COMMANDS INTERFACE SPECIFICATION

Konftel CC200

Control API
For Konftel CC200 V10.x/11.0.0.x

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This document describes the protocol and the messages used for the configuration and the control of Konftel CC200 (we will call it RTE, Remote TErminal), using an external Personal Computer (we will call it PC).

1.1. Konftel CC200 configuration

The Konftel CC200 is configured by default to enable AT commands interface. AT commands can be used only remotely by an IP network. SSH protocol is not supported. To increase security you can also limit IP clients configuring only a subset of IP addresses from which connection can be made.

1.2. Message Format

Each button contains letters and characters - more than those shown on the button (see illustration below). Press the same key repeatedly to change to another character. If there are two letters under the same key that you want to enter one after the other, you need to pause slightly before entering the second lette

Messages exchanged between **RTE** and **PC** are all in ASCII format and must be terminated by the carriage return character (hexadecimal value 0x0d).

They are formatted in this way:

AT[<mode><type><sub-type><data><cr>

<mode> = is an ASCII character that identifies if the message is a read or a save or a response/indication message. Actually it can be:

- **'?'** = status request (sent by PC)
- **'&'** = command/storage request (sent by PC)
- **'<'** = reply to a status request or indication (sent by RTE)

<type> = described in the single message. It is an ASCII character that identifies a family message like T for terminal configuration, C for Call control messages and so on.

<sub-type> = described in the single message. It is an ASCII character that identifies each single command.

<data> = described in the single message. It is a sequence of ASCII characters that identifies data of messages.

<cr> = is the AT command terminator. It is the carriage return character (hexadecimal value 0x0d)

WARNING: a space character can optionally be inserted between <sub-type> and <data>.
After every write command received, RTE answers with an **OK<cr>** message
After every read command received, RTE answers with the response message, formatted as explained above and then sends an **OK<cr>** message.

The first message the PC sends to the terminal must be always the AT[&IPV initialization message.

Without this message no response comes from the system and no indication is sent.

1.2.1. Serial port message format

If you are using a serial port you can type messages directly as explained in in the above section.

For example if you want to send the AT[&IPV initialization command, you have to open a serial port connection and then send following bytes:

Command

- 0x41 0x54 0x5b 0x26 0x49 0x50 0x56 0x0d

1.2.2. IP message format

If you are using a TCP/IP connection all ASCII messages exchanged between **RTE** and **PC** must be preceded by a header as explained below.

TCP/IP messages are based on a proprietary protocol (not Telnet protocol). The client must open a socket and connect to RTE at the port **55003**: the maximum number of allowed concurrent clients is nine (9) (before version 8.3.2.x they could be five).

The messages are constituted by any AT commands, preceded by a six bytes header, structured as follows:

- The first two bytes are always equal to 0xAA 0xAA, and indicate the beginning of the packet.
- The last four bytes contain the length of the AT command, expressed as a long integer in network format.

The header is also always present in the messages sent back by RTE by TCP/IP connection.

For example if you want to send the AT[&IPV initialization command, you have to open a TCP client socket on the PC, connect it to the remote 55003 port on the RTE, and then send the following bytes:

Header

- 0xaa 0xaa 0x00 0x00 0x00 0x08

Command

- 0x41 0x54 0x5b 0x26 0x49 0x50 0x56 0x0d

PC must send the initialization message before any other message, in order to enable the RTE to answer request, send indication and execute commands.

An end session message must be sent when PC wants to stop communication with RTE.

2.1. Init Protocol (IP)

This message is sent by PC in order to initialize the proprietary protocol. It is sent by RTE in reply and as confirmation.

Direction:	PC -> RTE
Mode	'&'
Type:	'I'
Sub-Type	'P'
Data:	Terminal Type: 'V' = client receives all notifies 'F' = client receives all notifies except the SA notifiy

Direction:	RTE -> PC
Mode	'<'
Type:	'I'
Sub-Type	'P'
Data:	Custom Board Detected '40' = No additional boards MCU Enabled '0' = No '1' = Yes Board Revision ("A"/"B" etc) Video Camera: '0' = Unknown '9' = XTSeries Premium camera or Standard II camera 'B' = XTSeries Advanced camera 'C' = XTSeries Flex camera 'D' = XTSeries XT Deluxe camera SystemType and SW version (Es: XT5000-09.01.00.0034)

Data Description:

MCU Enabled:

This field indicates if the license for MCU (Multiconference Unit) is enabled.

Video Camera:

Local Video Camera type used for HD1.

Example:

PC ---------- AT[&IPV<cr> ----------à RTE (Initialize the Interface)
PC ß<------ AT[<IP401A9XT5000-09.01.00.0034<cr> --- RTE
(Interface init: No add boards, MCU, Rev=A, Premium camera, System XT5000 version 09.01.00.0034)
PC ß<---------- OK<cr> ---------- RTE

2.2. End Protocol (IE)

This message is sent by PC in order to end the session of the proprietary protocol. It is sent by RTE in reply and as confirmation.

Direction: PC -> RTE

Mode '&'
Type: 'I'
Sub-Type 'E'
Data: None

Direction: RTE -> PC

Mode '<'
Type: 'I'
Sub-Type 'E'
Data: None

Example:

PC ---------- AT[&IE<cr> ----------à RTE (End Session)
PC ß---------- AT[<IE<cr> ---------- RTE (Session Ended)
PC ß---------- OK<cr> ---------- RTE

2.3. Init Protocol Error (IR)

This message is sent by RTE to notify an error on the received message:

Direction: RTE -> PC

Mode '<'
Type: 'I'
Sub-Type 'R'
Data: Message Type
Sub-type
Error:
'1' = Bad parameter
'2' = Unknown message
'3' = Wrong message length
'4' = Bad mode
'5' = Unable to execute command
Sub-code
If Unable to execute command
'0' = system timeout
'1' = system busy
If Bad parameter
Index number of wrong parameter

Terminal configuration messages can be used to change and/or read the configuration stored in the terminal.

The <mode> **&** command can be used to modify the configuration, while the <mode> ? can be used to read the related values.

3.1. Terminal Generic Command (TA)

This message is sent by PC to request storing/reading different parameters.
This message is sent by RTE to reply to a reading request.

Direction: PC -> RTE

Mode '&' / '?'
Type: 'T'
Sub-Type 'A'
Data: Types of parameter:

- 'D' = Confirm disconnection
- 'S' = Screen saver
- 'V' = DVI resolution
- 'Q' = Video Quality
- 'B' = Video Quality
- 'O' = Video Position
- 'N' = Call-answer mode parameters
- 'A' = Set AutoAnswer and mute audio and video
- 'F' = Full screen **(only in write mode)**
- 'L' = Gallery layout
- 'C' = Customization
- 'G' = Administrator PIN **(only in write mode by SSH interface)**
- 'H' = User PIN **(only in write mode by SSH interface)**

Parameter type 'D'

Confirm disconnection

- '0' = no
- '1' = yes

Parameter type 'S'

Automatic screen saver:

- '0' = no
- '1' = yes

Automatic screen saver:
Timeout (2 bytes) in minutes:
Screen saver status:
'0' = no active
'1' = active

Parameter type 'V'

DVI Resolution:

'0' = Automatic
'7' = 720p60
'8' = 1080p60
'1' = 720p50
'2' = 1080p50
'3' = 1080p30
'4' = 1080p25
'5' = 480p60
'6' = 1280x1024p60
'9' = 1400x1050p60
'A' = 2160p30
'B' = 2160p25

Parameter type 'Q'

Error resilience:

'0' = no
'1' = yes

Bandwidth adapting reduction:

'0' = no
'1' = yes

Error strategies:

'0' = no
'1' = yes

Fluency (3 bytes):

"000".."256"

Video Quality/Speed (2 bytes):

"00".."64"

Video Sharpness:

'0' = no
'1' = yes

Parameter type 'B'

NetSense:

'0' = no
'1' = yes

Flow Control:

'0' = no
'1' = yes

TMMBR RFC5104:

'0' = no
'1' = yes

Sharpness:

'0' = no
'1' = yes

Presentation sharpness:

'0' = no
'1' = yes

Live video on presentation

‘0’ = no

‘1’ = yes

Traffic Shaping

‘0’ = Disabled

‘1’ = Low

‘2’ = Medium

‘3’ = High

Dummy (13 bytes, must be 0) **(for future expansion)**

Parameter type ’O’

Horizontal Position (4 bytes):

‘0000’ ..’1280’

Horizontal Position (4 bytes):

‘0000’ ..’720’

Horizontal Dimension (4 bytes):

‘0000’ ..’1280’

Vertical Dimension (4 bytes):

‘0000’ ..’720’

Parameter type ’N’

Do not disturb:

‘0’ = no

‘1’ = yes

VideoPrivacy:

‘0’ = no

‘1’ = yes

Do not disturb except for Trusted:

‘2’ = no

‘1’ = yes

Dummy (4 bytes, must be 0) **(for future expansion):**

Parameter type ’A’

AutoAnswer and mute audio-video:

‘0’ = no

‘1’ = yes

Dummy (5 bytes, must be 0) **(for future expansion):**

Parameter type ’F’

Full screen:

‘0’ = no

‘1’ = yes

Parameter type ’L’

Gallery layout configuration:

‘0’ = disabled

‘1’ = enabled

Gallery layout allowed **(only for read operation):**

‘0’ = no

‘1’ = yes

Parameter type 'C'

Home Screen Background:

'1' = Video

'2' = Image

Privacy Option:

'0' = Automatic

'1' = Image

'2' = Hide Video

Display IP address:

'0' = No

'1' = Yes

Search Contacts in Directory:

'1' = Automatic

'2' = Manual

Hide Recent Calls:

'1' = Yes

'2' = No

Hide Call Rate in Advanced Calling:

'1' = Yes

'2' = No

Play Startup Sound:

'1' = Yes

'2' = No

Wrap around Menu:

'1' = Yes

'2' = No

Remember Favorite Layouts:

'1' = Yes Always

'2' = During the call

'3' = Never

Show Remote Name:

'1' = Yes

'2' = No

Dummy (3 bytes, must be 0) **(for future expansion):**

Administrator PIN type 'G' (only in write mode by SSH interface)

Enable PIN:

'0' = Disable

'1' = Enable

Old PIN: (4 bytes)

"0000"...."9999"

New PIN: (4 bytes)

"0000"...."9999"

User PIN type 'H' (only in write mode by SSH interface

Enable PIN:

'0' = Disable

'1' = Enable

Old PIN: (4 bytes)

"0000"...."9999"

New PIN: (4 bytes)

"0000"...."9999"

Direction: RTE -> PC

Mode '<'
Type: 'T'
Sub-Type 'A'
Data: See above

Data Description:

Confirm disconnection:
If this parameter is selected, when the user press the disconnect button a dialog box appears to ask him for a confirmation.

Screen saver:
It is possible to set the screen saver in automatic mode and the value of the relative timeout.

Show local info:
It is possible to show in all pages the own system name and IP address.

Video Quality:
This command can change the quality of the remote video received.

Video Position:
This command can change the video live position and dimension in the screen. Is implicit that the max dimension of the video is 640x480, so if the horizontal or vertical positions are different from 0, the horizontal o vertical dimension has to been changed proportionally to enter in the max dimension.

Call-answer mode parameters:
With the parameter "Do not disturb" it's possible to block all incoming calls. If this parameter is selected, all incoming calls are automatically discarded.

Full screen:
This command hides the graphic interface if full screen is yes. If full screen is no then graphic interface is visible.

Gallery layout
This command is used to set flag to enable strip layout. This is a video mode for which MCU Elite send live video and dual video in a unique video stream composed in a unique video layout instead of two different video streams.

Administrator and User PIN
These commands are used to enable/disable PIN usage to access administrator or user configuration. They can also be used to change PIN. For any change old PIN must be furnished (if you don't change it, set new PIN equal to the old one).

3.2. Terminal Date & Time (TT)

This message is sent by PC to request storing/reading of date & time parameters
This message is sent by RTE as reply to a reading request.

Direction:	PC -> RTE
Mode	'&' / '?'
Type:	'T'
Sub-Type	'T'
Data:	Day ("01"..."31") Month ("01"..."12") Year (4 digit) Hour ("00"..23") Minute ("00"..."59")
Direction:	RTE -> PC
Mode	'<'
Type:	'T'
Sub-Type	'T'
Data:	See above

3.3. Terminal Date & Time Extended (TB)

This message is sent by PC to request storing/reading date & time parameters
This message is sent by RTE as reply to a reading request.

Direction:	PC -> RTE
Mode	'&' / '?'
Type:	'T'
Sub-Type	'B'
Data:	Types of parameter: 'I' = Internet Time 'S' =First Internet date and time server address 'R' =Second Internet date and time server address 'Z' = Time Zone

Parameter type 'I'

Enable:

0 = No

1 = Yes

Use Default internet date and time servers:

0 = No

1 = Yes

Refresh time (in minutes) (fixed 4 bytes): min value 10 max value 1000

Parameter type 'S'

First Internet date and time server address (max 30 ASCII chars)

Parameter type 'S'

Second Internet date and time server address (max 30 ASCII chars)

Parameter type 'I'

Time Zone (2 bytes):

1 = GMT Greenwich
2 = GMT + 1 (Amsterdam, Rome)
3 = GMT + 2 (Athens, Bucarest, Tel Aviv)
4 = GMT + 3 (Baghdad,Moscow)
5 = GMT + 3.30 (Teheran)
6 = GMT + 4 (Abu Dabhi, Muscat)
7 = GMT + 4.30 (Kabul)
8 = GMT + 5 (Islamabad,Karachi)
9 = GMT + 5.30 (Mumbai, New Delhi)
10 = GMT + 5.45 (Kathmandu)
11 = GMT + 6.00 (Almaty, Novosibirsk)
12 = GMT + 6.30 (Yangon-Rangoon)
13 = GMT + 7 (Bangkok, Jakarta)
14 = GMT + 8 (Beijing,Hong Kong)
15 = GMT + 9 (Osaka, Tokyo, Seoul)
16 = GMT + 10 (Melbourne,Sydney)
17 = GMT + 11 (Magadan,Solomon Is.)
18 = GMT + 12.00h (Fiji,Auckland)
19 = GMT + 12.45h (Chatham Island)
20 = GMT + 13.00h (Nuku'alofa)
21 = GMT + 14.00h (Kiritimati)
22 = GMT - 1.00h (Azores,Cape Verde Is.)
23 = GMT - 2.00h (Mid. Atlantic)
24 = GMT - 3.00h (Buenos Aires,Brasilia)
25 = GMT - 3.30h (Newfoundland)
26 = GMT - 4.00h (Santiago)
27 = GMT - 4.30h (Caracas)
28 = GMT - 5.00h (USA,Canada,Bogotà,Lima,Quito)
29 = GMT - 6.00h (Mexico City)
30 = GMT - 7.00h (Arizona)
31 = GMT - 8.00h (Tijuana)
32 = GMT - 9.00h (Alaska)
33 = GMT - 10.00h (Hawaii)

34 = GMT - 11.00h (Samoa,Midway Is.)
35 = GMT - 12.00h (Eniwetok,Kwajalein)
Enable daylight time:
0 = No
1 = Yes
Daylight time day start (2 bytes) : “01”...”31”
Daylight time month start (2 bytes) : “01”...”12”
Daylight time day stop (2 bytes) : “01”...”31”
Daylight time month stop (2 bytes) : “01”...”12”:

Direction: RTE -> PC

Mode ‘<’
Type: ‘T’
Sub-Type ‘B’
Data: See above

3.4. Terminal Call/Answer Mode (TC)

This message is sent by the PC to request storing/reading of call/answer mode parameters.

Direction: PC -> RTE

Mode ‘&’ / ‘?’
Type: ‘T’
Sub-Type ‘C’
Data:
Dummy (1 byte, must be 0): **(for future expansion)**
Mute on power up:
‘0’ = No
‘1’ = Yes
Automatic Answer:
‘0’ = Never
‘1’ = Yes always
‘2’ = Yes if not in a call
‘3’ = Yes trusted always
‘4’ = Yes trusted if not in a call
Automatic Answer:
‘00’.....’30’

Direction: RTE -> PC

Mode ‘<‘
Type: ‘T’
Sub-Type ‘C’
Data: See above

Data Description:

Mute on power up:
The terminal at the power on is set in mute (‘1’) or no (‘0’).

Automatic Answer:
The terminal receiving 1^ incoming call can answer automatically (‘1’) or wait user operation (‘0’).

3.5. Terminal User Setting (TU)

This message is sent by PC to request the storage/reading of some parameters of Using Setting page

This message is sent by RTE to reply to a reading request.

Direction:	PC -> RTE
Mode	‘&’ / ‘?’
Type:	‘T’
Sub-Type	‘U’
Data:	Volume Ringing Tone (1 byte): ‘0’..’9’ Volume Audio Rx (3 bytes): “-44”..”20” Show Advanced Settings ‘2’ = No ‘1’ = Yes Dummy (1 byte, must be 0): **(for future expansion)** Camera Remote Control ‘0’ = Disable ‘1’ = Enable
Direction:	RTE -> PC
Mode	‘<‘
Type:	‘T’
Sub-Type	‘U’
Data:	See above

Data Description:

Volume Ringing Tone
Volume of Ringing Tone during an incoming call.

Volume Audio Rx
Volume of audio received.

Camera Remote Control
Enables (“1”) or disables (“0”) the remote control of local cameras.

3.6. Terminal Video Camera Parameters (TV)

This message is sent by PC to request storing/reading of video camera parameters.
This message is sent by RTE to reply to a reading request.

Direction: PC -> RTE

Mode '&'
Type: 'T'
Sub-Type 'V'
Data: Types of parameter:

- '0' = Old command compatibility: to set only the default camera
- 'G' = Generic command
- 'C' = Camera specific configuration
- 'B' = Camera white balance configuration
- 'L' = Camera backlight, contrast and brightness configuration
- 'E' = Camera exposure compensation configuration
- 'F' = Camera focus configuration
- 'A' = Camera auto-exposure configuration
- 'S' = Camera saturation
- 'H' = HDMI switcher
- 'D' = Flex and Deluxe Parameters
- 'I' = Generic extended command
- 'M' = Camera specific configuration Extended

Parameter type '0'

Dummy (5 bytes must be 0) **(for future expansion)**
"00000"
Default Video Input:
'0' = HD1
'1' = USB
'2' = HD2
'3' = HD3
'4' = HD4
'5' = HD5
'7' = DVI Input
Dummy (1 byte, must be 0) **(for future expansion)**
Dummy (1 byte, must be 0) **(for future expansion)**

Parameter type 'G'

Default camera (2 bytes):
'01' = HD1
'02' = USB
'03' = HD2
'04' = HD3
'05' = HD4
'06' = HD5
'08' = DVI Input
Camera driver:
'0' = Automatic
'1' = Manual

Camera control by far site:
‘0’ = No
‘1’ = Yes
Bring Back to place:
‘0’ = No
‘1’ = Yes
Always power on camera:
‘0’ = No
‘1’ = Yes
Camera privacy mode:
‘0’ = No
‘1’ = Yes
Sharpness
‘1’ = Low
‘2’ = Medium
‘3’ = High
Digital zoom
‘0’ = No
‘1’ = Yes

Parameter type ’C’

Video camera Num (2 bytes):
‘01’ = HD1
‘02’ = USB
‘03’ = HD2
‘04’ = HD3
‘05’ = HD4
‘06’ = HD5
‘08’ = DVI Input
Enable:
‘0’ = No
‘1’ = Yes
Moving (PTZ):
‘0’ = No
‘1’ = Yes

Parameter type ’C’

Video camera Num (2 bytes):
‘01’ = HD1
‘02’ = USB
‘03’ = HD2
‘04’ = HD3
‘05’ = HD4
‘06’ = HD5
‘08’ = DVI Input

Parameter type ’B’

Video camera Num (2 bytes):
‘01’ = HD1

'02' = USB
'03' = HD2
'04' = HD3
'05' = HD4
'06' = HD5
'08' = DVI Input

Video camera Num (2 bytes):
'0' = Automatic
'1' = Indoor
'2' = Outdoor
'3' = Manual
'4' = Customize
'5' = Wide Automatic

White balance red value **(only in White Balance Manual mode)** (2 bytes hexadecimal value)

White balance blue value **(only in White Balance Manual mode)** (2 bytes hexadecimal value)

White balance calibration **(only in White Balance Customize mode):**
'0' = No calibration
'1' = Calibration commandor

Parameter type 'L'

Video camera Num (2 bytes):
'01' = HD1
'02' = USB
'03' = HD2
'04' = HD3
'05' = HD4
'06' = HD5
'08' = DVI Input

Backlight compensation:
'0' = No
'1' = yes

Camera contrast value (2 bytes hexadecimal value)

Camera brightness value (2 bytes hexadecimal value)

Camera sharpness value (2 bytes hexadecimal value)

Parameter type 'E' (not valid for USB camera)

Video camera Num (2 bytes):
'01' = HD1
'03' = HD2
'04' = HD3
'05' = HD4
'06' = HD5
'08' = DVI Input

Exposure compensation:
'0' = No
'1' = yes

Exposure level **(only if Exposure compensation yes)** (2 bytes hexadecimal value)

Parameter type 'F'

Video camera Num (2 bytes):

'01' = HD1
'02' = USB
'03' = HD2
'04' = HD3
'05' = HD4
'06' = HD5
'08' = DVI Input

Focus mode:

'0' = Automatic
'1' = Semiautomatic **(not valid for USB camera)**
'2' = Manual

Focus distance **(only if Focus mode is Manual)** (4 bytes hexadecimal value)

Parameter type 'A' (not valid for USB camera)

Video camera Num (2 bytes):

'01' = HD1
'03' = HD2
'04' = HD3
'05' = HD4
'06' = HD5
'08' = DVI Input

Auto Exposure:

'0' = Automatic
'1' = Manual

Shutter **(only if Auto Exposure is Manual)** (2 bytes hexadecimal value)

Iris **(only if Auto Exposure is Manual)** (2 bytes hexadecimal value)

Gain **(only if Auto Exposure is Manual**) (2 bytes hexadecimal value)

Parameter type 'S'

Video camera Num (2 bytes):

'01' = HD1
'02' = USB
'03' = HD2
'04' = HD3
'05' = HD4
'06' = HD5
'08' = DVI Input

Saturation: (2 bytes hexadecimal value)

White Balance Value: (4 bytes hexadecimal value) **(only for USB)**

Dummy (6 bytes, must be 0)

Parameter type 'H' (not for CC200)

Switch Detect Mode:

'1' = Yes
'2' = No

Dummy (10 bytes, must be 0)

Parameter type 'D'

Video camera Num (2 bytes):

'01' = HD1
'03' = HD2
'04' = HD3
'05' = HD4
'06' = HD5
'08' = DVI Input

Picture:

'0' = Automatic
'1' = Manual

Hue (2 bytes hexadecimal value)

Wide Dynamic range:

'0' = Off
'1' = Level-1
'2' = Level-2
'3' = Level-3
'4' = Level-4
'5' = Level-5

Ceiling Mount:

'0' = No
'1' = Yes

IR Receivers:

'0' = Off
'1' = Both

Dummy (10 bytes, must be 0)

Parameter type 'I'

Enable default camera preset:

'0' = Disabled
'1' = Enabled

Default camera preset (3 bytes):

'000' ....'121'

Dummy (20 bytes, must be 0) **(for future expansion)**

Parameter type 'M'

Video camera Num (2 bytes):

'01' = HD1
'03' = HD2
'04' = HD3
'05' = HD4
'06' = HD5
'08' = DVI Input

Camera driver:

'2' = XTSeries Premium camera
'3' = XTSeries Standard II camera
'4' = XTSeries Advanced camera
'5' = XTSeries Flex camera
'6' = XTSeries Deluxe camera

Dummy (20 bytes, must be 0) **(for future expansion)**

Direction: PC -> RTE

Mode '?'
Type: 'T'
Sub-Type 'V'
Data: Types of parameter:

'0' = Old command compatibility: to get only the default camera
'G' =Generic command
'C' =Camera specific configuration
'B' =Camera white balance configuration
'L' =Camera backlight, contrast and brightness configuration
'E' =Camera exposure compensation configuration
'F' =Camera focus configuration
'A' =Camera auto-exposure configuration
'S' =Camera saturation configuration
'H' =HDMI switcher
'D' =Flex and Deluxe Parameters
'I' = Generic extended command
'M' =Camera specific configuration Extended

Parameter type '0'

None

Parameter type 'G'

None

Parameter type 'C'

Video camera Num (2 bytes):

'01' = HD1
'02' = USB
'03' = HD2
'04' = HD3
'05' = HD4
'06' = HD5
'08' = DVI Input

Parameter type 'B'

Video camera Num (2 bytes):

'01' = HD1
'02' = USB
'03' = HD2
'04' = HD3
'05' = HD4
'06' = HD5
'08' = DVI Input

Parameter type 'L'

Video camera Num (2 bytes):

'01' = HD1
'02' = USB

‘03’ = HD2
‘04’ = HD3
‘05’ = HD4
‘06’ = HD5
‘08’ = DVI Input

Parameter type ’E’ (not valid for USB camera)’

Video camera Num (2 bytes):
‘01’ = HD1
‘03’ = HD2
‘04’ = HD3
‘05’ = HD4
‘06’ = HD5
‘08’ = DVI Input

Parameter type ’F’

Video camera Num (2 bytes):
‘01’ = HD1
‘02’ = USB
‘03’ = HD2
‘04’ = HD3
‘05’ = HD4
‘06’ = HD5
‘08’ = DVI Input

Parameter type ’A’ (not valid for USB camera)

Video camera Num (2 bytes):
‘01’ = HD1
‘03’ = HD2
‘04’ = HD3
‘05’ = HD4
‘06’ = HD5
‘08’ = DVI Input

Parameter type ’H’

None

Parameter type ’S’

Video camera Num (2 bytes):
‘01’ = HD1
‘02’ = USB
‘03’ = HD2
‘04’ = HD3
‘05’ = HD4
‘06’ = HD5
‘08’ = DVI Input

Parameter type ’D’

Video camera Num (2 bytes):
‘01’ = HD1
‘03’ = HD2

‘04’ = HD3
‘05’ = HD4
‘06’ = HD5
‘08’ = DVI Input

Parameter type ’I’
None

Parameter type ’M’
Video camera Num (2 bytes):
‘01’ = HD1
‘03’ = HD2
‘04’ = HD3
‘05’ = HD4
‘06’ = HD5
‘08’ = DVI Input

Direction: RTE -> PC

Mode ‘<‘
Type: ‘T’
Sub-Type ‘V’
Data: See above

Data Description:

Parameter type 0
Only for compatibility with the old message AT[&TV000000.

