
mtu 1500
no shutdown
exit
interfacegigethernet 2/0 network ran
mtu 1500
no shutdown
exit
interface gigethernet 18/0 network internet
mtu 1500
no shutdown
exit
interface tunnel 2/0.1
encapsulation gtp
mtu 1500
no shutdown
```

```
exit
interface tunnel 18/0.1
encapsulation ipsec
mtu 1500
no shutdown
Press any key to continue (Q to quit)
```

## show snmp

```
show snmp
```

### Purpose

This command displays composite SNMP information.

### Command Mode

Operator or Administrator or Superuser

### Syntax Description

No parameters

### Related Commands

community set, community trap, community trap, server, target, snmp

### Example

The following example displays SNMP information.

```
MS# show snmp
```

```
SNMP Params

Server Name           : MS
Contact               : sysContact for MS950
Location              : sysLocation for MS950
SNMP Packets Input   : 2312
Bad SNMP Version Errors : 0
Unknown Community Name Errors : 0
Illegal Operation for Community Name Errors : 0
Encoding Errors      : 0
  Number of Requested Variables : 2304
  Number of Altered Variables   : 0
Get-request PDUs     : 2307
Get-next PDUs        : 0
Set-request PDUs     : 12
```

```
SNMP Packets Output : 2321
Too Big Errors (Maximum Packet Size 2048) : 0
No Such Name Errors : 0
Bad Value Errors : 0
General Errors : 0
Response PDUs : 2326
SNMP Logging : enabled
Target IP Address : 0.0.0.0
Target Port : 162
Traps Output : 0
```

## show snmp traps

```
show snmp traps
```

### Purpose

This command displays the status for all SNMP trap enable status.

### Command Mode

Operator or Administrator or Superuser

### Syntax Description

No parameters

### Related Commands

```
snmp trap
```

### Example

The following example displays the status of trap enable flags.

```
MS# show snmp traps
Trap Enables:
notification-enable : warning
acct-database-use-rising : enable
acct-database-use-falling : enable
acct-database-discard : enable
acct-transmit-queue-use-rising : enable
acct-transmit-queue-use-falling : enable
acct-transmit-queue-discard : enable
hwcm-temp-rising : enable
hwcm-temp-falling : enable
chassis-fan-tray1-failure : enable
chassis-fan-tray2-failure : enable
chassis-pdu-a-failure : enable
chassis-pdu-b-Failure : enable
```



```
chassis-sys-status-red : enable
chassis-sys-status-yellow : enable
chassis-sys-temp-yellow : enable
sc-fabric-card-alarm : enable
sc-resource-trap : enable
sc-alarm-trap : enable
cc-resource-trap : enable
cc-alarm-trap : enable
lc-alarm-trap : enable
authentication-trap : enable
gtp-gsn-path-notifications : disable
gtp-pdp-context-activate-reject-notification : disable
gtp-primary-charging-gateway-notifications : disable
gtp-secondary-charging-gateway-notifications :disable
```

## show socket

`show socket`

### Purpose

This command displays socket information.

### Command Mode

Operator or Administrator or Superuser

### Syntax Description

No parameters

### Related Commands

none

### Example

The following example displays socket information.

```
MS# show socket
```

```
Active Internet connections (including servers)
```

```
Proto Recv-Q Send-Q Local Address          Foreign  
      Address (state)
```

```
-----  
UDP          0      0 10.128.5.2.500        0.0.0.0.0  
UDP          0      0 0.0.0.0.67           0.0.0.0.0  
UDP          0      0 0.0.0.0.68           0.0.0.0.0  
UDP          0      0 10.128.1.9.6010      0.0.0.0.0  
UDP          0      0 10.128.1.9.6009      0.0.0.0.0  
UDP          0      0 10.128.1.9.6008      0.0.0.0.0  
UDP          0      0 10.128.1.9.6007      0.0.0.0.0  
UDP          0      0 10.128.1.9.6006      0.0.0.0.0
```

## show startup-config

```
show startup-config
```

### Purpose

This command displays the currently saved configuration information.

### Command Mode

Operator or Administrator or Superuser

### Syntax Description

No parameters

### Related Commands

copy running-config

### Example

The following displays the currently saved configuration.

```
MG# show startup-config
#
configure
#
# =====
# Configure FTP Users
ftp-user Help_Center password-hash password
ftp-user NOC password-hash password
ftp-user ftpuser password-hash RcQbRbzRyc
#
# =====
# Configure Bulk Params
bulk shutdown
bulk params sampling-interval 2
bulk params transfer-interval 30
```

---

## System Management Commands

```
bulk params retention-period 24
bulk params transfer-method ftp
bulk params file-usage 10
#
# =====
# Configure Bulk Schema
#
# =====
# Generating Redn script section.
card service-card 7 group s1 role active
card fabric-card 8 group f1 role active
card fabric-card 11 group f1 role standby
card service-card 12 group s1 role active
card line-card 17 group l1 role active
card line-card 18 group l1 role active
#
# Generating Connection script section.
connect service-card 12 line-card 17
connect service-card 7 line-card 18
#
# Generating Card script section.
#
# Generating IP Interface script section.
interface fastethernet 9/0
mtu 1500
no shutdown
exit
interface gigethernet 17/0 network ran
mtu 1500
no shutdown
exit
interface gigethernet 18/0 network internet
mtu 1500
no shutdown
exit
interface tunnel 17/0.1
encapsulation gtp
mtu 1500
no shutdown
exit
interface tunnel 18/0.1
encapsulation ipsec
mtu 1500
```

```
no shutdown
exit
interface loopback 9/0.1
mtu 1500
no shutdown
exit
interface loopback 9/0.10
mtu 1500
no shutdown
exit
#
# Generating IP Address script section.
interface fastethernet 9/0
ip-address 10.128.0.1 255.255.255.0
exit
interface gigethernet 17/0
ip-address 10.128.2.1 255.255.255.0
exit
interface gigethernet 18/0
ip-address 10.128.4.1 255.255.255.0
exit
interface loopback 9/0.1
ip-address 10.128.1.9 255.255.255.0 ms-id
exit
interface loopback 9/0.10
ip-address 172.24.1.1 255.255.0.0
exit
interface tunnel 17/0.1
ip-address 10.128.1.2 255.255.255.0
exit
interface tunnel 18/0.1
ip-address 10.128.5.2 255.255.255.0
exit
#
# Generating IP Route script section.
ip route 0.0.0.0 0.0.0.0 10.128.4.254
ip route 0.0.0.0 0.0.0.0 10.128.2.254
#
# Generating IP ARP script section.
#
# Generating IP Misc. script section.
ip dns server 0.0.0.0
ip dns server 10.10.11.1 secondary
```

---

## System Management Commands

```
ip dns domain Test_bed_4
ip dns domain-lookup
ip arp timeout 1200
#
# Generating RTC script section.
clock summer-time start-date 4/1 start-time 2 end-date
  10/1 end-time 2
clock timezone GMT 0
#
# Generating SysLog script section.
syslog local type file
no syslog local
syslog host ip-addr 0.0.0.0 port 514
syslog host facility kern
syslog host level info
#
# Generating Acct. script section.
charging mode ftp-pull
charging cdr-aggregation-limit max-cdrs 6 message-size
  512
charging container-thresholds volume 500000 time-limit
  15
charging cdr-closure-thresholds volume 5000000
charging cdr-closure-thresholds time 60
charging cdr-closure-thresholds sgsn-limit 1
charging cdr-closure-thresholds container-limit 4
charging cdr-options msisdn off
charging cdr-options apn-selection-mode off
charging cdr-options node-id on
charging cdr-options local-sequencing-number off
charging node id uninitializedNodeId mcc unk mnc unk
charging ftp-pull source-dir system:cdr file-size 100
  dir-size 100000
charging ftp-push ip 192.168.20.34 dest-dir /home/iv/
  cdr user iv password iv push-interval 1 retry-
  interval 60
retransmit 2 file-size 1000 dir-size 100000
charging root-tag 161
#
# Generating Gtp script section.
gtp path-echo-request
gtp path-echo-interval 60
gtp n3-request 5
```

```
gtp t3-response 5
#
# Generating Gtp' script section.
charging gateway prim-ip 0.0.0.0 prim-port 3386 sec-ip
    0.0.0.0
charging path-echo-interval 60
charging timeout 5
charging path-echo-retransmit 3
charging retransmit 3
#
# =====
# Configure APNs
subscriber-partition tim1
    no shutdown
    access-point tim1.com
        access-mode transparent
        address-method local-pool
        treatment-type sip
    exit
exit
subscriber-partition tim2
    no shutdown
    access-point tim2.com
        access-mode non-transparent
        address-method local-pool
        treatment-type sip
    exit
exit
subscriber-partition tim3
    no shutdown
    access-point tim3.com
        access-mode transparent
        address-method dhcp-proxy-client
        treatment-type sip
    exit
exit
subscriber-partition vpn1
    no shutdown
    access-point vpn1.com
        access-mode transparent
        address-method local-pool
        treatment-type ipsec
        ipsec-policy-map vpn_map
```

---

## System Management Commands

```
    exit
  exit
#
# =====
# AAA Radius Server Configuration
subscriber-partition tim2
  access-point tim2.com
  radius-server auth ip 192.168.10.10 name funk key
    funky auth-port 1812 timeout 3 retransmit 5
  exit
exit
#
# =====
# Configure IPSEC Transforms
ipsec
transform vpn1_trans1 protocol esp mode tunnel enc
  3des hash sha1
transform vpn1_trans2 protocol esp mode tunnel enc
  3des hash md5
exit
#
# =====
# Configure IPSEC Transform Sets
ipsec
transform-set vpn1_TS transforms
  vpn1_trans1,vpn1_trans2 lifetime seconds 100000
exit
#
# Subscriber Address Pool Configuration
ip
  exit
subscriber-partition tim1
  access-point tim1.com
  subscriber-address-pool 14.0.0.0 255.0.0.0 service-
    card 12
  exit
exit
subscriber-partition tim2
  access-point tim2.com
  subscriber-address-pool 15.0.0.0 255.0.0.0 service-
    card 12
  exit
exit
```



```
subscriber-partition tim3
access-point tim3.com
subscriber-address-pool 172.24.1.1 255.255.0.0
service-card 12
exit
exit
subscriber-partition vpn1
access-point vpn1.com
subscriber-address-pool 172.24.5.0 255.255.255.0
service-card 12
exit
exit
#
# =====
# Configure DHCP Server settings
subscriber-partition tim3
access-point tim3.com
dhcp-server 192.168.10.10 DHCP_PRIMARY
exit
exit
#
# =====
# Configure IKE Policies
ipsec
ike-policy vpn1_ike1 enc 3des hash sha1 auth rsa-sig
dh-group modp-1024 lifetime seconds 100000
ike-policy vpn1_ike2 enc 3des hash md5 auth rsa-sig
dh-group modp-1024 lifetime seconds 100000
exit
#
# =====
# Configure IPSEC Policy Maps
ipsec
policy-map vpn_map access-list vpn1_acl ike-policy
vpn1_ike1,vpn1_ike2 end-point 192.168.41.3 pre-
shared trans
form-set vpn1_TS pfs enable
exit
#
# =====
# Configure Access Control List
```

---

## System Management Commands

```
access-list vpn1_acl src-ip 172.24.5.0 src-mask
    255.255.255.0 dest-ip 192.168.20.0 dest-mask
    255.255.255.0 prot
ocol * sport * dport * action permit
#
# =====
# Configure Access Control List Bindings
#
# Generating IpSec Certificate Script Section.
ipsec certificate local cert-name vpn_key certificate-
    file fs1:user0/pgncert.der private-key-file
    fs1:user0/pgnpriv.d
er
ipsec certificate ca cert-name vpn1_cert certificate-
    file fs1:user0/cacert.der
#
# =====
# Configure SNMP Agent
snmp
    community get public
    community set private
    community trap public
    server contact "sysContact for MS950"
    server location "sysLocation for MS950"
    server hostname "MG"
    trap-source 10.128.0.1
exit
#
#
exit
```

## show synchronization-status

```
show synchronization-status
```

### Purpose

This command displays the status of file synchronization between the active and the standby control card.

### Command Mode

Operator or Administrator or Superuser

### Syntax Description

No parameters

### Related Commands

None

### Example

The following example displays synchronization status for control cards.

