

Novra S75/S200/S300
Central Management and Control Software
(CMCS) Users Manual

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Novra S75+/S200/S300 Central Management and Control Software (CMCS) Users Manual

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Important- Please read this entire manual before installing or operating this product.

Disclaimer

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1 MINIMUM SYSTEM REQUIREMENTS

Your computer must have **at least** the following:

- Processor: Pentium Class Processor or better
- CD drive (required for software installation only)
- Ethernet network interface card (NIC): 100 Mbps (100 BaseT)



NOTE: - Performance may be dependent on other applications that your PC is running.

1.1 Supported Operating Systems

CMCS has been tested to support the following operating systems

- OS - Linux (or equivalent):
 - Debian Lenny (Linux Kernel: 2.6.26-2)
 - Gentoo (Linux Kernel: 2.6.31)
 - Ubuntu (Linux Kernel: 2.6.28-18)
- MAC OS 10.6
- FreeBSD 1.6
- Solaris 10u8
- Windows 7

Please contact Novra Support (www.novra.com) to ensure you have the correct CMCS executable for you intended OS.

2 INTRODUCTION

2.1 Principles of Operation

The CMCS resides in the Linux M&C server at the central hub and enables centralized configuration and management of a network of S75 or S200 or S300 receivers. Figures 1 and 2 below illustrate 2 possible configuration scenarios.

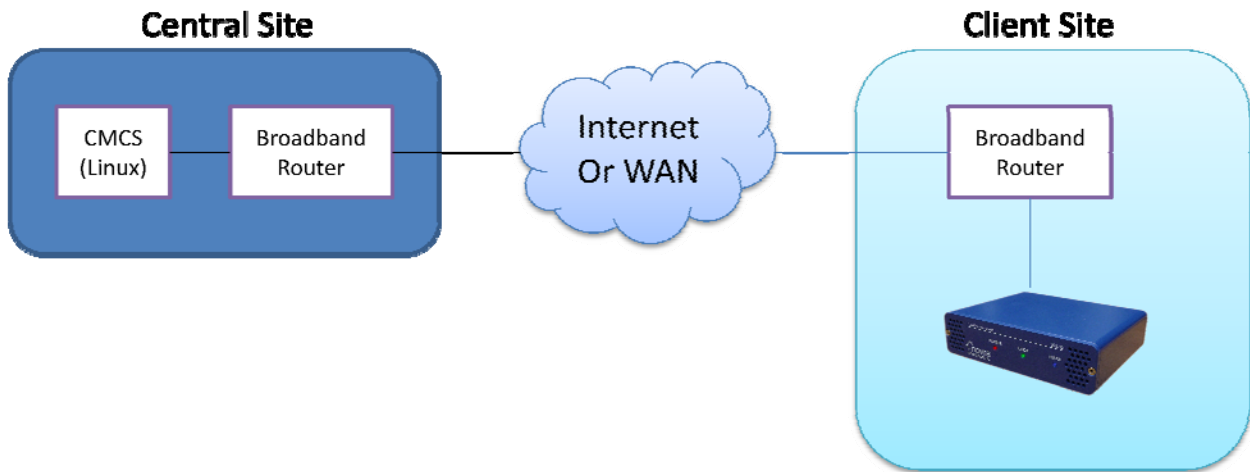


Figure 1 – S75/S200/S300 Mgmt over Internet

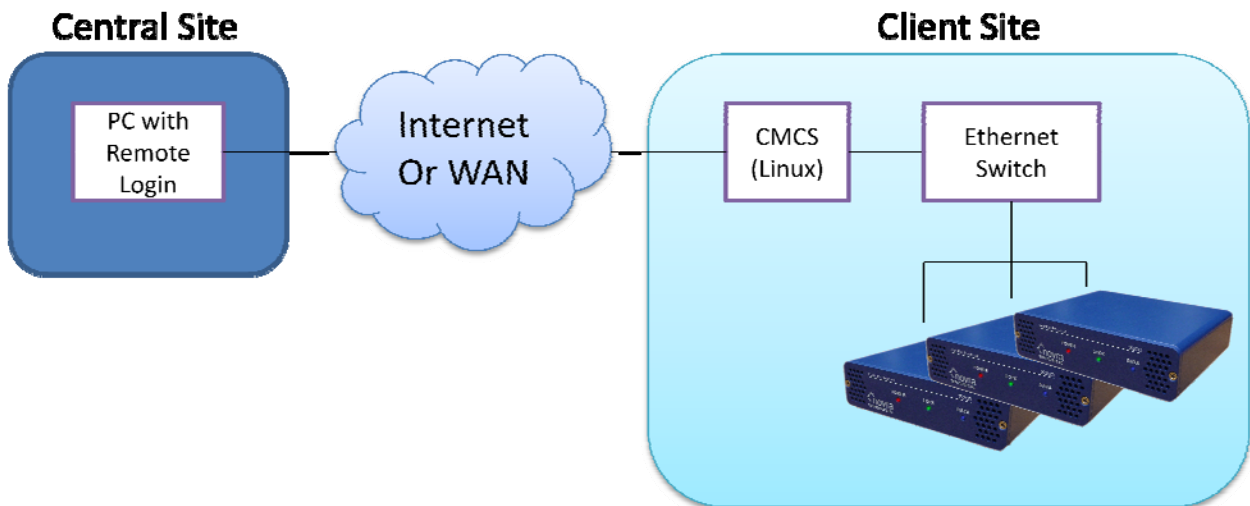


Figure 2 - Remote Management of an S75/S200/S300 Network

The CMCS software has two components or modes of operating. Each mode is described below:

1. **Interactive Mode:** The main operating mode enables the operator to enter a command shell for sending multiple configuration commands to the S75/S200/S300. In this mode, the operator logs onto a particular receiver and executes command-line commands on that receiver within the command shell.
2. **Scripting Mode:** The second operating mode enables the operator to issue a single command to the S75/S200/S300 from the Linux command line prompt. Rather than logging onto a particular receiver, a single command with appropriately set switches may be executed by the operator. This command structure allows the operator to string multiple command switches together to efficiently command and control any given S75/S200/S300 that resides on the network.

3 INSTALLATION

The CMCS program is a Linux-based executable file (CMCS). The file should be copied onto the Linux M&C Server in the central hub. The recommended location is: /usr/bin. This will enable the CMCS to be run from any user account. CMCS can be installed at the recommended location using the following command run as a super user: install CMCS /usr/bin.

4 OPERATION

4.1 *Interactive Mode*

This section describes the command structure for the interactive mode. This mode can be used to enter an S75/S200/S300 command shell for sending multiple commands to a particular S75/S200/S300 resident in the network.



NOTE: - To be able to manage the S75/S200/S300 remotely via CMCS, the S75/S200/S300 must have a routable IP address from the M&C server.

4.1.1 Running CMCS

To run CMCS, at the linux prompt Type:

```
Linux > ./CMCS <cr>  
CMCS Utility  
CMCS>
```

This will bring up the CMCS prompt as shown above. This lets the operator know he/she is in the CMCS interactive command shell.



NOTE: - The above example uses the Linux distribution. Other OS distributions may use a slightly different name, such as CMCSMAC for MAC OS 10), for example.

4.1.2 Logging into an S75/S200/S300 Receiver

Once in the CMCS command shell, the operator may log into a particular receiver. To do so, the following would be executed by the operator:

```
CMCS> login <S75/S200/S300 ip address>
```

The operator will then be prompted for the receiver's password:

```
CMCS> Password: <password> <cr>
```

Once the password is input, the CMCS prompt will show the IP address of the S75/S200/S300 being accessed. At this point, the interactive commands may be used to manage and configure the S75/S200/S300 (see Section 4.2).

The example below illustrates the login process:

```
CMCS> login 192.168.0.23
CMCS> Password:
192.168.0.23> show lan <cr>
<network interface information displayed on screen>
192.168.0.23> logout <cr>
CMCS>
```

4.1.3 Logging into a Receiver from CMCS Prompt

There are a couple of alternate ways to log into a particular receiver from the CMCS prompt. The examples below illustrate the different methods:

```
Linux> ./CMCS -ip 192.168.0.23 -pw AbcdE
```

```
CMCS Utility
```

```
192.168.0.23> show lan <cr>
<network interface information displayed on screen>
192.168.0.23> exit <cr>
Linux #
```

OR

```
Linux > ./CMCS 192.168.0.23
Password:
CMCS Utility
```

```
CMCS 192.168.0.23> show lan <cr>
<network interface information displayed on screen>
192.168.0.23> logout <cr>
CMCS>
```

4.1.4 S75/S200/S300 Discovery

To discover all the S75/S200/S300 receivers on you network LAN, use the List command as shown below:

```
CMCS>List
1. S200CA Pro IP address: 192.168.254.205    MAC: 00-06-76-04-10-33
```

Select receiver by number to connect or 0 to exit.

4.2 Operating Commands

Once the operator successfully log's onto an S75/S200/S300 receiver within the interactive command shell, the following commands are available and may be executed.



NOTE: - A Quick Configure Command Summary for several of the different receiver types provided in Appendix A.

4.2.1 General Commands (All Receivers)

4.2.1.1 login

Command Syntax: `login <ip-address> [-timeout <timeout>]`
`li <ip-address> [timeout]`

Input Variables: *ip-address*: character string representing the ip address of the S75/S200/S300 to be configured and managed (e.g. 192.168.250.100)
timeout: an OPTIONAL integer value which instructs the CMCS program how long it should wait between each login re-try attempt.

Description: Initiates a CMCS shell connection to a receiver identified by an IP Address. An optional "timeout" value, given in seconds, specifies how long to wait for a response from the receiver before a re-try attempt. A password prompt is presented upon successful contact. If the password is accepted by the receiver the CMCS prompt will change to the IP address of the receiver currently connect to.

If an invalid password is input by the operator, the CMCS program will re-prompt the operator for a valid password up to 3 times before exiting the

program.

Note: for security purposes, input of the password is not echoed onto the screen.

4.2.1.2 **list**

Command Syntax: list
lis

Description: Provides a listing of all S75/S200/S300 receivers presently on the LAN.
Allows the operator to select one of the receivers for further configuration

4.2.1.3 **set password**

Command Syntax: set password <new password>
set pwd <new password>

Input Variables: *new password*: a character string representing the new receiver password.
The password is limited to 8 characters.

Description: Resets the receiver password to an operator-specified string.



CAUTION: If the password is lost, access to the S75/S200/S300 through CMCS may be interrupted. The Password Recover Tool may be required to locally reset the receiver password to a known value.

4.2.1.4 **exit**

Command Syntax: exit
ex
quit

Description: Enables the operator to exit the CMCS control shell back to the Linux prompt.

4.2.1.5 **logout**

Command Syntax: logout

Description: Enables the operator to logout from an S75/S200/S300 receiver and return to the CMCS prompt.