Parameter type G
The camera numeration is different from old command 0 to make it equal to the one used with SF and SY commands.

Parameter type C
The enable field doesn’t work for the HD1 camera (it cannot be disabled).

Parameter type B
The white balance calibration is 1 only if white balance mode is Customize and you want to do the same thing as the “Calibration” key in the camera configuration page.

Parameter type F
The focus value is 4 bytes long in the format ‘xxxx’ where xx is the hexadecimal value of focus. For example, if from GUI you set value 1200, you must send these four bytes ‘4B0’.

3.7. Terminal Monitor Settings (TG)

This message is sent by PC to request storing/reading of monitor number in the system.
This message is sent by RTE to reply to a reading request.

Direction: PC -> RTE

Mode '&' / '?'
Type: 'T'
Sub-Type 'G'
Data: Monitor:
'0' = Auto Detect
'3' = 1 monitor (HDTV1)
'7' = 2 monitors (HDTV1 (Video Rx) + HDTV2 (Menu & Present))
'9' = 2 monitors (HDTV1 (Menu & Present) + HDTV2 (Video Rx))
'B' = 1 monitors (HDTV2)
'C' = 2 monitors (HDTV1 Menu & Video Rx) + HDTV2 (Present))
'D' = 2 monitors (HDTV1 (Present) + HDTV2 (Menu & Video Rx))
'E' = 2 monitors (HD1 (Pres./Video Rx) + HD2 (Menu & Video Rx/Loc.))

Direction: RTE -> PC

Mode '<'
Type: 'T'
Sub-Type 'G'
Data: See above

Data Description:

Select the correct output configuration; Auto Detect allows the system to do it by detecting the connected monitors.

3.8. Terminal Monitor Settings Extended (TS)

This message is sent by PC to request storing/reading of monitor number in the system.
This message is sent by RTE to reply to a reading request.

WARNING:

Direction: PC -> RTE

Mode '&' / '?'
Type: 'T'
Sub-Type 'S'
Data: Types of parameter:
'G' = Generic
'A' = Graphic adjustments
'P' = PIP-PaP-PoP

Parameter type 'M'
Numbers of monitors (2 bytes):
00' = Auto
'01' = HD1
'02' = HD2
'03' = HD1 (Menu and Video Rx) + HD2 (Present.)

'04' = HD1 (Menu and Present.) + HD2 (Video Rx)
'05' = HD1 (Present.) + HD2 (Menu and Video Rx)
'06' = HD1 (Video Rx) + HD2 (Menu and Present.)
'07' = HD1 (Pres./Video Rx) + HD2 (Menu & Video Rx/Loc.)

Resolution monitor HD1 (2 bytes):
'00' = Auto
'01' = 1080p60
'02' = 1080p50
'03' = 1080p30
'04' = 1080p25
'05' = 720p60
'06' = 720p50
'07' = 480p60
'08' = 1280x1024p60
'09' = 1400x1050p60
'10' = 2160p30
'11' = 2160p25

Resolution monitor HD2 (2 bytes):
'00' = Auto
'01' = 1080p60
'02' = 1080p50
'03' = 1080p30
'04' = 1080p25
'05' = 720p60
'06' = 720p50
'07' = 480p60
'08' = 1280x1024p60
'09' = 1400x1050p60

Monitor Turn Off:
'1' = Never
'2' = Only on shut down
'3' = On screen saver

Screen saver timeout (2 bytes):
'00' = None
'01' = 15 minutes
'02' = 30 minutes
'03' = 1 hour
'04' = 2 hours
'05' = 4 hours

Duplicate to HD2:
'0' = No
'1' = Yes

Dummy (10 bytes, must be 0) **(for future expansion)**

Graphic Adjustments 'A'

Monitor:
'1' = HD1
'2' = HD2

Adjustment Mode:
‘1’ = Menu and Presentation
‘2’ = Menu, Presentation and Live Video
‘3’ = Menu
Top (4 bytes):
‘0000’…..’0100’
Left (4 bytes):
‘0000’…..’0100’
Bottom (4 bytes):
‘0000’…..’0100’
Right (4 bytes):
‘0000’…..’0100’
Dummy (10 bytes, must be 0) **(for future expansion)**

PIP-Pap-PoP ’P’

MultiImage Mode:
‘0’ = Auto
‘1’ = On
‘2’ = Off
MultiImage Mode:
‘0’ = Auto
‘1’ = PIP
‘2’ = PaP
‘3’ = PoP
PIP Position:
‘1’ = Up/Left
‘2’ = Up/Right
‘3’ = Down/Right
‘4’ = Down/Left
PIP Rotation:
‘1’ = Clockwise
‘2’ = Counterclockwise
‘3’ = Fixed
‘3’ = Fixed
PIP Size
‘1’ = Small
‘2’ = Medium
Dummy (9 bytes, must be 0) **(for future expansion)**

Direction: RTE -> PC

Mode ‘<’
Type: ‘T’
Sub-Type ‘S’
Data: See above

3.9. Terminal Audio Delay (TY)

This message is sent by PC to request storing/reading of audio delay parameters.
This message is sent by RTE to reply to a reading request.

Direction: PC -> RTE

Mode '&' / '?'
Type: 'T'
Sub-Type 'Y'
Data: Automatic Audio Delay:
'0' = No
'1' = Yes
Audio Delay (3 bytes):
"000"..."999"

Direction: RTE -> PC

Mode '<'
Type: 'T'
Sub-Type 'Y'
Data: See above

Data Description:

Audio Delay:
This parameter is used to achieve lips synchronization of remote user: the delay can be automatic (evaluated by the system) or manual (set by the user).

3.10. Terminal Mode Settings (TH)

This message is sent by PC to request storing/reading H.323 call parameters
This message is sent by RTE to reply to a reading request.

Direction: PC -> RTE

Mode '&' / '?'
Type: 'T'
Sub-Type 'H'
Data: Network:
'1' = IP
'7' = ISDN
Audio Coding **(valid only for network IP):**
'0' = Automatic
'1' = G.722
'2' = G.728
'3' = G.711
'5' = G.722.1
'6' = MPEG4 AAC-LD
'7' = G.719
'8' = G.722.1 Annex C

'9' = G.729 A
'A' = MPEG4 AAC-LC
'B' = OPUS **(valid only for SIP calls)**

Video Coding **(valid only for network IP):**

'0' = automatic
'
3' = H.263 CIF
'5' = H.263 4CIF
'6' = H.264 CIF
'8' = H.264 4CIF
'9' = H.263+ SIF
'A' = H.263+ 4SIF
'B' = H.263+ 1024x768
'C' = H.264+ SIF
'D' = H.264+ 4SIF
'E' = H.264 640x480 (VGA)
'F' = H.264 800x600 (SVGA)
'G' = H.264 1024x768 (XGA)
'H' = H.264 1280x1024 (SXGA)
'I' = H.264 1440x900 (WSXGA)
'K' = H.264 w224p
'L' = H.264 w288p
'M' = H.264 w448p
'N' = H.264 w576p
'O' = H.264 720p
'P' = H.264 1080p
'R' = H.264 1280x768 (WXGA)
'S' = H.264 352p
'T' = H.264 576x336
'U' = H.264 640x400
'V' = H.264 480p
'X' = H.264 240p

Rate:

'1' = 64
'2' = 128
'3' = 192
'4' = 256
'5' = 320
'6' = 384
'7' = 448
'8' = 512
'C' = 768
'D' = 1920
'E' = 1152 **(valid only for network IP)**
'F' = 1472
'G' = 1536
'H' = 2560 **(valid only for network IP)**
'I' = 3072 **(valid only for network IP)**
'J' = 3584 **(valid only for network IP)**
'K' = 4096 **(valid only for network IP)**

'L' = 5120 **(valid only for network IP)**
'M' = 5632 **(valid only for network IP)**
'N' = 6144 **(valid only for network IP)**
'O' = 1728
'P' = 4608 **(valid only for network IP)**
'Q' = 2048 **(valid only for network IP)**
'R' = 896 **(valid only for network IP)**
'S' = 1024 **(valid only for network IP)**
'T' = 1280 **(valid only for network IP)**
'U' = 1408 **(valid only for network IP)**
'V' = 6656 **(valid only for network IP)**
'Z' = 7168 **(valid only for network IP)**
'X' = 7680 **(valid only for network IP)**
'Y' = 8128 **(valid only for network IP)**
'W' = 8192 **(valid only for network IP)**
'9' = 10240 **(valid only for network IP)**

Dual Video Coding **(valid only for network IP):**

'0' = automatic
'E' = H.264 640x480
'F' = H.264 800x600
'G' = H.264 1024x768
'H' = H.264 1280x1024
'I' = H.264 1440x900
'O' = H.264 720p
'P' = H.264 1080p
'R' = H.264 1280x768

Direction: RTE -> PC

Mode '<'
Type: 'T'
Sub-Type 'H'
Data: See above

Data Description:

Audio Coding:

Audio codecs used in video communications.
G.711: 4kHz audio at 64/56 kbit/
G.722: 7kHz audio at 48/56 kbit/s
G.728: audio at 16 kbit/s

Example:

PC ----------AT[?TH<cr> ----------→ RTE
PC ←------- AT[<TH12371<cr> ---------- RTE (IP, G.728, H.263, 448, unused)
PC ß←---------- OK<cr> ---------- RTE

3.11. Terminal Mode Settings Extended (TF)

This message is sent by PC to request storing/reading H.323 call parameters
This message is sent by RTE to reply to a reading request.

Direction: PC -> RTE

Mode '&' / '?'
Type: 'T'
Sub-Type 'F'
Data: Network:
- '1' = IP
- '7' = ISDN

Command:
- 'A' = Audio Coding (valid only for network IP)
- 'V' = Video Coding (valid only for network IP)
- 'D' = Dual Video Coding (valid only for network IP)
- 'R' = Rate

If command type 'A'

Audio coding (2 bytes):
- '00' = Automatic
- '01' = G.722
- '02' = G.728
- '03' = G.711
- '05' = G.722.1
- '06' = MPEG4 AAC-LD
- '07' = G.719
- '08' = G.722.1 Annex C
- '09' = G.729 A
- '10' = MPEG4 AAC-LC
- '11' = OPUS **(valid only for SIP calls)**

Dummy (10 bytes, must be 0) **(for future expansion)**

If command type 'V'

Video Coding (3 bytes):
- '000' = automatic
- '002' = H.263 CIF
- '003' = H.263 4CIF
- '004' = H.263+ SIF
- '005' = H.263+ 4SIF
- '006' = H.263+ 1024x768 XGA
- '007' = H.264/H.265 CIF
- '008' = H.264/H.265 4CIF
- '009' = H.264/H.265 SIF
- '010' = H.264/H.265 4SIF
- '011' = H.264/H.265 640x400
- '012' = H.264/H.265 640x480 VGA
- '013' = H.264/H.265 800x600 SVGA
- '014' = H.264/H.265 1024x768

‘015’ = H.264/H.265 w224p
‘016’ = H.264/H.265 w288p
‘017’ = H.264/H.265 576x336
‘018’ = H.264/H.265 352p
‘019’ = H.264/H.265 w448p
‘020’ = H.264/H.265 w576p
‘021’ = H.264/H.265 720p
‘022’ = H.264/H.265 1280x768 WXGA
‘023’ = H.264/H.265 1280x1024 SXGA
‘024’ = H.264/H.265 1440x900 WSXGA
‘027’ = H.264/H.265 1080p
‘028’ = H.264/H.265 480p
‘029’ = H.264/H.265 240p

H.264/H.265 Profile:
‘0’ = H.264 base profile
‘1’ = H.264 High profile
‘2’ = H.264 TSVC profile
‘3’ = H.264 High and TSVC profile
‘4’ = H.265 base profile
‘5’ = H.265 TSVC profile
Dummy (10 bytes) **(for future expansion)**

If command type ’D’

Video Coding (3 bytes):
‘000’ = automatic
‘012’ = H.264 640x480 (VGA)
‘013’ = H.264 800x600 (SVGA)
‘014’ = H.264 1024x768 (XGA)
‘021’ = H.264 720p
‘022’ = H.264 1280x768
‘023’ = H.264 1280x1024 (SXGA)
‘024’ = H.264 1440x900 (WSXGA)
‘027’ = H.264 1080p
‘030’ = H.264 1360x765 (valid only for High Profile)

H.264 Profile:
‘0’ = Base profile
‘1’ = High profile
Dummy (10 bytes, must be 0) **(for future expansion)**

If command type ’R’

Rate (2 bytes):
‘01’ = 64
‘02’ = 128
‘03’ = 192
‘04’ = 256
‘05’ = 320
‘06’ = 384
‘07’ = 448
‘08’ = 512
‘09’ = 768

'10' = 1152 **(valid only for network IP)**
'11' = 1472
'12' = 1536
'13' = 1728
'14' = 1920
'15' = 2048 **(valid only for network IP)**
'16' = 2560 **(valid only for network IP)**
'17' = 3072 **(valid only for network IP)**
'18' = 3584 **(valid only for network IP)**
'19' = 4096 **(valid only for network IP)**
'20' = 4608 **(valid only for network IP)**
'21' = 5120 **(valid only for network IP)**
'22' = 5632 **(valid only for network IP)**
'23' = 6144 **(valid only for network IP)**
'24' = 896 **(valid only for network IP)**
'25' = 1024 **(valid only for network IP)**
'26' = 1280 **(valid only for network IP)**
'27' = 1408 **(valid only for network IP)**
'28' = 6656 **(valid only for network IP)**
'29' = 7168 **(valid only for network IP)**
'30' = 7680 **(valid only for network IP)**
'31' = 8128 **(valid only for network IP)**
'32' = 8192 **(valid only for network IP)**
'33' = 10240 **(valid only for network IP)**

Dummy (10 bytes, must be 0) **(for future expansion)**

Direction: RTE -> PC

Mode '<'
Type: 'T'
Sub-Type 'F'
Data: See above

3.12. Terminal Capabilities Settings (TI)

This message is sent by PC to enable parameters on H.323 working mode
This message is sent by RTE to reply to a reading request.

Direction: PC -> RTE

Mode '&' / '?'
Type: 'T'
Sub-Type 'I'
Data: Network:

'1' = IP or SIP

Types of parameter:

'A' = H.264 capability
'B' = Dual video H.323 (H.239) capability
'D' = G.722.1 capability
'E' = MP4 AAC-LD capability

'F' = G.719 capability
'G' = H.263 Annexes capability
'I' = H.264 4CIF capability
'J' = HD 720 capability
'K' = Dual video H.264 capability
'N' = Dual video SIP (BFCP) capability
'O' = DTMF RFC2833 (H.323)
'P' = RTP Firewall
'Q' = 720 60fps capability
'R' = HD 1080 capability
'S' = 1080 60fps
'T' = H.264 HiP
'U' = H.264 TSVC
'V' = H.264 HiP TSVC
'W' = MP4 AAC-LC capability
'X' = G.728 capability
'Y' = G.729 capability
'Z' = DTMF H.245 UII capability
'1' = Dialing number format mode
'2' = Separator
'3' = H.265
'4' = H.265 SVC
'5' = Stereo
'6' = Web Collaboration (WCS)
'7' = OPUS capability

If type of parameter is 'A'

Sends H.264 capability:

'0' = no
'1' = yes

If type of parameter is 'B'

Sends dual video H.323 (H.239) capability

'0' = no
'1' = yes

If type of parameter is 'D'

Sends G.722.1 capability

'0' = no
'1' = yes

If type of parameter is 'E'

Sends MP4 AAC-LD capability

'0' = no
'1' = yes

If type of parameter is 'F'

Sends G.719 capability

'0' = no
'1' = yes

If type of parameter is 'I'

Sends H.264 4CIF capability

'0' = no
'1' = yes

If type of parameter is 'J'

Sends HD 720 capability

'0' = no
'1' = yes

If type of parameter is 'K'

Sends dual video H.264 capability

'0' = no
'1' = yes

If type of parameter is 'N'

Sends BFCP SIP capability

'0' = no
'1' = yes

If type of parameter is 'O'

Sends DTMF RFC2833 capability

'0' = no
'1' = yes

If type of parameter is 'P'

Sends RTP Firewall capability

'0' = no
'1' = yes

If type of parameter is 'Q'

Sends 720 60 fps capability

'0' = no
'1' = yes

If type of parameter is 'R'

Sends HD 1080 capability

'0' = no
'1' = yes

If type of parameter is 'S'

Sends 1080 60 fps capability

'0' = no
'1' = yes

If type of parameter is 'T'

Sends H.264 High Profile capability

'0' = no
'1' = yes

If type of parameter is 'U'

Sends H.264 Scalable Video Coding capability

'0' = no
'1' = yes

If type of parameter is 'V'

Sends H.264 High Profile and Scalable Video Coding capabilities

'0' = no
'1' = yes

If type of parameter is 'W'

Sends MP4 AAC-LC capability

'0' = no
'1' = yes

If type of parameter is 'X'

Sends G.728 capability

'0' = no
'1' = yes

If type of parameter is 'Y'

Sends G.729 capability

'0' = no
'1' = yes

If type of parameter is 'Z'

Sends DTMF H.245 UII capability

'0' = no
'1' = yes

If type of parameter is '1'

Define Dialing Number format mode:

'1' = Num + Sep + Ext
'2' = Ext + Sep + Num

If type of parameter is '2'

Define Separator (ASCII string null terminated max 3 characters):

If type of parameter is '3'

Sends H.265 capability

'0' = no
'1' = yes

If type of parameter is '4'

Sends H.265 SVC capability

'0' = no
'1' = yes

If type of parameter is '5'

Sends audio Stereo capability

'0' = no
'1' = yes

If type of parameter is '6'

Send/receive presentation by Web Collaboration (WCS):

'0' = no
'1' = yes

If type of parameter is '7'

Sends OPUS capability

'0' = no
'1' = yes

Direction: RTE -> PC

Mode '<'
Type: 'T'
Sub-Type 'I'
Data: See above

Data Description:

Network:
Network type

Types of parameter:
Identify the type of capabilities that the system can or cannot send to remote site.
For example if the system has not to send the G.722.1 audio capability to remote site, then you have to use the 'E' parameter.

Example:

PC ---------- AT[&TI0E0<cr> ----------→ RTE disable the MP4 AACLD capability
PC ß←------- OK<cr> ---------- RTE

3.13. Terminal Location Parameters (TL)

This message is sent by PC to request storing/reading of parameters about the terminal localization/Country.

Direction: PC -> RTE

Mode '&' / '?'
Type: 'T'
Sub-Type 'L'
Data: Country Code ("000" ..."999")
Audio Coding:
European = '0' (a law)
U.S.A = '1' (mμ law)
Video Frequency:
'0' = 50Hz
'1' = 60Hz
Dial Tone:
'0' = Standard
'1' = Continuous
Language:
'1' = Italian
'2' = English
'3' = French
'4' = Spanish
'5' = German
'6' = Portuguese

‘7’ = Norwegian
‘8’ = Chinese
‘9’ = Swedish
Terminal Name (max 30 chars)

Direction: RTE -> PC

Mode ‘<‘
Type: ‘T’
Sub-Type ‘L’
Data: See above

Data Description:

Audio Coding:
Audio coding used in communications without video and generally used in user’s own Country.
A-law PCM coding -> European
MU-law PCM coding -> U.S.A

Video Standard:
Video coding used in users’s own Country. Generally 50Hz in Europe and 60Hz in U.S.A.

Dial Tone:
The Dial Tone can be Normal or forced to Continuous.

Language:
Select the language used in the terminal graphic user interface.

Terminal Name:
Name of terminal used as ALIAS.

Example:

PC ---------- AT[?TL<cr> ----------→ RTE (Terminal Location Request)
PC ßß------- AT[<TL0011502TerminaleName<cr> ---------- RTE (CC=001, mmlaw, 60Hz, NI1, normal,
English,name)
PC ßß---------- OK<cr> ---------- RTE

3.14. Terminal Location Parameters Extended (TQ)

This message is sent by PC to request storing/reading of parameters about the terminal localization/Country.

Direction: PC -> RTE

Mode ‘&’ / ‘?’
Type: ‘T’
Sub-Type ‘Q’
Data: Type of configuration

'G' = Generic
'N' = First part System name
'M' = Second part System name
'P' = International call prefix
'A' = First part of hexadecimal representation of the System name Unicode
'B' = Second part of hexadecimal representation of the System name Unicode
'W' = Save configuration

If type of parameter is '3'

Country (three bytes):

'001' = Albania
'002' = Argentina
'003' = Australia
'004' = Austria
'005' = Bangladesh
'006' = Belgium
'007' = Bhutan
'008' = Brazil
'009' = Canada
'010' = Chile
'011' = China
'012' = Cyprus
'013' = Czech Rep.
'014' = Denmark
'015' = Spain
'016' = Estonia
'017' = Finland
'018' = France
'019' = Germany
'020' = Great Britain
'021' = Greece
'022' = Hungary
'023' = India
'024' = Ireland
'025' = Israel
'026' = Italy
'027' = Japan
'028' = Korea
'029' = Latvia
'030' = Lithuania
'031' = Luxembourg
'032' = Maldives
'033' = Malta
'034' = Mexico
'035' = Nepal
'036' = Netherlands
'037' = Norway
'038' = Pakistan
'039' = Poland
'040' = Portugal
'041' = Romania
'042' = Russia
'043' = Slovakia
'044' = Slovenia
'045' = South Africa
'046' = Sri Lanka
'047' = Sweden

‘048’ = Switzerland
‘049’ = USA
‘050’ = Thailand
‘051’ = Serbia
‘052’ = Indonesia
‘999’ = Others

Language (three bytes):

‘001’ = Italian
‘002’ = English
‘003’ = French
‘004’ = Spanish
‘005’ = German
‘006’ = Portuguese
‘007’ = Norwegian
‘008’ = Swedish
‘009’ = Chinese
‘010’ = Japanese
‘011’ = Russian
‘012’ = Korean
‘013’ = Czech
‘014’ = Hungarian
‘015’ = Polish
‘016’ = Finnish
‘017’ = Thai
‘018’ = Trad. Chinese
‘019’ = Turkish
‘020’ = Arabic
‘021’ = Farsi
‘022’ = Serbian
‘023’ = Indonesia
‘024’ = Slovak
‘025’ = Hebrew

Language (three bytes):

‘0’ = European (a law)
‘1’ = U.S.A (mμ law)

Video Frequency:
‘0’ = Auto
‘1’ = 50Hz
‘2’ = 60Hz

System name Display Mode:

‘0’ = Automatic
‘1’ = System Name Unicode
‘2’ = SIP
‘3’ = H.323
‘4’ = System Name
‘5’ = Hostname

If type of configuration ‘P’

International Call Prefix (max 10 only numeric chars)

If type of configuration ‘N’

First part System name (max 64 ASCII chars)

If type of configuration ‘M’

Second part System name (max 64 ASCII chars)

If type of configuration ‘A’

First part of hexadecimal representation of the System name Unicode (max 64 ASCII chars)

If type of configuration 'B'

Second part of hexadecimal representation of the System name Unicode (max 64 ASCII chars)

If command type 'W' (Save data):

Attention: without this command no one of previous commands will be saved

Direction:	RTE -> PC
Mode	'<'
Type:	'T'
Sub-Type	'Q'
Data:	See above

Data Description:

Audio Coding:

Audio coding used in communications without video and generally used in user's own Country.
A-law PCM coding -> European
MU-law PCM coding -> U.S.A

Video Frequency:

Video coding used in users's own Country. Generally 50Hz in Europe and 60Hz in U.S.A.

Language:

Select the language used in the terminal graphic user interface.

System name Unicode

Changes the system name Unicode. Each character in a Unicode string is represented by 2 bytes. Each byte can be represented in hexadecimal format. To set the system name Unicode using TQA and TQB commands you must know the Unicode value for each character and then change it in the sequence of four hexadecimal characters, adding the character 0 when the Unicode number is minor than 0x1fff.

For example if the name is "Videoconference system" in Russian, it becomes "Система видео-конференции" which is represented by these 25 Unicode characters: \u421\u438\u441\u442\u435\u43C\u430\u20\u432\u438\u434\u435\u43E\u2D\u43A\u43E\u43D\u444\u435\u440\u435\u43D\u446\u438\u438

So the command will be

AT[&TQA042104380441044204350 43C043000200432043804340435043E002D043A043E043D044404350440043504 3D044604380438

3.15. Terminal MCU configuration (TM) (NOT SUPPORTED BY KONFTEL CC200)

This message is sent by PC to request storing/reading of parameters about the MCU configuration.