```
MS# show synchronization-status
Volume      State                Time of Last Sync
-----
fs1:/boot   Synced.              AUG 21 08:47:47:2002
fs1:user0   Synced.              AUG 21 08:47:47:2002
system:     Not syncing.
```

## show syslog

```
show syslog {local | configuration}
```

### Purpose

This command displays the local log or host log configuration.

### Command Mode

Operator or Administrator or Superuser

### Syntax Description

Parameter	Description
local	Displays the local log.
configuration	Displays the host log configuration.

### Related Commands

clear local-log, syslog

### Example

The following example displays the host log configuration.

```
MS# show syslog configuration
Syslog local logging           : Disabled
Syslog local logging output   : log file
Syslog local log file         : system:/syslog.txt
Syslog host logging           : Enabled
Syslog host IP address        : 0.0.0.0
Syslog host port number       : 514
Syslog filter level           : info
Syslog facility                : kern
```

## show tcp

```
show tcp
```

### Purpose

This command displays TCP traffic information.

### Command Mode

Operator or Administrator or Superuser

### Syntax Description

No parameters

### Related Commands

none

### Example

The following example displays TCP information.

```
MS# show tcp
TCP:
    645829 packets sent
        622951 data packets (293602948 bytes)
        13 data packets (2282 bytes) retransmitted
        19104 ack-only packets (7597 delayed)
        0 URG only packet
        0 window probe packet
        0 window update packet
        3761 control packets
    349168 packets received
        334563 acks (for 293607371 bytes)
        3886 duplicate acks
        0 ack for unsent data
        14331 packets (207118 bytes) received in seq
        177 completely duplicate packets (1579 bytes)
        0 packet with some dup. data (0 byte duped)
```

---

## System Management Commands

```
3727 out-of-order packets (15 bytes)
0 packet (0 byte) of data after window
0 window probe
2804 window update packets
0 packet received after close
85 discarded for bad checksums
0 discarded for bad header offset field
0 discarded because packet too short
3719 connection requests
39 connection accepts
3758 connections established (including accepts)
3713 connections closed (including 0 drop)
0 embryonic connection dropped
338276 segments updated rtt (of 141328 attempts)
8 retransmit timeouts
    0 connection dropped by rexmit timeout
0 persist timeout
0 keepalive timeout
    0 keepalive probe sent
    0 connection dropped by keepalive
28 pcb cache lookups failed
```

## snmp

`snmp`

### Purpose

This command allows you to enter SNMP commands.

### Command Mode

Administrator or Superuser - config

### Syntax Description

No parameters

### Related Commands

community set, community trap, community trap, server, target, show snmp

### Example

The following example enables configuration of SNMP information.

```
MS# configure snmp  
MS (config-snmp) #
```

## syslog host

```
syslog host
syslog host {ip-addr ip_address} [port port_number]
syslog host {level {alert | critical | error | warning
| notice | info | debug}}
syslog host {facility {kern | user | mail | daemon |
auth1 | syslog | printer | news | uucp | audit |
clock2 | local0 | local1 | local2 | local3 | local4
| local5 | local6 | local7}}
no syslog host
```

### Purpose

This command alone enables or disables host logging. With parameters it specifies the severity filter level, facility code, log host, IP address, and port number.

### Command Mode

Administrator or Superuser - config

### Syntax Description

Parameter	Description
<code>ip ip_address</code>	The IPv4 address of the host.
<code>level</code>	The severity level for logging syslog messages filters.
<code>port port_number</code>	The port number of the syslog server. Valid values are 1-65535. Default is 514.
<code>facility</code>	The name of the facility.

### Related Commands

clear local-log, show syslog, syslog local

### Example



The following example specifies the host log parameters.

```
MS# configure syslog host ip 192.178.66.764 port 1200  
    level info
```

## syslog local

```
syslog local
syslog local [type {memory | console | file}]
no syslog local
```

### Purpose

This command alone enables or disables local logging. With parameters it specifies the type of local log.

### Command Mode

Administrator or Superuser - config

### Syntax Description

Parameter	Description
<b>memory</b>	Optional: Stores the local log in memory. This is a temporary storage.
<b>console</b>	Optional: Displays the local log on the console. This is a temporary display.
<b>file</b>	Optional: Writes the local log to a file. This is a permanent storage.

### Related Commands

clear local-log, show syslog, syslog host

### Example

The following example specifies the local log parameters.

```
MS# configure syslog local type memory
```

## target

```
target ip_address [port port_number]
no target
```

### Purpose

This command specifies hosts (targets) that receive SNMP notification (traps). The no form of the command sets the target IP address to 0.0.0.0 and port to 162.

### Command Mode

Administrator or Superuser - config - snmp

### Syntax Description

Parameter	Description
<i>ip_address</i>	The IP address of the target management station.
<b>port</b> <i>port_number</i>	Optional: The UDP port used to send the notifications to the target. Valid Values are 1- 65535. Default is 162.

### Related Commands

snmp, server

### Example

The following example specifies SNMP trap target information.

```
MS# configure snmp
MS(config-snmp)# target 128.89.1.112 port 163
```

## trap

```
trap trap_id | all {enable | disable}
```

### Purpose

This command indicates which types of traps to send.

### Command Mode

Administrator or Superuser - config - snmp

### Syntax Description

Parameter	Description
<i>trap_id</i>	The type of trap. Valid values are: acct-database-use-rising, acct-database-use-falling, acct-database-discard, acct-transmit-queue-use-rising, acct-transmit-queue-use-falling, acct-transmit-queue-discard, hwcm-temp-rising, hwcm-temp-falling, chassischassis-fan-tray1-failure, chassis-fan-tray2-failure, chassis-pdu-a-failure, chassis-pdu-b-Failure, chassis-sys-status-red, chassis-sys-status-yellow, chassis-sys-temp-yellow, sc-fabric-card-alarm, sc-resource-trap, sc-alarm-trap, sc-nat-space-exhausted, cc-resource-trap, cc-alarm-trap, lc-alarm-trap, authentication-trap, gtp-gsn-path-notifications, gtp-pdp-context-activate-reject-notification, gtp-primary-charging-gateway-notifications, gtp-secondary-charging-gateway-notifications.
<b>enable   disable</b>	Enables or disables the sending of the indicated trap.
<b>all</b>	Indicates all traps.

### Related Commands

snmp, trap-source, community trap

### Example

The following example sends sc-resource-trap traps.

```
MS# configure snmp  
MS(config-snmp)# trap chassis-pdu-b-Failure enable
```

## trap-source

```
trap-source ip_address  
no trap-source
```

### Purpose

This command specifies the interface used as the source address for all traps. The no form of the command sets the trap-source address to 0.0.0.0.

### Command Mode

Administrator or Superuser - config - snmp

### Syntax Description

Parameter	Description
<i>ip_address</i>	The address of the interface used for traps.

### Related Commands

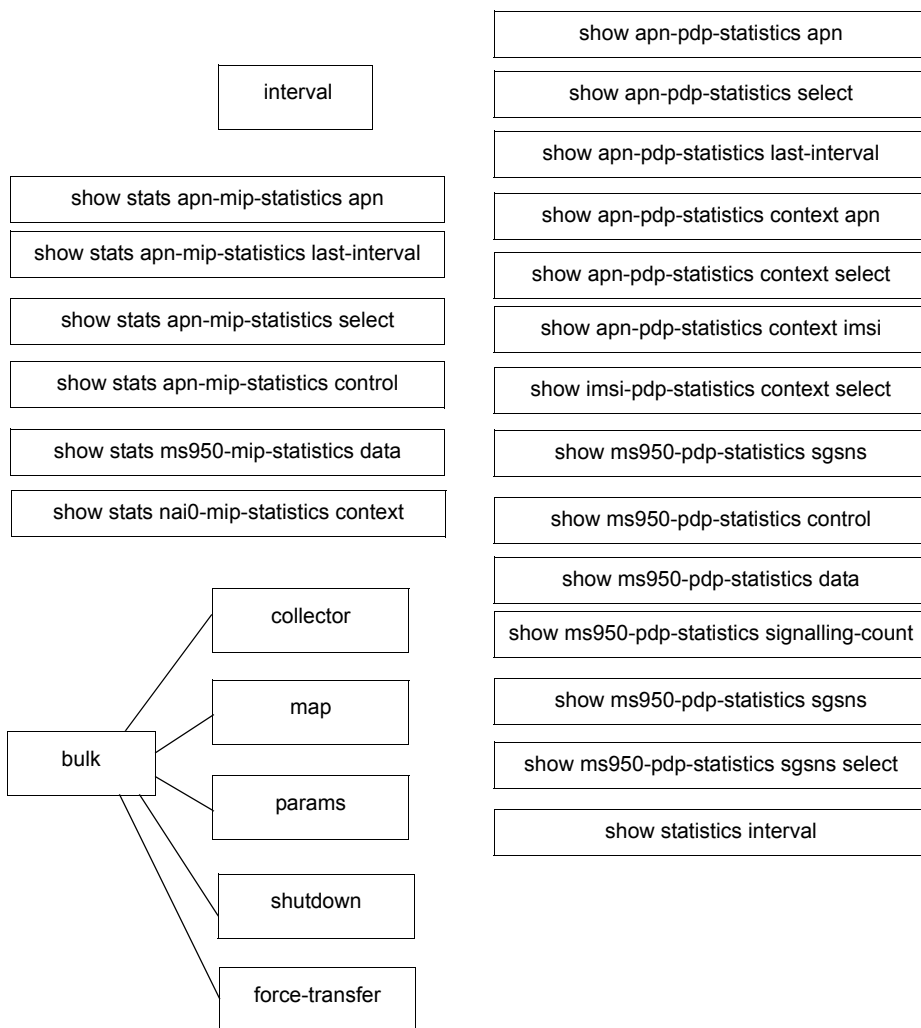
### Example

The following example provides the IP address of the source for all traps.