4.2.1.6 **show version**

Command Syntax: show version
sh v

Description: Displays the CMCS version

Example:

```
CMCS 192.168.250.205> show version
```

```
CMCS Version 1.0
```

4.2.1.7 **help**

Command Syntax: help
he
?


Description: Displays a one line summary of each command

Example:

```
CMCS 192.168.250.205> help
```

Help	Show all available commands
Quit	Disconnect
History	Show a list of previously run commands
:	:

The “?” help symbol may also be used on each command (except the history command) to list out the command syntax and a 1-line description of the command:



NOTE: Help can also be used to display single command syntax by typing the command followed by a space followed by “?”. For example to display the command syntax for the Add Video command, enter “Add Video ?” as shown below:

```
CMCS 192.168.250.205> Add Video ?
```

4.2.1.8 **history**

Command Syntax: history
hi

Description: Displays a list of all previously run commands

Example:

CMCS 192.168.250.205> history

1. Login 192.168.250.31
2. show version
3. sh net int
4. sh sat int

4.2.1.9 **reboot**

Command Syntax: reboot
re

Description: Enables the operator to reboot the currently logged-in receiver. Note: Once the reboot is completed, the operator will be returned to the CMCS prompt.

4.2.1.10 **list**

Command Syntax: list
li

Description: Displays a list of S75/S200/S300 receivers on the local LAN.

4.2.1.11 **save**

Command Syntax: save <filename>
sa

Input Variables: *filename*: a text string containing the configuration filename.

Description: Saves the S75/S200/S300 configuration to a file.

4.2.1.12 **load**

Command Syntax: load <filename>
lo

Input Variables: *filename*: a text string containing the configuration filename.

Description: Loads the S75/S200/S300 configuration from a file.



NOTE: - When performing a load from configuration file, the receiver IP address or gateway IP address will NOT be changed.

4.2.1.13 **show device**

Command Syntax: show device

Description: sh d
 Displays the receiver firmware version number(s)

Example:

```
CMCS 192.168.250.205> show dev
```

```
Device Type:          200CA Pro
MAC Address:          00-06-76-04-10-33
DSP Firmware:         Ver. 2 Rel. 3
CAM Firmware:         Ver. 6 Rel. 3
FPGA Firmware:        Ver. 2 Rel. 0
```

4.2.1.14 **update firmware (S300)**

Command Syntax: update firmware <Filename>
 up f <Filename>

Input variables: *Filename*: Character string representing the name of the firmware upgrade file.

Description: Updates the DSP firmware in the receiver with contents of the firmware upgrade file. This command is valid for the S300 receiver only.

Example

```
CMCS 192.168.250.205> update firmware S300_V2R7.bin
```

```
Loading: S300NOAA_V2R7.bin
Download complete. Please wait...
Starting new firmware ...
```

```
Device Type: S300
MAC Address:  00-06-76-05-00-2f
DSP Firmware: Ver. 2, Rev. 7
FPGA Firmware: Ver. 2, Rev. 0
```


4.2.2 Network Commands (All Receivers)

4.2.2.1 **ip address**

Command Syntax: ip address <ip-address> <net-mask>

Inputs Variables: *ip-address*: Character string representing the IP addresses (e.g. 192.168.250.200)

Description: *netmask*: Character string representing the netmask value (e.g. 255.255.255.0)
Enables the operator to set or change the receiver's ip address and netmask.

 CAUTION: Changing the IP address and netmask of the receiver may make it impossible for CMCS to access the receiver (if the ip address is not routable from the CMCS server). This would require the receiver IP address to be changed locally.

4.2.2.2 **show lan**

Command Syntax: show lan
sh lan

Description: Enables the operator to display the receiver ip route settings (see example below).

Example:

```
CMCS 192.168.250.205> show lan
```

Network Interface Settings:

Receiver MAC Address:	00-06-76-00-00-11
Receiver IP:	192.168.250.205
Receiver Subnet Mask:	255.255.255.0
Default Gateway IP address:	192.168.250.100
Unicast Status Destination:	192.168.254.254:6516
IGMP:	OFF
Ethernet Packets out since boot:	1234

4.2.2.3 **gateway**

Command Syntax: gateway <ip-address>
gat <ip-address>

Input Variable: *ip-address*: character string representing the IP address (e.g. 192.168.250.100)

Description: Enable the operator to set or change the receiver's default route (a.k.a. gateway address).



CAUTION: Changing the default gateway IP address of the receiver may make it impossible for CMCS to access the receiver (if the ip address is not routable from the CMCS server). This would require the receiver gateway IP address to be changed locally.

4.2.2.4 **unicast status address**

Command Syntax: unicast status address <ip-address>

uni st addr <ip-address>

Input Variables: *ip-address*: character string representing the ip address (e.g. 192.168.250.100)

Description: Enables the operator to set the IP address for the destination of unicast status packets. This allows for the receiver status packets to be broadcast beyond the local S75/S200/S300 router. It is generally not needed for CMCS, but may be needed if the S75/S200/S300 local configuration tool is to be used remotely. For CMCS operation, this feature may be turned off by setting the IP address to: 255.255.255.255.

4.2.2.5 **unicast status port**

Command Syntax: unicast status port <port#>

uni st p <port #>

Input Variables: *port#*: integer value representing the port number (eg: 6516). 10 port numbers are supported. They include:

1. 6516
2. 8309
3. 8565
4. 8821
5. 9077
6. 9333
7. 13429
8. 17525
9. 17781
10. 18037

Description: Sets the port number for the destination of unicast status packets (reference section 4.2.3).

4.2.2.6 **broadcast status port**

Command Syntax: broadcast status port <port#>
b st p <port #>

Input Variables: *port#*: integer value representing the port number (eg: 6516). 10 port numbers are supported. They include:

11. 6516
12. 8309
13. 8565
14. 8821
15. 9077
16. 9333
17. 13429
18. 17525
19. 17781
20. 18037

Description: Sets the port number for the destination of broadcast status packets

4.2.2.7 **igmp**

Command Syntax: igmp <on-off>

Input Variables: *on-off*: a text string that is either “on” or “off”

Description: Enables (on) or disables (off) the IGMP functionality on the receiver.

4.2.3 Satellite Commands (All Receivers)

4.2.3.1 **symbolrate**

Command Syntax: symbolrate <MSPS>
sym <MSPS>

Input variables: *MSPS*: real variable representing the tuner symbol rate in Mega-symbols/second. For receivers that support auto detection of the received symbol rate (includes all S300 receivers), a value of “0” or “auto” will set the symbol rate top auto detection.

Description: Enables the operator to sets the symbol rate for the receiver tuner.

4.2.3.2 **frequency**

Command Syntax: frequency <MHz>
freq <MHz>

Input Variables: *MHz*: real variable representing the receiver IF receive frequency in MHz. The frequency range is 950 MHz to 2150 MHz.

Description: Enables the operator to set the IF receive frequency of the receiver.



NOTE: - The receive L-Band IF frequency must be between 950 MHz and 2150 MHz and is computed from the RF frequency less the LO frequency.
(i.e. IF freq=RF Freq-LO freq)

4.2.3.3 **receive mode**

Command Syntax: mode <mode>
mo <mode>

Input Variables: *mode*: a text string that is either “DVB-S” or “DVB-S2”

Description: This command sets the receive modes as follows: “DVB-S” for DVB-S, and “DVB-S2” for DVB-S2 or “auto” for both. The mode values are supported in the following receivers:
“DVB-S” - All receivers
“DVB-S2” – All S200 and S300 receivers
“auto” – All S300 receivers

4.2.3.4 **gold code (S300)**

Command Syntax: gold code <code>
g c <code>

Input Variables: *code*: integer variable representing the receiver gold code setting.
The code range is 0-262141.

Description: This command is only applicable to the S300 receiver family.
Enables the operator to set the receiver Gold Code.

4.2.3.5 **modcod (S300)**

Command Syntax: modcod <modcod>
modc <code>

Input Variables: *modcod*: a text string representing the modcod that the receiver will be set to
This command is only applicable to the S300 receiver family.

Description: The modcod value is used to tell the receiver which stream to demodulate when receiving a multi-stream VCM signal.
For DVB-S operation, the modcod value is not used and therefore does not need to be set.
For single stream DVB-S2 operation, the modcod value should be set to ANY.
For multi-stream DVB-S2 operation, the S300 should be configured to receive only 1 of the streams. This is accomplished by entering the modcod

of the signal you wish to receive. The following provides a list of possible modcod entries:

“ANY”

“1/4 QPSK”, 1/3 QPSK”, “2/5 QPSK”, ½ QPSK”, “3/5 QPSK”, “2/3 QPSK”, “3/4 QPSK”, 4/5 QPSK”, “5/6 QPSK”, “8/9 QPSK”, 9/10 QPSK”

“3/5 8PSK”, “2/3 8PSK”, “3/4 8PSK”, “5/6 8PSK”, “8/9 8PSK”, “9/10 8PSK”

“2/3 16PSK”, “3/4 16PSK”, “4/5 16PSK”, “5/6 16PSK”, “8/9 16PSK”, “9/10 16PSK”

4.2.3.6 **isi (S300)**

Command Syntax: `isi <on-off>`

`is <on-off>`

Input Variables: *on-off*: a text string that is either “on” or “off”

This command is only applicable to the S300 receiver family.

Description: Enables the operator to turn (Input Stream ID (ISI) filtering on or off. This command should only be used if ISI stream value is set on the incoming DVB-S2 stream and the ISI value is known. You may have to contact your uplink provider to for assistance.

For DVB-S operation, ISI filtering is not used and therefore does not need to be set.

4.2.3.7 **set isi (S300)**

Command Syntax: `set isi <isi-value>`

`set i <isi-value>`

Input Variables: *isi-value*: integer variable representing received stream isi value. The value range is 0-255

This command is only applicable to the S300 receiver family.

Description: Enables the operator to set the ISI filter value.

This command should only be used if ISI stream value is set on the incoming DVB-S2 stream and the ISI value is known. You may have to contact your uplink provider to for assistance.

For DVB-S operation, ISI filtering is not used and therefore does not need to be set.