Direction: PC -> RTE

Mode '&' / '?'
Type: 'T'
Sub-Type 'M'
Data: Type of configuration
'G' = Generic
'A' = Other Generic settings

If type of parameter is '3'
Enable:
'0' = No
'1' = Yes
Display Participants Name:
'0' = No
'1' = Yes
Meeting Time Limit (2 bytes):
'00' = Unlimited
'01' = 1 hour
'02' = 2 hours
'04' = 4 hours
'06' = 6 hours
'08' = 8 hours
'10' = 10 hours
'12' = 12 hours
'14' = 14 hours
'18' = 18 hours
'20' = 20 hours
'24' = 24 hours
Max calls limit:
'0' = No
'1' = Yes
Max calls limit:
'0' = No
'1' = Yes
Max Calls (2 bytes):
'02' = 2 terminals
'03' = 3 terminals
'04' = 4 terminals
'05' = 5 terminals
'06' = 6 terminals
'07' = 7 terminals
'08' = 8 terminals

Local Audio Video:
‘0’ = No
‘1’ = Yes
Local Audio Video:
‘0’ = No
‘1’ = Yes
Allow WEB Management:
‘0’ = No
‘1’ = Yes
Default layout (2 bytes):

’00’ = Automatic

’01’ = One terminal

’02’ = Two terminals A

’03’ = Two terminals B

’04’ = Two terminals C

’05’ = Two terminals D

’06’ = Three terminals A

’07’ = Three terminals B

’‘08’ = Four terminals A

’09’ = Four terminals B

’10’ = Four terminals C

’11’ = Five terminals

’12’ = Six terminals

’13’ = Seven terminals A

’14’ = Seven terminals B

’15’ = Seven terminals C

’16’ = Eight terminals A

’17’ = Eight terminals B

’18’ = Eight terminals C

’19’ = Eight terminals D

’20’ = Nine terminals A

’21’ = Nine terminals B

’22’ = Nine terminals C

Default Lecturer Layout (2 bytes):

’01’ = One terminal

‘02’ = Two terminals A

If type of configuration 'A'
Hide Meeting Timeout (2 bytes):
'01' = 1 minute
'02' = 5 minutes
'03' = 10 minutes
'04' = 15 minutes
'05' = 20 minutes
'06' = 30 minutes
MCU Role:
'1' = Slave
'2' = Master
Dummy (19 bytes, must be 0) **(for future expansion)**

Direction: RTE -> PC

Mode '<'
Type: 'T'
Sub-Type 'M'
Data: See above

Data Description:

3.16. Terminal Encryption Configuration (TO)

This message is sent by PC to request storing/reading of parameters about encryption configuration.

It is sent by RTE to PC as an answer to reading request.

Direction: PC -> RTE

Mode '&' / '?'
Type: 'T'
Sub-Type 'O'
Data: Command Type:
'G' = Generic Command
'A' = Generic Command

If command type 'G'
Use Encryption:
'0' = No
'1' = Yes
Dummy (1 byte, must be 0) **(for future expansion)**
Unprotected call:
'1' = Disconnect
'2' = Ask confirm
'3' = Inform
'4' = State
Dummy (1 byte, must be 0) **(for future expansion)**
Dummy (1 byte, must be 0) **(for future expansion)**

If command type 'A'
Enable Encryption:
'0' = No
'1' = Yes

Accept Protected Calls:
‘0’ = No
‘1’ = Yes
Enable Encryption MCU
‘0’ = No
‘1’ = Yes
Unprotected Calls:
‘1’ = Disconnect
‘2’ = Ask confirmation
‘3’ = Inform
‘4’ = Show Status
SIP Proprietary Encryption
‘0’ = No
‘1’ = Yes
Audio alert:
‘0’ = No
‘1’ = Yes
Minimum Key Size for DH:
‘1’ = High security (1024)
‘2’ = Very High Security (2048)
Length of AES key:
‘1’ = 128 bits
‘2’ = 256 bits
‘3’ = 128, 256 bits
Unprotected Calls for XTD:
‘1’ = Disconnect
‘2’ = Ask confirmation
‘3’ = Inform
‘4’ = Show Status
‘5’ = Accept, NO Status
Dummies (16 bytes, must be 0) **(for future expansion)**

Direction:	RTE -> PC
Mode	‘<‘
Type:	‘T’
Sub-Type	‘O’
Data:	See above

3.17. Terminal License Management (TW)

This message is sent by PC to RTE to read/store parameters about licenses status.

It is sent by RTE to PC as an answer to reading request.

Direction:	PC -> RTE
Mode	‘&‘
Type:	‘T’
Sub-Type	W’
Data:	Command Type: ’B’ = Send license code ’F’ = Read licenses from file ’S’ = Set FTP URL

'U' = Set FTP username
'P' = Set FTP password
'L' = Download file with one or more licenses code licenses named liclis from FTP server configured with F action command

If command type 'B'
Encoded license option **(ASCII string)**

If command type 'F'
No data

Action type 'U'
FTP Username (max 60 ASCII chars)

Action type 'P'
FTP Password (max 60 ASCII chars):

If command type 'L'
No data

Direction: PC -> RTE

Mode '?'
Type: 'T'
Sub-Type W'
Data: Type info about license
None
'L' = Licenses status
'S' = License name and status
'F' = Upgrade Software status

If command type none (empty request for old compatibility)
No data: the command answers with TWL response explained below

If command type 'L'
No data: the command answers with TWL response explained below

If command type 'S'
No data: the command answers with the license name for any active license in the system

If command type 'F'
No data: the command answers with the software upgrade license status and info

Direction: RTE -> PC

Mode '<'
Type: 'T'
Sub-Type 'W'
Data: Command Type:
'L' = Information about system licenses status
'S' = License name and status
'F' = Upgrade Software status

If command type 'L'

MCU license
'0' = disabled
'1' = enabled
MCU demo license
'0' = disabled
'1' = enabled
MCU Site extension license
'0' = disabled
'1' = enabled
Rate extension license
'0' = disabled
'1' = enabled
Audio codec G.728 license:
'0' = disabled
'1' = enabled
LAN 10/100 license:
'0' = disabled
'1' = enabled
Avaya Scopia® control license:
'0' = disabled
'1' = enabled
Equinox Desktop Demo license:
'0' = disabled
'1' = enabled
Equinox Desktop license:
'0' = disabled
'1' = enabled
Custom Level 1 license:
'0' = disabled
'1' = enabled
Custom Level 2 license:
'0' = disabled
'1' = enabled
Custom Level 3 license:
'0' = disabled
'1' = enabled
Custom Level 4 license:
'0' = disabled
'1' = enabled
Telepresence license:
'0' = disabled
'1' = enabled
Video HD 1080p Tx/Rx
'0' = disabled
'1' = enabled
Zoom extension license
'0' = disabled
'1' = enabled

Encryption license
'0' = disabled
'1' = enabled
USB recording license
'0' = disabled
'1' = enabled
HDMI Input license
'0' = disabled
'1' = enabled
HDMI Output license
'0' = disabled
'1' = enabled
Lock system customization license
'0' = disabled
'1' = enabled
Dummy (1 byte, must be 0) **(for future license):**
'0' = disabled
'1' = enabled

Dummy (29 bytes , must be 0) **(for future license):**
'0' = disabled
'1' = enabled

If command type 'S'

Active license name string (max 64 ASCII chars)

If command type 'F'

Software Upgrade license status:
'0' = Current version is not running due to a lack of license
'1' = Current version is running and enabled
'2' = Current version is running in demo mode
Software upgrade demo in minutes (5 bytes):
Last software version enabled to run (ASCII chars)

Data Description:

Command 'S' 'U' 'P' 'L' 'F'

The command 'S' saves the FTP URL used to take the liclis file (with command 'L') from which read one or more licenses by 'F' command.

For example if you want XT system reads licenses from ftp://xxx.xxx.xxx.xxx/Licenses/liclis file, you must call 'S command with ftp://xxx.xxx.xxx.xxx/Licenses URL and then call the 'L' command to download the file and the call 'F' command to install licenses form file.

Licenses in liclis file must be written one for line.

3.18. Terminal configuration management (TK)

This message is sent by PC to RTE to request storing/reading of parameters about the system configuration management or to import and export the whole system configuration.

It is sent by RTE to PC as an answer to reading request.

Direction: PC -> RTE

Mode '&'
Type: 'T'
Sub-Type 'K'
Data: Command Type:

'E' = Export the system configuration (Mass configuration)
'I' = Import the system configuration (Mass configuration)
'L' = Export log file
'B' = Export the whole system configuration (without passwords) for a backup
'A' = Import the whole system configuration (without passwords) for a backup
'S' = Export only password (system, WEB and Telnet)
'P' = Import only password (system, WEB and Telnet)
'C' = Export the system configuration (included passwords) (Mass configuration)
'D' = Import the system configuration (included passwords) (Mass configuration)
'G' = Export the whole system configuration (included passwords) for a backup
'H' = Import the whole system configuration (included passwords) for a backup
'F' = Set FTP URL
'U' = Set FTP username
'V' = Set FTP password
'M' = Send CSPackage to FTP server configured with F action command
'N' = Send exported system configuration file to FTP server configured with F action command
'O' = Download system configuration file named c_ini from FTP server configured with F action command
'Q' = Download new package version file named XTVersion.exe from FTP server configured with F action command
'T' = Start update of new package version previously downloaded by Q command
'R' = Configure Import/Export

If command type 'E'

No data required

If command type 'I'

No data required

If command type 'L'

Last minutes to capture: "0"..."999"

If command type 'B'

No data required

If command type 'A'

No data required

If command type 'S'

No data required

If command type 'P'

No data required

If command type 'C'

No data required

If command type 'D'

No data required

If command type 'G'

No data required

If command type 'H'

No data required

If command type 'F'

FTP Server URL (max 60 ASCII chars)

If command type 'U'

FTP Username (max 60 ASCII chars)

If command type 'V'

FTP Password (max 60 ASCII chars):

If command type 'M'

No data required

If command type 'N'

No data required

If command type 'O'

No data required

If command type 'Q'

No data required

If command type 'T'

No data required

If command type 'R'

Enable to export the local configuration:

'0' = No
'1' = Yes

Enable to export the local configuration:

'0' = No
'1' = Yes

Direction: PC -> RTE

Mode '?'
Type: 'T'
Sub-Type 'K'
Data: Command Type:
'R' = Generic Command

Direction: RTE -> PC

Mode '<'
Type: 'T'
Sub-Type 'K'
Data: Command Type:
'R' = Generic Command

If command type 'R'
Enable to export the local configuration:
'0' = No
'1' = Yes
Enable to import another system configuration:
'0' = No
'1' = Yes

Data Description:

Commands 'E' 'B' 'S' 'C' 'G'

After calling one of export command, the system creates the file contained all configurations. This file can be downloaded by HTTP protocol from the URL http://xxx.xxx.xxx.xxx/web/download/c_ini or by FTP protocol with 'N' command.

Commands 'I' 'A' 'P' 'D' 'H'

Before performing the import command you must download the file c_ini contained system configuration by the 'O' command. The file to download must be named c_ini and must be in the same directory of the URL set by F command.

After calling one of import command, the system read the configuration file sent to the system before, and save all new configurations, and the restart.

Command 'L'

The log data file can be downloaded by HTTP protocol from the URL http://xxx.xxx.xxx.xxx/web/download/g_slog or by FTP protocol with M command.

Commands 'Q' 'T"

The Q command is used to download the new version package for XT system from the URL previously specified by F command. XT version package must be renamed in XTVersion.exe and must be in the same directory of the URL set by F command.

The T command can be called after the Q command to update the system version.

Command 'F'

This command saves the FTP URL to which send configuration file or log file used by M and N commands. The same URL is used to take the configuration file for import operation by O command, or to take the new version system package for update system by T command.

For example if you want to configure system by ftp://xxx.xxx.xxx.xxx/Configuration/c_ini file, you must call 'F command with ftp://xxx.xxx.xxx.xxx/Configuration URL.

For example if you want to update system with new version ftp://xxx.xxx.xxx.xxx/Versions/XT5000.exe file, you must call 'F command with ftp://xxx.xxx.xxx.xxx/Versions URL.

3.19. Terminal Audio Configuration (TN)

This message is sent by PC to RTE to request storing/reading of parameters about the system configuration management or to import and export the whole system configuration.

It is sent by RTE to PC as an answer to reading request.

Direction: PC -> RTE

Mode '&' / '?'
Type: 'T'
Sub-Type 'N'
Data: Module:

- 'I' = Inputs
- 'O' = Outputs **Warning:** not supported. **Use T and P modules.**
- 'H' = Echo canceller
- 'D' = Load Default values
- 'T' = Tracks
- 'P' = Physical Output
- 'G' = General

If Module = 'I'

Input: (2 bytes)

- '01' = POD1
- '02' = POD2
- '03' = SPDIF/HD audio input (for XT series is Digital input)
- '04' = Analog audio input
- '05' = HD audio input
- '06' = USB camera audio input
- '07' = USB microphone audio input
- '08' = HD2 audio input (not for CC200)

Enable:

- '0' = Disabled
- '1' = Enabled

Gain: (2 bytes) '00' ...'24'

Echo:

- '0' = Not Cancelled
- '1' = Cancelled

Audio selection:

'1' = Associated to DVI
'2' = Always (this means SPDIF always for SPDIF/HD)
'3' = HD camera (used only with SPDIF/HD input)

Type: **(valid only for Analog input)**

'1' = Line
'2' = Microphone

Mode: **(valid only for Analog input)**

'1' = Stereo
'2' = Mono

Ignore Mute (used only with Digital and Analog input)

'0' = No
'1' = Yes

Dummy (1 byte, must be 0) **(for future expansion):**

If Module = 'O'

Speakers: (1 byte)

'0' = Auto
'1' = HD1
'2' = HD2
'3' = All

Speakers: (1 byte)

'0' = None
'1' = HD1 + SPDIF + Analog
'2' = HD2
'3' = All

Echo cancelled inputs to output:

'0' = None
'1' = HD1 + SPDIF + Analog
'2' = HD2

Rx Remote to output:

'0' = None
'1' = HD1 + SPDIF + Analog
'2' = HD2
'3' = All

Analog to output:

'0' = None
'1' = HD1 + SPDIF + Analog
'2' = HD2
'3' = All

If Module = 'H'

Automatic Gain Control:

'1' = Enabled
'0' = Disabled

Noise Reduction (Post Filter):

'1' = Enabled
'0' = Disabled

Audio delay automatic estimation:

'1' = Yes
'0' = No

Apply delay value:

'1' = Yes
'0' = No

Dummy (1 byte, must be 0) **(for future expansion)**
Dummy (1 byte, must be 0) **(for future expansion)**

If Module = 'T'

Track Number (2 bytes):
'01' = Track 1
'02' = Track
Digital Audio:
'1' = Yes
'0' = No
Echo cancelled inputs:
'1' = Yes
'0' = No
Rx Remote:
'1' = Yes
'0' = No
Analog Audio:
'1' = Yes
'0' = No
HD1:
'1' = Yes
'0' = No
HD2: **not for CC200**
'1' = Yes
'0' = No
Dummy (9 bytes) **(for future expansion):**

If Module = 'P'

HD1 Output:
'00' = Off
'01' = Track 1
'02' = Track 2
HD2 Output:
'00' = Off
'02' = Track 2
Digital Audio Output:
'00' = Off
'01' = Track 1
'02' = Track 2
Analog Audio Output:
'00' = Off
'01' = Track 1
'02' = Track 2
USB headset:
'00' = Off
'01' = Track 1
'02' = Track 2
Dummy (10 bytes, must be 0) **(for future expansion):**

If Module = 'D'

Type:
'1' = Load default values for audio input configuration
'2' = Load default values for audio output configuration

If Module = 'G'

Audio Inputs Management:

'0' = Automatic

'1' = Manual

Audio Outputs Management:

'0' = Automatic

'1' = Manual

Dummy (10 bytes, must be 0) **(for future expansion):**

Direction:	RTE -> PC
Mode	'<'
Type:	'T'
Sub-Type	'N'
Data:	See above

Data Description:

Inputs:

The input module selected the audio input to configure.
XT system can have 7 different sources:

'01' = POD1 (audio digital)

'02' = POD2 (audio digital)

'03' = Digital (optical connector)

'04' = Analog audio input

'05' = HD audio input

'06' = USB camera audio input

'07' = USB microphone audio input

The **Enable** parameter enables or disables the audio from that source.

The **Gain** increases or decreases the source volume.

The **Echo** parameter allows to choose if the echo canceller must cancel the audio source or not. It's useful to enable the canceller for those inputs that can capture remote signals, like a microphone.

The **Audio selection** parameter to choose if this input can be heard always or only when is selected the DVI input (this can be useful for example if the audio input comes from a PC). For SPDIF only you can choice to hear always SPDIF or HD, considering that only one of these can be selected at the same time.

The **Type** and **Mode** parameters are used only with the analog input to specify which kind of input has been connected (change automatically gain and power supply).

The **Ignore Mute** is used to send always this audio input to remote side also when the system is in Mute state and only if the input is not cancelled.

Outputs:
The output module specifies how to configure audio outputs.

Tracks:
Not supported by CC200.

Physical Output:
Not supported by CC200.

Echo canceller:
Automatic Gain Control (AGC) can be enabled/disabled by selecting '1' or '0'

Noise Reduction can be enabled/disabled by selecting '1' or '0'

Audio delay automatic estimation enables the automatic estimation of monitor audio delay and applies this delay to improve echo canceller performance.

Apply delay value applies only the last delay calculated, but stops its computation.

Load default values
Leads back the system again to the factory default values for the audio inputs or outputs configuration.

General
This module allows to activate or not some automatism on Inputs or Outputs like the mute of HD1 monitor when USB headset is plugged in the system.

3.20. Terminal presentation configuration (TD)

This message is sent by PC to request storing/reading of presentation parameters.
This message is sent by RTE as reply to a reading request.

Direction: PC -> RTE

Mode '&' / '?'
Type: 'T'
Sub-Type 'D'
Data: Types of parameter:
- 'L' = Presentation Mode configuration
- 'D' = Dual video configuration
- 'A' = Presentation Mode configuration extended

Parameter type 'L'
Local presentation mode:
- 0 = Manual
- 1 = Automatic

Show warnings (local presentation mode)
0 = No
1 = yes
Keep aspect ratio:
0 = No
1 = yes

Parameter type 'D'

Use manual DualVideo bandwidth:
0 = No
1 = yes
DualVideo/live bandwidth (2 bytes):
10 = 10% for dual video
20 = 20% for dual video
30 = 30% for dual video
40 = 40% for dual video
50 = 50% for dual video
60 = 60% for dual video
70 = 70% for dual video
80 = 80% for dual video
90 = 90% for dual video

Parameter type 'A'

Hide Presentation Icon:
0 = No
1 = yes
Dummy (20 bytes):

Direction: RTE -> PC

Mode '<'
Type: 'T'
Sub-Type 'D'
Data: See above

3.21. Telepresence configuration (TP)

This message is sent by PC to request reading of presentation parameters.
his message is sent by RTE as reply to a reading request.

WARNING:

Direction: PC -> RTE

Mode '?'
Type: 'T'
Sub-Type 'P'
Data: Types of parameter:
'G' = Generic Configuration

If parameter type 'G'

None

Direction: RTE -> PC

Mode '<'
Type: 'T'
Sub-Type 'P'
Data: Types of parameter:
'G' = Generic Configuration

If parameter type 'G'
Enabled:
'0' = Telepresence is disabled
'1' = Telepresence is enabled
Type:
'0' = Unknown
'1' = System is primary (central)
'2' = System is auxiliary left
'3' = System is auxiliary right
MonitorSize:
'1' = Monitor 50 inch
'2' = Monitor 55 inch
'3' = Monitor 60 inch
'4' = Monitor 65 inch
Number of chair's raw:
'1' = One raw
'2' = Two raw
Primary IP address:
xxx.xxx.xxx.xxx (fixed len = 15 chars)
Auxiliary left IP address:
xxx.xxx.xxx.xxx (fixed len = 15 chars)
Auxiliary right IP address:
xxx.xxx.xxx.xxx (fixed len = 15 chars)

Data Description:

IP Address:
In the primary system , the primary IP address is always 0
In the auxiliary system the two auxiliary IP address are always 0

3.22. Recording Settings (TJ)

This message is sent by PC to request storing/reading recording parameters.
This message is sent by RTE to reply to a reading request.

Direction: PC -> RTE

Mode '&'
Type: 'T'
Sub-Type 'J'
Data: Type:
C = Configuration
R = Remote server parameters
F = FTP remote server URL
U = FTP remote server user Name

P = FTP remote server password
O = ASSR remote server owner
L = Label

If command type 'C'

Resolution (2 bytes):

'01' = H.264,1080p
'02' = H.264,720p
'03' = H.264,640x480
'04' = H.264,w360p

Bit rate (2 bytes):

'01' = 384
'02' = 448
'03' = 512
'04' = 768
'05' = 896
'06' = 1024
'07' = 1152
'08' = 1280
'09' = 1408
'10' = 1472
'11' = 1536
'12' = 1728
'13' = 1920
'14' = 2048
'15' = 2560
'16' = 3072
'17' = 3584
'18' = 4096
'19' = 4608
'20' = 5120
'21' = 5632
'22' = 6144

Audio Alert:

'0' = No
'1' = Yes

Location

'1' = No Recording
'2' = Automatic
'3' = USB storage
'4' = Equinox Recording Server

Ignore Mute on Playback

'0' = No
'1' = Yes

Upload Video

'0' = No
'1' = Yes

Date & Time

'0' = No
'1' = Yes

Digital Signature
‘0’ = No
‘1’ = Yes
Dummy (5 bytes, must be 0)

If command type ‘R’

Save on external server:
‘0’=no
‘1’=yes
FTP Secure Connection:
‘0’=no
‘1’=yes
External server type (2 bytes):
‘01’ = Generic
‘02’ = ASSR
ASSR server TenantID (10 bytes):
‘0000000000’…’9999999999
Dummy (10 bytes, must be 0)

If command type ‘F’

FTP remote server URL (max 64 ASCII chars)

If command type ‘U’

FTP remote server user (max 64 ASCII chars)

If command type ‘P’

FTP remote server password (max 64 ASCII chars)

If command type ‘O’

ASSR remote server file owner (max 64 ASCII chars)

If command type ’L’

Label (max 64 ASCII chars)

Direction: PC -> RTE

Mode ‘?’
Type: ‘T’
Sub-Type ‘J’
Data: Type:

C = Configuration
R = Remote server parameters
F = FTP remote server URL
U = FTP remote server user Name
P = FTP remote server password
O = ASSR remote server owner
L = Label

If command type ‘C’

None

If command type ‘R’

None

If command type 'F'
None

If command type 'U'
None

If command type 'P'
None

If command type 'O'
None

If command type 'L'
Label (max 64 ASCII chars)

Direction: RTE -> PC

Mode '<'
Type: 'T'
Sub-Type 'J'
Data: See above

3.23. Terminal Error Indication (TE)

This message is sent by RTE to notify an error on the received message:

Direction: RTE -> PC

Mode '<'
Type: 'T'
Sub-Type 'E'
Data: Message Type
Sub-type
Error:
'1' = Bad parameter
'2' = Unknown message
'3' = Wrong message length
'4' = Bad mode
'5' = Unable to execute comman
Sub-code
If Unable to execute command
'0' = system timeout
'1' = system busy
If Bad parameter
Index number of wrong parameter

Data Description:

Example:

PC ---------- AT[&TAF<cr> ----------à RTE (Request the Full screen mode without the first parameter)
PC←ß--------- AT[<TETA12---------- RTE (The first parameter of the message is wrong or missed)

PC ---------- AT[&TAF1<cr> ----------à RTE (Request the Full screen mode
PC←ß--------- AT[<TETA50---------- RTE (The command cannot be executed)

Network configuration messages can be used to change and/or read the configuration stored in the terminal.

The <mode> **&** command can be used to modify the configuration, while the <mode> **?** can be used to read the related values.

4.1. Network IP Configuration (NL)

This message is sent by PC to request storing/reading of some parameters about the IP Configuration.

This message is sent by the RTE to reply to a reading request.

Direction:	PC -> RTE	
Mode	'&' / '?'	
Type:	'N'	
Sub-Type	'L'	
Data:	Automatic IP address:	
	'0' = No	
	'1' = Yes	
	IP address:	
	xxx.xxx.xxx.xxx	(fixed len = 15 chars)
	Subnet mask:	
	xxx.xxx.xxx.xxx	(fixed len = 15 chars)
	Gateway IP address:	
	xxx.xxx.xxx.xxx	(fixed len = 15 chars)
Direction:	RTE -> PC	
Mode	'<'	
Type:	'N'	
Sub-Type	'L'	
Data:	See above	

Data Description:

Automatic IP Address:

Select Yes ("1") to get an IP address from a DHCP server; select No ("0") to assign a static IP address to the terminal.

Example: Static IP address, IP address 192.168.110.017, subnet mask 255.255.255.000, gateway IP address 192.168.110.001

PC ---------- AT[?NL<cr> ----------à RTE (Network IP)
PC ß--- AT[<NL0192.168.110.017255.255.255.000192.168.110.001<cr> --------- RTE
PC ß---------- OK<cr> ---------- RTE

4.2. Network IP Configuration Extended (ND)

This message is sent by PC to request storing/reading of some parameters about the IP Configuration.

This message is sent by the RTE to reply to a reading request.