```
MS# configure snmp  
MS(config-snmp)# trap-source 190.11.123.44
```

# Chapter 18: System Statistics

The commands listed in this section provide configuration and display of system statistics.



## In This Chapter

- collector
- force-transfer
- interval
- map
- params
- show apn-pdp-statistics apn
- show apn-pdp-statistics select
- show apn-pdp-statistics last-interval
- show apn-pdp-statistics context apn
- show apn-pdp-statistics context select
- show apn-pdp-statistics context imsi
- show imsi-pdp-statistics context select
- show ms950-pdp-statistics sgsns
- show ms950-pdp-statistics control
- show ms950-pdp-statistics data
- show ms950-pdp-statistics signalling-count
- show ms950-pdp-statistics sgsns
- show ms950-pdp-statistics sgsns select
- show statistics interval
- show stats apn-mip-statistics apn
- show stats apn-mip-statistics last-interval
- show stats apn-mip-statistics select
- show stats apn-mip-statistics control
- show stats ms950-mip-statistics data
- show stats nai0-mip-statistics context
- shutdown

## bulk

**bulk**

### Purpose

This command allows entry of bulk statistics commands.

### Command Mode

Administrator or Superuser - config

### Syntax Description

No parameters

### Related Commands

map, params, shutdown, show params, show bulk maps, show bulk schema, force-transfer.

### Example

The following example allows entry of bulk statistics commands.

```
MS# configure bulk  
MS (config-bulk) #
```



## collector

```
collector {ip-address ip_address} [user name]
          [password password] [secondary]
```

### Purpose

This command is used to set up information for the bulk stats collector stations. Two stations can be configured.

### Command Mode

Administrator or Superuser - config - bulk

### Syntax Description

Parameter	Description
<b>ip-address</b> <i>ip_address</i>	The IP address of the collector station in A.B.C.D format.
<b>user</b> <i>name</i>	The user name for the account on the collector station. Alphanumeric up to 31 characters.
<b>password</b> <i>password</i>	The password for the account on the collector station. Alphanumeric up to 31 characters.
<b>secondary</b>	Keyword. It indicates that this is a secondary collector station.

### Related Commands

map, params, shutdown, show params, show bulk maps, show bulk schema, force-transfer.

### Example

The following example sets parameters for the bulk collection station.

```
MS# configure bulk
MS(config-bulk)# collector ip-address 124.234.20.2
user ftp password ftp
```

## force-transfer

`force-transfer`

### Purpose

This command transfers the current bulk stats data collection file to the collector station, immediately.

### Command Mode

Administrator or Superuser - config

### Syntax Description

No parameters

### Related Commands

collector, map, params, show params, show bulk maps, show bulk schema, bulk shutdown.

### Example

The following forces immediate transfer of bulk stats.

```
MS# configure bulk  
MS(config-bulk)# force-transfer
```

## interval

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```
interval minutes minutes
```

### Purpose

This command specifies the periodic PDP statistical interval used to compute rates and averages by the system.

### Command Mode

Administrator or Superuser - config

### Syntax Description

Parameter	Description
<b>minutes</b> <i>minutes</i>	The number of minutes between calculation of rates and averages. Valid values are 5-15. Default is 15.

### Related Commands

interval, show apn-pdp-statistics apn, show apn-pdp-statistics select, show apn-pdp-statistics last-interval, show apn-pdp-statistics context apn, show apn-pdp-statistics context select, show imsi-pdp-statistics context imsi, show imsi-pdp-statistics context select, show ms950-pdp-statistics control, show ms950-pdp-statistics data, show ms950-pdp-statistics control, show ms950-pdp-statistics data, show ms950-pdp-statistics signalling-count, show ms950-pdp-statistics sgsns, show ms950-pdp-statistics sgsns select, show statistics interval

### Example

The following sets the statistics generation interval to 25 minutes.

```
MS# configure stats interval minutes 25
```

## map

```
map {schema name} {interface name | remote-gateway  
    ip_address | system}  
no map {schema name} {interface name | remote-gateway  
    ip_address | system}
```

### Purpose

This command is used to map a schema to an interface or other system resource.

### Command Mode

Administrator or Superuser - config - bulk

### Syntax Description

Parameter	Description
<b>schema name</b>	The name of the schema. Alphanumeric up to 31 characters.
<b>interface name</b>	The name of the interface for which to map the schema. Alphanumeric up to 31 characters.
<b>remote-gateway ip_address</b>	The IP address for the remote gateway of an IPSec security association.
<b>system</b>	Optional: Maps a schema for the system.

### Related Commands

collector, params, shutdown, show params, show bulk maps, show bulk schema, force-transfer.

### Example

The following example maps the schema to the interface.

```
MS# configure bulk  
MS(config-bulk)# map schema gige-if interface gige2/0
```

## params

```
params [local-path path_name] [sampling-interval
minutes] [transfer-interval minutes] [retention-
period hours] [transfer-method ftp] [remote-path
path_name] [file-usage max_size] [schema-file
file_name]
```

### Purpose

This command is used to set up the parameters for the bulk stats server.

### Command Mode

Administrator or Superuser - config - bulk

### Syntax Description

Parameter	Description
<b>local-path</b> <i>path_name</i>	The local path for the data collection file. Name can be any text up 255 characters.
<b>sampling-interval</b> <i>minutes</i>	The data sampling interval in minutes. Valid values are 2-60. Default is 5.
<b>transfer-interval</b> <i>minutes</i>	The data transfer interval in minutes. Valid values are 30-720. Default is 30.
<b>retention-period</b> <i>hours</i>	The data collection file retention period. Valid values are 1-200. Default is 24.
<b>transfer-method</b> [ <i>ftp</i> ]	The method for transferring the data collection file to the collector station Default is ftp.
<b>remote-path</b> <i>path_name</i>	The remote path at which to store the data collection files. Name can be any text up 255 characters.
<b>file-usage</b> <i>max_size</i>	The maximum file system usage in Mb allowed for bulk system. Valid values are 1-150. Default is 10.
<b>schema-file</b> <i>file_name</i>	The name of the file containing the bulk schema definitions. Name can be any text up 64 characters. This file must be located in the fs1:/user0/bulk directory.

## Related Commands

collector, map, shutdown, show params, show bulk maps, show bulk schema, force-transfer.

## Example

The following example provides bulk server parameters.

```
MS# configure bulk  
MS(config-bulk)# params local-path path1 sampling-  
                  interval 22 transfer method ftp schema-file schemal
```

## show apn-pdp-statistics apn

GGSN CDMA SSN

```
show apn-pdp-statistics apn [apn]
```

### Purpose

This command displays a summary table of traffic-related PDP Statistics information for all APNs or the specified APN.

### Command Mode

Operator or Administrator or Superuser

### Syntax Description

Parameter	Description
<i>apn</i>	Optional: The name of the APN. Name can be any text up 100 characters.

### Related Commands

interval, show apn-pdp-statistics apn, show apn-pdp-statistics select, show apn-pdp-statistics last-interval, show apn-pdp-statistics context apn, show apn-pdp-statistics context select, show imsi-pdp-statistics context imsi, show imsi-pdp-statistics context select, show ms950-pdp-statistics control, show ms950-pdp-statistics data, show ms950-pdp-statistics signalling-count, show ms950-pdp-statistics sgsns, show ms950-pdp-statistics sgsns select, show statistics interval

### Example

The following example displays statistics information for the specified APN.

```
MS# show apn-pdp-statistics apn megisto.com
```

```
APN : megisto.com
```

```
Egress Type : simple-ip
```

---

## System Statistics

```
Number of Active PDP Contexts           : 75
% Total Calls                           : 17
PDP Contexts High Water Mark           : 75
PDP Contexts Low Water Mark            : 75
Average Number of Active Contexts      : 0
Number of Contexts Established         : 75
Number of Contexts Deleted             : 0
Total PDP Create Success                : 75
Last PDP Create Success
    Time                               : 00:41:52 1 Jan 2000
Total PDP Create Attempts-Dynamic Address : 75
Total PDP Create Success-Dynamic Address : 75
Total PDP Create Fails                 : 0
PDP Create Fail, TFT Parse Error       : 0
PDP Create Fail, No Resources          : 0
PDP Create Fail, Service not Supported : 0
PDP Create Fail, PDP Address          : 0
PDP Create Fail, System Failure       : 0
PDP Create Fail, Context Not Found    : 0
PDP Create Fail, Authentication Fail   : 0
Last Create Fail
    Time                               : 00:00:00 1 Jan 1970
Total PDP Update Success               : 0
Last PDP Update Success
    Time                               : 00:00:00 1 Jan 1970
Total PDP Update Failures              : 0
PDP Update Fail, TFT Parse Error       : 0
PDP Update Fail, No Resources          : 0
PDP Update Fail, Service not Supported : 0
PDP Update Fail, System Failure       : 0
PDP Update Fail, Non Existent         : 0
PDP Update Fail, Context Not Found    : 0
Last Update Fail Time                 : 00:00:00
    1 Jan 1970
Total PDP Delete Success (SGSN)       : 0
Last PDP Delete Success Time (SGSN)   : 00:00:00
    1 Jan 1970
Total PDP Delete Fail (SGSN)         : 0
Last PDP Delete Fail Time (SGSN)     : 00:00:00
    1 Jan 1970
Total PDP Delete Success (GGSN)      : 0
Last PDP Delete Success Time (GGSN)   : 00:00:00
    1 Jan 1970
```



Total PDP Delete Fail (GGSN) : 0  
Last PDP Delete Fail Time (GGSN) : 00:00:00  
1 Jan 1970  
Current Total Uplink Packets : 0  
Current Uplink Packets High Water Mark : 0  
Current Uplink Packets Low Water Mark : 0  
Current Total Downlink Packets : 0  
Current Downlink Packets High Water Mark : 0  
Current Downlink Packets Low Water Mark : 0  
Current Total Uplink Bytes : 0  
Current Uplink Bytes High Water Mark : 0  
Current Uplink Bytes Low Water Mark : 0  
Current Total Downlink Bytes : 0  
Current Downlink Bytes High Water Mark : 0  
Current Downlink Bytes Low Water Mark : 0

## show stats apn-mip-statistics apn

```
show stats apn-mip-statistics apn apn
```

### Purpose

This command displays a summary table of traffic-related MIP information for all APNs or the specified APN.

### Command Mode

Operator or Administrator or Superuser

### Syntax Description

Parameter	Description
<i>apn</i>	The name of the APN. Name can be any text up to 100 characters.