4.2.3.8 **show satellite**

Command Syntax: `show satellite`

`sh sat`

`show tuner`

`sh tu`

Description: Displays the current settings for the receiver RF satellite interface (see example below):

Example 1 (S75 DVB-S):

CMCS 192.168.250.205> show satellite

Satellite Interface Settings:

Receiver MAC Address:	00-06-76-00-00-11
Receive Mode	DVB-S
Frequency:	1000.0 MHz
Symbol Rate:	30.000 Msps
Viterbi Rate:	$\frac{3}{4}$
Signal Lock:	On
Data Lock:	On
Uncorrectable Rate:	0/Second
Viterbi bit Error Rate:	0.000e+00
Carrier to Noise C/N	>20 dB
Signal Strength	70 percent

Example 2 (S200 or S300 DVB-S2):

CMCS 192.168.250.205> show satellite

Satellite Interface Settings:

Receiver MAC Address:	00-06-76-00-00-11
Receive Mode	DVB-S2
Frequency:	1000.0 MHz
Symbol Rate:	30.000 Msps
ModCod:	8PSK $\frac{3}{4}$
Gold Code	0 <i>(note: this is for S300 only)</i>

Signal Lock:	On
Data Lock:	On
Uncorrectable Rate:	0/Second
Viterbi bit Error Rate:	0.000e+00
Carrier to Noise C/N	>20 dB
Signal Strength	-38 dBm

4.2.3.9 **lnb power**

Command Syntax: lnb power <on-off>
 lnb pow <on-off>
 Input Variables: *on-off*: a text string that is either “on” or “off”
 Description: Turns on or off the LNB power from the receiver to the LNB located at the satellite dish.

4.2.3.10 **lnb voltage**

Command Syntax: lnb voltage <voltage>
 lnb v <voltage>
 Input Variables: *voltage*: a text string that is either “11-15v” or “13-18v” or “21v”
 Description: Sets the LNB polarization voltage levels to 11V (horiz/vertical) and 15V (left/right) OR to 13V (horizontal/vertical) and 18V (left/right) or to 21V. The default setting is 13-18V.

4.2.3.11 **lnb polarization**

Command Syntax: lnb polarization <pol>
 lnb pol <pol>
 Input Variables: *pol*: a text string that is either “horizontal”, “vertical”, “left or “right”
 Description: Sets the LNB polarization as horizontal/left or vertical/right,

4.2.3.12 **lnb line compensation**

Command Syntax: lnb line compensation <on-off>

Input Variables: `lnb l c <on-off>`
on-off: a text string that is either “on” or “off”
Description: Turns on or off the LNB long line compensation, which adds 1 VDC to the LNB voltage. This is to compensate for the DC voltage drop in cable runs between the receiver and the satellite dish.

4.2.3.13 **lnb tone**

Command Syntax: `lnb tone <on-off>`
`lnb t <on-off>`
Input Variables: *on-off*: a text string that is either “on” or “off”
Description: Turns on or off the LNB band-select tone Example:

4.2.3.14 **lnb frequency**

Command Syntax: `lnb <tone>`
`lnb f <tone>`
Input Variables: *tone*: a text string that is either “22khz” or “44khz”
Description: The LNB tone may be set to 44 KHz or 22 KHz. The default is 22 KHz.

4.2.3.15 **Show lnb**

Command Syntax: `Show lnb`
`Sh ln`
Input Variables:
Description: This command displays the LNB settings
Example:

CMCS 192.168.250.205> show lnb

LNB Power:	On
LNB Status:	Normal
Voltage Range:	13-18v
Long Line:	Off
Polarization:	Vertical/Right
22 KHz Tone:	Off

4.2.4 Data Content Commands (All Receivers)

4.2.4.1 add pid mpe

Syntax add pid mpe <PID 1> | <PID 2> | <PID 3> ...
 a pi m <PID 1> | <PID 2> | <PID 3> ...

Input variables: *PID 1...PID n*: enables the operator to input a list of integer PID values.
 Up to 16 variables may be added. PID values may range from 1 to 8191

Description: Specifies a list of DVB packet stream identifiers (PID) to be processed by the receiver. Up to 16 PID values may be processed by the receiver at one time

4.2.4.2 delete pid mpe

Command Syntax: delete pid mpe <PID 1> | <PID 2> | <PID 3> ...
 d pi m <PID 1> | <PID 2> | <PID 3> ...

Input variables: *PID 1...PID n*: enables the operator to input a list of integer PID values to do be deleted. Up to 16 variables may be used.
 PID values may range from 1 to 8191

Description: Specifies a list of up to 16 DVB packet stream identifiers (PID's) to be no longer processed by the S75.

4.2.4.3 show pid

Command Syntax: show pids
 sh pi

Description: Enables the operator to display the list of PIDs currently specified to be processed by the receiver.

4.2.5 Video Content Commands (S75-Pro/S75CA/S200-Pro/S200CA)

4.2.5.1 map pid

Command Syntax map pid <PID> <ip-address> <port>
 ma p <PID > <ip-address> <port>

Input variables: *PID*: enables the operator to input a list of integer PID values.
 Up to 16 variables may be added. PID values may range from 1 to 8191
ip-address: Character string representing the IP address (e.g. 192.168.250.200) that the associated PID will be mapped to.
port: enables the operator to input an integer of the IP address port number
 The port number provides further definition of the map-to IP address.

Description: Specifies a DVB packet stream identifiers (PID) that is to be mapped to an IP address/port. This command is only valid for the S75-Pro, S75CA, S200-Pro or S200CA receivers.

4.2.5.2 unmap pid

Command Syntax unmap pid <PID> <ip-address> <port>
unm p <PID > <ip-address> <port>

Input variables: *PID*: enables the operator to input a list of integer PID values. Up to 16 variables may be added. PID values may range from 1 to 8191
ip-address: Character string representing the IP address (e.g. 192.168.250.200) that the associated PID will be mapped to.
port: enables the operator to input an integer of the IP address port number. The port number provides further definition of the map-to IP address.

Description: Specifies a DVB packet stream identifiers (PID) that is to be mapped to an IP address/port. This command is only valid for the S75-Pro, S75CA, S200-Pro or S200CA receivers.

4.2.5.3 show map

Command Syntax show map
sh m

Description: Displays the list of DVB packet stream identifiers (PID) that are mapped to an IP address/port. This command is only valid for the S75-Pro, S75CA, S200-Pro or S200CA receivers.

Examples

```
CMCS 192.168.250.205> show map
```

Destinations	PIDs			
225.0.0.101:2000	413	513	2120	8190
225.0.0.101:2000	412	512	2125	8190

4.2.5.4 add video

Command Syntax add video <ip-address> <port> <prog no.> <[S]crambled/[C]lear> <PMT PID> <Video PID> <Audio PID> <PCR PID> [<Teletext PID>]
a v <ip-address> <port> <prog no.> <[S]crambled/[C]lear> <PMT PID> <Video PID> <Audio PID> <PCR PID> [<Teletext PID>]

Input variables: *ip-address*: Character string representing the IP address (e.g. 225.0.250.200) that the associated PIDs will be mapped to.

port: enables the operator to input an integer of the IP address port number
Prog no.: is an integer representing the program number (or SID) of the video stream.

[S]crambled/[C]lear: is a character string that represents a scrambled flag. Is set to “S” if the stream is to be descrambled by the receiver and is set to “C” if the stream is a clear or Free-to-Air (TFA).

Video PID: is an integer representing the stream video PID. PID values may range from 1 to 8191

Audio PID: is an integer representing the stream audio PID. PID values may range from 1 to 8191

PCR PID: is an integer representing the PCR PID. PID values may range from 1 to 8191. Note: often the PCR is sent in the video PID. In this case, simply enter the video PID value in this field.

[Teletext PID]: is an optional integer value representing the teletext PID. PID values may range from 1 to 8191. Note: often teletext information is not required or sent with the video stream and therefore this PID is optional. This field may also be used to send other stream PID’s that are not defined above.

Description:

This command specifies all the information needed to define a video program in the receiver. This command is only valid for the S75-Pro, S75CA, S200-Pro or S200CA receivers.



NOTE: - It is assumed that a program (SID) may be mapped to multiple IP addresses, but that multiple programs (SID’s) may NOT be mapped to a single IP address.



NOTE: To display the command syntax for the Add Video command, enter “Add Video ?” as shown below:

```
CMCS 192.168.250.205> Add Video ?
```

4.2.5.5 delete video

Command Syntax del video <ip-address> <port> <prog no.>
 d v <ip-address> <port> <prog no.>

Input variables: *ip-address*: Character string representing the IP address (e.g. 225.0.250.200) that the associated PIDs will be mapped to.
 port: enables the operator to input an integer of the IP address port number
 Prog no.: is an integer representing the program number of SID of the video stream.

Description: This command specifies all the information needed to remove a video program in the receiver. This command will do the following:

- Use the Program Number to determine which PIDs need to be unmapped from their corresponding IP address,
- Remove the program from the CAM table, and
- Remove the program from the PAT table

This command is only valid for the S75-Pro, S75CA, S200-Pro or S200CA receivers.



NOTE: - The delete video command will only remove entries in the CAM table and the PAT table if the given PMT PID is no longer mapped to an IP address. In the case where a particular program is mapped to several different IP address, then the all of the video programs must be removed before the program is removed from the CAM and PAT tables.

4.2.5.6 show video

Command Syntax show video
 sh v

Input variables:

Description: This command will display all the configuration parameters associated with each video program. This command is only valid for the S75-Pro, S75CA, S200-Pro or S200CA receivers.

Examples

```
CMCS 192.168.250.205> show video
```

Program	Destination	PIDs	CA	Status
2020	225.0.0.101:2000	413 513 2120 8190	Y	No Program
2025	225.0.0.101:2000	412 512 2125 8190	Y	Program Found

4.2.6 PAT Commands (S75-Pro/S75CA/S200-Pro/S200CA)

4.2.6.1 add pat

Syntax add pat < Prog No.> <PMT PID >

 a pa < Prog No.> <PMT PID >

Input variables: *Prog No.*: enables the operator to input a integer value that corresponds to a Program Number (or SID) for a given PMT.

PMT PID: enables the operator to input a list of integer values that represent the PMT PID number for a given program.

Description: Specifies a program number that the receiver uses to generate a mini-PAT for a single program transport stream. This command is only valid for the S75-Pro, S75CA, S200-Pro or S200CA receivers.

4.2.6.2 delete pat

Command Syntax: delete pat < Prog No.>

 d pa < Prog No.>

Input variables: *Prog No.*: enables the operator to input a list of integer program numbers to do be deleted

Description: Specifies a list of Program Number that will be no longer used to generate the mini PAT's. This command is only valid for the S75-Pro, S75CA, S200-Pro or S200CA receivers.

4.2.6.3 show pat

Command Syntax: show pat

 sh pa

Description: Enables the operator to display the list of PATs currently specified to be processed by the S75/S200/S300. This command is only valid for the S75-Pro, S75CA, S200-Pro or S200CA receivers.

Examples

```
CMCS 192.168.250.205> show pat
```

Program	PMT PID
2020	2120
2025	2125

4.2.7 CAM Commands (S75CA/S200CA)

4.2.7.1 add cam

Syntax add cam <Prog No. 1> | <Prog No. 2> | <Prog No. 3> ...
a c <Prog No. 1> | <Prog No. 2> | <Prog No. 3> ...

Input variables: *Prog No. 1... Prog No. n*: enables the operator to input a list of integer program numbers to be descrambled by the Conditional Access Module (CAM).
Up to 16 variables may be added.