Direction: PC -> RTE

Mode '&' / '?'
Type: 'N'
Sub-Type 'D'
Data: Network type:
'1' = GLAN1
'4' = GLAN2 or WiFi for Konftel CC200
Command type:
'C' = Configuration
'M' = MacAddress **(only for read operation)**
'T' = MTU size
'B' = Bandwidth
'A' = Bandwidth Extended
'S' = Speed/Duplex
'X' = 802.1x Parameters
'U' = 802.1x User
'P' = 802.1x Password
'V' = VLAN
'F' = Configuration
'G' = 802.1x Parameters
'H' = 802.1x User
'I' = 802.1x Password
'L' = VLAN
'W' = Save data set with commands 'F', 'G', 'H', 'I' and 'L'

If command type 'C' or 'F'

Automatic IP address:
'0' = No
'1' = Yes
IP address:
xxx.xxx.xxx.xxx (fixed len = 15 chars)
Subnet mask:
xxx.xxx.xxx.xxx (fixed len = 15 chars)
Gateway IP address:
xxx.xxx.xxx.xxx (fixed len = 15 chars)
DNS IP address:
xxx.xxx.xxx.xxx (fixed len = 15 chars)

If command type 'M'

MAC-address:
xx : xx : xx : xx : xx : xx (fixed len = 17 chars)

If command type 'T'

MTU size (four bytes):
'1280' ..... '1500'

If command type 'B'

Enabled:

'0' = No
'1' = Yes

Max bandwidth Rx (KB) (fixed four bytes)

Max bandwidth Tx (KB) (fixed four bytes)

If command type 'A'

Enabled:

'0' = No
'1' = Yes

Max bandwidth Rx (KB) (fixed ten bytes)

Max bandwidth Tx (KB) (fixed ten bytes)

If command type 'S'

Speed/Duplex Mode:

'0' = Automatic
'1' = Manual
'2' = Auto – up to 100/Full
'3' = Auto – up to 100/Half
'4' = Auto – up to 10/Full
'5' = Auto – up to 10/Half

Speed:

'1'= 10 Mbps

'2'= 100 Mbps

Duplex Mode

'1'= Half

'2'= Full

If command type 'X' or 'G'

Enable:

'0' = No
'1' = Yes

Dummy (20 bytes, must be 0)

If command type 'U' or 'H'

802.1x User Name (max 64 ASCII chars)

If command type 'P' or 'I'

802.1x Password (max 64 ASCII chars)

If command type 'V' or 'L'

Enable:

'0' = No
'1' = Yes

ID (fixed four bytes):

'0001' ..... '4094'

Dummy (10 bytes, must be 0)

If command type 'W' (Save data)

Attention: without this command, **'F, 'G', 'H', 'I'** and **'L'** commands will not be saved

Direction: RTE -> PC

Mode '<'
Type: 'N'
Sub-Type 'D'
Data: See above

Data Description:

WARNING: Commands 'F', 'G', 'H', 'I' and 'L' have been added which are the same as commands 'C', 'X', 'U', 'P' and 'V'. The difference is that while the last group has immediate effect, the first one has effect only after the save command 'W'. This command is needed to change in the same time different network parameters (i.e. IP static address and VLAN value associated with it) which can work together so system could be correctly configured at one time without losing the IP connection capability.

Automatic IP Address:
Select Yes ("1") to get an IP address from a DHCP server; select No ("0") to assign a static IP address to the terminal.

4.3. Protocol SIP Configuration (NM)

This message is sent by PC to request storing/reading of some parameters about the SIP Configuration.

This message is sent by the RTE to reply to a reading request.

Direction: PC -> RTE

Mode '&' / '?'
Type: 'N'
Sub-Type 'M'
Data: Command Type:
- 'G' = Generic Command
- 'N' = First part User
- 'F' = Second part User
- 'U' = First part Authentication Name
- 'V' = Second part Authentication Name
- 'P' = Password
- 'R' = Server 1 parameters (use **O** command)
- 'X' = Server 1 parameters (use **O** command)
- 'A' = Server 1 DNS name (use **M** command)
- 'C' = First part Server 1 DNS name (use **M** command)
- 'D' = Second part Server 1 DNS name (use **Q** command
- 'S' = Server Type (not used)
- 'I' = Index of type of server selected
- 'H' = Number of type of servers **(only in get mode)**
- 'L' = Server type name **(only in get mode)**
- 'T' = SIP TLS configuration
- 'O' = SIP Server configuration

'M' = First part Server DNS name
'Q' = Second part Server DNS name
'W' = Save

If command type 'G'

Transport Outbound Call:
'0' = TCP
'1' = UDP
'2' = TLS
UDP Listening Port (ASCII digit of fixed len = 5)
TCP Listening Port (ASCII digit of fixed len = 5)

If command type 'N'

First part User (max 64 ASCII chars)

If command type 'F'

Second part User (max 64 ASCII chars)

If command type 'U'

First part Authentication name (max 64 ASCII chars)

If command type 'V'

Second part Authentication name (max 64 ASCII chars)

If command type 'P'

Password (max 64 ASCII chars)

If command type 'R' (use **O** command)

Use Server1:
'0' = no
'1' = Yes
Dummy (20 bytes, must be 0)

If command type 'X' (use **O** command)

Use Server1:
'0' = no
'1' = Yes
Dummy (20 bytes, must be 0)

If command type 'A' (use **M** command)

Server 1 DNS name (max 32 ASCII chars)

If command type 'C' (use **M** command)

First part Server 1 DNS name (max 64 ASCII chars)

If command type 'D' (use **Q** command)

Second part Server 1 DNS name (max 64 ASCII chars) **(This is used only if the Proxy name length is larger than 64)**

If command type 'S' (no longer used)

ServerType:
'00' = Automatic
'01' = Cisco UCM
'02' = Microsoft LCS
'03' = Microsoft OCS
'04' = Alcatel

'05' = Nortel
'06' = Siemens
'07' = Avaya
'08' = Asterisk
'09' = SER
'10' = Telio
'11' = Mns
'12' = BroadSoft
'13' = Minimal options
'14' = All options

If command type 'I'

Index of type of server selected (3 bytes)
'000' ….' Number of type of servers - 1'

If command type 'H'

Number of type of servers (3 bytes) (not writable)

If command type 'L' (not writable, only with get command)

Index of type of server (3 bytes)
'000' ….' Number of type of servers - 1'
Name of type of server (max 64 ASCII chars)

If command type 'T'

Use TLS:
'0' = No
'1' = Yes
TLS Listening Port (ASCII digit of fixed length = 5)
Verify certificate:
'0' = No
'1' = Yes
Transport Outbound BFCP:
'1' = TCP preferred
'2' = UDP preferred
'3' = TCP only
'4' = UDP only
Verify Certificate Revocation:
'1' = Yes Always
'2' = Yes if possible
'3' = No
Disable TLS 1.0/1.1:
'1' = Yes
'2' = No
Certificate Hostname Validation:
'1' = Accept All
'2' = Accept Validated or same default certificate
'3' = Accept Validated Only
Verify Certificate Key Usage:
'1' = Yes
'2' = No
Transport Inbound Call:
'1' = Accept All
'2' = Accept only TLS calls
Scheme:
'1' = sip;
'2' = sips:
Dummy (13 bytes, must be 0) **(for future expansion):**

If command type 'O'

Server Index (3 bytes):

'001'.. '003'

Use Server:

'0' = no

'1' = Yes

Dummy (20 bytes, must be 0) **(for future expansion)**

If command type 'M'

Server Index (3 bytes):

'001'.. '003'

First part Server DNS name (max 64 ASCII chars)

If command type 'Q'

Server Index (3 bytes):

'001'.. '003'

Second part Server DNS name (max 64 ASCII chars) **(This is used only if the Server name length is larger than 64)**

If command type 'W' (Save data):

Attention: without this command no one of previous commands will be saved

Direction:	RTE -> PC
Mode	'<'
Type:	'N'
Sub-Type	'M'
Data:	See above

Data Description:

Server 1 parameters

Starting from version 8_3_1_X SIP configuration has been changed to manage more than one SIP server (for redundancy) and to simplify the procedure system removed Proxy and Registrar and inserted the unique Server concept. To maintain compatibility with old AT commands clients, Proxy and Registar configuration is assumed to be the same as the new Server 1. These commands are deprecated: use **O** command.

First part Server 1 DNS name

To maintain compatibility with old AT commands clients, Proxy First part name or Registar name are assumed to be the same as the new Server 1 first part DNS name. These commands are deprecated: use **M** command.

Second part Server 1 DNS name

To maintain compatibility with old AT commands clients, Proxy Second part name is assumed to be the same as the new Server 1 second part DNS name (to be used if Server1 DNS name is longer than 64 characters). This command is deprecated: use **Q** command.

SIP Server configuration
Index actually can be only ‘001’, or ‘002’ or ‘003’

First part Server DNS name
Index actually can be only ‘001’, or ‘002’ or ‘003’

Second part Server DNS name
Index actually can be only ‘001’, or ‘002’ or ‘003’

4.4. Network NAT & Dynamic Ports Setting (NT)

This message is sent by PC to request storing/reading of some parameters about the NAT (Network Address Translation) and Dynamic ports configuration.

This message is sent by the RTE to reply to a reading request.

Direction: PC -> RTE

Mode ‘&’ / ‘?’
Type: ‘N’
Sub-Type ‘T’
Data: Command Type
- ’N’ = NAT parameters
- ’S’ = NAT server address
- ’K’ = NAT parameters extented
- ’A’ = Public address
- ’P’ = Dynamic Ports
- ’T’ = Refresh time

If command type ‘N’
- NAT enable:
  - ‘0’ = No
  - ‘1’ = Yes
- NAT Type:
  - ’1’ = Manual
  - ’2’ = HTTP autodiscovery
  - ’3’ = STUN autodiscovery
- NAT autolearning:
  - ‘0’ = No
  - ‘1’ = Yes
- Server port (5 bytes)
- Refresh time (2 bytes) in seconds

If command type ‘S’
- NAT server name (max 30 ASCII chars):

If command type ‘K’
- Keep Alive:
  - ‘0’ = No
  - ‘1’ = Yes
- Dummy (20 bytes, must be 0)

If command type 'A'

Public IP address (max 15 ASCII chars):

If command type 'P'

Auto Detect TCP port

'0' = No

'1' = Yes

TCP Port init number (ASCII digit of fixed len = 5)

Auto Detect UDP port

'0' = No

'1' = Yes

UDP Port init number (ASCII digit of fixed len = 5)

If command type 'T'

Refresh time (4 bytes) in seconds

'0000' .... '9999'

Dummy (10 bytes, must be 0) **(for future expansion)**

Direction:	RTE -> PC
Mode	'<'
Type:	'N'
Sub-Type	'T'
Data:	See above

Data Description:

NAT enable:
Select Yes ("1") if a NAT (Network Address Translation) is used to go outside the local network.

Nat server name:
IP address of NAT device.

Public IP Address:
IP address to be used in an H.323 connection for calls outside local network.

TCP Port init:
Init TCP port value used in an H.323 connection for calls outside local network.

UDP Port init:
Init UDP port value used in an H.323 connection for calls outside local network.

4.5. Network LAN Settings (NB)

This message is sent by PC to request storing/reading generic network parameters.

It is sent by RTE to answer a reading request.

Direction: PC -> RTE

Mode '&' / '?'
Type: 'N'
Sub-Type 'B'
Data: Item:
'G' = Generic configuration

If item 'G':
Use IPV6:
'0' = No
'1' = Yes
Priority:
'1' = GLAN1
'2' = GLAN2 or WiFi
Dummy (10 bytes, must be 0) **(for future expansion)**

Direction: RTE -> PC

Mode '<'
Type: 'N'
Sub-Type 'B'
Data: See above

Data Description:

4.6. Network Protocols Setting (NA)

This message is sent by PC to request storing/reading generic protocols parameters

It is sent by RTE to answer a reading request.

Direction: PC -> RTE

Mode '&' / '?'
Type: 'N'
Sub-Type 'A'
Data: Item:
'G' = Generic configuration

If item 'G':
Default Protocol:
'0' = Automatic
'1' = SIP
'2' = H323
'3' = ISDN
Default Protocol:
'0' = No
'1' = Yes

Use H.323:
‘0’ = No
‘1’ = Yes
Use ISDN:
‘0’ = No
‘1’ = Yes
Reject SIP incoming calls:
‘1’ = Only on GLAN1
‘2’ = Only on GLAN2 or WiFi
‘3’ = On GLAN1 and GLAN2 or WiFi
‘4’ = No
Reject H323 incoming calls:
‘1’ = Only on GLAN1
‘2’ = Only on GLAN2 or WiFi
‘3’ = On GLAN1 and GLAN2 or Wifi
‘4’ = No
Dummy (8 bytes, must be 0) **(for future expansion)**

Direction: RTE -> PC

Mode ‘<‘
Type: ‘N’
Sub-Type ‘A’
Data: See above

Data Description:

4.7. Network LAN H.323 Setting (NH)

This message is sent by PC to request storing/reading of some H.323 configuration parameters.

It is sent by RTE to answer a reading request.

Direction: PC -> RTE

Mode ‘&’ / ‘?’
Type: ‘N’
Sub-Type ‘H’
Data: Item:
A’ = First part of H.323 name
‘H’ = Second part of H.323 name
‘B’ = First part of H.323 number
‘I’ = Second part of H.323 number
‘G’ = Gatekeeper
‘C’ = Refuse calls by IP address
‘D’ = Advanced parameters
‘L’ = First part of IP/DNS Gatekeeper name
‘M’ = Second part of IP/DNS Gatekeeper name
‘W’ = Save All

If item A (First part H.323 name) :
First part name string (max 64 chars)

If item H (Second part H.323 name) :

Second part name string (max 64 chars)

If item B (First part H.323 number) :

First part number value (max 64 digits)

If item I (Second part H.323 number) :

Second part number value (max 64 digits)

If item G (Gatekeeper) :

Use Gatekeeper:

'0' = No
'1' = Yes

Automatic Gatekeeper IP address:

'0' = No
'1' = Yes

Gatekeeper IP address:

xxx.xxx.xxx.xxx (max 15 chars)

If item C (Refuse calls by IP address) :

Refuse calls:

'0' = No
'1' = Yes

If item D (Advanced parameters) :

Use H.460:

'0' = No
'1' = Yes

Automatic registration:

'0' = No
'1' = Yes

Registration expiration time in seconds (3 bytes):

'000' ... '300'

Registration interval time in seconds (3 bytes):

'10' ... '30'

If item L (First part IP/DNS gatekeeper name) :

First part name string (max 64 chars)

If item M (First part IP/DNS gatekeeper name) :

Second part name string (max 64 chars)

If item W (Write data) :

Attention: without this command no one of previous commands will be saved

Direction: RTE -> PC

Mode '<'
Type: 'N'
Sub-Type 'H'
Data: See above

Data Description:

Name H.323
Name used by the terminal to register to a gatekeeper.

Number H.323
Identification number used by the terminal to register to a gatekeeper.

You can use “Gatekeeper IP” address” or “First/Second part IP/DNS gatekeeper name” fields to save it.

Gatekeeper
A gatekeeper is a very useful, but optional, component of an H.323-enabled network. Gatekeepers are needed to ensure reliable, commercially feasible communications. A gatekeeper is often referred to as the brain of the H.323 enabled network because of the central management and control services it provides. When a gatekeeper exists all end-points (terminals, gateways, and MCUs) must be registered with it. Registered endpoints' control messages are routed through the gatekeeper. The gatekeeper and the endpoints it administers form a management zone.

A gatekeeper provides several services to all endpoints in its zone. These services include:

- **Address translation:** A gatekeeper maintains a database for translation between aliases, such as international phone numbers, and network addresses.
- **Admission and access control of endpoints:** This control can be based on band-width availability, limitations on the number of simultaneous H.323 calls, or the registration privileges of endpoints.
- **Bandwidth management:** Network administrators can manage bandwidth by specifying limitations on the number of simultaneous calls and by limiting authorization of specific terminals to place calls at specified times.
- **Routing capability:** A gatekeeper can route all calls originating or terminating in its zone. This capability provides numerous advantages. First, accounting information of calls can be maintained for billing and security purposes. Second, a gatekeeper can re-route a call to an appropriate gateway based on bandwidth availability. Third, re-routing can be used to develop advanced services such as mobile addressing, call forwarding, and voice mail diversion.

“Gatekeeper IP address” and “First/Second part IP/DNS gatekeeper name”
You can use the first one only to save the gatekeeper IP address.

You can use the second if you need to save the gatekeeper address as a URL or IP.

Please note that is saved address set by the last field called.

Example:

PC ---------- AT[?NH<cr> ----------→ RTE
PC ß←---------- AT[<NHATerminalName<cr> ---------- RTE (Name H.323: TerminalName)
PC ß←---------- AT[<NHB1234<cr> ---------- RTE (Number H.323: 1234)
PC ß←---- AT[<NHG00000.000.000.000<cr> ---------- RTE (Gatekeeper: No)
PC ß←---------- OK<cr> ---------- RTE

4.8. Network Gatekeeper Authentication Setting (NJ)

This message is sent by PC to request storing/reading gatekeeper authentication parameters.

It is sent by RTE to answer a reading request.

Direction: PC -> RTE

Mode '&' / '?'
Type: 'N'
Sub-Type 'J'
Data: Item:
'A' = Authentication parameters
'U' = Authentication User name
'P' = Authentication Password
'W' = Save All

If item A (Authentication parameters) :
Enable:
'0' = No
'1' = Yes
Mode:
'00' = Automatic
'01' = H.235 D
'02' = MD5
Gatekeeper ID (max 30 ASCII chars)

If item U (Authentication user name) :
UserName (max 30 ASCII chars)

If item P (Authentication password) :
UserName (max 30 ASCII chars)

If item W (Write data) :

Attention: without this command no one of previous commands will be saved

Direction: RTE -> PC

Mode '<'
Type: 'N'
Sub-Type 'J'
Data: See above

Data Description:

4.9. Network SNMP Management (NS)

This message is sent by PC to request storing/reading of some SNMP Management configuration parameters.

It is sent by RTE to answer a reading request.

Direction: PC -> RTE

Mode '&' / '?'
Type: 'N'
Sub-Type 'S'
Data: Item:

'A' = Generic configuration
'N' = Administrator Name
'L' = Location
'R' = Read configuration parameters
'S' = Write configuration parameters
'C' = Community Read
'D' = Community Write
'W' = Save Alls

If item 'A' (IP address) :

SNMP Management
'0' = No
'1' = Yes
Enable Traps:
'0' = No
'1' = Yes
Dummy (14 bytes, must be 0) **(for future expansion)**

If item 'N' :

Administrator name (max 30 ASCII chars)

If item 'L' :

Location (max 30 ASCII chars)

If item 'R' (Read Config parameters) :

Enable all addresses:
'0' = No
'1' = Yes
Address
xxx.xxx.xxx.xxx (fixed len = 15 chars)
Address
xxx.xxx.xxx.xxx (fixed len = 15 chars)

If item 'S' (Save Config parameters) :

Enable all addresses:
'0' = No
'1' = Yes
Address
xxx.xxx.xxx.xxx (fixed len = 15 chars)
Address
xxx.xxx.xxx.xxx (fixed len = 15 chars)

If item 'C' :

Community Read (max 30 ASCII chars):

If item 'D' :

Community Write (max 30 ASCII chars)

If item W (Write data) :

Attention: without this command no one of previous commands will be saved

Direction: RTE -> PC

Mode '<'
Type: 'N'
Sub-Type 'S'
Data: See above

Data Description:

SNMP Active
To enable SNMP (Simple Network Management Protocol) in the system.

Administrator nam
The textual identification of the contact person for managed node

Location
The physical location of this node (e.g., "telephone closet, 3rd floor")

4.10. Network QoS Management (NQ)

This message is sent by PC to request storing/reading of some QoS Management configuration parameters.

It is sent by RTE to answer a reading request.

Direction: PC -> RTE

Mode '&' / '?'
Type: 'N'
Sub-Type 'Q'
Data: Item:

'G' = Generic configuration
'P' = Precedence/TOS parameters
'D' = DiffServe parameters

If item 'G' (Generic configuration) :

Use QoS:

'0' = No
'1' = Yes

Quality of service:

'1' = Precedence/TOS
'2' = DiffServe

If item 'P' (Precedence/TOS parameters) :

Audio TOS:

'1' = Normal
'2' = Minimize delay
'3' = Maximize Throughput
'4' = Maximize Reliability
'5' = Minimize Mon.Cost

Audio Precedence:

- '0' = 0-Routine
- '1' = 1-Priority
- '2' = 2-Immediate
- '3' = 3-Flash
- '4' = 4-Flash Override
- '5' = 5-CRITIC/ECP
- '6' = 6-Internet Control
- '7' = 7-Network Control

Video TOS:

- '1' = Normal
- '2' = Minimize delay
- '3' = Maximize Throughput
- '4' = Maximize Reliability
- '5' = Minimize Mon.Cost

Video Precedence:

- '0' = 0-Routine
- '1' = 1-Priority
- '2' = 2-Immediate
- '3' = 3-Flash
- '4' = 4-Flash Override
- '5' = 5-CRITIC/ECP
- '6' = 6-Internet Control
- '7' = 7-Network Control

Data TOS:

- '1' = Normal
- '2' = Minimize delay
- '3' = Maximize Throughput
- '4' = Maximize Reliability
- '5' = Minimize Mon.Cost

Data Precedence:

- '0' = 0-Routine
- '1' = 1-Priority
- '2' = 2-Immediate
- '3' = 3-Flash
- '4' = 4-Flash Override
- '5' = 5-CRITIC/ECP
- '6' = 6-Internet Control
- '7' = 7-Network Control

Signal TOS:

- '1' = Normal
- '2' = Minimize delay
- '3' = Maximize Throughput
- '4' = Maximize Reliability
- '5' = Minimize Mon.Cost

Signal Precedence:

- '0' = 0-Routine
- '1' = 1-Priority
- '2' = 2-Immediate
- '3' = 3-Flash
- '4' = 4-Flash Override
- '5' = 5-CRITIC/ECP
- '6' = 6-Internet Control
- '7' = 7-Network Control

If item 'D' (DiffServe parameters):

Audio DiffServe value (2 bytes) : "00"..."63"
Video DiffServe value (2 bytes) : "00"..."63"
Data DiffServe value (2 bytes) : "00"..."63"
Signal DiffServe value (2 bytes) : "00"..."63"

Direction: RTE -> PC

Mode '<'
Type: 'N'
Sub-Type 'Q'
Data: See above

Data Description:

4.11. Network ISDN Configuration (NO)

This message is sent by PC to request storing/reading of some ISDN configuration parameters.

It is sent by RTE to answer a reading request.

Direction: PC -> RTE

Mode '&' / '?'
Type: 'N'
Sub-Type 'O'
Data: Item:

'G' = General
'S' = Service configuration
'Z' = Service number for all rates in automatic mode
'A' = Service number for 64k rate
'B' = Service number for 128k rate
'C' = Service number for 192k rate
'D' = Service number for 256k rate
'E' = Service number for 320k rate
'F' = Service number for 384k rate
'H' = Service number for 448k rate
'I' = Service number for 512k rate
'L' = Service number for 768k rate
'N' = Service number for 1472k rate
'O' = Service number for 1536k rate
'P' = Service number for 1728k rate
'Q' = Service number for 1920k rate

If item G (General) :

Enable:

'0' = No
'1' = Yes

Gateway IP address:

xxx.xxx.xxx.xxx (fixed len = 15 chars)

If item S (Service configuration) :

Service mode:

'0' = Manual
'1' = Automatic

If item Z, A, B, C, D, E, F, H, I, L, N, O, P, Q (Service number) :
Service number (max 32 ASCII chars)

Direction: RTE -> PC

Mode '<'
Type: 'N'
Sub-Type '0'
Data: See above

Data Description:

4.12. Predefined Party Configuration (NP)

This message is sent by PC to request storing/reading predefined party configuration parameters.

It is sent by RTE to answer a reading request.

Direction: PC -> RTE

Mode '&' / '?'
Type: 'N'
Sub-Type 'P'
Data: Item:

'G' = General

If item G:

Enable:

'0' = No
'1' = Yes

Protocol:

'1' = IP
'6' = SIP
'7' = ISDN

Number (max 32 ASCII chars):

Direction: RTE -> PC

Mode '<'
Type: 'N'
Sub-Type 'P'
Data: See above

Data Description

4.13. Network Web Management (NK)

This message is sent by PC to request storing/reading of some Web Management configuration parameters.

It is sent by RTE to answer a reading request.

Direction: PC -> RTE

Mode '&' / '?'
Type: 'N'
Sub-Type 'K'
Data: Item:

'G': Generic command
'A': Address command
'B': Extended parameters command
'S': Password **(Only in write mode by SSH interface)**

If Item 'G' (Generic command):

Web Management:

'0' = No
'1' = Yes

Disconnection due to inactivity:

'0' = Never
'1' = 5 minutes
'2' = 10 minutes
'3' = 15 minutes
'4' = 30 minutes

HTTPS: (deprecated)

'0' = No
'1' = Yes

If Item 'A' (Address command):

Enable all addresses:

'0' = No
'1' = Yes

Address

xxx.xxx.xxx.xxx (fixed len = 15 chars)

Sub-net mask

xxx.xxx.xxx.xxx (fixed len = 15 chars)

If Item 'B' (Extended parameters command):

Enable login attempts:

'0' = No
'1' = Yes

Login denied time:

'1' = 30 minutes
'2' = 1 hour
'3' = 2 hours
'4' = 4 hours

Enable download directory password:

'1' = Yes
'2' = No

Disable TLS 1.0/1.1:
‘1’ = Yes
‘2’ = No
Dummy (8 bytes, must be 0) **(for future expansion)**

If Item ‘S’ (Password) (only in write mode by SSH interface):
Password (max 30 ASCII chars)

Direction: RTE -> PC

Mode ‘<‘
Type: ‘N’
Sub-Type ‘K’
Data: See above

Data Description:

Use Web
System management from Web can be enabled (“1”) or disabled (“0”).