### Related Commands

show stats apn-mip-statistics apn, show stats apn-mip-statistics last-interval, show stats apn-mip-statistics select, show stats apn-mip-statistics control, show stats ms950-mip-statistics data, show stats nai-mip-statistics context

### Example

The following example displays MIP statistics information for the specified APN.

```
MS# show stats apn-mip-statistics apn um1 vs.com
APN : vs.com
Egress Type : 1
Number of Active MIP Contexts : 1
% Total Calls : 100
MIP Contexts High Water Mark : 1
MIP Contexts Low Water Mark : 1
```

```
Average Number of Active Context      : 0
Number of Contexts Established         : 1
Number of Contexts Deleted            : 0
Total MIP Context Create Success      : 1
Last time of Successful Create        : Mon Aug 25
    16:59:24 2003
Total MIP Context Create Fail         : 0
Last time of Failed Create            : Not Init.
Total MIP Context Update Success      : 0
Last time of Successful Update        : Not Init.
Total MIP Context Update Fail         : 0
Last time of Failed Update            : Not Init.
Total MIP Context Delete Success      : 0
Last time of Successful Delete        : Not Init.
Total MIP Context Delete Fail         : 0
Last time of Failed Delete            : Not Init.
Current Total Uplink Packets          : 0
Current Uplink Packets High Water Mark : 0
Current Uplink Packets Low Water Mark : 0
Current Total Downlink Packets        : 0
Current Downlink Packets High Water Mark : 0
Current Downlink Packets Low Water Mark : 0
Current Total Uplink Bytes            : 0
Current Uplink Bytes High Water Mark  : 0
Current Uplink Bytes Low Water Mark   : 0
Current Total Downlink Bytes          : 0
Current Downlink Bytes High Water Mark : 0
Current Downlink Bytes Low Water Mark  : 0
```

## show stats apn-mip-statistics last-interval

```
show stats apn-mip-statistics last-interval apn [apn]
```

### Purpose

This command displays counts, averages, and rates computed over the most recently expired MIP statistical interval. The interval time is specified in the `interval` command.

### Command Mode

Operator or Administrator or Superuser

### Syntax Description

Parameter	Description
<i>apn</i>	Optional: The name of the APN. Name can be any text up to 100 characters.

### Related Commands

show stats apn-mip-statistics apn, show stats apn-mip-statistics last-interval, show stats apn-mip-statistics select, show stats apn-mip-statistics control, show stats ms950-mip-statistics data, show stats nai-mip-statistics context

### Example

The following example displays MIP statistics information for the specified APN.

```
MS# show stats apn-mip-statistics last-interval apn  
      megisto.com
```

## show stats apn-mip-statistics select

```
show stats apn-mip-statistics select
  [c1 num_active_contexts] [c2 num_failed_contexts]
  [c3 percent_total_calls] [c4 apn]
```

### Purpose

This command displays a subset of the table that shows a summary of all MIP statistics for APNs that experienced MIP traffic.

### Command Mode

Operator or Administrator or Superuser

### Syntax Description

Parameter	Description
<b>c1</b> <i>num_active_contexts</i>	Optional: Only rows that have a value in column 1 of the table, which is currently active pdp-contexts, are displayed.
<b>c2</b> <i>num_failed_contexts</i>	Optional: Only rows that have a value in column 2 of the table, which is failed pdp-contexts, are displayed.
<b>c3</b> <i>percent_total_calls</i>	Optional: Only rows that have a value in column 3 of the table, which is percentage of total calls, are displayed.
<b>c4</b> <i>apn</i>	Optional: Only rows that have a value in column 2 of the table, which is APNs, are displayed.

### Related Commands

show stats apn-mip-statistics apn, show stats apn-mip-statistics last-interval, show stats apn-mip-statistics select, show stats apn-mip-statistics control, show stats ms950-mip-statistics data, show stats nai-mip-statistics context

### Example

---

## System Statistics

The following example displays statistics information for the specified APN.

```
MS# show apn-mip-statistics select
MS# show apn-pdp-statistics select c1 1 c2 3 c3 100 c4
win.megisto.com
```

## show apn-pdp-statistics select

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```
show apn-pdp-statistics select
  [c1 num_active_contexts] [c2 num_failed_contexts]
  [c3 percent_total_calls] [c4 apn]
```

### Purpose

This command displays a subset of the table that shows a summary of all PDP statistics for APNs that experienced PDP traffic.

### Command Mode

Operator or Administrator or Superuser

### Syntax Description

Parameter	Description
<b>c1</b> <i>num_active_contexts</i>	Optional: Only rows that have a value in column 1 of the table, which is currently active pdp-contexts, are displayed.
<b>c2</b> <i>num_failed_contexts</i>	Optional: Only rows that have a value in column 2 of the table, which is failed pdp-contexts, are displayed.
<b>c3</b> <i>percent_total_calls</i>	Optional: Only rows that have a value in column 3 of the table, which is percentage of total calls, are displayed.
<b>c4</b> <i>apn</i>	Optional: Only rows that have a value in column 2 of the table, which is APNs, are displayed.

### Related Commands

interval, show apn-pdp-statistics apn, show apn-pdp-statistics select, show apn-pdp-statistics last-interval, show apn-pdp-statistics context apn, show apn-pdp-statistics context select, show imsi-pdp-statistics context imsi, show imsi-pdp-statistics context select, show ms950-pdp-statistics control, show ms950-pdp-statistics data, show ms950-pdp-statistics signalling-count, show ms950-pdp-statistics sgsns, show ms950-pdp-statistics sgsns select, show statistics interval

**Example**

The following example displays statistics information for the specified APN.

```
MS# show apn-pdp-statistics select
```

Number of PDP Contexts Active	Number of PDP Contexts Failed	% Total Calls	Access Point Name
--	--	---------------------	-------------------

```
=====
0          0          0      megisto.com
1          3         100    win.megisto.com
-----
```

```
MS# show apn-pdp-statistics select c1 1 c2 3 c3 100 c4
      win.megisto.com
```

Number of PDP Contexts Active	Number of PDP Contexts Failed	% Total Calls	Access Point Name
--	--	---------------------	-------------------

```
=====
1          3         100    win.megisto.com
```



## show apn-pdp-statistics last-interval

GGSN CDMA SSN

```
show apn-pdp-statistics last-interval [apn]
```

### Purpose

This command displays counts, averages, and rates computed over the most recently expired PDP statistical interval. The interval time is specified in the `interval` command.

### Command Mode

Operator or Administrator or Superuser

### Syntax Description

Parameter	Description
<i>apn</i>	Optional: The name of the APN. Name can be any text up 100 characters.

### Related Commands

interval, show apn-pdp-statistics apn, show apn-pdp-statistics select, show apn-pdp-statistics last-interval, show apn-pdp-statistics context apn, show apn-pdp-statistics context select, show imsi-pdp-statistics context imsi, show imsi-pdp-statistics context select, show ms950-pdp-statistics control, show ms950-pdp-statistics data, show ms950-pdp-statistics signalling-count, show ms950-pdp-statistics sgsns, show ms950-pdp-statistics sgsns select, show statistics interval

### Example

The following displays statistics from the last specified interval.

```
MS# show apn-pdp-statistics last-interval megisto.com

PDP Contexts High Water Mark           : 0
PDP Contexts Low Water Mark            : 0
```

---

## System Statistics

Average Number of Active Contexts	: 75
Number of Contexts Established	: 0
Number of Contexts Deleted	: 0
Last Total Uplink Packets	: 0
Last Uplink Packets High Water Mark	: 0
Last Uplink Packets Low Water Mark	: 0
Last Total Downlink Packets	: 0
Last Downlink Packets High Water Mark	: 0
Last Downlink Packets Low Water Mark	: 0
Last Total Uplink Bytes	: 0
Last Uplink Bytes High Water Mark	: 0
Last Uplink Bytes Low Water Mark	: 0
Last Total Downlink Bytes	: 0
Last Downlink Bytes High Water Mark	: 0
Last Downlink Bytes Low Water Mark	: 0

## show apn-pdp-statistics context apn

GGSN CDMA SSN

```
show apn-pdp-statistics context apn [apn]
```

### Purpose

This command displays active PDP contexts for all APNs or the specified APN.

### Command Mode

Operator or Administrator or Superuser

### Syntax Description

Parameter	Description
<i>apn</i>	Optional: The name of the APN. Name can be any text up 100 characters.

### Related Commands

interval, show apn-pdp-statistics apn, show apn-pdp-statistics select, show apn-pdp-statistics last-interval, show apn-pdp-statistics context apn, show apn-pdp-statistics context select, show imsi-pdp-statistics context imsi, show imsi-pdp-statistics context select, show ms950-pdp-statistics control, show ms950-pdp-statistics data, show ms950-pdp-statistics signalling-count, show ms950-pdp-statistics sgsns, show ms950-pdp-statistics sgsns select, show statistics interval

### Example

The following displays PDP-contexts for the specified APN.

```
MS# show apn-pdp-statistics context apn megisto10

Mobile Subscriber International      N      Access
ISDN   Number   Mobile          S      Point
(MsIsdn)           Subscriber      A      Name
```

---

**System Statistics**

	Identifier	P
	(IMSI)	I
1952154674		23455
3552154674	5 win.megisto.com	

## show apn-pdp-statistics context select

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```
show apn-pdp-statistics context select [c1 ms_isdn]
[c2 imsi] [c3 nsapi] [c4 apn]
```

### Purpose

This command displays a subset of the summary table of related PDP Statistics information for all APNs or the specified APN.

### Command Mode

Operator or Administrator or Superuser

### Syntax Description

Parameter	Description
<b>c1</b> <i>ms_isdn</i>	Optional: Only rows that have a value in column 1 of the table, which is <i>ms_isdn</i> , are displayed. hexadecimal up to 48 characters.
<b>c2</b> <i>imsi</i>	Optional: Only rows that have a value in column 2 of the table, which is <i>imsi</i> , are displayed. Alphanumeric up to 15 characters.
<b>c3</b> <i>nsapi</i>	Optional: Only rows that have a value in column 3 of the table, which is <i>nsapi</i> , are displayed. Alphanumeric from 5-15 characters.
<b>c4</b> <i>apn</i>	Optional: Only rows that have a value in column 2 of the table, which is APNs, are displayed. Alphanumeric up to 100 characters.

### Related Commands

interval, show apn-pdp-statistics apn, show apn-pdp-statistics select, show apn-pdp-statistics last-interval, show apn-pdp-statistics context apn, show apn-pdp-statistics context select, show imsi-pdp-statistics context imsi, show imsi-pdp-statistics context select, show ms950-pdp-statistics control, show ms950-pdp-statistics data, show ms950-pdp-statistics

---

## System Statistics

signalling-count, show ms950-pdp-statistics sgsns, show ms950-pdp-statistics sgsns select, show statistics interval

### Example

The following example displays PDP context statistics information for the specified APN.

```
MS# show apn-pdp-statistics context select
```

Mobile Subscriber ISDN Number (MsIsdn)	International Mobile Subscriber Identifier (IMSI)	N S A P I	Access Point Name
1952154674	234553552154674	5	win.megisto.com

```
-----  
MS# show apn-pdp-statistics context select c1 1952154674 c2 234553552154674 c3 5 c4  
win.megisto.com
```

Mobile Subscriber ISDN Number (MsIsdn)	International Mobile Subscriber Identifier (IMSI)	N S A P I	Access Point Name
1952154674	234553552154674	5	win.megisto.com

## show bulk maps

```
show bulk maps
```

### Purpose

This command displays the maps between schemas and interfaces.