Description: Specifies a list of DVB program numbers to be descrambled by the S75/S200/S300 CAM. This command is only applicable to the S75CA or the S200CA receivers.

4.2.7.2 cam watchdog

Syntax cam watchdog <Timeoutl> ...
ca w <Timeout>

Input variables: *Timeout*: Integer value representing the amount of time in seconds the CAM watchdog waits before resetting the CAM

Description: If the CAM you are using with the receiver is initialized and receiving an authorized stream, but does not properly descramble the stream then the receiver will automatically reset the CAM after the configured timeout interval has elapsed. This feature can be disabled by setting the Watchdog Timeout to 0 seconds.
Note: free-to-air traffic passing thru the CAM may prevent the watchdog from resetting the CAM

4.2.7.3 delete cam

Command Syntax: delete cam <Prog No. 1> | <Prog No. 2> | <Prog No. 3> ...
d c <Prog No. 1> | <Prog No. 2> | <Prog No. 3> ...

Input variables: *Prog No. 1... Prog No. n*: enables the operator to input a list of integer program numbers to do be removed from the list of programs that are to be descrambled by the CAM.

Description: Specifies a list of up to 16 DVB program numbers that are to be removed from the S75/S200/S300 list of programs to be descrambled by the CAM. This command is only applicable to the S75CA or the S200CA receivers.

4.2.7.4 **show cam**

Command Syntax: show cam
sh c

Description: Display the list of program numbers to be descrambled by the S75/S200/S300 CAM. Also shows the CA status for each. This command is only applicable to the S75CA or the S200CA receivers.

Examples

CMCS 192.168.250.205> show cam

CAM Card Status: Ready

Watchdog Interval: 0 seconds

CA Processed	Status
Programs	
2020	No Program
2025	Decoding

4.2.8 Video Commands (S200V/S200VCA)

4.2.8.1 **add vprogram**

Command Syntax: add vprogram <prog no.><IP address><port>
a vp <prog no.><IP address><port>

Input variables: *Prog no.:* is an integer representing the program number (or SID) of the video stream

ip-address: Character string representing the IP address (e.g. 225.0.250.200) that the associated PIDs will be mapped to.

port: enables the operator to input an integer of the IP address port number.

Description: Configures a video program to be forwarded to a specified destination (IP Address/Port). This command is only valid for the S200V or S200VCA receivers.

4.2.8.2 **add dprogram**

Command Syntax: add dprogram <prog no.>
a dp <prog no.>

Input variables: *Prog no.:* is an integer representing the program number (or SID) of the video stream

Description: Configures a data (MPE) program to be forwarded by the receiver. This command is only valid for the S200V or S200VCA receivers.

4.2.8.3 **del vprogram**

Command Syntax: del vprogram <prog no.><IP address><port>
del vp <prog no.><IP address><port>

Input variables: *Prog no.:* is an integer representing the program number (or SID) of the video stream
ip-address: Character string representing the IP address (e.g. 225.0.250.200) that the associated PIDs will be mapped to.
port: enables the operator to input an integer of the IP address port number

Description: Removes a video program from being forwarded to a specified destination (IP Address/Port). This command is only valid for the S200V or S200VCA receivers.

4.2.8.4 **del dprogram**

Command Syntax: del dprogram <prog no.>
del dp <prog no.>>

Input variables: *Prog no.:* is an integer representing the program number (or SID) of the video stream

Description: Removes a data program from being forwarded by the receiver. This command is only valid for the S200V or S200VCA receivers.

4.2.8.5 **show guide**

Command Syntax: show guide
sh g

Description: Display the list of all available programs to be viewed. This command is used to see what programs are available on the received transport stream. This command is only valid for the S200V or S200VCA receivers.

Examples

```
CMCS 192.168.250.205> show guide
```

Program

```
200 AB SAT – RTL9 (CA)
201 AB SAT – AB1 (CA)
202 AB SAT – AB MOTEURS (CA)
: :
```

4.2.8.6 **show program**

Command Syntax: show program
sh pr

Description: Display the list of all the video programs that are being forwarded by the receiver. This command is only valid for the S200V or S200VCA receivers.

Examples

```
CMCS 192.168.250.205> show program
```

Destination	Program	CS Status
225.0.0.100:2000	200	Scrambled
225.0.0.101:2000	201	Clear

4.3 CMCS Scripting Mode

This section describes the command structure for the scripting mode. This mode enables the operator to enter single-line commands to a particular S75/S200/S300. This mode enables the user to string several command switches together on one line. It is particularly useful to quickly query receiver performance, or configure receiver parameter(s), without the need to enter the command shell; it may also be used to set up script commands to enable more efficient management of the receivers.



NOTE: - To be able to manage the S75/S200/S300 remotely via CMCS, the receiver must have a routable IP address from the M&C server.

This section describes the command structure for the CMCS scripting mode. No command shell or receiver log in is required to use this mode, although the receiver password and IP address are needed within the command structure to send a command to a particular receiver. If the IP address and/or receiver password and at least one further command switch are not provided, the program will initiate CMCS interactive mode. Each command will have the following basic structure:

NAME

```
./CMCS[<-ip [IP-ADDRESS]> | <-pw [PW-PASSWORD]> | <Optional Command Switches>]
```

Where the following command switches may be used on a particular command:

SYNOPSIS

```
./CMCS [-ip ipAddress] [-pw login Password] [-timeout timeout] [-list] [-save filename] [-load  
filenam] [-help] [-setip newIPAddress] [-gway gateway] [-igmp OnOff] [-shdev] [-shlan] [-shsat]  
[-shtraf] [-shlnb] [-shpid] [-shmap] [-shvid] [-shpat] [-shcam] [-usp unicastPort] [-usa unicastAddr]  
[-bsp broadcastPort] [-sym symbolRate] [-rfreq rfrequency] [-goldcode code] [-modcod modcod]  
[-isi isi_value] [-setisi onoff] [-lnbpwr onoff] [-lnbv voltage] [-lnblc linecomp] [-lnbpol polarization]  
[-lnbt onoff] [-lnbtf tonefreq] [-recm rcvrmode] [-reboot] [-add newpid] [-del delpid] [-mpid  
ipaddr_port_pid] [-umpid ipaddr_port_pid] [-addvid  
ipaddr_port_progno_Scram/Clear_pmtpid_videopid_audiopid_pcrpid_[teletexpid]] [-delvid] [-  
addpat progno_pmtpid] [-delpat progno] [-addcam progno] [-delcam progno] [-setpassword  
newpassword] [-addvprog progno ipaddr port] [-adddprog progno] [-devlprog progno ipaddr port] [-  
deldprog progno] [-shvprog] [-shguide] [-xmlstatus]
```

4.3.1 Required Command Switches

Two command switches (-ip and -pw) and at least one optional command is required to execute a scripting mode command. Because of the nature of the scripting syntax, the password is echoed onto the screen.

- 1) `-ip` `<ip-address>` IP Address of receiver to communicate with,
1 String value
- 2) `-pw` `<password>` Configuration password of the receiver to be used in creating a connection to the S75/S200/S300, 1 string value.



NOTE: - if the required command switches (`-ip` and `-pw`) and at least one optional command switch are not present in the command line, then the program will enter into the interactive mode (see second example below)

Examples:

```
Linux > ./CMCS -ip 192.168.0.23 -pw abcde -add 1000
```

OR to log into the interactive mode:

```
Linux > ./CMCS -ip 192.168.0.23 -pw abcde
```

```
CMCS S75/S200/S300 Configuration Utility
```

```
CMCS 192.168.0.23>
```

4.3.2 Optional Command Switches

The optional command switches, provided below, must follow the required command switches in the command line syntax. The order of the optional command switches in the command line is not important.

4.3.2.1 General Commands (All Receivers)

4.3.2.2 `-timeout`

Command Syntax: `-timeout <timeout>`

Input Variables: *timeout*: integer value representing the timeout value in seconds.
Default value is 5 seconds

Description: Instructs the CMCS program how long it should wait between each login re-try attempt.

4.3.2.3 **-setpwd**

Command Syntax: `-setpassword <new password>`
Input Variables: *new password*: a character string representing the new receiver password.
The password is limited to 8 characters.
Description: Resets the receiver password to an operator-specified string.



CAUTION: If the password is lost, access to the S75/S200/S300 through CMCS may be interrupted. The Password Recover Tool may be required to locally reset the receiver password to a known value.

4.3.2.4 **-reboot**

Command Syntax: `-reboot`
Description: Enables the operator to reboot the currently logged-in receiver. Note: Once the reboot is completed, the operator will be returned to the CMCS prompt.

4.3.2.5 **-help**

Command Syntax: `-help`
Description: Displays a one line summary of each command.

4.3.2.6 **-list**

Command Syntax: `-list`
Description: Displays a list of S75/S200/S300 receivers on the local LAN
Allows the operator to select one of the receivers for further configuration.

4.3.2.7 **-save**

Command Syntax: `-save <filename>`
Input Variables: *filename*: a text string containing the configuration filename.
Description: Saves the receiver configuration to a file.

4.3.2.8 **-load**

Command Syntax: `-load <filename>`

Input Variables: filename: a text string containing the configuration filename.
Description: Loads the receiver configuration from a file.



NOTE: - When performing a load from configuration file, the receiver IP address or gateway IP address will NOT be changed.

4.3.2.9 -shdev

Command Syntax: shdev
Description: Displays the receiver firmware version number(s)

4.3.2.10 -xmlstatus

Command Syntax: -xmlstatus
Description: returns an xml listing of the receiver status
Examples: The examples provided below show a typical listing for various different receiver models.