IP Address
All terminals can have access to the system using a Web Browser; it is possible to enable only a set of IP addresses to access the Web server.

4.14. Network Presence Configuration (NR)

This message is sent by PC to request storing/reading of some Presence configuration parameters.

It is sent by RTE to answer a reading request.

Direction: PC -> RTE

Mode ‘&’ / ‘?’
Type: ‘N’
Sub-Type ‘R’
Data: Item:
‘G’: Generic command
‘N’: User Name
‘P’: Password
‘A’: Domain
‘I’: IP address
‘W’ = Save All

If Item ‘G’ :
Use XMPP:
‘0’ = No
‘1’ = Yes
Port (5 bytes)
Server Type (2 bytes):
‘01’ = Generic
‘02’ = Avaya One-X Portal for IP Office
‘03’ = Avaya Aura

Always accept subscription:
'0' = No
'1' = Yes
Automatic mutual subscription:
'0' = No
'1' = Yes
Show advanced subscription options:
'0' = No
'1' = Yes
Automatic Favorites subscription:
'0' = No
'1' = Yes
Dummies (10 bytes, must be 0) **(for future expansion)**

If Item 'N'
User Name (max 50 ASCII chars)

If Item 'P'
Password (max 50 ASCII chars)

If Item 'A':
Domain (max 50 ASCII chars)

If Item 'I':
xxx.xxx.xxx.xxx (fixed len = 15 chars)

If Item 'W'
Attention: without this command no one of previous commands will be saved

Direction: RTE -> PC

Mode '<'
Type: 'N'
Sub-Type 'R'
Data: See above

Data Description:

4.15. Network Error Indication (NE)

RTE sends this message to show an error on the received message:

Direction: RTE -> PC

Mode '<'
Type: 'N'
Sub-Type 'E'
Data: Message Type
Sub-type
Error:
'1' = Bad parameter
'2' = Unknown message
'3' = Wrong message length

‘4’ = Bad mode

‘5’ = Unable to execute command

Sub-code

If Unable to execute command

‘0’ = system timeout

‘1’ = system busy

If Bad parameter

Index number of wrong parameter

Terminal configuration messages can be used to change and/or read the configuration stored in the terminal.

The <mode> **&** command can be used to modify the configuration, while the <mode> **?** can be used to read the related values.

5.1. Web Video Configuration (RW)

This message is sent by PC to request storing/reading of some Web Video configuration parameters.

It is sent by RTE to answer a reading request.

Direction: PC -> RTE

Mode '&' / '?'
Type: 'R'
Sub-Type 'W'
Data: Item:
G: Generic command
A: Address command

If Item G (Generic command):
WEB video management:
'0' = Disable
'1' = Enable
Dummy (10 bytes, must be 0) **(for future expansion)**

If Item A (Address command):
Enable all IP addresses:
'0' = No
'1' = Yes
Address
xxx.xxx.xxx.xxx (fixed len = 15 chars)
Subnet mask
xxx.xxx.xxx.xxx (fixed len = 15 chars)

Direction: RTE -> PC

Mode '<'
Type: 'R'
Sub-Type 'W'
Data: See above

Data Description:

5.2. Download Configuration (RD)

This message is sent by PC to request storing/reading of some Download configuration parameters

It is sent by RTE to answer a reading request.

Direction: PC -> RTE

Mode '&' / '?'
Type: 'R'
Sub-Type 'D'
Data: Item:
G: Generic command
A: Address command

If Item G (Generic command):
Download management:
'0' = Disable
'1' = Enable
Verify Signature
'2' = Disable
'1' = Enable
Password Protect **(only for read operation:**
'2' = Disable
'1' = Enable
Dummy (8 bytes, must be 0) **(for future expansion)**

If Item A (Address command):
Enable all IP addresses:
'0' = No
'1' = Yes
Address
xxx.xxx.xxx.xxx (fixed len = 15 chars)
Subnet mask
xxx.xxx.xxx.xxx (fixed len = 15 chars)

Direction: RTE -> PC

Mode '<'
Type: 'R'
Sub-Type 'D'
Data: See above

Data Description:

5.3. Netlog Configuration (RN)

This message is sent by PC to request storing/reading of some Netlog configuration parameters.

It is sent by RTE to answer a reading request.

Direction: PC -> RTE

Mode '&' / '?'
Type: 'R'
Sub-Type 'N'
Data: Item:
G: Generic command

If Item G (Generic command):

Enabled:

'0' = Disable
'1' = Enable

FTP enabled:

'0' = Disable
'1' = Enable

Dummy (10 bytes, must be 0) **(for future expansion)**

Direction: RTE -> PC

Mode '<'
Type: 'R'
Sub-Type 'N'
Data: See above

Data Description:

5.4. Audio Analyzer Configuration (RA)

This message is sent by PC to request storing/reading of some Audio analyzer configuration parameters.

It is sent by RTE to answer a reading request.

Direction: PC -> RTE

Mode '&' / '?'
Type: 'R'
Sub-Type 'A'
Data: Item:

G: Generic command

If Item G (Generic command):

Enabled:

'0' = Disable
'1' = Enable

Automatic:

'0' = Disable
'1' = Enable

Dummy (10 bytes, must be 0) **(for future expansion)**

Direction: RTE -> PC

Mode '<'
Type: 'R'
Sub-Type 'A'
Data: See above

Data Description:

5.5. Equinox Management Configuration (RS)

This message is sent by PC to request storing/reading of some Equinox management configuration parameters.

It is sent by RTE to answer a reading request.

Direction: PC -> RTE

Mode '&' / '?'
Type: 'R'
Sub-Type 'S'
Data: Item:
'G': Generic command
'U': Cloud URL **(only for read operation)**

If Item 'G' (Generic command):
Automatic IP Address:
'0' = No
'1' = Yes
IP Address:
'1' = Local
'2' = Cloud
Dummy (9 bytes, must be 0) **(for future expansion)**

If Item 'U' (Cloud URL) (only for read operation):
URL (max 64 ASCII chars)

Direction: RTE -> PC

Mode '<'
Type: 'R'
Sub-Type 'S'
Data: See above

Data Description:

5.6. Certificate Configuration (RC)

This message is sent by PC to request storing/reading of some Certificate configuration parameters.

It is sent by RTE to answer a reading request.

Direction: PC -> RTE

Mode '&' / '?'
Type: 'R'
Sub-Type 'C'
Data: Item:
'G': Generic command

If Item G (Generic command):

Key Length:

'1' = High Security (1024)
'2' = Very High Security (2048)

Warning days before expiration (3 bytes):

30....120

Dummy (7 bytes, must be 0) **(for future expansion)**

Direction: RTE -> PC

Mode '<'
Type: 'R'
Sub-Type 'C'
Data: See above

Data Description:

5.7. SSH Configuration (RH)

This message is sent by PC to request storing/reading of some SSH configuration parameters.

It is sent by RTE to answer a reading request.

Direction: PC -> RTE

Mode '&' / '?'
Type: 'R'
Sub-Type 'H'
Data: Item:

G: Generic command
P: Password command **(Only in write mode by SSH interface)**

If Item G (Generic command):

Mode:

'0' = Disable

Dummy (10 bytes, must be 0) **(for future expansion)**

If Item P (Password command) (Only in write mode by SSH interface):
Password (max 30 ASCII chars)

Direction: RTE -> PC

Mode '<'
Type: 'R'
Sub-Type 'H'
Data: See above

Data Description:

5.8. Telnet Configuration (RT)

This message is sent by PC to request storing/reading of some Telnet configuration parameters

It is sent by RTE to answer a reading request.

Direction: PC -> RTE

Mode '&' / '?'
Type: 'R'
Sub-Type 'T'
Data: Item:

- G: Generic command
- A: Address command
- P: Password command **(Only in write mode by SSH interface)**

If Item G (Generic command):

- Telnet management:
  - '0' = Disable
  - '1' = Enable
- Dummy (10 bytes, must be 0) **(for future expansion)**

If Item A (Address command):

- Enable all IP addresses:
  - '0' = No
  - '1' = Yes
- Address
  - xxx.xxx.xxx.xxx (fixed len = 15 chars)
- Subnet mask
  - xxx.xxx.xxx.xxx (fixed len = 15 chars)

If Item P (Only in write mode by SSH interface):
Password (max 30 ASCII chars)

Direction: RTE -> PC

Mode '<'
Type: 'R'
Sub-Type 'T'
Data: See above

Data Description:

5.9. Terminal MSS configuration (RM)

This message is sent by PC to request storing/reading of parameters about the MCU configuration.

Direction: PC -> RTE

Mode '&' / '?'
Type: 'R'
Sub-Type 'M'
Data: Type of configuration

- 'G' = Generic

If type of configuration 'G':

Enable:

'0' = No
'1' = Yes

Display Participants Name:

'0' = No
'1' = Yes

Default layout (2 bytes):

00' = Automatic 
'01' = One terminal 
'02' = Two terminals A 
'03' = Two terminals B 
'04' = Two terminals C 
'05' = Two terminals D 
'06' = Three terminals A 
'07' = Three terminals B 
''08' = Four terminals A 
'09' = Four terminals B 
'10' = Four terminals C 
'11' = Five terminals 
'12' = Six terminals 
'13' = Seven terminals A 
'14' = Seven terminals B 
'15' = Seven terminals C 
'16' = Eight terminals A 
'17' = Eight terminals B 
'18' = Eight terminals C 
'19' = Eight terminals D 
'20' = Nine terminals A 
'21' = Nine terminals B 
'22' = Nine terminals C 

Dummy (16 bytes, must be 0) **(for future expansion)**

Direction: RTE -> PC

Mode '<'
Type: 'R'
Sub-Type 'M'
Data: See above

Data Description:

5.10. Enhanced Access Security Gateway (EASG) Configuration (RG)

This message is sent by PC to request storing/reading of some Enhanced Access Security Gateway (EASG)configuration parameters.

It is sent by RTE to answer a reading request.

Direction: PC -> RTE

Mode '&' / '?'
Type: 'R'
Sub-Type 'G'
Data: Item:
'G': Generic command

If Item G (Generic command):
EASG Enable:
'0' = No
'1' = Yes
Dummy (10 bytes, must be 0) **(for future expansion)**

Direction: RTE -> PC

Mode '<'
Type: 'R'
Sub-Type 'G'
Data: See above

Data Description:

5.11. Calendar Credential Configuration (RF)

This message is sent by PC to request storing/reading of some calendar configuration parameters.

It is sent by RTE to answer a reading request.

Direction: PC -> RTE

Mode '&' / '?'
Type: 'R'
Sub-Type 'F'
Data: Item:
G: Generic command
A: e-mail address or domain
U: User name
P: Authentication Password
R: Room e-mail

If Item G (Generic command):
Calendar Enable:
'0' = No
'1' = Yes

Automatic Join to important meetings:
‘0’ = No
‘1’ = Yes
Dummy (20 bytes, must be 0) **(for future expansion)**

If Item A (e-mail address or domain):
e-mail address or domain (max 64 ASCII chars)

If Item U (User name):
User name (max 64 ASCII chars)

If Item P (Authentication Password) (only in save mode):
Authentication Password (max 64 ASCII chars)

If Item R (Room e-mail):
Room e-mail (max 64 ASCII chars)

Direction:	RTE -> PC
Mode	‘<‘
Type:	‘R’
Sub-Type	‘G’
Data:	See above

Data Description:

e-mail address or domain
This field must be empty if you are using Office 365.

Room e-mail
This field must be set only if the system has an associated account.

Authentication Password
This field can be only saved and not read for privacy and security reasons.

5.12. Streaming Configuration (RI)

This message is sent by PC to request storing/reading streaming configuration parameters

It is sent by RTE to answer a reading request.

Direction:	PC -> RTE
Mode	‘&’ / ‘?’
Type:	‘R’
Sub-Type	‘I’
Data:	Item: ‘G’: Generic command ‘A’: First part URL ‘B’: Second part URL ‘C’:First part Key

'D':Second part Key
'W' = Save all

If Item 'G' (Generic command):

Streaming Enable:
'0' = No
'1' = Yes

Audio Alert:
'0' = No
'1' = Yes

Dummy (20 bytes, must be 0) **(for future expansion)**

If Item A (e-mail address or domain):

e-mail address or domain (max 64 ASCII chars)

If Item 'A':

First part URL (max 64 ASCII chars)

If Item 'B':e):

Second part URL (max 64 ASCII chars)

If Item 'C':

First part key (max 64 ASCII chars)

If Item 'D':

Second part key (max 64 ASCII chars)

If Item 'W':

Attention: without this command no one of previous commands will be saved

Direction: RTE -> PC

Mode '<'
Type: 'R'
Sub-Type 'I'
Data: See above

Data Description:

5.13. Terminal Extension Configuration Error Indication (RE)

RTE sends this message to show an error on the received message:

Direction: RTE -> PC

Mode '<'
Type: 'R'
Sub-Type 'E'
Data: Message Type
Sub-type
Error:
'1' = Bad parameter
'2' = Unknown message
'3' = Wrong message length

‘4’ = Bad mode

‘5’ = Unable to execute command

Sub-code

If Unable to execute command

‘0’ = system timeout

‘1’ = system busy

If Bad parameter

Index number of wrong parameter

Phone directory configuration messages can be used to change and/or read the phone directory entries stored in the terminal or to access data stored in a remote LDAP server.

These messages can be used also to configure LDAP servers and to retrieve information about last calls.

The <mode> **&** command can be used to modify the configuration, while the <mode> **?** can be used to read the related values.

6.1. File Descriptor (DF)

PC sends this message to ask for the max number of records that can be stored in the Phone Directory (General information) and how many records have already been stored.

Direction: PC -> RTE

Mode '?'
Type: 'D'
Sub-Type 'F'
Data: Request :
'0' = General information
'A' = Number of records

Direction: RTE -> PC

Mode '<'
Type: 'D'
Sub-Type 'F'
Data: Request :
See above

If request '0' (General information)
MaxRecord (3 bytes)
'000' ...'999'
NameSize (3 bytes)
'000' ...'999'
CompanyNameSize (3 bytes)
'000' ...'999'
NumberSize (3 bytes)
'000' ...'999'

If request '0' (General information)
NumRecord (3 bytes)
'000' ...'999'

Data Description:

MaxRecord:
Max number of record that can be stored in the Phone Directory.

NumRecord:
Number of record already stored in the Phone Directory.

NameSize:
Max number of characters in Name.

CompanyNameSize:
Max number of characters in Company Name.

NumberSize:
Max number of characters of Number fields.

6.2. Read Record with index (DR)

PC sends this message to ask for the i-th record stored.

Direction: PC -> RTE

Mode '?'
Type: 'D'
Sub-Type 'R'
Data: Type of Information:
'A' = information about stored record
Index (3 bytes):
'000'...'NumRecord-1'

Direction: RTE -> PC

Mode '<'
Type: 'D'
Sub-Type 'R'
Data: Item:
'0' = General information
'N' = User Name
'C' = Company Name
'A' = Other Flags
'1' = 1^ number

If item '0' (General Information)
Type of information:
'A' = information about stored record
Index (3 bytes)
'000' ...' NumRecord-1'
Found:
'1' = Yes
'2' = No
Trusted:
'0' = No
'1' = Yes

Type of Call:

'L' = IP (LAN)

'S' = SIP

'G' = ISDN

Dummy (1 byte, must be 0) **(for future expansion)**
Dummy (1 byte must be 0) **(for future expansion)**

If item 'N' (User Name)

Name (NameSize of ASCII chars)

If item 'C' (Company Name)

Company (CompanyNameSize of ASCII chars)

If item 'C' (Company Name)

Rate (2 bytes):

'01' = 64
'02' = 128
'03' = 192
'04' = 256
'05' = 320
'06' = 384
'07' = 448
'08' = 512
'09' = 768
'10' = 1152 **(valid only for network IP and SIP)**
'11' = 1472
'12' = 1536
'13' = 1728
'14' = 1920
'15' = 2048 **(valid only for network IP and SIP)**
'16' = 2560 **(valid only for network IP and SIP)**
'17' = 3072 **(valid only for network IP and SIP)**
'18' = 3584 **(valid only for network IP and SIP)**
'19' = 4096 **(valid only for network and SIP)**
'20' = 4608 **(valid only for network and SIP)**
'21' = 5120 **(valid only for network and SIP)**
'22' = 5632 **(valid only for network and SIP)**
'23' = 6144 **(valid only for network and SIP)**
'24' = 896 **(valid only for network and SIP)**
'25' = 1024 **(valid only for network and SIP)**
'26' = 1280 **(valid only for network and SIP)**
'27' = 1408 **(valid only for network and SIP)**
'28' = 6656 **(valid only for network and SIP)**
'29' = 7168 **(valid only for network IP and SIP)**
'30' = 7680 **(valid only for network IP and SIP)**
'31' = 8128 **(valid only for network IP and SIP)**
'32' = 8192 **(valid only for network SIP)**
'33' = 10240 **(valid only for network SIP)**

Dummy (1 byte, must be 0) **(for future expansion)**
Dummy (1 byte, must be 0) **(for future expansion)**

If item '1' (1^ number)
Number1 (NumberSize of ASCII chars)

Data Description:

Index:
Record index.

Found:
Flag to indicate if a record was found.

Name:
User Name.

CompanyName:
Company Name.

Type of Call:
Selects the network interface hosting the call.

Rate:
Selects the desired rate for the call.

Number1:
Number used to make call.

Example:

PC	---------- AT[?DRA001<cr> ----------→	RTE	Read the 2^ record in the directory
PC	ß←---------- AT[<DR0A00110L00<cr> ----------	RTE	General: index 1, found, audio-video Call, net
PC	ß←---------- AT[<DRNrossi<cr> ----------	RTE	User name: rossi
PC	ß←---------- AT[<DRCXXYYZZ<cr> ----------	RTE	Company Name: XXYYZZ
PC	ß←---------- AT[<DR10390712189701<cr> -----	RTE	First Number: 0390712189701
PC	ß←---------- OK<cr> ----------	RTE	

6.3. Read Record with index (DL)

PC sends this message to ask for the i-th record stored.

WARNING: this message is the same as DR message except before call it, is necessary to call almost one time the DFA message.

Direction: PC -> RTE

Mode '?'
Type: 'D'
Sub-Type 'L'
Data: Type of Information:
'A' = information about stored record

Index (3 bytes):
‘000’...‘NumRecord-1’

Direction: RTE -> PC

Mode ‘<‘
Type: ‘D’
Sub-Type ‘L’
Data: Item:
‘0’ = General information
‘N’ = User Name
‘C’ = Company Name
‘A’ = Other Flags
‘1’ = 1^ number

If item ‘0’ (General Information)
Type of information:
‘A’ = information about stored record
Index (3 bytes)
‘000’ ...‘NumRecord-1’
Found:
‘1’ = Yes
‘2’ = No
Trusted:
‘0’ = No
‘1’ = Yes
Type of Call:
‘L’ = IP (LAN)
‘S’ = SIP
‘G’ = ISDN
Dummy (1 byte, must be 0) **(for future expansion)**
Dummy (1 byte must be 0) **(for future expansion)**

If item ‘N’ (User Name)
Name (NameSize of ASCII chars)

If item ‘C’ (Company Name)
Company (CompanyNameSize of ASCII chars)

If item ‘A’ (Other Flags)
Rate (2 bytes):
‘01’ = 64
‘02’ = 128
‘03’ = 192
‘04’ = 256
‘05’ = 320
‘06’ = 384
‘07’ = 448
‘08’ = 512
‘09’ = 768
’10’ = 1152 **(valid only for network IP and SIP)**
’11’ = 1472

'12' = 1536
'13' = 1728
'14' = 1920
'15' = 2048 **(valid only for network IP and SIP)**
'16' = 2560 **(valid only for network IP and SIP)**
'17' = 3072 **(valid only for network IP and SIP)**
'18' = 3584 **(valid only for network IP and SIP)**
'19' = 4096 **(valid only for network and SIP)**
'20' = 4608 **(valid only for network and SIP)**
'21' = 5120 **(valid only for network and SIP)**
'22' = 5632 **(valid only for network and SIP)**
'23' = 6144 **(valid only for network and SIP)**
'24' = 896 **(valid only for network and SIP)**
'25' = 1024 **(valid only for network and SIP)**
'26' = 1280 **(valid only for network and SIP)**
'27' = 1408 **(valid only for network and SIP)**
'28' = 6656 **(valid only for network and SIP)**
'29' = 7168 **(valid only for network IP and SIP)**
'30' = 7680 **(valid only for network IP and SIP)**
'31' = 8128 **(valid only for network IP and SIP)**
'32' = 8192 **(valid only for network SIP)**
'33' = 10240 **(valid only for network SIP)**

Dummy (1 byte, must be 0) **(for future expansion)**
Dummy (1 byte, must be 0) **(for future expansion)**

If item '1' (1^ number)
Number1 (NumberSize of ASCII chars)

Data Description:

Index:
Record index.

Found:
Flag to indicate if a record was found.

Name:
User Name.

CompanyName:
Company Name.

Type of Call:
Selects the network interface hosting the call.

Rate:
Selects the desired rate for the call.

Number1:

Number used to make call.

Example:

PC	---------- AT[?DRA001<cr> ----------→	RTE	Read the 2^ record in the directory
PC	ß←---------- AT[<DR0A00110L00<cr> ----------	RTE	General: index 1, found, audio-video Call, net LAN
PC	ß←---------- AT[<DRNrossi<cr> ----------	RTE	User name: rossi
PC	ß←---------- AT[<DRCXXYYZZ<cr> ----------	RTE	Company Name: XXYYZZ
PC	ß←---------- AT[<DR10390712189701<cr> -----	RTE	First Number: 0390712189701
PC	ß←---------- OK<cr> ----------	RTE	

6.4. Delete Record with index (DD)

PC sends this message to delete the i-th record stored in the required list.

Note: after the update the indexes list must be updated.

Direction: PC -> RTE

Mode '&'
Type: 'D'
Sub-Type 'D'
Data: Type of Information:
'A'= information about stored record
Index (3 bytes)
'000' ... 'NumRecord-1'

Data Description:

Example:

1) Delete with success

PC	---------- AT[&DDA000<cr> ----------→	RTE	Delete 1^ record on the directory
PC	ß←---------- OK<cr> ----------	RTE	Record deleted

1) Delete with error

PC	---------- AT[&DDA000<cr> -------→	RTE	Delete 1^ record on the directory
PC	ß←---------- AT[<DEDD50<cr> ----------	RTE	Error: unable to execute command.

6.5. Insert New Record (DI)

PC sends this message to ask for a new record creation. Is not possible to modify an existing record; you need to delete it and then create it again.

Direction: PC -> RTE

Mode '&'
Type: 'D'
Sub-Type 'I'
Data: Item:

- '0' = General information
- 'N' = User Name
- 'C' = Company Name
- 'A' = Other Flags
- '1' = 1^ number
- 'W' = Save record

If item '0' (General Information)
Trusted:

- '0' = No
- '1' = Yes

Type of Call:

- 'L' = IP
- 'S' = SIP
- 'G' = ISDN

Dummy (1 byte, must be 0) **(for future expansion)**

If item 'N' (User Name)
Name (NameSize of ASCII chars)

If item 'C' (Company Name)
Company (CompanyNameSize of ASCII chars)

If item 'A' (Other Flags)

Rate (2 bytes):

- '01' = 64
- '02' = 128
- '03' = 192
- '04' = 256
- '05' = 320
- '06' = 384
- '07' = 448
- '08' = 512
- '09' = 768
- '10' = 1152 **(valid only for network IP and SIP)**
- '11' = 1472
- '12' = 1536
- '13' = 1728
- '14' = 1920
- '15' = 2048 **(valid only for network IP and SIP)**
- '16' = 2560 **(valid only for network IP and SIP)**

'17' = 3072 **(valid only for network IP and SIP)**
'18' = 3584 **(valid only for network IP and SIP)**
'19' = 4096 **(valid only for network and SIP)**
'20' = 4608 **(valid only for network and SIP)**
'21' = 5120 **(valid only for network and SIP)**
'22' = 5632 **(valid only for network and SIP)**
'23' = 6144 **(valid only for network and SIP)**
'24' = 896 **(valid only for network and SIP)**
'25' = 1024 **(valid only for network and SIP)**
'26' = 1280 **(valid only for network and SIP)**
'27' = 1408 **(valid only for network and SIP)**
'28' = 6656 **(valid only for network and SIP)**
'29' = 7168 **(valid only for network IP and SIP)**
'30' = 7680 **(valid only for network IP and SIP)**
'31' = 8128 **(valid only for network IP and SIP)**
'32' = 8192 **(valid only for network SIP)**
'33' = 10240 **(valid only for network SIP)**

Dummy (1 byte, must be 0) **(for future expansion)**
Dummy (1 byte, must be 0) **(for future expansion)**

If item '1' (1^ number)
Number1 (NumberSize of ASCII chars)

Data Description:

PC	---------- AT[&DI00L00<cr> ----------→	RTE	General: audio-video call, net LAN, , no additional numbers
PC	ß←---------- OK<cr> ----------	RTE	
PC	---------- AT[&DINrossi<cr> ----------→	RTE	User name: rossi
PC	ß←---------- OK<cr> ----------	RTE	
PC	---------- AT[<DICXXYYZZ<cr> ----------→	RTE	Company Name: XXYYZZ
PC	ß←---------- OK<cr> ----------	RTE	
PC	---------- AT[<DI10390712189701<cr> ---→	RTE	First Number: 0390712189701
PC	ß←---------- OK<cr> ----------	RTE	
PC	---------- AT[&DIW<cr> ----------→	RTE	Save record
PC	ß←---------- OK<cr> ----------	RTE	

6.6. Recent Call General Descriptor (DQ)

PC sends this message to ask for the max and current number of records in recent calls list.