### Command Mode

Operator or Administrator or Superuser

### Syntax Description

No parameters

### Related Commands

collector, map, params, show bulk params, show bulk schema.

### Example

The following displays bulk mappings.

```
MS# show bulk maps
```

```
Bulk Schema Mappings:
```

```
Schema Definition  Object
global            system
gige_if           gige2/0.0
gige_if           gige18/0.0
```

```
Bulk Schema Mappings With Valid Schema Definitions:
```

```
Schema Definition  Object                                     Active
global            system                                     active
gige_if           gige2/0.0                                       active
gige_if           gige18/0.0                                       active
ipsectun          ipsec/192.168.20.157                             active
```

## show bulk params

`show bulk params`

### Purpose

This command displays the parameters of the bulk stats server.

### Command Mode

Operator or Administrator or Superuser

### Syntax Description

No parameters

### Related Commands

collector, map, params, show bulk maps, show bulk schema

### Example

The following displays bulk stats server parameters.

```
MS# show bulk params
Bulk Statistics Sub-system Parameters:
Shutdown                               : No
Sampling Interval (Minutes)            : 2
Transfer Interval (Minutes)            : 30
Retention Period (Hours)               : 24
File Usage (Megabytes)                 : 10
Transfer Method                         : ftp
Local Path                              : fs1:/user0/bulk
Remote Path                             : /home/michael/bulk/
Schema File                             : fs1:/user0/
    bulkschema_def.txt
Primary Collector IP Address            : 192.168.20.34
Primary Collector User                  : michael
Primary Collector Password              : nivaho03
```



Secondary Collector IP Address : 0.0.0.0  
Secondary Collector User :  
Secondary Collector Password :

## show bulk schema

```
show bulk schema
```

### Purpose

This command displays the schema definitions for the bulk stats server.

### Command Mode

Operator or Administrator or Superuser

### Syntax Description

No parameters

### Related Commands

collector, map, params, show bulk maps, show bulk params

### Example

The following displays bulk stats schema definitions.

```
MS# show bulk schema
Bulk Schema Definitions:

schema-def      : global
                  "host: %s %s %s cpu %%%d\n", hostname, date,
                  timeofday, cpu5min

schema-def      : gige_if
                  "%s: %d/%d inPkts %u outPkts %u\n", description,
                  slot, port, ifInPkts, ifOut
Pkts

schema-def      : gige_subif
                  "%s: %d/%d.%d inPkts %u outPkts %u\n",
                  description, slot, port, instance, if
```

InPkts, ifOutPkts

```
schema-def      : ipsectun
    "%s: %d/%d.%d inPkts %u outPkts %u\n",
    description, slot, port, instance, if
InPkts, ifOutPkts
```

## show imsi-pdp-statistics context imsi

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```
show imsi-pdp-statistics context imsi [imsi] [nsapi]
```

### Purpose

This command displays a summary table of PDP statistics information related to PDP contexts for all APNs or the specified APN with IMSI and/or NSAPI identifiers.

### Command Mode

Operator or Administrator or Superuser

### Syntax Description

Parameter	Description
<i>imsi</i>	Optional: Alphanumeric up to 15 characters.
<i>nsapi</i>	Optional: Alphanumeric from 5-15 characters.

### Related Commands

interval, show apn-pdp-statistics apn, show apn-pdp-statistics select, show apn-pdp-statistics last-interval, show apn-pdp-statistics context apn, show apn-pdp-statistics context select, show imsi-pdp-statistics context imsi, show imsi-pdp-statistics context select, show ms950-pdp-statistics control, show ms950-pdp-statistics data, show ms950-pdp-statistics signalling-count, show ms950-pdp-statistics sgsns, show ms950-pdp-statistics sgsns select, show statistics interval

### Example

The following example displays PDP-context statistics information for the IMSI specified.

```
MS# show imsi-pdp-statistics context imsi  
558021234567918 5
```

Mobile Subscriber ISDN : 12345678901262  
IMSI : 558021234567918  
NSAPI : 5  
APN : megisto2  
GTP Version : GPRS  
GGSN Tunnel ID Control : 257  
GGSN Tunnel ID User : 258  
SGSN Tunnel ID Control : 28  
SGSN Tunnel ID User : 29  
IP Address : 11.11.0.29  
IP Address Type : Local  
Service Card Number : 5  
GGSN IP Address Control : 10.133.1.9  
GGSN IP Address User : 10.133.1.2  
SGSN IP Address Control : 1.2.3.4  
SGSN IP Address User : 1.2.3.4  
Charging ID : 129  
Charging Characteristics : Normal  
APN Selection Mode : MS-or-Network-supplied-APN-  
Subscription-Verified  
PDP Context State : Active  
Context Establish Time : 14:57:11 30 dec 1999  
Last Activity Time : 14:57:11 30 dec 1999  
Number Uplink Data Packets : 0  
Number Downlink Data Packets : 0  
Number Uplink Data Bytes : 0  
Number downlink Data Bytes : 0  
Number of Packet Filters : 0

## show imsi-pdp-statistics context select

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```
show imsi-pdp-statistics context select [c1 ms_isdn]
[c2 imsi] [c3 nsapi] [c4 apn]
```

### Purpose

This command displays a subset of PDP statistics information related to PDP contexts for all IMSIs or the specified IMSI while customizing the display output.

### Command Mode

Operator or Administrator or Superuser

### Syntax Description

Parameter	Description
<b>c1</b> <i>ms_isdn</i>	Optional: Only rows that have a value in column 1 of the table, which is <i>ms_isdn</i> , are displayed. hexadecimal up to 48 characters.
<b>c2</b> <i>imsi</i>	Optional: Only rows that have a value in column 2 of the table, which is <i>imsi</i> , are displayed. Alphanumeric up to 15 characters.
<b>c3</b> <i>nsapi</i>	Optional: Only rows that have a value in column 3 of the table, which is <i>nsapi</i> , are displayed. Alphanumeric from 5-15 characters.
<b>c4</b> <i>apn</i>	Optional: Only rows that have a value in column 2 of the table, which is APNs, are displayed. Alphanumeric up to 100 characters.

### Related Commands

*interval*, *show apn-pdp-statistics apn*, *show apn-pdp-statistics select*, *show apn-pdp-statistics last-interval*, *show apn-pdp-statistics context apn*, *show apn-pdp-statistics context select*, *show imsi-pdp-statistics context imsi*, *show imsi-pdp-statistics context select*, *show ms950-pdp-statistics control*, *show ms950-pdp-statistics data*, *show ms950-pdp-statistics*

signalling-count, show ms950-pdp-statistics sgsns, show ms950-pdp-statistics sgsns select, show statistics interval

## Example

The following example displays PDP context statistics information for the specified IMSI.

```
MS# show imsi-pdp-statistics context select
```

Mobile Subscriber ISDN Number (MsIsdn)	International Mobile Subscriber Identifier (IMSI)	N S A P I	Access Point Name
1952154674	234553552154674	5	win.megisto.com

```
MS# show imsi-pdp-statistics context select c2 234553552154674 c3 5
```

Mobile Subscriber ISDN Number (MsIsdn)	International Mobile Subscriber Identifier (IMSI)	N S A P I	Access Point Name
1952154674	234553552154674	5	win.megisto.com

## show stats ms950-mip-statistics control

```
show stats ms950-mip-statistics control [last-  
interval]
```

### Purpose

This command displays a detailed listing of MIP statistics for MIP control messages aggregated over the entire MS950. The interval time is specified in the `interval` command.

### Command Mode

Operator or Administrator or Superuser

### Syntax Description

Parameter	Description
<code>last-interval</code>	Optional: Displays only the data computed over the most recently expired interval. The interval time is specified in the <code>interval</code> command.

### Related Commands

`show stats apn-mip-statistics apn`, `show stats apn-mip-statistics last-interval`, `show stats apn-mip-statistics select`, `show stats apn-mip-statistics control`, `show stats ms950-mip-statistics data`, `show stats nai-mip-statistics context`

### Example

The following displays control statistics.

```
MS# show ms950-mip-statistics control  
Total Number of Active MIP contexts           : 1  
Number of Active MIP Context <local>         : 0  
Number of Active MIP Context <dhcp >        : 0  
Number of Active MIP Context <radius>       : 0
```



```
Number of Active MIP Context <static>      : 1
Average Number of Active Contexts          : 0
Number of Contexts Established              : 1
Number of Contexts Deleted                 : 0
Total MIP Context Create Success           : 1
Last time of Successful Create              : Mon Aug 25
      16:59:24 2003
Total MIP Context Create Fail               : 0
Last time of Failed Create                  : Not Init.
Total MIP Context Update Success           : 0
Last time of Successful Update             : Not Init.
Total MIP Context Update Fail              : 0
Last time of Failed Update                 : Not Init.
Total MIP Context Delete Success           : 0
Last time of Successful Delete             : Not Init.
Total MIP Context Delete Fail              : 0
Last time of Failed Delete                 : Not Init.
helium#sho stats ms950-mip-statistics control
      data
Last Total Uplink Packets                   : 0
Last Uplink Packets High Water Mark        : 0
Last Uplink Packets Low Water Mark         : 0
Last Total Downlink Packets                 : 0
Last Downlink Packets High Water Mark      : 0
Last Downlink Packets Low Water Mark       : 0
Last Total Uplink Bytes                     : 0
Last Uplink Bytes High Water Mark          : 0
Last Uplink Bytes Low Water Mark           : 0
Last Total Downlink Bytes                   : 0
Last Downlink Bytes High Water Mark        : 0
Last Downlink Bytes Low Water Mark         : 0
```

## show ms950-pdp-statistics control

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```
show ms950-pdp-statistics control [last-interval]
```

### Purpose

This command displays a detailed listing of PDP statistics for GTP control messages aggregated over the entire MS950. The interval time is specified in the **interval** command.

### Command Mode

Operator or Administrator or Superuser

### Syntax Description

Parameter	Description
<b>last-interval</b>	Optional: Displays only the data computed over the most recently expired interval. The interval time is specified in the <b>interval</b> command.

### Related Commands

interval, show apn-pdp-statistics apn, show apn-pdp-statistics select, show apn-pdp-statistics last-interval, show apn-pdp-statistics context apn, show apn-pdp-statistics context select, show imsi-pdp-statistics context imsi, show imsi-pdp-statistics context select, show ms950-pdp-statistics control, show ms950-pdp-statistics data, show ms950-pdp-statistics signalling-count, show ms950-pdp-statistics sgsns, show ms950-pdp-statistics sgsns select, show statistics interval

### Example

The following displays control statistics.