1) S200VCA

```
<RECEIVER_STATUS TIME_STAMP="2010/10/27 14:41:18.145">
  <DEVICE_TYPE>S200VCA</DEVICE_TYPE>
  <RECEIVER_MAC>00-06-76-04-10-40</RECEIVER_MAC>
  <RECEIVER_IP>192.168.254.254</RECEIVER_IP>
  <STATUS_TIMESTAMP>2010/10/27 14:41:18.141</STATUS_TIMESTAMP>
  <DATA_SYNC_LOSS>0</DATA_SYNC_LOSS>
  <CARRIER_FREQUENCY>1000 MHz (+57 kHz)</CARRIER_FREQUENCY>
  <DVB_SIGNAL_TYPE>DVBS</DVB_SIGNAL_TYPE>
  <VITERBI_RATE>3/4 QPSK</VITERBI_RATE>
  <MODCOD>Unknown</MODCOD>
  <SIGNAL_STRENGTH_AS_DBM>-40</SIGNAL_STRENGTH_AS_DBM>
  <SIGNAL_STRENGTH_AS_PERCENTAGE>70.000000</SIGNAL_STRENGTH_AS_PERCENTAGE>
  <SIGNAL_LOCK>Locked</SIGNAL_LOCK>
  <DATA_LOCK>Locked</DATA_LOCK>
  <LNB_FAULT>No Fault</LNB_FAULT>
  <VBER>0.00e+00</VBER>
  <PER>0.00e+00</PER>
  <UNCORRECTABLES>0</UNCORRECTABLES>
  <CARRIER_TO_NOISE>100.000000</CARRIER_TO_NOISE>
  <FREQUENCY_OFFSET>57</FREQUENCY_OFFSET>
  <SPECTRAL_INVERSION_FLAG>Normal</SPECTRAL_INVERSION_FLAG>
  <PILOT_SYMBOL_FLAG>Off</PILOT_SYMBOL_FLAG>
  <FRAME_LENGTH>Long</FRAME_LENGTH>
  <DVB_ACCEPTED>0</DVB_ACCEPTED>
  <TOTAL_DVB_PACKETS_ACCEPTED>0</TOTAL_DVB_PACKETS_ACCEPTED>
  <TOTAL_UNCORRECTABLE_TS_PACKETS>1174</TOTAL_UNCORRECTABLE_TS_PACKETS>
  <ETHERNET_TRANSMIT>1</ETHERNET_TRANSMIT>
  <ETHERNET_RECEIVE>6</ETHERNET_RECEIVE>
  <ETHERNET_PACKET_DROPPED>0</ETHERNET_PACKET_DROPPED>
```

```
<ETHERNET_RECEIVE_ERROR>0</ETHERNET_RECEIVE_ERROR>
<TOTAL_ETHERNET_PACKETS_OUT>7820</TOTAL_ETHERNET_PACKETS_OUT>
<CAM_STATUS>Not_Inserted</CAM_STATUS>
<DVB_SCRAMBLED>0</DVB_SCRAMBLED>
<DVB_CLEAR>0</DVB_CLEAR>
<SYMBOL_RATE>27500</SYMBOL_RATE>
</RECEIVER_STATUS>
```

2) S75-Pro

```
<RECEIVER_STATUS TIME_STAMP="2010/10/25 18:59:00.343">
  <DEVICE_TYPE>S75+ Pro</DEVICE_TYPE>
  <RECEIVER_MAC>00-06-76-00-00-99</RECEIVER_MAC>
  <RECEIVER_IP>192.168.254.252</RECEIVER_IP>
  <STATUS_TIMESTAMP>2010/10/25 18:59:00.336</STATUS_TIMESTAMP>
  <DATA_SYNC_LOSS>0</DATA_SYNC_LOSS>
  <VITERBI_RATE>5/6 QPSK</VITERBI_RATE>
  <SIGNAL_STRENGTH_AS_PERCENTAGE>87.500000</SIGNAL_STRENGTH_AS_PERCENTAGE>
  <SIGNAL_LOCK>Locked</SIGNAL_LOCK>
  <DATA_LOCK>Locked</DATA_LOCK>
  <LNB_FAULT>No Fault</LNB_FAULT>
  <VBER>0.00e+00</VBER>
  <UNCORRECTABLES>0</UNCORRECTABLES>
  <CARRIER_TO_NOISE>100.0</CARRIER_TO_NOISE>
  <DEMODULATOR_GAIN>67</DEMODULATOR_GAIN>
  <AGCA>105</AGCA>
  <AGCN>67</AGCN>
  <GNYQA>0</GNYQA>
  <GFARA>0</GFARA>
  <NEST>2</NEST>
  <CLOCK_OFFSET>6</CLOCK_OFFSET>
  <FREQUENCY_ERROR>1</FREQUENCY_ERROR>
  <ADC_MID>0</ADC_MID>
  <ADC_CLIP>255</ADC_CLIP>
  <DIGITAL_GAIN>0</DIGITAL_GAIN>
  <AA_CLAMP>0</AA_CLAMP>
  <PID_COUNT>5</PID_COUNT>
  <DVB_ACCEPTED>69</DVB_ACCEPTED>
  <TOTAL_DVB_PACKETS_ACCEPTED>55244</TOTAL_DVB_PACKETS_ACCEPTED>
  <TOTAL_UNCORRECTABLE_TS_PACKETS>6168</TOTAL_UNCORRECTABLE_TS_PACKETS>
  <ETHERNET_TRANSMIT>70</ETHERNET_TRANSMIT>
  <ETHERNET_RECEIVE>7</ETHERNET_RECEIVE>
  <ETHERNET_PACKET_DROPPED>0</ETHERNET_PACKET_DROPPED>
  <ETHERNET_RECEIVE_ERROR>0</ETHERNET_RECEIVE_ERROR>
  <TOTAL_ETHERNET_PACKETS_OUT>5589</TOTAL_ETHERNET_PACKETS_OUT>
  <DVB_SCRAMBLED>69</DVB_SCRAMBLED>
  <DVB_CLEAR>0</DVB_CLEAR>
  <SYMBOL_RATE>27500</SYMBOL_RATE>
</RECEIVER_STATUS>
```

3) S75CA

```
<RECEIVER_STATUS TIME_STAMP="2010/10/25 18:45:47.849">
  <DEVICE_TYPE>S75CA Pro</DEVICE_TYPE>
  <RECEIVER_MAC>00-06-76-03-02-54</RECEIVER_MAC>
  <RECEIVER_IP>192.168.254.250</RECEIVER_IP>
  <STATUS_TIMESTAMP>2010/10/25 18:45:47.841</STATUS_TIMESTAMP>
  <DATA_SYNC_LOSS>0</DATA_SYNC_LOSS>
  <VITERBI_RATE>5/6 QPSK</VITERBI_RATE>
  <SIGNAL_STRENGTH_AS_PERCENTAGE>83.000000</SIGNAL_STRENGTH_AS_PERCENTAGE>
```

```

<SIGNAL_LOCK>Locked</SIGNAL_LOCK>
<DATA_LOCK>Locked</DATA_LOCK>
<LNB_FAULT>No Fault</LNB_FAULT>
<VBER>0.00e+00</VBER>
<UNCORRECTABLES>0</UNCORRECTABLES>
<CARRIER_TO_NOISE>100.0</CARRIER_TO_NOISE>
<DEMODULATOR_GAIN>66</DEMODULATOR_GAIN>
<AGCA>114</AGCA>
<AGCN>66</AGCN>
<GNYQA>0</GNYQA>
<GFARA>0</GFARA>
<NEST>3</NEST>
<CLOCK_OFFSET>6</CLOCK_OFFSET>
<FREQUENCY_ERROR>0</FREQUENCY_ERROR>
<ADC_MID>0</ADC_MID>
<ADC_CLIP>255</ADC_CLIP>
<DIGITAL_GAIN>0</DIGITAL_GAIN>
<AA_CLAMP>0</AA_CLAMP>
<PID_COUNT>5</PID_COUNT>
<DVB_ACCEPTED>69</DVB_ACCEPTED>
<TOTAL_DVB_PACKETS_ACCEPTED>69499</TOTAL_DVB_PACKETS_ACCEPTED>
<TOTAL_UNCORRECTABLE_TS_PACKETS>21842</TOTAL_UNCORRECTABLE_TS_PACKETS>
<ETHERNET_TRANSMIT>70</ETHERNET_TRANSMIT>
<ETHERNET_RECEIVE>8</ETHERNET_RECEIVE>
<ETHERNET_PACKET_DROPPED>0</ETHERNET_PACKET_DROPPED>
<ETHERNET_RECEIVE_ERROR>0</ETHERNET_RECEIVE_ERROR>
<TOTAL_ETHERNET_PACKETS_OUT>63353</TOTAL_ETHERNET_PACKETS_OUT>
<CAM_STATUS>Ready</CAM_STATUS>
<DVB_SCRAMBLED>70</DVB_SCRAMBLED>
<DVB_CLEAR>0</DVB_CLEAR>
<SYMBOL_RATE>27500</SYMBOL_RATE>
<CA_PROGRAM_STATUS_LIST />
</RECEIVER_STATUS>

```

4) S200-Pro

```

<RECEIVER_STATUS TIME_STAMP="2010/10/25 17:39:09.652">
  <DEVICE_TYPE>S200 Pro</DEVICE_TYPE>
  <RECEIVER_MAC>00-06-76-00-00-22</RECEIVER_MAC>
  <RECEIVER_IP>192.168.254.251</RECEIVER_IP>
  <STATUS_TIMESTAMP>2010/10/25 17:39:09.637</STATUS_TIMESTAMP>
  <DATA_SYNC_LOSS>0</DATA_SYNC_LOSS>
  <CARRIER_FREQUENCY>1000 MHz (+77 kHz)</CARRIER_FREQUENCY>
  <DVB_SIGNAL_TYPE>DVBS</DVB_SIGNAL_TYPE>
  <VITERBI_RATE>5/6 QPSK</VITERBI_RATE>
  <MODCOD>Unknown</MODCOD>
  <SIGNAL_STRENGTH_AS_DBM>-37</SIGNAL_STRENGTH_AS_DBM>
  <SIGNAL_STRENGTH_AS_PERCENTAGE>76.000000</SIGNAL_STRENGTH_AS_PERCENTAGE>
  <SIGNAL_LOCK>Locked</SIGNAL_LOCK>
  <DATA_LOCK>Locked</DATA_LOCK>
  <LNB_FAULT>No Fault</LNB_FAULT>
  <VBER>0.00e+00</VBER>
  <PER>0.00e+00</PER>
  <UNCORRECTABLES>0</UNCORRECTABLES>
  <CARRIER_TO_NOISE>100.000000</CARRIER_TO_NOISE>
  <FREQUENCY_OFFSET>77</FREQUENCY_OFFSET>
  <SPECTRAL_INVERSION_FLAG>Normal</SPECTRAL_INVERSION_FLAG>
  <PILOT_SYMBOL_FLAG>Off</PILOT_SYMBOL_FLAG>
  <FRAME_LENGTH>Long</FRAME_LENGTH>
  <PID_COUNT>5</PID_COUNT>
  <DVB_ACCEPTED>67</DVB_ACCEPTED>

```

```

<TOTAL_DVB_PACKETS_ACCEPTED>17361</TOTAL_DVB_PACKETS_ACCEPTED>
<TOTAL_UNCORRECTABLE_TS_PACKETS>1302</TOTAL_UNCORRECTABLE_TS_PACKETS>
<ETHERNET_TRANSMIT>11</ETHERNET_TRANSMIT>
<ETHERNET_RECEIVE>9</ETHERNET_RECEIVE>
<ETHERNET_PACKET_DROPPED>0</ETHERNET_PACKET_DROPPED>
<ETHERNET_RECEIVE_ERROR>0</ETHERNET_RECEIVE_ERROR>
<TOTAL_ETHERNET_PACKETS_OUT>6359</TOTAL_ETHERNET_PACKETS_OUT>
<DVB_SCRAMBLED>67</DVB_SCRAMBLED>
<DVB_CLEAR>0</DVB_CLEAR>
<SYMBOL_RATE>27500</SYMBOL_RATE>
</RECEIVER_STATUS>