Direction: PC -> RTE

Mode '?'
Type: 'D'
Sub-Type 'Q'
Data: Request :
'0' = General information
'A' = Number of records

Direction: RTE -> PC

Mode '<'
Type: 'D'
Sub-Type 'Q'
Data: Request :
See above
If request '0' (General information)
MaxRecord (3 bytes)
'000' ... '999'
If request '0' (General information)
NumRecord (3 bytes)
'000' ... '999'

Data Description:

6.7. Read recent calls Info with index (DT)

PC sends this message to ask for the i-th recent call record stored.

Direction: PC -> RTE

Mode '?'
Type: 'D'
Sub-Type 'T'
Data: Type of Information:
'A' = information about stored item
Index (3 bytes):
'000'...'NumRecord-1'

Direction: RTE -> PC

Mode '<'
Type: 'D'
Sub-Type 'T'
Data: Item:
'0' = General information
'N' = First Part Name
'M' = Second Part Name
'A' = First Part Number
'B' = Second Part Number
'D' = Date
'H' = Time
'T' = Duration

If item 'A' (Other Flags)
Index (3 bytes)
'000'...'NumRecord-1'
Found:
'1' = Yes
'2' = No

Network:
‘L’ = IP (LAN)
‘S’ = SIP
‘I’ = ISDN
Type:
‘I’ = Incoming
‘O’ = Outgoing
‘M’ = Missed
Speech :
‘I’ = Incoming
‘O’ = Outgoing
‘M’ = Missed
Total calls (fixed 10 bytes):

If item ‘N’
First part name (max 64 ASCII chars)

If item ‘M’
Second part name (max 64 ASCII chars)

If item A’
First part number (max 64 ASCII chars)

If item ‘B’
Second part number (max 64 ASCII chars)

If item ‘D’
Date (ASCII string)

If item ‘H’
Time (ASCII string)

If item ‘T’
Duration (ASCII string)

Data Description:

Index:
Record index.

Found:
Flag to indicate if a record was found.

Name:
Name of remote terminal.

CompanyName:
Company Name.

Type of Call:
Recognizes the network interface hosting.

Rate:

Selects the desired rate for the call.

6.8. Delete recent calls item (DV)

PC sends this message to delete the i-th record stored in the required list.

Note: after the update the indexes list must be updated.

Direction:	PC -> RTE
Mode	'&'
Type:	'D'
Sub-Type	'V'
Data:	Type: 'A'= Remove all items 'I'= Remove items by index **If item 'A' (Remove all items)** None **If item 'I' (General Information)** Index (3 bytes) '000'...'NumRecord-1'

Data Description:

6.9. Export recent call file (DH)

This message is sent by PC to RTE to export the recent calls file.

Direction:	PC -> RTE
Mode	'&'
Type:	'D'
Sub-Type	'H'
Data:	Command Type: 'E' = Export the recent calls file

Data Description:

Command 'E'

The recent calls file can be downloaded by HTTP protocol from the URL http://xxx.xxx.xxx.xxx/web/download/recentcalls.xml.

It is in an XML file in this format

```
<?xml version=”1.0” encoding=”UTF-8”?>
<Data Name=”LastCalls” Version=”1.0”>
        <List Name=”LastCallsList”>
            <ListItem Name=”LastCallsItem”>
            <FieldUNICODESTRING Name=”NameInNotebook”><![CDATA[]]></FieldUNICODESTRING>
            <FieldSTRING Name=”TerminalIdentifier”>Name</FieldSTRING>
            <FieldSTRING Name=”E164”>7132414</FieldSTRING>
            <FieldSTRING Name=”Alias”>7132414</FieldSTRING>
            <FieldSTRING Name=”IPAddress”>10.134.72.202</FieldSTRING>
            <DialedNumber Name=”DialedNumber”></DialedNumber>
            <FieldINT Name=”Network”>5</FieldINT>
            <FieldINT Name=”Rate”>255</FieldINT>
            <FieldBOOL Name=”Incoming”>1</FieldBOOL>
            <FieldBOOL Name=”Speech”>0</FieldBOOL>
            <FieldBOOL Name=”Missed”>0</FieldBOOL>
            <FieldDATETIME Name=”StartTime”>
                    <FieldDay Name=”Day”>4</FieldDay>
                    <FieldMonth Name=”Month”>7</FieldMonth>
                    <FieldYear Name=”Year”>2017</FieldYear>
                    <FieldHours Name=”Hours”>8</FieldHours>
                    <FieldMinutes Name=”Minutes”>50</FieldMinutes>
                    <FieldSeconds Name=”Seconds”>58</FieldSeconds>
            </FieldDATETIME>
            <FieldDATETIME Name=”EndTime”>
                    <FieldDay Name=”Day”>4</FieldDay>
                    <FieldMonth Name=”Month”>7</FieldMonth>
                    <FieldYear Name=”Year”>2017</FieldYear>
                    <FieldHours Name=”Hours”>8</FieldHours>
                    <FieldMinutes Name=”Minutes”>56</FieldMinutes>
                    <FieldSeconds Name=”Seconds”>36</FieldSeconds>
            </FieldDATETIME>
            <FieldINT Name=”DisconnectionCause”>0</FieldINT>
            <FieldBOOL Name=”LocalAddressbookEntry”>0</FieldBOOL>
        </ListItem>
</List>
</Data>
```

NameInNotebook tag contains the Unicode character sequence as a CDATA.

Network tag can have these values:

5 = H323
11 = SIP

6.10. Generic LDAP information (DG)

This message is sent by PC to request some generic parameters about LDAP server configuration.

Direction:	PC -> RTE
Mode	'?'
Type:	'D'
Sub-Type	'G'
Data:	None
Direction:	RTE -> PC
Mode	'<'
Type:	'D'
Sub-Type	'G'
Data:	Index of selected LDAP server (3 bytes) '000'...'Number of configured servers -1' Number of configured servers (3 bytes) '000'...'999' Index of last connected LDAP server (3 bytes) '000'...'Number of configured servers -1'

Data Description:

This command is used to know if the local phonebook or a remote (LDAP) one is selected (if index of selected server is 0 then the phonebook is local, if a positive number then is the index of loaded LDAP server and it is equal to the index of last connected LDAP server).

Another useful information is the max number of servers configured in the system.

PC	---------- AT[?DG<cr> ----------→	RTE	
PC	ß←---------- AT[<DG000002001<cr> ----------→	RTE	Local phonebook selected, two server configurated, server 1 is the last connected
PC	ß←---------- OK<cr> ----------	RTE	

6.11. Insert new LDAP server (DS)

This message is sent by PC to request the storage of a new LDAP server configuration.

Direction:	PC -> RTE
Mode	'&'
Type:	'D'
Sub-Type	'S'
Data:	Command type: 'T' = Server type and port 'N' = Server name 'P' = Server Password

'B' = Server first part bind (user) value
'C' = Server second part bind (user) value
'L' = Server first part base value
'M' = Server second part base value
'Q' = Server first part filter value
'R' = Server second part filter value
'F' = Server first part RootDN value
'G' = Server second part RootDN value
'A' = Server generic info
'W' = Save all

If Command type 'T' (Server type and port):

Server type

1 = Avaya XTSeries
2 = Equinox Management
3 = Remote H.350 (generic)
4 = Remote H.350 (third party)
5 = Cloud

Server port (5 bytes)

If Command type 'N' (Server name):

Name (NameSize of ASCII chars)

If Command type 'P' (Server Password):

Password (PasswordSize of ASCII chars)

If Command type 'B' (Server first part bind (user) value):

Server first part bind (user) value (max 83 ASCII chars)

If Command type 'C' (Server second part bind (user) value):

Server second part bind (user) value (max 80 ASCII chars)

If Command type 'L' (Server first part base value):

Server first part base value (max 83 ASCII chars)

If Command type 'M' (Server second part base value):

Server second part base value (max 80 ASCII chars)

If Command type 'Q' (Server first part filter value):

Server first part filter value (max 83 ASCII chars)

If Command type 'R' (Server second part filter value):

Server second part filter value (max 80 ASCII chars

If Command type 'F' (Server first part RootDN value):

Server first part RootDN value (max 83 ASCII chars)

If Command type 'G' (Server second part RootDN value):

Server second part RootDN value (max 80 ASCII chars)

If Command type 'A' (Server generic info)

Preferred

'0' = No
'1' = Yes

Dummy (10 bytes, must be 0) **(for future expansion)**

If Command type 'W' (Save all):

Attention: without this command no one of previous commands will be saved

Data Description:

Command type 'N'

The server name.

Command type 'B' and 'C'

The LDAP server bind value can be 163 characters long, so the bind could be divided into two parts: first part is sent with command type 'B', second part is sent with command type 'C'. Command type 'C' has always to be sent after the command type 'B' and it must be used only if the bind value is longer than 83 characters.

Command type 'L' and 'M'

The LDAP server base value can be 163 characters long, so the base could be divided into two parts: first part is sent with command type 'L', second part is sent with command type 'M'. Command type 'M' has always to be sent after the command type 'L' and it must be used only if the base is longer than 83 characters.

Command type 'Q' and 'R'

The LDAP server filter value can be 163 characters long, so the filter could be divided into two parts: first part is sent with command type 'Q', second part is sent with command type 'R'. Command type 'R' has always to be sent after the command type 'Q' and it must be used only if the filter is longer than 83 characters. The most common filter value is "(objectClass=inetOrgPerson)".

Command type 'F' and 'G'

The LDAP server filter value can be 163 characters long, so the filter could be divided into two parts: first part is sent with command type 'F', second part is sent with command type 'G'. Command type 'G' has always to be sent after the command type 'F' and it must be used only if the RootDN is longer than 83 characters.

PC	---------- AT[&DSN192.168.114.197<cr> ----------→	RTE	Name = 192.168.114.197
PC	ß←---------- OK<cr> ----------	RTE	
PC	---------- AT[&DSP123456<cr> ----------→	RTE	Password = 123456
PC	ß←---------- OK<cr> ----------	RTE	
PC	---------- AT[&DSBcn=Admin,dc=radvision,dc=com<cr> -----→	RTE	Bind = cn=Admin,dc=radvision,dc=com
PC	ß←---------- OK<cr> ----------	RTE	
PC	---------- AT[&DSLdc=radvision,dc=com <cr> ----------→	RTE	Base =dc=radvision,dc=com
PC	ß←---------- OK<cr> ----------	RTE	
PC	---------- AT[&DSQ(objectClass=inetOrgPerson)<cr> --→-	RTE	Filter = (objectClass=inetOrgPerson)
PC	ß←---------- OK<cr> ----------	RTE	
P	---------- AT[&DSW <cr> ----------→	RTE	Save new server
PC	ß←---------- OK<cr> ----------	RTE	

6.12. Read LDAP server configuration (DP)

This message is sent by PC to request a LDAP server configuration.

This message is sent by RTE to reply to a reading request.

Direction: PC -> RTE

Mode '?'
Type: 'D'
Sub-Type 'P'
Data: Index (3 bytes)
'000'...'Number of configured servers -1'

Direction: RTE -> PC

Mode '<'
Type: 'D'
Sub-Type 'P'
Data: Item:
'G' = Generic Server info
'T' = Server type and port
'N' = Server name
'P' = Server Password
'B' = Server first part bind (user) value
'C' = Server second part bind (user) value
'L' = Server first part base value
'M' = Server second part base value
'Q' = Server first part filter value
'R' = Server second part filter value
'F' = Server first part RootDN value
'H' = Server second part RootDN value

If Command type is 'G':

Index of LDAP server (3 bytes)
'000'...'Number of configured servers -1'
Locked (valid only for Local LDAP server):
0 = Not locked
1 = Locked
Preferred:
2 = No
1 = Yes
Disable Remote Access (valid only for Local LDAP server):
1 = Yes
2 = No
2 = No
Dummy (2 bytes, must be 0) **(for future expansion)**

If Command type is 'T':

Server type

0 = Local LDAP server
1 = Avaya XTSeries
2 = Equinox Management
3 = Remote H.350 (generic)
4 = Remote H.350 (third party)
5 = Cloud

Server port (5 bytes)

If Command type is 'N':

Name (NameSize of ASCII chars)

If Command type is 'P':

Password (PasswordSize of ASCII chars)

If Command type is 'B':

Server first part bind (user) value (max 83 ASCII chars)

If Command type is 'C':

Server second part bind (user) value (max 80 ASCII chars)

If Command type is 'L':

Server first part base value (max 83 ASCII chars)

If Command type is 'M':

Server second part base value (max 80 ASCII chars)

If Command type is 'Q':

Server first part filter value (max 83 ASCII chars)

If Command type is 'R':

Server second part filter value (max 80 ASCII chars)

If Command type is 'F':

Server first part RootDN value (max 83 ASCII chars)

If Command type is 'H':

Server second part RootDN value (max 80 ASCII chars)

RTE	ß←---------- AT[?DP001<cr> ----------	PC	Request to view the LDAP server configuration with index 1
RTE	---------- AT[<DPG00100000<cr>----------→	PC	Index 1
RTE	---------- AT[<DPN192.168.114.197<cr> -----→	PC	Name: 192.168.114.197
RTE	---------- AT[<DPP123456<cr>----------→	PC	Password: 123456
RTE	---------- AT[<DPBcn=Admin,dc=radvision,dc=com<cr>--→	PC	First part Bind: = cn=Admin,dc=radvision,dc=com
RTE	---------- AT[<DPC <cr>----------→	PC	Second part Bind:
RTE	---------- AT[<DPLdc=radvision,dc=com<cr>--→	PC	First part Base: = dc=radvision,dc=com
RTE	---------- AT[<DPM <cr>----------→	PC	Second part Base:
RTE	---------- AT[<DPQ(objectClass=inetOrgPerson)<cr>-→	PC	First part Filter: = (objectClass=inetOrgPerson)
RTE	---------- AT[<DPR <cr>----------→	PC	Second part Filter:
RTE	---------- OK<cr> ----------→	PC	

6.13. Modify LDAP server configuration (DM)

This message is sent by PC to modify a LDAP server configuration.

Direction: PC -> RTE

Mode '&'
Type: 'D'
Sub-Type 'M'
Data: Item:

Index of LDAP server (3 bytes)
'000'...'Number of configured servers -1'
Command type:

'T' = Server type and port
'A' = Server generic info
'N' = Server name
'P' = Server Password
'B' = Server first part bind (user) value
'C' = Server second part bind (user) value
'L' = Server first part base value
'M' = Server second part base value
'Q' = Server first part filter value
'R' = Server second part filter value
'F' = Server first part RootDN value
'G' = Server second part RootDN value
'W' = Save all

If Command type is 'T':

Server type

1 = Avaya XTSeries
2 = Equinox Management
3 = Remote H.350 (generic)
4 = Remote H.350 (third party)
5 = Cloud

Server port (5 bytes)

If Command type is 'A':

Locked (valid only for Local LDAP server):

0 = Not locked
1 = Locked

Preferred:

'2' = No
'1' = Yes

Disable remote Access (valid only for Local LDAP server):

1 = Yes
2 = No

Dummy (8 bytes, must be 0) **(for future expansion)**

If Command type is 'N':
Name (NameSize of ASCII chars)

If Command type is 'P':
Password (PasswordSize of ASCII chars)

If Command type is 'B':
Server first part bind (user) value (max 83 ASCII chars)

If Command type is 'C':
Server second part bind (user) value (max 80 ASCII chars)

If Command type is 'L':
Server first part base value (max 83 ASCII chars)

If Command type is 'M':
Server second part base value (max 80 ASCII chars)

If Command type is 'Q':
Server first part filter value (max 83 ASCII chars)

If Command type is 'R':
Server second part filter value (max 80 ASCII chars)

If Command type is 'F':
Server first part RootDN value (max 83 ASCII chars)

If Command type is 'G':
Server second part RootDN value (max 80 ASCII chars)

If Command type is 'W':
Attention: without this command no one of previous commands will be saved

Data Description:

Server Index'

If the index is '000', the server to modify is the local server, but for this server you can modify only the password.

PC	---------- AT[&DM001N192.168.114.197<cr> ----------→	RTE	Name = 192.168.114.197
PC	ß←---------- OK<cr> ----------	RTE	
PC	---------- AT[&DM001P123456<cr> ----------→	RTE	Password = 123456
PC	ß←---------- OK<cr> ----------	RTE	
PC	---------- AT[&DM001Bcn=Admin,dc=radvision,dc=com<cr> -----→	RTE	Bind = cn=Admin,dc=radvision,dc=com
PC	ß←---------- OK<cr> ----------	RTE	
PC	---------- AT[&DM001Ldc=radvision,dc=com <cr> ---→	RTE	Base = dc=radvision,dc=com
PC	ß←---------- OK<cr> ----------	RTE	
PC	---------- AT[&DM001Q(objectClass=inetOrgPerson)<cr> ----→	RTE	Filter = (objectClass=inetOrgPerson)
PC	ß←---------- OK<cr> ----------	RTE	
PC	---------- AT[&DM001W <cr> ---------->	RTE	Save new server
PC	ß←---------- OK<cr> ----------	RTE	

6.14. Delete LDAP server (DB)

This message is sent by PC to request to delete a LDAP server configuration.

Direction: PC -> RTE

Mode '&'
Type: 'D'
Sub-Type 'B'
Data: Index of LDAP server to be deleted (3 bytes)
'000'...'Number of configured servers -1'

Data Description:

The Local server with index '000' cannot be deleted.

6.15. Connect a LDAP server (DC)

This message is sent by PC to request to connect to a LDAP server.

To know the phonebook entries of a connected LDAP server, you have to use the usual DR command.

You can't insert, delete or modify a record in a remote LDAP server (the DI and DD commands fail).

Direction: PC -> RTE

Mode '&'
Type: 'D'
Sub-Type 'C'
Data: Index of LDAP server to connect (3 bytes)
'000'...'Number of configured servers -1'

Data Description:

This command is used to connect to a LDAP server so that you can read all its records. This operation can require some time. Index value of "000" must be used to select local phonebook.

6.16. Calendar General Descriptor (DO)

PC sends this message to ask for the max and current number of records in calendar list.

Direction: PC -> RTE

Mode '?'
Type: 'D'
Sub-Type 'O'
Data: Request :
'A' = General information

If request 'A' (General information)

Number of Item (3 bytes)
'000' ... '999'
Dummy (20 bytes, must be 0) **(for future expansion)**

Data Description:

Number of item:
Number of item present in the calendar list,

6.17. Read Calendar Item with index (DA)

PC sends this message to ask for the i-th calendar item.

Direction:	PC -> RTE
Mode	'?'
Type:	'D'
Sub-Type	'A'
Data:	Index (3 bytes): '000'...'NumRecord-1'
Direction:	RTE -> PC
Mode	'<'
Type:	'D'
Sub-Type	'A'
Data:	Item: 'A' = General information 'N' = First Part Name 'M' = Second Part Name 'O' = First Part Organizer 'P' = Second Part Organizer 'D' = Start Time 'C' = End Time

If item "A" (General Information)

Index (3 bytes)
'000'...'NumRecord-1'
Found:
'2' = No
'1' = Yes
Can Join:
'0' = No
'1' = Yes
Status (2 bytes):
'01' = Free for next 15 minutes
'02' = Starts in less 15 minutes
'03' = Starts in less 5 minutes
'04' = Started
'05' = Started and Joined
'06' = Ended

Dummy (20 bytes, must be 0) **(for future expansion)**

If item "N"
First part name (max 64 ASCII chars)

If item "M"
Second part name (max 64 ASCII chars)

If item "O"
First part organizer (max 64 ASCII chars)

If item "P"
Second part organizer (max 64 ASCII chars)

If item "D"
Start Time (ASCII string)

If item "C"
End Time (ASCII string)

Data Description:

Index:
Item index.

Found:
Flag to indicate if a item was found.

Name:
Name of meeting.

Organizer:
Name of meeting's organizer.

Start time:
Time and date of meeting's start.

End time:
Time and date of meeting's end.

6.18. FQDN Aliases list management (DN)

PC sends this message to manage FQDN used by calendar.

Direction:	PC -> RTE
Mode	'?'
Type:	'D'
Sub-Type	'N'
Data:	Action:

'N' = Add new FQDN
'M' = Modify existing FQDN
'D' = Delete existing FQDN

If Action 'N' (Add new FQDN)

Sub-Command
'A'= Generic information
'F'= First part meeting FQDN name
'G'= Second part meeting FQDN name
'H'= First part dialing FQDN name
'I'= Second part dialing FQDN name
'P'= Prefix
'W'= Save All

If Sub-Command 'A' (Generic Information

Call Protocol:
'1'= SIP
'2'= H323
Dummy (20 bytes, must be 0) **(for future expansion)**

If Sub-Command 'F' (First part meeting FQDN name)

First part meeting FQDN name (max 64 ASCII chars)

If Sub-Command 'G' (Second part meeting FQDN name)

Second part meeting FQDN name (max 64 ASCII chars)

If Sub-Command 'H' (First part dialing FQDN name)

First part dialing FQDN name (max 64 ASCII chars))

If Sub-Command 'I' (Second part dialing FQDN name)

Second part dialing FQDN name (max 64 ASCII chars)

If Sub-Command 'P' (Prefix)

Prefix (max 64 ASCII chars)

If Sub-Command 'W' (Save all):

Attention: without this command no one of previous 'N' Sub-commands will be saved

If Action 'M' (Modify existing FQDN)

Sub-Command
'A'= Generic information
'F'= First part meeting FQDN name
'G'= Second part meeting FQDN name
'H'= First part dialing FQDN name
'I'= Second part dialing FQDN name
'P'= Prefix
'W'= Save All

If Sub-Command 'A' (Generic Information)

Index of FQDN item (3 bytes)
'000'...'Number of configured FQDN -1'

Call Protocol:
'1'= SIP
'2'= H323
Dummy (20 bytes, must be 0) **(for future expansion)**

If Sub-Command 'F' (First part meeting FQDN name)
Index of FQDN item (3 bytes)
'000'...'Number of configured FQDN -1'
First part meeting FQDN name (max 64 ASCII chars)

If Sub-Command 'G' (Second part meeting FQDN name)
Index of FQDN item (3 bytes)
'000'...'Number of configured FQDN -1'
First part dialing FQDN name (max 64 ASCII chars)

If Sub-Command 'H' (First part meeting FQDN name)
Index of FQDN item (3 bytes)
'000'...'Number of configured FQDN -1'
Second part meeting FQDN name (max 64 ASCII chars)

If Sub-Command 'I' (Second part meeting FQDN name)
Index of FQDN item (3 bytes)
'000'...'Number of configured FQDN -1'
Second part dialing FQDN name (max 64 ASCII chars)

If Sub-Command 'P' (Prefix)
Index of FQDN item (3 bytes)
'000'...'Number of configured FQDN -1'
Prefix (max 64 ASCII chars)

If Sub-Command 'W' (Save all):
Index of FQDN item (3 bytes)
'000'...'Number of configured FQDN -1'
Attention: without this command no one of previous 'M' Sub-commands will be saved

If Action 'M' (Modify existing FQDN)
Index of FQDN item to be deleted (3 bytes)
'000'...'Number of configured FQDN -1'

Direction: PC -> RTE

Mode '?'
Type: 'D'
Sub-Type 'N'
Data: Request:
'A' = General information
'R' = Read an existing FQDN
If request 'A' (General information)
None
If request 'R' (Read an existing FQDN)
Index of FQDN item (3 bytes)
'000'...'Number of configured FQDN -1'

Direction: RTE -> PC

Mode '<'
Type: 'D'
Sub-Type 'N'
Data: Response:

'A' = General information
'R' = Read an existing FQDN

If response 'A' (General information)

Number of Item (3 bytes)
'000' ... '999'
Dummy (20 bytes, must be 0) **(for future expansion)**

If Action 'R' (Read an existing FQDN)

Item:
'G'= Generic information
'F'= First part meeting FQDN name
'G'= Second part meeting FQDN name
'H'= First part dialing FQDN name
'I'= Second part dialing FQDN name
'P'= Prefix

If Item 'G' (Generic Information)

Index of FQDN item (3 bytes)
'000'...'Number of configured FQDN -1'
Call Protocol:
'1'= SIP
'2'= H323
Dummy (20 bytes, must be 0) **(for future expansion)**

If Item 'F' (First part meeting FQDN name))

First part meeting FQDN name (max 64 ASCII chars)

If Item 'G' (Second part meeting FQDN name)

Second part meeting FQDN name (max 64 ASCII chars)

If Item 'H' (First part dialing FQDN name)

First part dialing FQDN name (max 64 ASCII chars)

If Item 'I' (Second part dialing FQDN name)

Second part dialing FQDN name (max 64 ASCII chars)

If Item 'P' (Prefix)

Prefix (max 64 ASCII chars)

Data Description:

6.19. Phone Directory Configuration Error Message

This message is sent by RTE to notify an error on the received message:

Direction: RTE -> PC

Mode '<'
Type: 'D'
Sub-Type 'E'
Data: Message Type
Sub-type
Error:
'1' = Bad parameter
'2' = Unknown message
'3' = Wrong message length
'4' = Bad mode
'5' = Unable to execute command
Sub-code
If Unable to execute command
'0' = system timeout
'1' = system busy
If Bad parameter
Index number of wrong parameter

The call control messages can manage actions related to calls.