```
MS# show ms950-pdp-statistics control
Total Number of Active PDP Contexts : 0
Number of PDP addresses (Local Address) : 0
```

Number of PDP addresses (DHCP Address) : 0  
Number of PDP addresses (RADIUS address) : 0  
Number of PDP addresses (Static Address) : 0  
Average Number of Active Contexts : 0  
Number of Contexts Established : 0  
Number of Contexts Deleted : 0  
Silently Discarded Messages (Congestion) : 0  
Silently Discarded Messages (Protocol) : 0  
Total PDP Create Success : 0  
Last PDP Create Success Time : 00:00:00 1 jan 1970  
Total PDP Create Fails : 0  
PDP Create Fail, Parse Error : 0  
PDP Create Fail, TFT Parse Error : 0  
PDP Create Fail, No Resources : 0  
PDP Create Fail, Service not Supported : 0  
PDP Create Fail, PDP Address : 0  
PDP Create Fail, System Failure : 0  
PDP Create Fail, Context Not Found : 0  
PDP Create Fail, Authentication Fail : 0  
Last Create Fail Time : 00:00:00 1 jan 1970  
Total PDP Update Success : 0  
Last PDP Update Success Time : 00:00:00 1 jan 1970  
Total PDP Update Failures : 0  
PDP Update Fail, Parse Error : 0  
PDP Update Fail, TFT Parse Error : 0  
PDP Update Fail, No Resources : 0  
PDP Update Fail, Service not Supported : 0  
PDP Update Fail, System Failure : 0  
PDP Update Fail, Non Existent : 0  
PDP Update Fail, Context Not Found : 0  
Last Update Fail Time : 00:00:00 1 jan 1970  
Total PDP Delete Success (SGSN) : 0  
Last PDP Delete Success Time (SGSN) : 00:00:00 1 jan  
1970  
Total PDP Delete Fail (SGSN) : 0  
Last PDP Delete Fail Time (SGSN) : 00:00:00 1 jan 1970  
Total PDP Delete Success (GGSN) : 0  
Last PDP Delete Success Time (GGSN) : 00:00:00 1 jan  
1970  
Total PDP Delete Fail (GGSN) : 0  
Last PDP Delete Fail Time (GGSN) : 00:00:00 1 jan 1970  
CLI: duration time (in ticks) = 1

---

## System Statistics

```
MS# show ms950-pdp-statistics control last-interval
```

```
Average Number of Active Contexts : 1  
Number of Contexts Established    : 0  
Number of Contexts Deleted       : 0
```

## show stats ms950-mip-statistics data

```
show stats ms950-mip-statistics data [last-interval]
```

### Purpose

This command displays a detailed listing of MIP statistics for MIP subscriber packet traffic aggregated over the entire MS950. The interval time is specified in the **interval** command.

### Command Mode

Operator or Administrator or Superuser

### Syntax Description

Parameter	Description
<b>last-interval</b>	Optional: Displays only the data computed over the most recently expired interval. The interval time is specified in the <b>interval</b> command.

### Related Commands

show stats apn-mip-statistics apn, show stats apn-mip-statistics last-interval, show stats apn-mip-statistics select, show stats apn-mip-statistics control, show stats ms950-mip-statistics data, show stats nai-mip-statistics context

### Example

The following displays data statistics.

```
MS# show ms950-mip-statistics data
```

## show stats nai-mip-statistics context

```
show stats ms950-mip-statistics context [nai nai]
```

### Purpose

This command displays statistics for all NAI or the specified NAI.

### Command Mode

Operator or Administrator or Superuser

### Syntax Description

Parameter	Description
<code>nai nai</code>	Optional: Displays only the data computed for the specified NAI.

### Related Commands

`show stats apn-mip-statistics apn`, `show stats apn-mip-statistics last-interval`, `show stats apn-mip-statistics select`, `show stats apn-mip-statistics control`, `show stats ms950-mip-statistics data`, `show stats nai-mip-statistics context`

### Example

The following displays NAI statistics.

```
MS# show stats nai-mip-statistics context
Network Access Identifier
-----
33031343434313737353@vs.com
helium#sho stats nai-mip-statistics context
33031343434313737353@vs.com
NAI : 33031343434313737353@vs.com
IMSI : 214365870921436
Mobile Node Address : 216.155.171.211
```

Care Of Address : 10.135.0.1  
Source Address : 10.135.0.1  
source Port Number : 1234  
Life Time : 7200  
Remain Life Time : 7051  
Home Agent Address : 64.254.114.34  
Charging ID : 2  
Charging Characteristics : 1  
Context Creation Time : Mon Aug 25 16:59:24 2003  
Last Activity : Mon Aug 25 16:59:24 2003  
Number of Uplink Packets : 0  
Number of Downlink packets : 0  
Number of Uplink Bytes : 0

## show ms950-pdp-statistics data

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```
show ms950-pdp-statistics data [last-interval]
```

### Purpose

This command displays a detailed listing of PDP statistic for PDP subscriber packet traffic aggregated over the entire MS950. The interval time is specified in the **interval** command.

### Command Mode

Operator or Administrator or Superuser

### Syntax Description

Parameter	Description
<b>last-interval</b>	Optional: Displays only the data computed over the most recently expired interval. The interval time is specified in the <b>interval</b> command.

### Related Commands

interval, show apn-pdp-statistics apn, show apn-pdp-statistics select, show apn-pdp-statistics last-interval, show apn-pdp-statistics context apn, show apn-pdp-statistics context select, show imsi-pdp-statistics context imsi, show imsi-pdp-statistics context select, show ms950-pdp-statistics control, show ms950-pdp-statistics data, show ms950-pdp-statistics signalling-count, show ms950-pdp-statistics sgsns, show ms950-pdp-statistics sgsns select, show statistics interval

### Example

The following displays data statistics from the last specified interval.

```
MS# show ms950-pdp-statistics data
```



Number of Active Contexts : 0  
Total Uplink Packets : 0  
Uplink Packets High Water Mark : 0  
Uplink Packets Low Water Mark : 0  
Total Downlink Packets : 0  
Downlink Packets High Water Mark : 0  
Downlink Packets Low Water Mark : 0  
Total Uplink Bytes : 0  
Uplink Bytes High Water Mark : 0  
Uplink Bytes Low Water Mark : 0  
Total Downlink Bytes : 0  
Downlink Bytes High Water Mark : 0  
Downlink Bytes Low Water Mark : 0

## show ms950-pdp-statistics signaling-count

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```
show ms950-pdp-statistics signaling-count
```

### Purpose

This command displays a detailed listing of PDP statistics for only signaling traffic processed by the entire MS950. The interval time is specified in the **interval** command.

### Command Mode

Operator or Administrator or Superuser

### Syntax Description

No parameters

### Related Commands

interval, show apn-pdp-statistics apn, show apn-pdp-statistics select, show apn-pdp-statistics last-interval, show apn-pdp-statistics context apn, show apn-pdp-statistics context select, show imsi-pdp-statistics context imsi, show imsi-pdp-statistics context select, show ms950-pdp-statistics control, show ms950-pdp-statistics data, show ms950-pdp-statistics signalling-count, show ms950-pdp-statistics sgsns, show ms950-pdp-statistics sgsns select, show statistics interval

### Example

The following displays signaling statistics information.

```
MS# show ms950-pdp-statistics signaling-count

Total Signaling Messages Transmitted      : 267
Total Signaling Messages Received         : 267
T3 Timer Expirations                      : 0
Unexpected Signaling Messages Received    : 0
Create PDP context Requests Received      : 75
```

```
Create PDP context Responses Transmitted : 75
Update PDP context Requests Received      : 0
Update PDP context Responses Transmitted  : 0
Update PDP context Requests Transmitted   : 0
Update PDP context Responses Received     : 0
Delete PDP context Requests Received      : 0
Delete PDP context Responses Transmitted  : 0
Delete PDP context Requests Transmitted   : 0
Delete PDP context Responses Received     : 0
Echo Requests Received                    : 192
Echo Responses Transmitted                 : 192
Echo Requests Transmitted                 : 0
Echo Responses Received                   : 0
Error Indication Received                  : 0
Error Indication Transmitted               : 0
Version Not Supported Transmitted          : 0
Version Not Supported Received             : 0
```

## show ms950-pdp-statistics sgsn

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```
show ms950-pdp-statistics sgsn control-address address
```

### Purpose

This command displays information on all SGSNs or a specific SGSN configured as PDP peers in the MS950.

### Command Mode

Operator or Administrator or Superuser

### Syntax Description

Parameter	Description
<code>control-address address</code>	The control address of a specific SGSN.

### Related Commands

interval, show apn-pdp-statistics apn, show apn-pdp-statistics select, show apn-pdp-statistics last-interval, show apn-pdp-statistics context apn, show apn-pdp-statistics context select, show imsi-pdp-statistics context imsi, show imsi-pdp-statistics context select, show ms950-pdp-statistics control, show ms950-pdp-statistics data, show ms950-pdp-statistics signalling-count, show ms950-pdp-statistics sgsns, show ms950-pdp-statistics sgsns select, show statistics interval

### Example

The following displays all SGSNs communicating with the MS950.

```
MS# show ms950-pdp-statistics sgsn
SGSN          Number      Last           Number
Control       of          Contact        of
Address       Active     Time           Echo
              Calls
              Fails
=====
```

192.168.30.1      75                      07:37:38 2    Mar 2091    0

## show ms950-pdp-statistics sgsns select

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```
show ms950-pdp-statistics sgsns select
  [c1 sgsn_control_address] [c2 num_active_calls] [c3
last_contact_day [last_contact_month]
[last_contact_year]] [c4 number_echo_fails]
```

### Purpose

This command displays a summary table of PDP statistics information related to PDP contexts for all APNs or the specified APNs while customizing the display output.

### Command Mode

Operator or Administrator or Superuser

### Syntax Description

Parameter	Description
<b>c1</b> <i>sgsn_control_address</i>	Optional: Only rows that have a value in column 1 of the table, which is SGSN control address, are displayed.
<b>c2</b> <i>num_active_calls</i>	Optional: Only rows that have a value in column 2 of the table, which is the number of active calls, are displayed.
<b>c3</b> <i>last_contact_day</i> <i>[last_contact_month]</i> <i>[last_contact_year]</i>	Optional: Only rows that have a value in column 3 of the table, which is last contact time, are displayed. When the day or year options are specified only those entries that match the specified information are displayed. Time entry format is HH:MM:SS. Valid values for day are 1-31. Month is jan, feb, mar, april, may, june, july, aug, sept, oct, nov, dec.
<b>c4</b> <i>num_echo_fails</i>	Optional: Only rows that have a value in column 7 of the table, which is number of echo failures, are displayed. Alphanumeric up to 100 characters.

### Related Commands

interval, show apn-pdp-statistics apn, show apn-pdp-statistics select, show apn-pdp-statistics last-interval, show apn-pdp-statistics context apn, show apn-pdp-statistics context select, show imsi-pdp-statistics context imsi, show imsi-pdp-statistics context select, show ms950-pdp-statistics control, show ms950-pdp-statistics data, show ms950-pdp-statistics signalling-count, show ms950-pdp-statistics sgsns, show ms950-pdp-statistics sgsns select, show statistics interval

## Example

The following example displays SGSN statistics information.