```

5) S200CA

```

<RECEIVER_STATUS TIME_STAMP="2010/10/25 19:05:09.314">
  <DEVICE_TYPE>S200CA Pro</DEVICE_TYPE>
  <RECEIVER_MAC>00-06-76-04-10-35</RECEIVER_MAC>
  <RECEIVER_IP>192.168.254.254</RECEIVER_IP>
  <STATUS_TIMESTAMP>2010/10/25 19:05:09.296</STATUS_TIMESTAMP>
  <DATA_SYNC_LOSS>0</DATA_SYNC_LOSS>
  <CARRIER_FREQUENCY>1000 MHz (+60 kHz)</CARRIER_FREQUENCY>
  <DVB_SIGNAL_TYPE>DVBS</DVB_SIGNAL_TYPE>
  <VITERBI_RATE>5/6 QPSK</VITERBI_RATE>
  <MODCOD>Unknown</MODCOD>
  <SIGNAL_STRENGTH_AS_DBM>-39</SIGNAL_STRENGTH_AS_DBM>
  <SIGNAL_STRENGTH_AS_PERCENTAGE>72.000000</SIGNAL_STRENGTH_AS_PERCENTAGE>
  <SIGNAL_LOCK>Locked</SIGNAL_LOCK>
  <DATA_LOCK>Locked</DATA_LOCK>
  <LNB_FAULT>No Fault</LNB_FAULT>
  <VBER>0.00e+00</VBER>
  <PER>0.00e+00</PER>
  <UNCORRECTABLES>0</UNCORRECTABLES>
  <CARRIER_TO_NOISE>100.000000</CARRIER_TO_NOISE>
  <FREQUENCY_OFFSET>60</FREQUENCY_OFFSET>
  <SPECTRAL_INVERSION_FLAG>Normal</SPECTRAL_INVERSION_FLAG>
  <PILOT_SYMBOL_FLAG>Off</PILOT_SYMBOL_FLAG>
  <FRAME_LENGTH>Long</FRAME_LENGTH>
  <PID_COUNT>5</PID_COUNT>
  <DVB_ACCEPTED>66</DVB_ACCEPTED>
  <TOTAL_DVB_PACKETS_ACCEPTED>38635</TOTAL_DVB_PACKETS_ACCEPTED>
  <TOTAL_UNCORRECTABLE_TS_PACKETS>1250</TOTAL_UNCORRECTABLE_TS_PACKETS>
  <ETHERNET_TRANSMIT>10</ETHERNET_TRANSMIT>
  <ETHERNET_RECEIVE>9</ETHERNET_RECEIVE>
  <ETHERNET_PACKET_DROPPED>0</ETHERNET_PACKET_DROPPED>
  <ETHERNET_RECEIVE_ERROR>0</ETHERNET_RECEIVE_ERROR>
  <TOTAL_ETHERNET_PACKETS_OUT>7588</TOTAL_ETHERNET_PACKETS_OUT>
  <CAM_STATUS>Ready</CAM_STATUS>
  <DVB_SCRAMBLED>66</DVB_SCRAMBLED>
  <DVB_CLEAR>0</DVB_CLEAR>
  <SYMBOL_RATE>27500</SYMBOL_RATE>
  <CA_PROGRAM_STATUS_LIST />
</RECEIVER_STATUS>

```

6) S300

```

<RECEIVER_STATUS TIME_STAMP="2011/01/07 10:50:13.350">
  <DEVICE_TYPE>S300</DEVICE_TYPE>
  <RECEIVER_MAC>00-06-76-00-00-00</RECEIVER_MAC>
  <RECEIVER_IP>192.168.254.242</RECEIVER_IP>
  <STATUS_TIMESTAMP>2011/01/07 10:50:13.338</STATUS_TIMESTAMP>
  <DATA_SYNC_LOSS>0</DATA_SYNC_LOSS>

```

```

<CARRIER_FREQUENCY>1000 MHz (+46 kHz)</CARRIER_FREQUENCY>
<DVB_SIGNAL_TYPE>DVBS</DVB_SIGNAL_TYPE>
<VITERBI_RATE>5/6 QPSK</VITERBI_RATE>
<MODCOD>2/5 QPSK</MODCOD>
<SIGNAL_STRENGTH_AS_DBM>-38</SIGNAL_STRENGTH_AS_DBM>
<SIGNAL_LOCK>Locked</SIGNAL_LOCK>
<DATA_LOCK>Locked</DATA_LOCK>
<LNB_FAULT>No Fault</LNB_FAULT>
<VBER>0.00e+00</VBER>
<PER>0.00e+00</PER>
<UNCORRECTABLES>0</UNCORRECTABLES>
<CARRIER_TO_NOISE>24.600000</CARRIER_TO_NOISE>
<FREQUENCY_OFFSET>46000</FREQUENCY_OFFSET>
<LOCKED_SYMBOL_RATE>44998</LOCKED_SYMBOL_RATE>
<SPECTRAL_INVERSION_FLAG>Inverted</SPECTRAL_INVERSION_FLAG>
<PILOT_SYMBOL_FLAG>Off</PILOT_SYMBOL_FLAG>
<FRAME_LENGTH>Long</FRAME_LENGTH>
<PID_COUNT>5</PID_COUNT>
<DVB_ACCEPTED>14260</DVB_ACCEPTED>
<TOTAL_DVB_PACKETS_ACCEPTED>615273839</TOTAL_DVB_PACKETS_ACCEPTED>
<TOTAL_UNCORRECTABLE_TS_PACKETS>1137</TOTAL_UNCORRECTABLE_TS_PACKETS>
<ETHERNET_TRANSMIT>2567</ETHERNET_TRANSMIT>
<ETHERNET_RECEIVE>5</ETHERNET_RECEIVE>
<ETHERNET_PACKET_DROPPED>0</ETHERNET_PACKET_DROPPED>
<ETHERNET_RECEIVE_ERROR>0</ETHERNET_RECEIVE_ERROR>
<TOTAL_ETHERNET_PACKETS_OUT></TOTAL_ETHERNET_PACKETS_OUT>
<DVB_SCRAMBLED>0</DVB_SCRAMBLED>
<DVB_CLEAR>14260</DVB_CLEAR>
</RECEIVER_STATUS>

```

4.3.2.11 –updatefirmware (S300)

Command Syntax: -updatefirmware <Filename>

Input variables: *Filename*: Character string representing the name of the firmware upgrade file.

Description: Updates the DSP firmware in the receiver with contents of the firmware upgrade file. This command is valid for the S300 receiver only.

4.3.3 Network Commands (All Receivers)

4.3.3.1 -setip

Command Syntax: -setip <ip-address> <net-mask>

Inputs Variables: *ip-address*: Character string representing the IP addresses (e.g. 192.168.250.200)

netmask: Character string representing the Netmask value (e.g. 255.255.255.0)

Description: Enables the operator to set or change the receiver's ip address and netmask.



CAUTION: Changing the IP address and netmask of the receiver may make it impossible for CMCS to access the receiver (if the ip address is not routable from the CMCS server). This would require the receiver IP address to be changed locally.

4.3.3.2 **-shlan**

Command Syntax: -shlan

Description: Enables the operator to display the S75/S200/S300 ip route settings.

4.3.3.3 **-gway**

Command Syntax: -gway <ip-address>

InputVariable: *ip-address*: character string representing the IP address (e.g. 192.168.250.100)

Description: Enables the operator to set or change the receiver's default route (a.k.a. gateway address).



CAUTION: Changing the default gateway IP address of the receiver may make it impossible for CMCS to access the receiver (if the ip address is not routable from the CMCS server). This would require the receiver gateway IP address to be changed locally.

4.3.3.4 **-usp**

Command Syntax: -usp <port#>

Input Variables: *port#*: integer value representing the port number (eg: 6516). 10 port numbers are supported. They include:

21. 6516
22. 8309
23. 8565
24. 8821
25. 9077
26. 9333
27. 13429
28. 17525
29. 17781
30. 18037

Description: Sets the port number for the destination of broadcast status packets.

4.3.3.5 **-usa**

Command Syntax: -usa <ip-address>

Input Variables: *ip-address*: character string representing the ip address (e.g. 192.168.250.100)

Description: Enables the operator to set the IP address for the destination of unicast status packets. This allows for the receiver status packets to be broadcast beyond the local S75/S200/S300 router. It is generally not needed for CMCS, but may be need if the receiver local configuration tool is to be used remotely. For CMCS operation, this feature may be turned off by setting the IP address to: 255.255.255.255.

4.3.3.6 **-bsp**

Command Syntax: `-bsp <ip-address>`
Input Variables: *port#*: integer value representing the port number (eg: 6516). 10 port numbers are supported. They include:

1. 6516
2. 8309
3. 8565
4. 8821
5. 9077
6. 9333
7. 13429
8. 17525
9. 17781
10. 18037

Description: Sets the port number for the destination of broadcast status packets.

4.3.3.7 **-igmp**

Command Syntax: `-igmp <on-off>`
Input Variables: *on-off*: a text string that is either “on” or “off”
Description: Enables (on) or disables (off) the IGMP functionality on the receiver.

4.3.4 Satellite Commands

4.3.4.1 **-sym**

Command Syntax: `-sym <MSPS>`
Input variables: *MSPS*: real variable representing the tuner symbol rate in Mega-symbols/second. For receivers that support auto detection of the received symbol rate (includes all S300 receivers), a value of “0” or “auto” will set the symbol rate top auto detection.

Description: Enables the operator to sets the symbol rate for the receiver tuner.

4.3.4.2 **-rfreq**

Command Syntax: `-rfreq <MHz>`

Input Variables: *MHz*: real variable representing the receiver IF receive frequency in MHz. The frequency range is 950 MHz to 2150 MHz.

Description: Enables the operator to set the IF receive frequency of the receiver.



NOTE: - The L-Band IF frequency must be between 950 MHz and 2150 MHz and is computed from the RF frequency less the LO frequency.
(i.e. IF freq=RF Freq-LO freq)

4.3.4.3 **-recm**

Command Syntax: `-recm <mode>`

Input Variables: *mode*: a text string that is either “DVB-S” or “DVB-S2”

Description: This command sets the receive modes as follows: “DVB-S” for DVB-S, and “DVB-S2” for DVB-S2 or “auto” for both. The mode values are supported in the receivers as follows:

“DVB-S” - All receivers

“DVB-S2” – All S200 and S300 receivers

“auto” – All S300 receivers

4.3.4.4 **-goldcode (S300)**

Command Syntax: `-goldcode <code>`

Input Variables: *code*: integer variable representing the receiver gold code setting. The code range is 0-262141.

This command is only applicable to the S300 receiver family.