7.1. Make a call (CD)

PC send this message to make a call.

Direction: PC -> RTE

Mode '&'
Type: 'C'
Sub-Type 'D'
Data: Call:
'1'..'F' **(hexadecimal value)**
CallType:
'1' = Audio only
'8' = Audio/Video
'R' = From last calls list
'C' = From contacts list
'M' = From calendar meetings list
Interface :
'1' = IP
'5' = MCU (activation)
'6' = SIP
'7' = ISDN
'D' = Default system interface

Number (ASCII string)

Data Description:

Call:
Call progressive number: first, second, etc. For additional calls this number must be different from 1, but it can be any number (valid only for ISDN additional calls).

Number:

Number to call.

CallType:

If CallType is R the number must be the index of the Recent Calls list element to call

If CallType is C the number must be the index of the Contacts list element to call

If CallType is M the number must be the index of the Calendar meetings list element.

In these cases Interface field will not be taken in account.

7.2. Make call at a specified rate (CM)

PC sends this message to make a call at a specified rate, without changing the system rate.

Direction: PC -> RTE

Mode '&'
Type: 'C'
Sub-Type 'M'
Data: CallType:
'1' = Audio only
'8' = Audio/Video
Interface :
'1' = IP
'6' = SIP
'7' = ISDN
Rate :
'1' = 64
'2' = 128
'3' = 192
'4' = 256
'5' = 320
'6' = 384
'7' = 448
'8' = 512
'C' = 768
'D' = 1152 **(valid only for network IP)**
'E' = 1472
'F' = 1536
'G' = 1920
'H' = 2560
'I' = 3072
'J' = 3584
'K' = 4096
'L' = 5120
'M' = 5632
'N' = 6144
'O' = 1728 **(valid only for network IP)**
'P' = 4608 **(valid only for network IP)**
'Q' = 2048 **(valid only for network IP)**
'R' = 896 **(valid only for network IP)**
'S' = 1024 **(valid only for network IP)**
'T' = 1280 **(valid only for network IP)**
'U' = 1408 **(valid only for network IP)**
'V' = 6656 **(valid only for network IP)**

'Z' = 7168 **(valid only for network IP)**
'X' = 7680 **(valid only for network IP)**
'Y' = 8128 **(valid only for network IP)**
'W' = 8192 **(valid only for network IP)**
'9' = 10240 **(valid only for network IP)**
Rate :
Dummy (1 byte, must be 0) **(for future expansion)**
Number (ASCII string)

Data Description:

Rate:
It is possible to select the call rate. If channels are not aggregated, it is necessary to specify all the numbers to call.

Number:
The length of all numbers must be the same, the difference being referred to the first number (radix).

If the numbers are equal, you have to repeat the last digit.

7.3. Send a DTMF digit (CF)

PC sends this message to make a call.

Direction:	PC -> RTE
Mode	'&'
Type:	'C'
Sub-Type	'F'
Data:	'0'..'9','#','*'

Data Description:

7.4. Answer an incoming call (CA)

PC sends this message to answer to an incoming call.

Direction:	PC -> RTE
Mode	'&'
Type:	'C'
Sub-Type	'A'
Data:	Call:
	'1'..'N'
	Dummy (1 byte, must be 0) **(for future expansion)**

Data Description:

Call:
Call progressive numbers: first, second, etc. **(at present the only call accepted is the first).**

7.5. Answer an incoming call extension (CG)

PC sends this message to answer to or reject an incoming call also in MCU mode.

Direction:	PC -> RTE
Mode	'&'
Type:	'C'
Sub-Type	'G'
Data:	Action:
	'0' = Reject
	'1' = Accept
	Call identification number **(10 fixed bytes):**
	Dummy (1 byte , must be 0):

Data Description:

Call identification number:
Is the number of call that comes with SC "Incoming call in connection" notification message. If the SC message is "Incoming call in idle", that has no number, this parameter has to be always equal to '0000000001'.

Action:
If you want to accept the incoming call, this parameter has to be 1. If you want to reject the incoming call, this parameter has to be 0.

7.6. Disconnect a call (CH)

PC sends this message to disconnect a call.

Direction:	PC -> RTE
Mode	'&'
Type:	'C'
Sub-Type	'H'
Data:	Call:
	'1'..'N'
	Interface:
	'1' = IP

Data Description:

Call:
Call progressive numbers: first, second, etc. (the whole connection is disconnected).

7.7. Connection Status (CB)

PC sends this message to know the connection status.

Direction:	PC -> RTE
Mode	'?'
Type:	'C'
Sub-Type	'B'
Data:	
Direction:	RTE -> PC
Mode	'<'
Type:	'C'
Sub-Type	'B'
Data:	Current network type for the call: '1' = SIP '5' = IP '6' = MCU '7' = ISDN Call status (2 bytes): "02" = idle "05" = first call started "06" = first setup sent to network "07" = the remote system is ringing after the first call "08" = first incoming call "09" = first call connected "10" = a following call is started "11" = a following setup has been sent to network "12" = the remote system is ringing after a following call "13" = following incoming call "14" = following call connected "20" = waiting the complete disconnection "31" = MCU IP active Video active: '0' = no '1' = yes Data channel active: '0' = no '1' = yes Connected number (ASCII string). **Note:** not valid in MCU

Data Description:

This command can be used to know the connection status of a system at any time.

7.8. Connection H323 Status (CL)

PC sends this message to know the parameters of the active H.323 connection.

Direction: PC -> RTE

Mode '?'
Type: 'C'
Sub-Type 'L'
Data:

Direction: RTE -> PC

Mode '<'
Type: 'C'
Sub-Type 'L'
Data: Audio Coding (2 bytes):

- '00' = Audio Off
- '01' = G.723
- '02' = G.711 48k A-law
- '03' = G.711 56k A-law
- '04' = G.711 64 A-law
- '05' = G.711 48k Mu-law
- '06' = G.711 56k Mu-law
- '07' = G.711 64 Mu-law
- '08' = G.728
- '09' = G.722 48k
- '10' = G.722 56k
- '11' = G.722 64k
- '12' = PT 724
- '13' = PT 716
- '14' = G.722.1 24K
- '15' = G.722.1 32K
- '16' = G.722.1
- '18' = MP4 AAC-LD
- '19' = MP4 AAC-LD 48K
- '20' = MP4 AAC-LD 56K
- '21' = MP4 AAC-LD 64K
- '22' = MP4 AAC-LD 128K
- '23' = G.711
- '24' = G.722
- '25' = G.722.1 Annex C
- '26' = G.722.1 Annex C 24K
- '27' = G.722.1 Annex C 32K
- '28' = G.722.1 Annex C 48K
- '29' = G.719
- '30' = G.719 32K
- '31' = G.719 48K
- '32' = G.719 64K
- '33' = G.719 96K
- '34' = G.719 128K

‘35’ = G.729 Annex A
‘36’ = OPUS
Video Coding (2 bytes):
‘00’ = Video off
‘01’ = H.261 CIF
‘02’ = H.261 QCIF
‘03’ = H.263 CIF
‘04’ = H.263 QCIF
‘05’ = H.263 SQCIF
‘06’ = H.263 4CIF
‘07’ = H.263 1024x768
‘08’ = H.263 800x600
‘09’ = H.263 640x480
‘10’ = H.263 SIF
‘11’ = H.263 4SIF
‘12’ = H.263 ICIF
‘13’ = H.263 ISIF
‘14’ = H.264 CIF
‘15’ = H.264 QCIF
‘16’ = H.261
‘17’ = H.263
‘18’ = H.263 custom
‘19’ = H.263 1280x1024
‘20’ = H.263 1280x720
‘21’ = H.263 1024x576
‘22’ = H.263 768x448
‘23’ = H.263 576x448
‘24’ = H.263 528x400
‘25’ = H.263 512x288
‘26’ = H.263 320x240
‘27’ = H.264
‘28’ = H.264 4CIF
‘29’ = H.264 SQCIF
‘30’ = H.264 SIF
‘31’ = H.264 4SIF
‘32’ = H.264 1280x1024
‘33’ = H.264 1280x720
‘34’ = H.264 1024x768
‘35’ = H.264 1024x576
‘36’ = H.264 800x600
‘37’ = H.264 768x448
‘38’ = H.264 640x480
‘39’ = H.264 576x448
‘40’ = H.264 528x400

'41' = H.264 512x288
'42' = H.264 320x240
'43' = H.264 ICIF
'44' = H.264 ISIF
'45' = H.264 custom
'46' = H.264 sharpness
'47' = H.263 1920x1080
'48' = H.264 1920x1080
'49' = H.263 400x224
'50' = H.264 400x224
'51' = H.264 1920x1080p
'52' = H.264 1280x768
'53' = H.264 1440x900
'54' = H.264 1680x1050
'55' = H.264 1600x1200
'56' = H.264 1920x1200
'57' = H.264 624x352
'58' = H.264 576x336

Number of channels connected (2 bytes):

Data Description:

This command can be used to know some parameters related to current H.323 connection.

7.9. Remote Presentation Management (CV)

PC sends this message to start/stop or change the video source for Remote Presentation streaming.

Direction: PC -> RTE

Mode '&'
Type: 'C'
Sub-Type 'V'
Data: Action (1 byte)

'0' = Stop presentation
'1' = Start presentation

Video Source Index (2 bytes)

'01' = USB Input **Only with Konftel AV Grabber connected to USB**
'02' = Whiteboard **Only for CC200 connected with Web-collaboration**
'08' = Automatic

Data Description:

Action

If you want to start presentation stream, you must set Action to 1, and the video source to one of the available video inputs.

If you want stop presentation stream, you must set Action to 0.

Video Source Index

If you select Automatic, system sends as presentation the last presentation source used.

If the screen link was connected to the system as last action, this will be sent as presentation.

If an MP4 file is playing, this will be sent as presentation.

If in a CU system screen was split to see another application, this application will be sent as presentation.

If no one of previous sources is present, DVI or HDMI input will be sent as presentation according to system type and configuration.

Whiteboard is only if you are connected to a meeting with Web-collaboration.

7.10. Remote Presentation Status (CC)

PC sends this message to known the remote presentation streaming status.

Direction:	PC -> RTE
Mode	'?'
Type:	'C'
Sub-Type	'C'
Data:	
Direction:	RTE -> PC
Mode	'<'
Type:	'C'
Sub-Type	'C'
Data:	Status (1 byte): '0' = Inactive '1' = Active Video Source Index (2 bytes) '08' = DVI Input

Data Description:

Status

If presentation is not active Status is equal to 0.

If presentation is active, Status is equal to 1 and the video source index is the video input selected for this stream.

7.11. Calendar meeting action (CN)

PC sends this message to select what to do about the current calendar meeting.

Direction: PC -> RTE

Mode '&'
Type: 'C'
Sub-Type 'N'
Data: Calendar Meeting Index (3 byte):
'000' ... Calendar Meeting items -1
Action
'1' = Join the meeting
'2' = Snooze warning for the meeting
'3' = Ignore the meeting

Data Description:

7.12. Call Error Indication (CE)

RTE sends this message to show an error on the received message:

Direction: RTE -> PC

Mode '<'
Type: 'C'
Sub-Type 'E'
Data: Message Type
Sub-type
Error:
'1' = Bad parameter
'2' = Unknown message
'3' = Wrong message length
'4' = Bad mode
'5' = Unable to execute command
Sub-code
If Unable to execute command
'0' = system timeout
'1' = system busy
If Unable to execute command
Index number of wrong parameter

The multipoint call control messages can manage actions related to calls in a Multipoint session hosted by the system.

8.1. Connect a terminal (MD)

PC sends this message to connect a terminal to a conference.

Direction:	PC -> RTE
Mode	'&'
Type:	'M'
Sub-Type	'D'
Data:	Conference: '00'.....'NN' **(2 bytes)**
	Terminal: '00'.....'NN' **(2 bytes)**
	Call type:
	'0' = Audio only
	'8' = Audio/video
	'R' = From last calls list
	'C' = From contacts list
	Interface:
	1' = IP
	'6' = SIP
	'7' = ISDN
	Number (ASCII string)

Data Description:

Conference:

Conference number. At the moment it can be only '00'.

Terminal:

Terminal number. '00' is the local terminal, always connected. At the moment the maximum number is '08'.

CallType:

It is possible to select call type: audio only or audio/video.

Number:

Number to call.

CallType:

If CallType is R the number must be the index (three digits) of the Recent Calls list element to call

If CallType is C the number must be the index (three digits) of the Contacts list element to call.

In these cases Interface field will not be taken in account.

8.2. Disconnect a terminal (MH)

PC sends this message to disconnect a terminal from a conference.

Direction:	PC -> RTE
Mode	'&'
Type:	'M'
Sub-Type	'H'
Data:	Conference: '00'.....'NN' **(2 bytes)**
	Terminal: '00'.....'NN' **(2 bytes)**

Data Description:

Conference:

Conference number. At the moment it can be only '00'.

Terminal:

Terminal number. '00' is the local terminal, always connected. At the moment the maximum number is '08'.

8.3. Close a conference (MO)

PC sends this message to close a conference.

Direction:	PC -> RTE
Mode	'&'
Type:	'M'
Sub-Type	'O'
Data:	Conference: '00'.....'NN' **(2 bytes)**

Data Description:

Conference:

Conference number. At the moment it can be only '00'.

8.4. Terminal status (MT)

PC sends this message to ask for the status of a terminal in a multiconference.

RTE sends this message in reply.

Direction:	PC -> RTE
Mode	'?'
Type:	'M'
Sub-Type	'T'
Data:	Conference: '00'.....'NN' **(2 bytes)**
	Terminal: '00'.....'NN' **(2 bytes)**

Direction: RTE -> PC

Mode ‘>’
Type: ‘M’
Sub-Type ‘T’
Data: Conference: ’00’.....’NN’ **(2 bytes)**
Terminal: ’00’......’NN’ **(2 bytes)**
Connection status:
- ’0’ = disconnected
- ’1’ = connected

Audio status:
- ’0’ = disconnected
- ’1’ = connected
- ’2’ = connected, but disabled (in mute)

Video status:
- ’0’ = disconnected
- ’1’ = connected
- ’2’ = active speaker
- ’3’ = previous active speaker
- ’4’ = chairman (broadcast video)

Channel status 1 **(1 byte):**
- ’0’ = disconnected
- ’1’ = connected synchronized
- ’2’ = connected, but not synchronized

....

Channel status 12 **(1 byte):**
- ’0’ = disconnected
- ’1’ = connected synchronized
- ’2’ = connected, but not synchronized

Terminal Name: (ASCII string)

Data Description:

Conference:

Conference number. At the moment it can be only ‘00’.

Terminal:

Terminal number. ‘00’ is the local terminal, always connected. At the moment the maximum number is ‘08’.

Channel status:

Terminal number. ‘00’ is the local terminal, always connected. At the moment the maximum number is ‘08’.

8.5. Terminal audio status (MA)

PC sends this message to set the terminal audio status.

Direction: PC -> RTE

Mode '&'
Type: 'M'
Sub-Type 'A'
Data: Conference: '00'.....'NN' **(2 bytes)**
Terminal: '00'.....'NN' **(2 bytes)**
Audio status:
'0' = disabled
'1' = not disabled

Data Description:

Conference:

Conference number. At the moment it can be only '00'.

Terminal:

Terminal number. '00' is the local terminal. At the moment the maximum number is '08'.

8.6. Terminal information (MG)

PC sends this message to ask for some information about the terminal.

Direction: RTE -> PC

Mode '?'
Type: 'M'
Sub-Type 'G'
Data: Conference: '00'.....'NN' **(2 bytes)**
Terminal: '00'.....'NN' **(2 bytes)**
Information:
'C' = Some connection information

Direction: RTE -> PC

Mode '>'
Type: 'M'
Sub-Type 'G'
Data: Conference: '00'.....'NN' **(2 bytes)**
Terminal: '00'.....'NN' **(2 bytes)**
Information:
'C' = Some connection information
If Some connection information:
Call network:
'1' = LAN
'6' = SIP
'7' = ISDN

Encryption status:
'0' = no encryption
'1' = disactivated
'2' = activated
'3' = asymmetric
Encryption status:
'0' = none
'1' = chairman
'2' = on floor requested

Data Description:

Conference:

Conference number. At the moment it can be only '00'.

Terminal:

Terminal number. '00' is the local terminal, always connected. At the moment the maximum number is '08'.

Call network:

Network used by terminal for the connection; information is valid only if the terminal is connected.

8.7. Terminal video status (MV)

PC sends this message to set terminal video status

Direction:	PC -> RTE
Mode	'?'
Type:	'M'
Sub-Type	'V'
Data:	Conference: '00'.....'NN' **(2 bytes)**
	Terminal: '00'.....'NN' **(2 bytes)**
	Video status:
	'0' = normal
	'1' = broadcast

Data Description:

Conference:

Conference number. At the moment it can be only '00'.

Terminal:

Terminal number. '00' is the local terminal, always connected. At the moment the maximum number is '08'.

8.8. Conference finish time configuration (MF)

PC sends this message to ask for or save conference ending time.

RTE send this message to reply.

Direction:	PC -> RTE
Mode	'&' / '?'
Type:	'M'
Sub-Type	'F'
Data:	Conference: '00'.....'NN' **(2 bytes)**
	Unlimited time:
	'0' = finish at the time and date specified
	'1' = never finish
	Hour: **(2 bytes)**
	Minutes: **(2 bytes)**
	Day: **(2 bytes)**
	Month: **(2 bytes)**
	Year: **(4 bytes)**
Direction:	RTE -> PC
Mode	'>'
Type:	'M'
Sub-Type	'F'
Data:	See above

Data Description:

Conference:

Conference number. At the moment it can be only '00'.

Unlimited time:

If equal to '1', then the conference never ends and other parameters do not take any sense.

If equal to '0', then the conference ends at time/date specified in the other parameters.

8.9. Conference video layout configuration (ML)

PC sends this message to set or get the MCU layout configuration.

RTE send this message to reply.

Direction:	PC -> RTE
Mode	'&' / '?'
Type:	'M'
Sub-Type	'L'
Data:	Conference: '00'.....'NN' **(2 bytes)**
	Layout type (2 bytes):

’00’ = Automatic 

’01’ = One terminal 

’02’ = Two terminals A 

’03’ = Two terminals B 

’04’ = Two terminals C 

’05’ = Three terminals A 

’06’ = Three terminals B 

’ ‘07’ = Four terminals A 

’08’ = Four terminals B 

’09’ = Four terminals C 

’10’ = Seven terminals A 

’11’ = Eight terminals C 

’12’ = Nine terminals A 

’13’ = Nine terminals B 

’14’ = Two terminals D 

’15’ = Five terminals 

’16’ = Six terminals 

’17’ = Seven terminals B 

’18’ = Seven terminals C 

’19’ = Eight terminals A 

’20’ = Eight terminals B 

’21’ = Eight terminals D 

’22’ = Nine terminals C 

Direction: RTE -> PC

Mode ‘>’
Type: ‘M’
Sub-Type ‘L’
Data: See above

Data Description:

Conference:

Conference number. Currently, only '00'.

Layout type:

Define the video layout in MCU mode to see remote terminals.

A specific layout can be selected only if enough terminals are connected to the multipoint session (Ex. If are connected five terminals, you can't choose seven, eight and nine layouts).

8.10. Conference indication messages (MS)

RTE sends this message to notify some conference and terminals status.

Direction: RTE -> PC

Mode '<'
Type: 'M'
Sub-Type 'S'
Data: Message Type:

- '1' = Terminal name indication
- '2' = Terminal video status
- '3' = Terminal audio status
- '5' = Terminal connection status
- '6' = Terminal encryption status
- '7' = Terminal H243 status
- '8' = Conference video status
- '9' = Conference close indication

If Terminal name indication:

Data Conference: '00'.....'NN' **(2 bytes)**
Terminal: '00'.....'NN' **(2 bytes)**
Terminal: '00'.....'NN' **(2 bytes)**

If Terminal video status:

Data Conference: '00'.....'NN' **(2 bytes)**
Terminal: '00'.....'NN' **(2 bytes)**
Video status:

- '0' = disconnected
- '1' = connected
- '2' = active speaker
- '3' = previous active speaker
- '4' = chairman (broadcast video)

If Terminal audio status:

Data Conference: '00'.....'NN' **(2 bytes)**
Terminal: '00'.....'NN' **(2 bytes)**
Audio status:

- '0' = disconnected
- '1' = connected
- '2' = connected, but disabled (in mute)

If Terminal connection status:

Data Conference: '00'.....'NN' **(2 bytes)**
Terminal: '00'.....'NN' **(2 bytes)**
Connection status:
'0' = disconnected
'1' = connected

If Terminal encryption status:

Data Conference: '00'.....'NN' **(2 bytes)**
Terminal: '00'.....'NN' **(2 bytes)**
Encryption status:
'0' = no encryption
'1' = disactivated
'2' = activated
'3' = asymmetric

If Terminal H243 status:

Data Conference: '00'.....'NN' **(2 bytes)**
Terminal: '00'.....'NN' **(2 bytes)**
H243 status:
'0' = none
'1' = chairman
'2' = on floor requested

if Conference video status:

Data Conference: '00'.....'NN' **(2 bytes)**
Video status:
'1' = continuos presence
'2' = voice switching

if Conference close indication:

Data Conference: '00'.....'NN' **(2 bytes)**

Data Description:

Conference:

Conference number. At the moment it can be only '00'.

Terminal:

Terminal number.

Message Type:

If the message type is Encryption, than the information is never available for the local terminal.

8.11. Multipoint Error Indication (ME)

RTE sends this message to show an error on the received message.

Direction: RTE -> PC

Mode '<'
Type: 'M'
Sub-Type 'E'
Data: Message Type
Sub-type
Error:
'1' = Bad parameter
'2' = Unknown message
'3' = Wrong message length
'4' = Bad mode
'5' = Unable to execute comman
Error:
If Unable to execute command
'0' = system timeout
'1' = system busy
If Unable to execute command
Index number of wrong parameter

The control and indication messages can be used by PC to perform some actions to manage the system.

RTE sends these messages to notify some system's status changes.

9.1. Call Status (SC)

RTE sends this message to PC to show a status change on the call.

Direction: RTE -> PC

Mode '<'
Type: 'S'
Sub-Type 'C'
Data: Call:
'1'..'F' **(Hexadecimal number)**
Interface :
'1' = IP
'6' = SIP
'7' = ISDN
CallType:
'1' = Release Indication with Progress Indicator
'2' = Setup acknowledge
'3' = Call proceeding
'4' = Information element
'5' = Alerting
'6' = Incoming call in idle
'G' = Incoming call in connection
'7' = Call connected
'9' = Release Indication
'A" = Release Confirmation
'B' = Display Information Element
'C" = Charge advise information element
'D' = Suspend Confirm
'E' = Resume Confirm
'F' = Call Advice
'H' = Presentation Status

If Release Indication with progress indicator:
SourceRelease:
'0' = Internal Error
'1' = Timeout
'2' = Network
Cause : (3 chars – See Appendix A Table)
Progress Indicator (3 chars)
008 = in band info

If Incoming Call in idle:
CallType:
'1' = Audio only
'8' = Audio/video
Calling Number (ASCII string)

If Incoming Call in connection:
CallType:
'1' = Audio only
'8' = Audio/video
Dummy (1 byte, must be 0) **(for future expansion)**
Called Number (ASCII string)

If Incoming call connected :
CallType:
'1' = Audio only
'8' = Audio/video
Number of aggregate channels (1..F **Hexadecimal**)
Calling Number (ASCII string)

If Release Indication :
SourceRelease:
'0' = Internal Error
'1' = Timeout
'2' = Network
Cause : (3 chars - See ETS 300 Table 4.13)

If Display Indication :
ASCII string to display

If Charge Advise :
Charge advice string to display

If Information element :
information (ASCII string)

If Call Advice:
CallType:
'1' = Audio only
'8' = Audio/video
Calling Number (ASCII string)

If Presentation Status:
Status (2 bytes):
'01' = Can start presentation with Web Collaboration
'8' = Audio/video
Dummy (10 bytes, must be 0) **(for future expansion)**

Data Description:

Examples:

Make an unrestricted undefined call at number 192.168.187.68 using the IP interface

PC	---------- AT[&CD181192.168.187.86<cr> ------à	RTE		(Make a call at number 192.168.187.86)
PC	ß←---------- OK<cr> ----------	RTE		
PC	ß←---------- AT[<SC113<cr> ----------	RTE		(Call proceeding)
PC	ß←---------- AT[<SC115<cr> ----------	RTE		(Alerting)
PC	ß←---------- AT[<SC11780Name<cr> ----------	RTE		(Outgoing call connected)

9.2. Video Camera Command/Status (SF)

PC sends this message to select/manage local or remote cameras.

It is sent by RTE to indicate camera selection as an answer to PC request or to indicate an action executed by the remote terminal.