```
MS# show ms950-pdp-statistics sgsns select
```

SGSN Control Address	Number of Active Calls	Last Contact Time	Number of Echo Fails
192.168.33.249	0	17:20:07 12 nov 2002	0

```
=====
192.168.33.249 0 17:20:07 12 nov 2002 0
```

```
MS# show ms950-pdp-statistics sgsns select c1
    192.168.33.249 c2 0 c3 17:20:07 12
nov 2002 c4 0
```

SGSN	Number	Last	Number
Control	of	Contact	of
Address	Active	Time	Echo
	Calls		Fails
192.168.33.249	0	17:20:07 12 nov 2002	0

```
=====
192.168.33.249 0 17:20:07 12 nov 2002 0
```

## show stats-interval

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```
show statistics-interval
```

### Purpose

This command displays the interval specified in the **interval** command.

### Command Mode

Operator or Administrator or Superuser

### Syntax Description

No parameters

### Related Commands

interval, show apn-pdp-statistics apn, show apn-pdp-statistics select, show apn-pdp-statistics last-interval, show apn-pdp-statistics context apn, show apn-pdp-statistics context select, show imsi-pdp-statistics context imsi, show imsi-pdp-statistics context select, show ms950-pdp-statistics control, show ms950-pdp-statistics data, show ms950-pdp-statistics signalling-count, show ms950-pdp-statistics sgsns, show ms950-pdp-statistics sgsns select, show statistics interval

### Example

The following displays the current statistics interval.

```
MS# show statistics interval
Pdp Statistics interval : 15 Minutes
```



## shutdown

```
shutdown
no shutdown
```

### Purpose

This command locks or unlocks the bulk stats server. The no form unlocks the server.

### Command Mode

Administrator or Superuser - config - bulk

### Syntax Description

No parameters

### Related Commands

collector, map, params, show params, show bulk maps, show bulk schema, force-transfer.

### Example

The following enables the bulk stats server.

```
MS# configure bulk
MS(config-bulk)# no shutdown
```



# Chapter 19: Troubleshooting Commands

The commands listed in this section are used for troubleshooting the system.

ping

tracert

debug

show tech-support

## In This Chapter

- clear debug
- debug
- ping
- show tech-support
- tracert

## clear debug-gtp

```
clear debug-gtp
```

### Purpose

This command clears the GTP debugging.

### Command Mode

Operator or Administrator or Superuser

### Syntax Description

No parameters

### Related Commands

```
debug gtp
```

### Example

The following example disables all GTP debugging and cleans up occupied resources.

```
MS# clear debug-gtp
```

## clear debug-gtpp

```
clear debug-gtpp
```

### Purpose

This command clears the GTPP debugging.

### Command Mode

Operator or Administrator or Superuser

### Syntax Description

No parameters

### Related Commands

```
debug gtpp
```

### Example

The following example disables all GTPP debugging and cleans up occupied resources.

```
MS# clear debug-gtpp
```

## clear debug-ipsec

```
clear debug-ipsec
```

### Purpose

This command clears the IPSec debugging.

### Command Mode

Operator or Administrator or Superuser

### Syntax Description

No parameters

### Related Commands

```
debug ipsec
```

### Example

The following example disables all IPSec debugging and cleans up occupied resources.

```
MS# clear debug-ipsec
```

## clear debug-radius

```
clear debug-radius
```

### Purpose

This command clears the RADIUS debugging.

### Command Mode

Operator or Administrator or Superuser

### Syntax Description

No parameters

### Related Commands

debug radius

### Example

The following example disables all RADIUS debugging and cleans up occupied resources.

```
MS# clear debug-radius
```

## clear on-line-diagnostics-statistics

```
clear on-line-diagnostics-statistics
```

### Purpose

This command clears the current on-line diagnostics statistics.

### Command Mode

Administrator or Superuser

### Syntax Description

No parameters

### Related Commands

show on-line diagnostic, clear on-line diagnostics, on-line diagnostics

### Example

The following example clears on-line diagnostics.

```
MS# clear on-line-diagnostics-statistics
```



## debug arp

```
debug arp
no debug arp
```

### Purpose

This command displays information on ARP transactions. The no form of this command disables debugging output.

### Command Mode

Administrator or Superuser

### Syntax Description

No parameters

### Related Commands

none

### Example

The following example enables ARP debugging.

```
MS# debug arp
```

## debug charging

```
debug charging {events}  
no debug charging {events}
```

### Purpose

This command displays information about GPRS charging functions on the GGSN. This command is useful for system operators if problems are encountered with GPRS charging functions. Because the debug charging command generates a significant amount of output, use it only when traffic on the GPRS network is low, so other activity on the system is not adversely affected. The no form of the command disables debugging.

### Command Mode

Administrator or Superuser

### Syntax Description

Parameter	Description
events	Displays events related to charging processing on the GGSN.

### Related Commands

none

### Example

The following example enables debugging for events.

```
MS# debug charging events
```

## debug disableall

```
debug disableall
```

### Purpose

This command disable all configured debugging output.

### Command Mode

Administrator or Superuser

### Syntax Description

No parameters

### Related Commands

none

### Example

The following example disables debugging.

```
MS# debug disableall
```

## debug dns

```
debug dns  
no debug dns
```

### Purpose

This command displays information about the DNS resolver. The no form of the command disables debugging.

### Command Mode

Administrator or Superuser

### Syntax Description

No parameters

### Related Commands

none

### Example

The following example enables DNS debugging.

```
MS# debug dns
```

## debug ftp

```
debug ftp
no debug ftp
```

### Purpose

This command activates the debugging option to track the transactions submitted during an FTP session. The no form of the command disables debugging.

### Command Mode

Administrator or Superuser

### Syntax Description

No parameters

### Related Commands

none

### Example

The following example enables FTP debugging.

```
MS# debug ftp
```

## debug gtp

```
debug gtp
no debug gtp
debug gtp {events | messages | packets | payload |
  verbose} context all
debug gtp {events | messages | packets | payload |
  verbose} context imsi imsi nsapi nsapi
no debug gtp context imsi imsi nsapi nsapi
```

### Purpose

This command displays information about GTP. This command is used to troubleshoot potential communication problems between the MS950 and SGSNs that are related to the GTP protocol. It can also be used to collect debug information for a specific IMSI and NSAPI. Because the debug command generates a significant amount of output, use it only when traffic on the GPRS network is low, so other activity on the system is not adversely affected. The no form of the command disables debugging.

**Note:** Traces may appear truncated on the console if they exceed syslog limits. In such a case, it is recommended that you examine the file system logs to get the complete trace.

### Command Mode

Administrator or Superuser

### Syntax Description.

Parameter	Description
<b>events</b>	Displays protocol FSM state transitions and general trace information.
<b>messages</b>	Displays brief description of protocol messages sent and received (no hex dump).
<b>packets</b>	Displays sent and received messages protocol header hex dump.
<b>payload</b>	Displays sent and received messages complete hex dump (header + data).

Parameter	Description
<b>verbose</b>	Displays all events, messages, packets, and payload.
<b>all</b>	Displays all debug information.
<b>imsi</b> <i>imsi</i>	Displays IMSI-related information. Valid values are 0-15
<b>nsapi</b> <i>nsapi</i>	Displays NSAPI-related information. Numeric value.

## Related Commands

`clear debug-gtp`

## Example

```
MS# debug gtp
```

The following example enables events-level debugging for all GTP contexts.

```
MS# debug gtp events context all
```

The following example enables events-level debugging only for the GTP context identified by IMSI= 123456789123456 and NSAPI= 6.

```
MS# debug gtp events context imsi 123456789123456
      nsapi 6
```

The following example turns on the file-system logging option for GTP.

```
MS# no debug gtp
```

The following example disables GTP debugging for the CGF identified by the IP Address 10.11.12.13, and cleans up occupied resources.

## debug gtp

```
debug gtp
no debug gtp
debug gtp {events | messages | packets | payload |
  verbose} context all
debug gtp {events | messages | packets | payload |
  verbose} context ip-addr ip_address
no debug gtp ip-addr ip_address
```

### Purpose

This command displays information about GTP Prime. This command is used to troubleshoot potential communication problems between the MS950 and charging gateway functions that are related to the GTP protocol. This command can also be used to collect debug information for specific charging gateway functions. Because the debug command generates a significant amount of output, use it only when traffic on the GPRS network is low, so other activity on the system is not adversely affected. The no form of the command disables debugging.

**Note:** Traces may appear truncated on the console if they exceed syslog limits. In such a case, it is recommended that you examine the file system logs to get the complete trace.

### Command Mode

Administrator or Superuser

### Syntax Description

Parameter	Description
events	Displays protocol FSM state transitions and general trace information.
messages	Displays brief description of protocol messages sent and received (no hex dump).
packets	Displays sent and received messages protocol header hex dump.



Parameter	Description
<b>payload</b>	Displays sent and received messages complete hex dump (header + data).
<b>verbose</b>	Displays all events, messages, packets, and payload.
<b>all</b>	Displays all debug information.
<b>ip-addr</b> <i>ip_address</i>	Traces the specified IP address.

## Related Commands

`clear debug-gtp`

## Example

The following example enables GTPP debugging on events.

```
MS# debug gtp events
```

The following example disables GTPP debugging for the CGF identified by the IP address 10.11.12.13, and cleans up occupied resources.

```
MS# no debug gtp context ip-addr 10.11.12.13
```

## debug icmp

```
debug icmp
no debug icmp
```

### Purpose

This command displays information on ICMP transactions. This command helps you determine whether the MS950 is sending or receiving ICMP messages. You can use it when you troubleshoot an end-to-end connection problem. The no form of the command disables debugging.

### Command Mode

Administrator or Superuser

### Syntax Description

No parameters

### Related Commands

none

### Example

The following example enables ICMP debugging.

```
MS# debug icmp
```

## debug ip

```
debug ip  
no debug ip
```

### Purpose

This command displays information about IP packet processing. Because this command generates a significant amount of output, use it only when traffic is low, so that other activity on the system is not adversely affected. The no form of the command disables debugging.

**Note:** Traces may appear truncated on the console if they exceed syslog limits. In such a case, it is recommended that you examine the file system logs to get the complete trace.

### Command Mode

Administrator or Superuser

### Syntax Description

No parameters

### Related Commands

none

### Example

The following example enables IP debugging.

```
MS# debug IP
```

## debug ipsec

```
debug ipsec
no debug ipsec
debug ipsec {events | messages | packets | payload |
  verbose} context all
debug ipsec {events | messages | packets | payload |
  verbose} context ip-addr ip_address
no debug ipsec ip-addr ip_address
```

### Purpose

This command displays information about IPSec processing. This command can be used to troubleshoot potential communication problems between the MS950 and remote security gateways that are related to the IPSec protocol. This command can also be used to collect debug information for a specific tunnel. The no form of the command disables debugging.

**Note:** Traces may appear truncated on the console if they exceed syslog limits. In such a case, it is recommended that you examine the file system logs to get the complete trace.