Description: Enables the operator to set the receiver Gold Code.

4.3.4.5 **-modcod (S300)**

Command Syntax: `-modcod <modcod>`

Input Variables: *modcod*: a text string representing the modcod that the receiver will be set to. This command is only applicable to the S300 receiver family.

Description: The modcod value is used to tell the receiver which stream to demodulate when receiving a multi-stream VCM signal.

For DVB-S operation, the modcod value is not used and therefore does not need to be set.

For single-stream DVB-S2 operation, the modcod value should be set to ANY.

For multi-stream DVB-S2 operation, the S300 should be configured to receive only 1 of the streams. This is accomplished by entering the modcod of the signal you wish to receive. The following provides a list of possible modcod entries:

“ANY”

“1/4 QPSK”, “1/3 QPSK”, “2/5 QPSK”, “1/2 QPSK”, “3/5 QPSK”, “2/3 QPSK”, “3/4 QPSK”, “4/5 QPSK”, “5/6 QPSK”, “8/9 QPSK”, “9/10 QPSK”

“3/5 8PSK”, “2/3 8PSK”, “3/4 8PSK”, “5/6 8PSK”, “8/9 8PSK”, “9/10 8PSK”

“2/3 16PSK”, “3/4 16PSK”, “4/5 16PSK”, “5/6 16PSK”, “8/9 16PSK”,

“9/10 16PSK”

4.3.4.6 **-isi (S300)**

Command Syntax: `-isi <on-off>`

Input Variables: *on-off*: a text string that is either “on” or “off”

This command is only applicable to the S300 receiver family.

Description: Enables the operator to turn Input Stream ID (ISI) filtering on or off. This command should only be used if ISI stream value is set on the incoming DVB-S2 stream and the ISI value is known. You may have to contact your uplink provider to for assistance.

For DVB-S operation, ISI filtering is not used and therefore does not need to be set.

4.3.4.7 **-setisi (S300)**

Command Syntax: `-setisi <isi-value>`

Input Variables: *isi-value*: integer variable representing received stream isi value. The value range is 0-255

This command is only applicable to the S300 receiver family.

Description: Enables the operator to set the ISI filter value.

This command should only be used if ISI stream value is set on the incoming DVB-S2 stream and the ISI value is known. You may have to contact your uplink provider to for assistance.

For DVB-S operation, ISI filtering is not used and therefore does not need to be set.

4.3.4.8 **-shsat**

Command Syntax: `-shsat`
`-shtun`

Description: Displays the current settings for the receiver RF satellite interface (see example below):

4.3.4.9 **-shtraf**

Command Syntax: -shtraf
Description: Displays the accumulated counters for the receiver

4.3.4.10 **-lnbpwr**

Command Syntax: -lnbpwr <on-off>
Input Variables: *on-off*: a text string that is either “on” or “off”
Description: Turns on or off the LNB power from the receiver to the LNB located at the satellite dish.

4.3.4.11 **-lnbv**

Command Syntax: -lnbv <voltage>
Input Variables: *voltage*: a text string that is either “11-15” or “13-18”
Description: Sets the LNB polarization voltage levels to 11V (horiz/vertical) and 15V (left/right) OR to 13V (horizontal/vertical) and 18V (left/right). The default setting is 13-18V.

4.3.4.12 **-lnbpol**

Command Syntax: -lnbpol <pol>
Input Variables: *pol*: a text string that is either “horizontal”, “vertical”, “left or “right”
Description: Sets the LNB polarization as horizontal/left or vertical /right.

4.3.4.13 **-lnblc**

Command Syntax: -lnblc <on-off>
Input Variables: *on-off*: a text string that is either “on” or “off”
Description: Turns on or off the LNB long line compensation which adds 1 VDC to the LNB voltage. This is to compensate for the DC voltage drop in cable runs between the receiver and the satellite dish.

4.3.4.14 **-lnbt**

Command Syntax: -lnbt <on-off>
Input Variables: *on-off*: a text string that is either “on” or “off”

Description: Turns on or off the LNB band-select tone Example:

4.3.4.15 **-lnbtf**

Command Syntax: -lnbtf <tone>

Input Variables: *tone*: an integer variable representing the tone frequency in KHz.

Description: The LNB tone may be set to 44 KHz or 22 KHz. The default is 22 KHz.

4.3.4.16 **-shlnb**

Command Syntax: -Shlnb

Input Variables:

Description: This command displays the LNB settings

4.3.5 Data Content Commands (All Receivers)

4.3.5.1 **-add**

Syntax -add <PID 1> | <PID 2> | <PID 3> ...

Input variables: *PID 1...PID n*: enables the operator to input a list of integer PID values. Up to 16 variables may be added. PID values may range from 1 to 8191

Description: Specifies a list of DVB packet stream identifiers (PID) to be processed by the S75. Up to 16 PID values may be processed by the receiver at one time

4.3.5.2 **-del**

Command Syntax: -del <PID 1> | <PID 2> | <PID 3> ...

Input variables: *PID 1...PID n*: enables the operator to input a list of integer PID values to do be deleted. Up to 16 variables may be used. PID values may range from 1 to 8191

Description: Specifies a list of up to 16 DVB packet stream identifiers (PID's) to be no longer processed by the S75.

4.3.5.3 **-shpid**

Command Syntax: -shpid

Description: Displays the list of PIDs currently configured in the receiver.

4.3.6 Video Content Commands (S75-Pro/S75-CA/S200-Pro/S200CA)

4.3.6.1 -mpid

Command Syntax `mpid <PID> <ip-address> <port>`
Input variables: *PID*: enables the operator to input a list of integer PID values.
 PID values may range from 1 to 8191
ip-address: Character string representing the IP addresses (e.g. 192.168.250.200) of the map-to destination of the associated PID
port: enables the operator to input an integer of the IP address port number of the map-to destination of the associated PID.
Description: Specifies a DVB packet stream identifier (PID) that is to be mapped to an IP address/port. This command is only valid for the S75-Pro, S75CA, S200-Pro or S200CA receivers.

4.3.6.2 -umpid

Command Syntax `-umpid <PID> <ip-address> <port>`
Input variables: *PID*: enables the operator to input a list of integer PID values.
 Up to 16 variables may be added. PID values may range from 1 to 8191
ip-address: Character string representing the IP address (e.g. 192.168.250.200) that the associated PID will be mapped to.
port: enables the operator to input an integer of the IP address port number
 The port number provides further definition of the map-to IP address.
Description: Specifies a DVB packet stream identifiers (PID) that is to be mapped to an IP address/port. This command is only valid for the S75-Pro, S75CA, S200-Pro or S200CA receivers.

4.3.6.3 -shmap

Command Syntax: `-shmap`
Description: Displays the list of PIDs currently mapped to a given IP address/Port. This command is only valid for the S75-Pro, S75CA, S200-Pro or S200CA receivers.

4.3.6.4 -addvid

Command Syntax `-addvid <ip-address> <port> <prog no.> [<S>crambled/<C>lear] <PMT PID> <Video PID> <Audio PID> <PCR PID> [<Teletext PID>]`
Input variables: *ip-address*: Character string representing the IP address (e.g. 192.168.250.200) that the associated PIDs will be mapped to.

port: enables the operator to input an integer of the IP address port number
Prog no.: is an integer representing the program number or SID of the video stream
[S]crambled/[C]lear: is a character string that represents a scrambled flag. Is set to “S” if the stream is to be descrambled by the receiver and is set to “C” if the stream is a clear or Free-to-Air (TFA).
Video PID: is an integer representing the stream video PID. PID values may range from 1 to 8191
Audio PID: is an integer representing the stream audio PID. PID values may range from 1 to 8191
PCR PID: is an integer representing the PCR PID. PID values may range from 1 to 8191. Note: often the PCR is sent in the video PID. In this case, simply enter the video PID value in this field.
[Teletext PID]: is an optional integer value representing the teletext PID. PID values may range from 1 to 8191. Note: often teletext information is not required or sent with the video stream and therefore this PID is optional. This field may also be used to send other stream PID’s that are not defined above.

Description: This command specifies all the information needed to define a video program in the receiver. This command is only valid for the S75-Pro, S75CA, S200-Pro or S200CA receivers.



NOTE: - It is assumed that a program (SID) may be mapped to multiple IP addresses, but that multiple programs (SID’s) may NOT be mapped to a single IP address.

4.3.6.5 -delvid

Command Syntax -del video <prog no.>
 Input variables: *Prog no.*: is an integer representing the program number of SID of the video stream

Description: This command specifies all the information needed to remove a video program in the receiver. This command will do the following:

- Use the Program Number to determine which PID’s need to be unmapped from their corresponding IP address,
- Remove the program from the CAM table, and
- Remove the program from the PAT table

This command is only valid for the S75-Pro, S75CA, S200-Pro or S200CA receivers.



NOTE: - The -delvid command will only remove entries in the CAM table and the PAT table if the given PMT PID is no longer mapped to an IP address. In the case where a particular program is mapped to several different IP address, then the all of the video programs must be removed before the program is removed from the CAM and PAT tables.

4.3.6.6 -shvid

Command Syntax -shvid

Input variables:

Description: This command will display all the configuration parameters associated with each video program. This command is only valid for the S75-Pro, S75CA, S200-Pro or S200CA receivers.

4.3.7 PAT Commands (S75-Pro/S75-CA/S200-Pro/S200CA)

4.3.7.1 -addpat

Syntax -addpat < Prog No> <PMT PID>

Input variables: *Prog No.*: enables the operator to input a integer value that corresponds to a Program Number for a given PMT.
PMT PID: enables the operator to input a list of integer values that represent the PMT PID number for a given program. This command is only valid for the S75-Pro, S75CA, S200-Pro or S200CA receivers.

4.3.7.2 -delpat

Command Syntax: -delpat < Prog No.1> | < Prog No.3> | < Prog No.3> ...

Input variables: *Prog No. 1...Prog No. n*: enables the operator to input a list of integer program numbers to do be deleted. Up to 16 variables may be used.

Description: Specifies a list of Program Number that will be no longer used to generate the mini PAT's. This command is only valid for the S75-Pro, S75CA, S200-Pro or S200CA receivers.

4.3.7.3 -shpat

Command Syntax: -shpat

Description: Displays the list of PAT entries (PMT/Program Number pairs) currently configured in the receiver. This command is only valid for the S75-Pro, S75CA, S200-Pro or S200CA receivers.

4.3.8 CAM Commands (S75-CA/S200CA)

4.3.8.1 **-addcam**

Syntax: `-addcam <value 1> | <value 2> | <value 3> ...`
Input variables: *value 1...value n*: enables the operator to input a list of integer program numbers to be descrambled by the Conditional Access Module (CAM). Up to 16 variables may be added.
Description: Specifies a list of DVB program numbers to be descrambled by the S75/S200/S300 CAM. This command is only applicable to the S75CA or the S200CA receivers.