### Command Mode

Administrator or Superuser

### Syntax Description

Parameter	Description
events	Displays protocol FSM state transitions and general trace information.
messages	Displays brief description of protocol messages sent and received (no > hex dump).
packets	Displays sent and received messages protocol header hex dump.
payload	Displays sent and received messages complete hex dump (header > + data).
verbose	Displays all events, messages, packets, and payload.

Parameter	Description
<b>all</b>	Displays all debug information.
<b>ip-addr</b> <i>ip_address</i>	Traces the specified IP address.

## Related Commands

clear debug-ipsec

## Example

The following example enables IPSec debugging on events.

```
MS# debug ipsec events
```

## debug radius

```
debug radius
no debug radius
debug radius {events | messages | packets | payload |
  verbose} context all
debug radius {events | messages | packets | payload |
  verbose} context
no debug radius
```

### Purpose

This command displays information about RADIUS. The no form of the command disables debugging.

**Note:** Traces may appear truncated on the console if they exceed syslog limits. In such a case, it is recommended that you examine the file system logs to get the complete trace.

### Command Mode

Administrator or Superuser

### Syntax Description

Parameter	Description
events	Displays protocol FSM state transitions and general trace information.
messages	Displays brief description of protocol messages sent and received (no > hex dump).
packets	Displays sent and received messages protocol header hex dump.
payload	Displays sent and received messages complete hex dump (header > + data).
verbose	Displays all events, messages, packets, and payload.
all	Displays all debug information.
ip-addr <i>ip_address</i>	Traces the specified IP address.

## Related Commands

clear debug-radius

## Example

The following example enables RADIUS debugging on events.

```
MS# debug radius events
```

## debug rip

```
debug rip [interface-name interface_name]
no debug rip interface-name interface_name]
```

### Purpose

This command enables or disables debugging RIP debugging. The no form of the command disables debugging.

### Command Mode

Administrator or Superuser

### Syntax Description

Parameter	Description
<b>interface</b> <i>interface_name</i>	Specifies the name of the interface to debug.

### Related Commands

none

### Example

The following example enables RIP debugging.

```
MS# debug rip interface-name gige1/0
```



## debug snmp

```
debug snmp [all]
no debug snmp
```

### Purpose

This command displays information about every SNMP packet sent or received by the MS950. The no form of the command disables debugging.

### Command Mode

Administrator or Superuser

### Syntax Description

Parameter	Description
all	Traces all contexts.

### Related Commands

none

### Example

The following example enables SNMP debugging.

```
MS# debug snmp all
```

## debug tcp

```
debug tcp
no debug tcp
```

### Purpose

This command displays information about significant TCP transactions, such as state changes, retransmissions, and duplicate packets. The no form of the command disables debugging.

### Command Mode

Administrator or Superuser

### Syntax Description

No parameters

### Related Commands

none

### Example

The following example enables TCP debugging.

```
MS# debug tcp
```

## on-line diagnostics

```
on-line diagnostics [enable | disable]
```

### Purpose

This command enables or disable diagnostics testing of card operation. It is recommended that this command only be enabled when needed.

### Command Mode

Administrator or Superuser - config

### Syntax Description

Parameter	Description
enable	Enable on-line statistics
disable	Disables on-line statistics. This is the default.

### Related Commands

show on-line diagnostic, clear on-line diagnostics, on-line diagnostics

### Example

The following example enables on-line diagnostics.

```
MS# configure on-line diagnostics enable
```

## ping

```
ping {ip_address | hostname} [number-of-packets value]  
  [interface name] [src ip_address] [pattern  
  hex_pattern] [size bytes] [timeout seconds] [apn  
  apn]
```

### Purpose

This command tests host reachability and network connectivity. For IP, the ping command sends Internet Control Message Protocol (ICMP) echo messages. ICMP is the Internet protocol that reports errors and provides information relevant to IP packet addressing.

### Command Mode

Operator or Administrator or Superuser

### Syntax Description

Parameter	Description
<i>ip_address</i>   <i>hostname</i>	The IP address of the host or the hostname. DNS must be enabled in order to use the hostname argument. Hostname can be any text up to 32 characters.
<b>number-of-packets</b> <i>value</i>	Optional: The number of ping packets to send. Valid values are 1-10000. Default is 5.
<b>interface</b> <i>name</i>	Optional: Specifies the name of the interface from which ping packets are sourced. Uses the primary address of the interface, which must be unlocked (no shutdown), as the source of ping packets.
<b>src</b> <i>ip_address</i>	Optional: Specifies the IP source address of the ping packets. An interface with this IP address must exist.
<b>pattern</b> <i>hex_pattern</i>	Optional: Specifies a hex pattern to fill in ICMP packets. The range is 0x0 through 0xffffffff. Default is 0.
<b>size</b> <i>bytes</i>	Optional: The size of each IP packet in bytes. Valid values are 40-18432. Default is 100.

Parameter	Description
<b>timeout</b> <i>seconds</i>	Optional: The time in seconds that the system waits for a response for each ping packet. Valid values are 1-100. Default is 2.
<b>apn</b> <i>secondsapn</i>	Optional: The name of the APN.

## Related Commands

none

## Example

The following example pings the specified host.

```
MS# ping 192.168.20.34
PING 192.168.20.34: 92 data bytes

100 bytes from 192.168.20.34: icmp_seq=0. time=0. ms
100 bytes from 192.168.20.34: icmp_seq=1. time=0. ms
100 bytes from 192.168.20.34: icmp_seq=2. time=0. ms
100 bytes from 192.168.20.34: icmp_seq=3. time=0. ms
100 bytes from 192.168.20.34: icmp_seq=4. time=0. ms
----192.168.20.34 PING Statistics----
5 packets transmitted, 5 packets received, 0% packet
  loss
round-trip (ms)  min/avg/max = 0/0/0
```

## show on-line diagnostics

```
show on-line diagnostics [status | statistics]
```

### Purpose

This command displays the status of the on-line diagnostics and displays statistics about those diagnostics.

### Command Mode

Operator or Administrator or Superuser

### Syntax Description

Parameter	Description
<code>status</code>	Displays whether on-line diagnostics are enabled or disabled.
<code>statistics</code>	Shows the statistics gathered by on-line diagnostics.

### Related Commands

show on-line diagnostic, clear on-line diagnostics, on-line diagnostics

### Example

The following example shows on-line diagnostics statistics.

```
MS# show online-diagnostics statistics
CurrState: 0  DataPathOperState: 0  src 1  Dst 1  n
Num Iterations: 1  Api Fails: 0
LCLC Pass: 0  LCLC Fail: 8
SCSC Pass: 1  SCSC Fail: 0
SCLC Pass: 2  SCLC Fail: 0
LCSC Pass: 1  LCSC Fail: 2
SC Rsp: 1656  SC Timeouts: 2  Ctr Timeouts: 0
IPF Ctr Req: 2  IpF Ctr Rsp: 2
EPF/NPU Ctr Req: 0  Epf/NPU Ctr Rsp: 0
```

## show tech-support

`show tech-support`

### Purpose

This command displays information commonly used for debugging, such as running-config, crash-vector, routing table, and tasks. It produces a large amount of output.

### Command Mode

Administrator or Superuser

### Syntax Description

No parameters

### Related Commands

none

### Example

The following example displays tech-support information.

MS# `show tech-support`

```
*****
GTP STATUS
*****

GGSN Status Information

GTP Version Supported : GTP-V1 Release 4.1.0
ID of Last SGSN Failed to Respond to Echo Req :
0.0.0.0
Reject Reason for Last Unexpected PDP Context : 0
ID of Last SGSN Recovered : 0.0.0.0
```

---

## Troubleshooting Commands

```
Tunnel ID of Last Unexpected PDP Context Received :  
ID of Last SGSN, Unexpected PDP Context Received :  
0.0.0.0
```

```
*****  
GTP STATISTICS  
*****
```

```
GGSN Control Plane Statistics Counts
```

```
Current Activated PDP Contexts : 0  
PDP Context Creates Success : 0  
PDP Context Updates Success : 0  
PDP Context Deletes Success : 0  
PDP Context Creates Rejected : 0  
PDP Context Updates Rejected : 0  
PDP Context Deletes Rejected : 0  
PDP Context Parser Errors (other than TFT) : 0  
PDP Contexts Rejected (PDP Address) : 0  
PDP Contexts Rejected (Resource) : 0  
PDP Contexts Rejected (System Failure) : 0  
PDP Contexts Rejected (Service Not Supported) : 0  
PDP Contexts Rejected (Non Existent) : 0  
PDP Contexts Rejected (Context Not Found) : 0  
Press any key to continue (Q to quit) PDP Contexts  
Rejected (User Authentication) : 0  
PDP Contexts Rejected (TFT Parse Error) : 0  
Unexpected Signalling Messages Received : 0  
T3 Timer Expirations : 0  
Signalling Messages Received : 0  
Signalling Messages Transmitted : 0
```

```
.....
```

```
output continues....
```



## traceroute

```
traceroute {ip_address} [df] [maxttl ttl] [minttl ttl]
           [size bytes] [count number] [timeout seconds] [port
           number] [src src_ip] [interface name] [apn apn]
```

### Purpose

This command discovers the routes that packets follow as they travel to their destinations. The command works by using the error message generated by IP forwarding devices when a datagram exceeds its time-to-live (TTL) value.

### Command Mode

Operator or Administrator or Superuser

### Syntax Description

Parameter	Description
<i>ip_address</i>	The IP address of the host.
<b>df</b>	Optional: Sets the "Don't Fragment" bit on outbound traceroute packets. With this bit set, the traceroute packet is dropped whenever it would normally be fragmented. An ICMP "Unreachable, Needs Fragmentation" packet is then sent to the sender.
<b>maxttl</b> <i>ttl</i>	Optional: The maximum TTL. Valid values are 1-255. Default is 30.
<b>minttl</b> <i>ttl</i>	Optional: The minimum TTL. Valid values are 1-255. Default is 1.
<b>count</b> <i>number</i>	Optional: The number of probes to be sent. Valid values are 1-1000. Default is 3.
<b>timeout</b> <i>seconds</i>	Optional: The number of seconds that the system waits for a response to each ping packet. Valid values are 1-100. Default is 2.
<b>src</b> <i>src_ip</i>	Optional: The IP address through which the reachability message goes out.

---

## Troubleshooting Commands

Parameter	Description
<b>interface</b> <i>name</i>	Optional: The interface through which the reachability message goes out.
<b>port</b> <i>number</i>	Optional: The destination UDP port number. Valid values are 1-65535. Default is 33434.
<b>size</b> <i>bytes</i>	Optional: The size of each IP packet in bytes. Valid values are 40-18432. Default is 100.
<b>apn</b> <i>apn</i>	Optional: The name of the APN.

## Related Commands

none

## Example

The following example sends a traceroute.

```
MS# traceroute 4.0.0.1 size 1024
Tracing route to 192.168.20.34, max 30 hops, 100 byte
  packets
  1:  10.128.4.254  1.326 ms  1.106 ms  1.084 ms
  2:  10.255.255.254  1.589 ms  1.288 ms  1.257 ms
  3:  192.168.20.34  1.059 ms  0.468 ms  0.433 ms
```

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