4.3.8.2 **-delcam**

Command Syntax: `-delcam <value 1> | <value 2> | <value 3> ...`
Input variables: *value 1...value n*: enables the operator to input a list of integer program numbers to do be removed from the list of programs that are to be descrambled by the CAM.
Description: Specifies a list of up to 16 DVB program numbers that are to be removed from the S75/S200/S300 list of programs to be descrambled by the CAM. This command is only applicable to the S75CA or the S200CA receivers.

4.3.8.3 **-camwatchdog**

Syntax: `-camwatchdog <Timeout> ...`
Input variables: *Timeout*: Integer value representing the amount of time in seconds the CAM watchdog waits before resetting the CAM
Description: If the CAM you are using with the receiver is initialized and receiving an authorized stream, but does not properly descramble the stream then the receiver will automatically reset the CAM after the configured timeout interval has elapsed. This feature can be disabled by setting the Watchdog Timeout to 0 seconds.
Note: free-to-air traffic passing thru the CAM may prevent the watchdog from resetting the CAM

4.3.8.4 **-shcam**

Command Syntax: `-shcam`
Description: Display the list of program numbers to be descrambled by the S75/S200/S300 CAM. Also shows the CA status for each. This command is only applicable to the S75CA or the S200CA receivers.

4.3.9 Video Commands (S200V/S200VCA)

4.3.9.1 -addvprog

Command Syntax: -addvprog <prog no.><IP address><port>

Input variables: *Prog no.:* is an integer representing the program number (or SID) of the video stream

ip-address: Character string representing the IP address (e.g. 225.0.250.200) that the associated PIDs will be mapped to.

port: enables the operator to input an integer of the IP address port number

Description: Configures a program to be forwarded to a specified destination (IP Address/Port). This command is only valid for the S200V or S200VCA receivers.

4.3.9.2 -adddprog

Command Syntax: -adddprog <prog no.>

Input variables: *Prog no.:* is an integer representing the program number (or SID) of the video stream

Description: Configures a data (MPE) program to be forwarded the receiver. This command is only valid for the S200V or S200VCA receivers.

4.3.9.3 -delvprog

Command Syntax: -delvprog <prog no.><IP address><port>

Input variables: *Prog no.:* is an integer representing the program number (or SID) of the video stream

ip-address: Character string representing the IP address (e.g. 225.0.250.200) that the associated PIDs will be mapped to.

port: enables the operator to input an integer of the IP address port number

Description: Removes a video program from being forwarded to a specified destination (IP Address/Port). This command is only valid for the S200V or S200VCA receivers.

4.3.9.4 -deldprog

Command Syntax: -deldprog <prog no.>

Input variables: *Prog no.:* is an integer representing the program number (or SID) of the video stream

ip-address: Character string representing the IP address (e.g. 225.0.250.200) that the associated PIDs will be mapped to.

port: enables the operator to input an integer of the IP address port number

Description: Removes a video program from being forwarded to a specified destination (IP Address/Port). This command is only valid for the S200V or S200VCA receivers.

4.3.9.5 **-shguide**

Command Syntax: -shguide

Description: Display the list of all available programs to be viewed. This command is used to see what programs are available on the received transport stream. This command is only valid for the S200V or S200VCA receivers.

Examples

```
CMCS 192.168.250.205> show guide
```

4.3.9.6 **-shvprog**

Command Syntax: -shvprog

Description: Display the list of all the video and programs that are being forwarded by the receiver. This command is only valid for the S200V or S200VCA receivers.

5 Appendix A

Appendix A provides a Quick Configure command summary for several of the different receiver types. These single-sheet Quick Configure guides are intended to show the novice user how to quickly get the receiver up and running using CMCS for several different operational scenarios. The following Quick Configure guides are provided

1. Logging into a receiver (applicable to all receivers)
2. Configuring a receiver for Signal Lock (applicable to all receivers)
3. Configuring for the reception of MPE data (applicable to S75+, S75-Pro, or S75CA, S200, or S200-Pro, or S200CA receivers)
4. Configuring for the reception of Video data (applicable to S75-Pro, or S75CA, or S200-Pro, or S200CA receivers)
5. Configuring for the reception of Video Data (applicable to S200V or S200 VCA receivers)

5.1 Receiver Login (All receivers)

There are a couple of different methods to login into a receiver once CMCS has been initiated. The first method allows you to list out the available receivers on your LAN and then select the receiver to configure. The second method allows you to login into a particular receiver (where the IP address of the receiver is already known)

```
CMCS>List
```

```
1. S200CA Pro IP address: 192.168.254.205    MAC: 00-06-76-04-10-33
```

```
Select receiver by number to connect or 0 to exit: 1
```

```
Password: abcdef
```

```
CMCS 192.168.254.205>
```

OR

```
CMCS> login 192.168.254.205
```

```
Password: abcdef
```

```
CMCS 192.168.254.205>
```

5.2 RF Lock (All receivers)

This guide describes the basic commands needed to configure all Novra DVB Data receiver(s) to lock onto a satellite transponder. To achieve RF data lock, you will need to set your LNB up correctly and configure the correct RF parameters. It is assumed that the user has already logged onto the receiver (refer to Section 5.1 above).

To configure the receiver for RF lock you will first need to know the following information:

- LNB Parameters
 - What is the LNB DC voltage level (typically 13v-18V)
 - What is the LNB polarization setting (Horizontal, Vertical, Left or Right)
 - Is the LNB tone frequency on or off (typically off),
 - Will the receiver power on the LNB (typically Power On)
- L-Band frequency (in MHz)
 - Where the L-band frequency is equal to the absolute value of the RF frequency (in Mhz) less the LO Frequency (in Mhz). This should be a value in the range of 950 Mhz - 2150 Mhz.
- Symbol Rate (in Msps)
- Mode (DVB-S or DVB-S2)

To set the receiver to lock to the satellite transponder then, the following CMCS commands would be run:

```
CMCS 192.168.254.205> lnb vol 13-18V
CMCS 192.168.254.205> lnb pol horizontal
CMCS 192.168.254.205> lnb tone off
CMCS 192.168.254.205> lnb pow on
CMCS 192.168.254.205> sh lnb
      LNB Power:           On
      LNB Status          Normal
      LNB Voltage:        13-18V
      Long Line:          Off
      Polarization:       Horizontal/Left
      22Khz Tone:         Off
CMCS 192.168.254.205> freq 1000
CMCS 192.168.254.205> sym 27.5
CMCS 192.168.254.205> mode DVB-S
CMCS 192.168.254.205> sh tun
      Satellite Interface Settings:
      Receiver MAC Address: 00-06-76-00-00-11
      Frequency:           1000.000 MHz
      Symbol Rate:         30.000 Msps
      Viterbi Rate:        3/4
      Receive Mode         DVB-S
      Signal Lock:         On
      Data Lock:           On
      Uncorrectable Rate:  0/Second
```

Viterbi bit Error Rate:	0.000e+00
Carrier to Noise C/N	>20 dB
Signal Strength	70 percent

5.3 Reception of MPE Data (S75, S75-Pro, S75CA, S200, S200-Pro, S200CA, or S300)

To receiver MPE data, the correct PID must be configured into the receiver, as shown below:

```
CMCS 192.168.254.205> add pid mpe 1000 1001 1002
CMCS 192.168.254.205> sh pid
    MPE PIDs being processed:          1000 1001 1002
    PIDs being forwarded raw:
```

Removal of the MPE can be performed using the “del mpe pid” command as shown below:

```
CMCS 192.168.254.205> del pid mpe 1000 1001 1002
CMCS 192.168.254.205> sh pid
    MPE PIDs being processed:
    PIDs being forwarded raw:
```

5.4 Reception of Video Programs (S75-Pro, S75CA, S200-Pro, or S200CA)

The Novra receiver (S75-Pro, S75CA, S200-Pro, S200CA) requires the following information to correctly process a video program:

- PMT PID (2120)
- Video PID (413)
- Audio PID (513)
- Teletext PID (optional)
- PCR PID (optional - 8190)
- IP Address and Port (225.0.0.101 2000)
- Scrambled or clear signal (S)
- Program number (or SID - 2020)

CMCS allows the operator to add this information individually, but also provides a single command to simplify the addition (or removal) of a video program. It is shown below:

```
CMCS 192.168.254.225> add vid 225.0.0.101 2000 2020 S 2120 413 513
CMCS 192.168.254.225> sh vid
```

Program	Destination	PIDs	CA	Status
2020	225.0.0.101:2000	413 513 2120	Y	Decoding

To remove the video program, the “del vid” command is used as shown below:

```
CMCS 192.168.254.225> del vid 225.0.0.1012000 2020
CMCS 192.168.254.225> sh vid
```

Program	Destination	PIDs	CA	Status
---------	-------------	------	----	--------

It is also possible to map raw pids to and from a given video program. This is useful, if you need to add a raw pid(s) to a video program (such as the PCR pid or a teletext pid), or remove raw pids from your video stream. For the video program above, we can add pids 514 and 8190 to the program stream as follows:

```
CMCS 192.168.254.225> map PID 225.0.0.101 2000 514 8190
CMCS 192.168.254.225> sh vid
```

Program	Destination	PIDs	CA	Status
2020	225.0.0.101:2000	413 513 514 2120 8190	Y	Decoding

Likewise we can remove the added raw pids as follows:

```
CMCS 192.168.254.225> unmap PID 225.0.0.101 2000 514 8190
CMCS 192.168.254.225> sh vid
```

Program	Destination	PIDs	CA	Status
2020	225.0.0.101:2000	413 513 2120	Y	Decoding



CAUTION: The removal of a video program using the “unmap pid” command is NOT recommended. Use of the “unmap pid” command will remove the pid’s, but will not properly remove your program from the receiver. It will leave entries in the CAM PAT tables.

5.5 Reception of Video Programs (S200V or S200VCA)

The Novra S200V and S200VCA receiver has special video processing firmware that simplifies the configuration of receiver when trying to receive video programs. Internally, the receiver parses out the received SI tables and determines all the PID's associated with a particular program. The commands to add, show and delete a video program are provided below. Also, you can view all the available programs in the stream using the "show guide" command as shown below.

```
CMCS 192.168.254.245> show guide
```

```
Program
200  AB SAT – RTL9 (CA)
201  AB SAT – AB1 (CA)
202  AB SAT – AB MOTEURS (CA)
      :
      :
```

```
CMCS 192.168.254.245> add vprog 200 225.0.0.100
```

```
CMCS 192.168.254.245> sh prog
```

Destination	Program	CS Status
225.0.0.100:2000	200	Scrambled

```
CMCS 192.168.254.245> del vprog 200 225.0.0.100 2000
```

```
CMCS 192.168.254.245> sh prog
```

Destination	Program	CS Status
-------------	---------	-----------