Direction: PC -> RTE

Mode '&'
Type: 'S'
Sub-Type 'F'
Data: VideoCameraNum (2 ASCII digits):
'00' = Current camera selected
'01' = HD1
'02' = USB
'03' = HD2
'04' = HD3
'05' = HD4
'06' = HD5
'08' = DVI Input For this input, selection and AutoAdjust are the only valid commands
Site:
'0' = local
'1' = remote
Site:
'0' = select
'1' = pan with timeout
'2' = tilt with timeout
'3' = zoom with timeout
'5' = recall preset
'6' = store preset
'!' = stop action
'7' = pan continually
'8' = tilt continually
'9' = zoom continually
'B' = extended recall preset
'C' = extended store preset
'X' = DVI autoadjust (valid only for local DVI input)
'F' = pan-tilt with timeout
'G' = pan-tilt continually
'D' = Direct Pan and Tilt position
'Z' = Direct zoom position

If pan ('1' or '7'):
'R' = Right
'L' = Left
If tilt ('2' or '8'):
'U' = Up
'D' = Down
If zoom ('3' or '9'):

'+' = zoom in
'-' = zoom out
If preset or store ('5' or '6')
'0'..'F' **(Hexadecimal Number)**
If extended preset recall or store ('B' or 'C')
3 bytes **(Decimal Number)**
If pan-tilt ('F' or 'G'):
'1' = Up-Right
'2' = Up-Left
'3' = Down-Right
'4' = Down-Left
If Direct Pan and Tilt position ('D')
Pan Position 4 bytes (Four hexadecimal digits)
Tilt Position 4 bytes (Four hexadecimal digits)
If Direct Zoom position ('Z')
Zoom Position 4 bytes (Four hexadecimal digits)

Mode '?'
Type: 'S'
Sub-Type 'F'
Data: Type of information :
None: Current camera and site
'D': Current pan-tilt position for selected local camera
'Z': Current zoom position for selected local camera
'B': Current stored local presets

If type of information: none:
None

If type of information 'D':
None

If type of information 'Z':
None

If type of information 'B':
Group of 20 presets (2 bytes):
'01' ....'07' (max 122 presets)

Direction: RTE -> PC

Mode '<'
Type: 'S'
Sub-Type 'F'
Data: Type of information :
None: Current camera and site
'D': Current pan-tilt position for selected local camera
'Z': Current zoom position for selected local camera
'B': Current stored camera presets

If type of information: none:

VideoCameraNum (2 ASCII digits)

‘01’ = HD1

‘02’ = USB

‘03’ = HD2

‘04’ = HD3

‘05’ = HD4

‘06’ = HD5

‘08’ = DVI Input For this input, selection and AutoAdjust are the only valid commands

Site:

‘0’ = local

‘1’ = remote

If type of information ‘D’:

VideoCameraNum (2 ASCII digits)

‘01’ = HD1

‘02’ = USB

‘03’ = HD2

‘04’ = HD3

‘05’ = HD4

‘06’ = HD5

‘08’ = DVI Input For this input, selection and AutoAdjust are the only valid

Pan Position 4 bytes (Four hexadecimal digits)

Tilt Position 4 bytes (Four hexadecimal digits)

If type of information ‘Z’:

VideoCameraNum (2 ASCII digits)

‘01’ = HD1

‘02’ = USB

‘03’ = HD2

‘04’ = HD3

‘05’ = HD4

‘06’ = HD5

‘08’ = DVI Input For this input, selection and AutoAdjust are the only valid

Zoom Position 4 bytes (Four hexadecimal digits)

If type of information ‘B’:

Group of 20 presets (2 bytes):

‘01’ ….’07’ (max 122 presets)

20 presets status (20 bytes). Each byte is the status of a preset

‘0’ = Preset free

‘1’ = Preset busy

Data Description:

VideoCameraNum:

Number associated to the camera.

Possible numbers are :

‘01’ = HD1

‘02’ = USB

‘03’ = HD2

‘04’ = HD3

‘05’ = HD4

‘06’ = HD5

‘08’ = DVI Input For this input, selection and AutoAdjust are the only valid commands

If the number is 00, then the action is referred to the current selected camera.

The number associated to a camera of remote terminal may be obtained by receiving a camera information message.

Site:

This parameter indicates if message is for local (‘0’) or remote (‘1’) camera.

Command:

Command to be executed: select (select video-camera), pan, tilt, zoom, recall and store preset.

The commands with timeout move camera with a fixed timeout, than stop it; on the other hand pan, tilt and zoom commands continuously move camera until the stop command is sent. This is valid only for local site : remote site always uses timeout. So if you want to prevent this behavior, movement command must be sent more than one time with a frequency lower than the stop timeout.

Moreover if you move camera continually, it moves slower than you move with remote controller because the acceleration is made by internal camera driver only if it receives more than one movement command. Therefore also in this case if you want to increase speed you must send more than one movement continually command

For commands D and Z (direct movements) these are bytes values ranges:

- For Premium and Standard II cameras PAN position ranges from 0xFA60 to 0x05A0 (center 0x0000) while TILT position ranges from 0xFE98 to 0x0168 (center 0x0000). For example to move camera left-down you can send command AT[&SF010DFA600168. ZOOM position ranges from 0x0000 to 0x4000 for optical zoom and up to 0x7E80 for digital zoom.
- For Advanced camera PAN position ranges from 0xE1E5 to 0x1E1B (center 0x0000), TILT position ranges from 0xFC75 to 0x0FF0 (center 0x0000). ZOOM position ranges from 0x0000 to 0x4000 for optical zoom and up to 0x7aC0 for digital zoom.

- For Flex and Deluxe camera PAN position ranges from 0xDDA0 to 0x2260 (center 0x0000), TILT position ranges from 0x0A00 to 0xF600 (center 0x0000). ZOOM position ranges from 0x0000 to 0x4000 for optical zoom and up to 0x406E for digital zoom.

Group of preset:

If you to know currently stored camera presets you can use the AT[?SFBxy command where xy are two bytes which indicates the group of 20 presets you want to know.

If you want to know state for presets from number 1 to 20, you must call command AT[?SFB01 and the response is like AT[<SFB01000000000000000000000 where each 0 means that preset 1 is free, preset2 is free preset 3 is free and so on until the twentieth. If you want to know status for other preset you must send command AT[?SFB02, AT[?SFB03 and so on until AT[?SFB07 which return only the last two presets state (121 e 122).

Example: move the main camera (01) to right

PC ---------- AT[&SF0101R<cr> ----------→ RTE
PC <---------- OK<cr> ---------- RTE

Example: move the main camera (01) to right
PC ---------- AT[?SFB02<cr> ----------→ RTE
PC <---------- AT[<SFB020000100000001000000 0<cr> ---------- RTE Presets number 25 and 33 are busy, all other are free
PC <---------- OK<cr> ---------- RTE

9.3. Video Camera Command (SY)

PC sends this message to move local cameras without changing the current video source

Direction: PC -> RTE

Mode '&' / '?'
Type: 'S'
Sub-Type 'Y'
Data: VideoCameraNum (2 ASCII digits)
'00' = Current Camera selected
'01' = HD1
'02' = USB
'03' = HD2
'04' = HD3
'05' = HD4
'06' = HD5
'08' = DVI Input For this input, selection and AutoAdjust are the only valid
Command:
'1' = pan with timeout
'2' = tilt with timeout

‘3’ = zoom with timeout
‘5’ = recall preset
‘6’ = store preset
‘!’ = stop action
‘7’ = pan continually
‘8’ = tilt continually
‘9’ = zoom continuously
‘F’ = pan-tilt with timeout
‘G’ = pan-tilt continually
‘D’ = Direct Pan and Tilt position
‘Z’ = Direct zoom position

If pan :
‘R’ = Right
‘L’ = Left

If tilt:
‘U’ = Up
‘D’ = Down

If zoom:
‘+’ = zoom in
‘-‘ = zoom out

If preset or store (3 bytes)
if pan-tilt (’F’ or ’G’):
‘1’ = Up-Right
‘2’ = Up-Left
‘3’ = Down-Right
‘4’ = Down-Left

If Direct Pan and Tilt position (’D’)
Pan Position 4 bytes (Four hexadecimal digits)
Tilt Position 4 bytes (Four hexadecimal digits)

If Direct Zoom position (’Z’)
Zoom Position 4 bytes (Four hexadecimal digits)

Data Description:

VideoCameraNum:

Number associated to the camera.

Possible numbers are :

‘01’ = HD1

‘02’ = USB

‘03’ = HD2

‘04’ = HD3

‘05’ = HD4

‘06’ = HD5

‘08’ = DVI Input For this input, selection and AutoAdjust are the only valid commands

If the number is 00, then the action is referred to the current selected camera.

Command:

Command to be executed: pan, tilt, zoom, recall and store preset.

The commands with timeout move camera with a fixed timeout (500 ms), than stop it; on the other hand pan, tilt and zoom commands continuously move camera until the stop command is sent

Example: move the main camera (01) to right

PC ---------- AT[&SY011R<cr> ----------→ RTE
PC <---------- OK<cr> ---------- RTE

9.4. Board Reboot (SG)

PC sends this message to reboot or shutdown the board.

RTE send this message to notify a reboot or shutdown system.

Direction: PC -> RTE

Mode '&' / '>'
Type: 'S'
Sub-Type 'G'
Data: Command:
'1' = reboot
'2' = shutdown

Data Description:

Example: reboot the board

PC ---------- AT[&SG1<cr> ----------→ RTE
PC <---------- OK<cr> ---------- RTE

9.5. Conference Control (SH)

This message is sent by PC to RTE to take the control over a conference from a terminal in a multi-point connection.

This message is sent by RTE to PC to indicate a status or ack in a conference in a multi-point connection or to respond to a request.

Direction: PC -> RTE

Mode '&'
Type: 'S'
Sub-Type 'H'
Data: Command:
'C' = Chair control request
'F' = Floor request
'B' = Send a video terminal in broadcast (make a lecturer)
'V' = Request to view a terminal video

'D' = Drop a terminal
'A' = Drop all terminals

If command 'C' (Request chair control)
Action:
'1' = request chair control
'0' = release chair control

If command 'F' (Request floor)
none

If command 'B' (Send a video terminal in broadcast)
Terminal Idx ("000"..."999" index of Terminal in list)
Action:
'1' = request to start video broadcast
'0' = request to end video broadcast

If command 'V' (Request to view a terminal video)
Terminal Idx ("000"..."999" index of Terminal in list)
Action:
'1' = request to start view locally the terminal video
'0' = request to end view locally the terminal video

If command 'D' (Drop a terminal)
Terminal Idx ("000"..."999" index of Terminal in list)

If command 'A' (Drop all terminals)
none

Direction: PC -> RTE

Mode '?'
Type: 'S'
Sub-Type 'H'
Data: Command:
'N' = Request number of terminal in list
'L' = Request terminal info
'C' = Request chair control status
'B' = Request local video broadcast status

If command 'N' (Request number of terminal in list)
none

If command 'L' (Request terminal info)
none (all the terminals in the list) or
Terminal Idx ("000"..."999" index of Terminal in list)

If command 'C' (Request chair control status)
none

If command 'B' (Request local video broadcast status)
none

Direction: RTE -> PC

Mode '<'
Type: 'S'
Sub-Type 'H'
Data: Type of message:
'R' = Response
'I' = Indication

If type of message 'R' (Response)
'N' = Number of terminals in list (Response to 'N' request command) (three bytes)
'L' = Terminal list (Response to 'L' request command)
Terminal Idx ("000"..."999" index of Terminal in list)
MCU Id ("000"..."999" MCU identification number for the terminal)
TE Id ("000"..."999" TE identification number for the terminal)
Broadcast:
'0' = not in broadcast
'1' = in broadcast
Locally Viewed:
'0' = not viewed
'1' = viewed
Floor:
'0' = not requested
'1' = requested
Terminal name string (max 30 chars)
'C' = Chair control status (Response to 'C' request command)
Status:
'0' = local terminal not owned chair control
'1' = local terminal owned chair control
'B' = Local video broadcast status (Response to 'B' request command)
Status:
'0' = not in broadcast
'1' = in broadcast

If type of message 'I' (Indication)
'07' = Terminal list is changed or the status of a remote terminal is changed
'08' = Local Terminal Chair or Broadcast status is changed)

Data Description:

Chair control request

This message is sent when the terminal wishes to become conductor. If the terminal is already the conductor of the conference, this message can be used to release the conductor-ship.

Floor Request

This message is sent when the terminal wishes to go on air.

Send a video terminal in broadcast

This message is sent when the terminal wishes to put a terminal on air. To perform this action if the system is not the MCU manager, is necessary to send the chair control request before this command. Index is the same as the which one returned by AT[?SHL command. To send in broadcast the local terminal the index to use is 0.

Request to view a terminal video

This message is sent when the terminal wishes to view a terminal different from the one in broadcast (this command works for some type of multiconference unit only). The same message can be used to end the forced terminal display.

Drop a terminal

This message is sent from conductor to disconnect another terminal. This command has effect only if the applicant is the conductor.

Drop all terminals

This message is sent from conductor to disconnect all terminals. This command has effect only if the applicant is the conductor. This command close the conference too.

Number of terminal in list

This message is sent by participant wishing to know all terminals connected in the multi-conference. The response is a number of messages, one for terminal, in each one being specified the index, the name and others information about the terminal status.

Request terminal list

This message is sent to know information about one or all terminals connected in the multiconference. The response is one or more messages, in each one being specified the index, the name and others information about the terminal status.

Request chair control status

This message is sent to know the chair status of the local terminal.

Local video broadcast status

This message is sent to know the floor status of a terminal.

Terminal Idx

It is the index returned with the response for the terminal list request. The local terminal has always index ‘000’.

Indication messages

When indication messages are numer ‘07’ and ‘08’, to known how is changed, call the AT[?SH messages.

9.6. Mute Command/Status (SM)

This message is sent by RTE to PC to indicate the status of mute.

PC send this message to modify or know the status of mute.

Direction:	PC -> RTE
Mode	'&' / '?'
Type:	'S'
Sub-Type	'M'
Data:	Mute: '0' = Disable '1' = Enable
Direction:	RTE -> PC
Mode	'<'
Type:	'S'
Sub-Type	'M'
Data:	Mute: '0' = Disable '1' = Enable

9.7.Remote Video Indication (SO)

This message is sent by RTE to PC as indication of remote video status.

This message should be used to know whether the remote video is displayed or not on the monitor.

Direction:	RTE -> PC
Mode	'<'
Type:	'S'
Sub-Type	'O'
Data:	Remote Video: '0' = Off '1' = On

9.8. Privacy Command/Status (SP)

This message is sent by RTE to PC as response to a Privacy Status Request (SP).

PC sends this message to modify or know the video privacy status.

Direction:	PC -> RTE
Mode	'&' / '?'
Type:	'S'
Sub-Type	'P'
Data:	Privacy: '0' = Disable '1' = Enable

Direction: RTE -> PC

Mode '<'
Type: 'S'
Sub-Type 'P'
Data: Privacy:
'0' = Disable
'1' = Enable

9.9. SelfView Command/Status (SS)

This message is sent by RTE to PC to indicate the self-view status.

PC sends this message to modify or know the self-view status.

Direction: PC -> RTE

Mode '&' / '?'
Type: 'S'
Sub-Type 'S'
Data: SelfView:
'0' = Disable
'1' = Enable

Direction: RTE -> PC

Mode '<'
Type: 'S'
Sub-Type 'S'
Data: SelfView:
'0' = Disable
'1' = Enable

9.10. Picture In Picture Command/Status (ST)

This message is sent by RTE to PC to indicate the picture in picture (PIP) status.

PC sends this message to modify or know the picture in picture (PIP) status.

Direction: PC -> RTE

Mode '&' / '?'
Type: 'S'
Sub-Type 'T'
Data: Picture in Picture:
'0' = Disable
'1' = Enable

Direction: RTE -> PC

Mode '<'
Type: 'S'
Sub-Type 'T'
Data: Picture in Picture:
'0' = Disabled
'1' = Enabled

Data Description:

During a call, the local image of your own camera can be displayed in one corner of the screen by selecting the position and removed by selecting '0'.

9.11. Volume Command/Status (SV)

This message is sent by PC to RTE to change/request the value of audio volume in Rx during a connection.

RTE sends this message as response to a status request.

Direction: PC -> RTE

Mode '&' / '?'
Type: 'S'
Sub-Type 'V'
Data: Volume Audio Rx (3 bytes):
"-44".."20"

Direction: RTE -> PC

Mode '<'
Type: 'S'
Sub-Type 'V'
Data: Volume Audio Rx (3 bytes):
"-44".."20"

9.12. Infrared remote control emulation (SW)

This message is sent by PC to RTE to emulate a remote control key pressure.

Direction: PC -> RTE

Mode '&'
Type: 'S'
Sub-Type 'W'
Data: Key (3 bytes):
'000' = key '0'
'001' = key '1'
'002' = key '2'
'003' = key '3'
'004' = key '4'
'005' = key '5'

’006’ = key ’6’
’007’ = key ’7’
’008’ = key ’8’
’009’ = key ’9’
’010’ = key ’*’
’011’ = key ’#’
’013’ = key Power
’014’ = key ’?’
’015’ = key Call
’016’ = key Disconnect
’017’ = key ’C’
’018’ = key Contacts
’019’ = key 1/a/A
’025’ = key ’layouts’
’026’ = key ’pip’
’027’ = key Arrow Up
’028’ = key Arrow Right
’029’ = key Arrow Down
’030’ = key Arrow Left
’031’ = key ’ok’
’032’ = key ’memo’
’033’ = key ’select’
’035’ = key ’near’
’036’ = key ’far’
’037’ = key Zoom ‘-‘
’038’ = key Zoom ‘+’’
’039’ = key Video privacy
’040’ = key Volume ‘-’
’041’ = key Volume ‘+’
’042’ = key Mute
’043’ = key ’presentation’
’044’ = key Back
’045’ = key ’inputs’
’046’ = key red (circle)
’047’ = key yellow (square)
’048’ = key blue (star)
’049’ = key green (triangle)
’050’ = key ‘.’ (valid only for CU-360 system)
’051’ = key @ (valid only for CU-360 system)
’052’ = key ‘-‘ (valid only for CU-360 system)
’060’ = key ’0’ held down
’061’ = key ’1’ held down
’062’ = key ’2’ held down
’063’ = key ’3’ held down
’064’ = key ’4’ held down
’065’ = key ’5’ held down
’066’ = key ’6’ held down
’067’ = key ’7’ held down
’068’ = key ’8’ held down

'069' = key '9' held down
'070' = key Video privacy held down
'071' = key Power held down
'072' = key 'C' held down
'073' = key 'layouts' held down
'074' = key Call held down
'075' = key Home

Data Description:

Warning: this command works as remote control, so in Telepresence systems some keys could not have any effect.

9.13. Send "Start" command (SJ)

This message is sent by PC to RTE to allow the current not licensed and not running version to enter the temporary mode.

Direction: PC -> RTE

Mode '&'
Type: 'S'
Sub-Type 'J'
Data: None

9.14. Remote Presentation Status (SK)

RTE sends this message to PC to inform it the remote presentation status.

Direction: RTE -> PC

Mode '<'
Type: 'S'
Sub-Type 'K'
Data: Status (2 bytes):
'00' = Remote Presentation Unknown status
'01' = Remote Presentation Transmission Active
'02' = Remote Presentation Transmission Stopped
'03' = Remote Presentation Received Active
'04' = Remote Presentation Received Stopped
'05' = Remote Presentation Transmission Request Failed
Video Source Index (2 bytes)
'08' = DVI Input
Cause (2 bytes)
'01' = Mode MCU
'02' = No call in progress
'03' = Broadcast in use
'04' = Seq. A in progress
'05' = Token busy
'06' = Not available
Dummy (2 bytes, must be 0) **(for future expansion)**

Data Description:

Status

If the remote presentation transmission request fails the status is equal to ‘05’ and the param Cause is setted. Video Source Index is equal to ‘00’.

If remote presentation transmission is active, the status is equal to ‘01’ and the Video Source Index is the video input selected for this stream. Cause is setted to ‘00’.

If remote presentation transmission is stopped, the status is equal to ‘02’ and the Video Source Index and Cause are both setted to ‘00’.

If remote presentation reception is active, the status is equal to ‘03’ and the Video Source Index and Cause are both setted to ‘00’.

If remote presentation reception is stopped, the status is equal to ‘04’ and the Video Source Index and Cause are both setted to ‘00’.

Cause

This parameter makes sense only if status is equal to ‘05’.

9.15. Configuration System Status (SA)

RTE sends this message to PC to inform it that some configuration parameters has been changed.

Direction:	RTE -> PC
Mode	‘<’
Type:	‘S’
Sub-Type	‘A’
Data:	Mute (1 byte): ‘0’ = Off ‘1’ = On Privacy (1 byte) ‘0’ = Off ‘1’ = On Layout (2 bytes) ’01’ = Local and Local (PiP), one monitor ’02’ = Remote and local (PiP), one monitor ’03’ = Local and remote (PiP), one monitor ’04’ = DualVideo remote and remote (PiP), one monitor ’05’ = DualVideo remote and local (PiP), one monitor ’06’ = Remote and DualVideo remote (PiP), one monitor ’07’ = Local and DualVideo remote (PiP), one monitor ’08’ = DualVideo local and remote (PiP), one monitor

'09' = DualVideo local and local (PiP), one monitor
'10' = Remote and DualVideo local (PiP), one monitor
'11' = Local and DualVideo local (PiP), one monitor
'12' = Local and local (PiP) (graphical monitor) and local (other monitor)
'13' = Remote and local (PiP) (graphical monitor) and local (other monitor)
'14' = Local and remote (PiP) (graphical monitor) and remote (other monitor)
'15' = DualVideo remote and remote (PiP) (graphical monitor) and local (other monitor)
'16' = Remote and DualVideo remote (PiP) (graphical monitor) and local (other monitor)
'17' = DualVideo remote and local (PiP) (graphical monitor) and remote (other monitor)
'18' = Local and DualVideo remote (PiP) (graphical monitor) and remote (other monitor)
'19' = Remote and local (PiP) (graphical monitor) and DualVideo remote (other monitor)
'20' = Local and remote (PiP) (graphical monitor) and DualVideo remote (other monitor)
'21' = DualVideo local and remote (PiP) (graphical monitor) and local (other monitor)
'22' = Remote and DualVideo local (PiP) (graphical monitor) and local (other monitor)
'23' = DualVideo local and local (PiP) (graphical monitor) and remote (other monitor)
'24' = Local and DualVideo local (PiP) (graphical monitor) and remote (other monitor)
'25' = Remote and local (PiP) (graphical monitor) and DualVideo local (other monitor)
'26' = Local and remote (PiP) (graphical monitor) and DualVideo local (other monitor)

Multi Image (2 bytes)
'00'=Not visibile
'01'=PiP LeftUp
'02'=PiP RightUp
'03'=PiP RightDown
'04'=PiP LeftDown
'05'=PaP
'06'=PoP

Local Video Camera Num (2 bytes)
'01' = HD1
'02' = USB
'03' = HD2
'04' = HD3
'05' = HD4
'06' = HD5
'08' = DVI Input

Screen saver status (1 byte):
'0' = Off
'1' = On

RX Volume value (3 bytes):
'-44' ... '020'

Do Not Disturb (DND) (1 byte) :
'0' = Off
'1' = On
'2' = On except Trusted

Recording Status (1 byte) :
'1' = Idle
'2' = Recording on USB
'3' = Pause on USB
'4' = Recording on Recording Server
'5' = Recording initiating on Recording Server

Playing Status (1 byte) :
‘1’ = Idle
‘2’ = Playing
‘3’ = Pause
Dummy (17 bytes, must be 0) **(for future expansion)**

Data Description:

Example:

PC <---------- AT[<SA100103010-160000000000000000000000<cr>---------- RTE
dove:
Mute=1, Privacy=0, Layout=0, Pip=1, Local Input=HD1, Screensaver=inactive, Rx Volume=-16db, Dummy = 0.

9.16. Screen Saver Activation (SL)

This message is sent by PC to RTE to change/request the status of screen saver.

RTE sends this message as response to a status request.

Direction:	PC -> RTE
Mode	‘&’ / ‘?’
Type:	‘S’
Sub-Type	‘L’
Data:	Screen saver status (1 byte): ‘0’ = deactivated ‘1’ = activated
Direction:	RTE -> PC
Mode	‘<’
Type:	‘S’
Sub-Type	‘L’
Data:	See above

Data Description:

9.17. Layout Command/Status (SB)

This message is sent by PC to RTE to change/request the status of video layout.

RTE sends this message as response to a status request.

Direction:	PC -> RTE
Mode	‘&’ / ‘?’
Type:	‘S’
Sub-Type	‘B’
Data:	Layout (2 bytes) ’01’ = Local and Local (PiP), one monitor ’02’ = Remote and local (PiP), one monitor ’03’ = Local and remote (PiP), one monitor ’04’ = DualVideo remote and remote (PiP), one monitor ’05’ = DualVideo remote and local (PiP), one monitor

'06' = Remote and DualVideo remote (PiP), one monitor
'07' = Local and DualVideo remote (PiP), one monitor
'08' = DualVideo local and remote (PiP), one monitor
'09' = DualVideo local and local (PiP), one monitor
'10' = Remote and DualVideo local (PiP), one monitor
'11' = Local and DualVideo local (PiP), one monitor
'12' = Local and local (PiP) (graphical monitor) and local (other monitor)
'13' = Remote and local (PiP) (graphical monitor) and local (other monitor)
'14' = Local and remote (PiP) (graphical monitor) and remote (other monitor)
'15' = DualVideo remote and remote (PiP) (graphical monitor) and local (other monitor)
'16' = Remote and DualVideo remote (PiP) (graphical monitor) and local (other monitor)
'17' = DualVideo remote and local (PiP) (graphical monitor) and remote (other monitor)
'18' = Local and DualVideo remote (PiP) (graphical monitor) and remote (other monitor)
'19' = Remote and local (PiP) (graphical monitor) and DualVideo remote (other monitor)
'20' = Local and remote (PiP) (graphical monitor) and DualVideo remote (other monitor)
'21' = DualVideo local and remote (PiP) (graphical monitor) and local (other monitor)
'22' = Remote and DualVideo local (PiP) (graphical monitor) and local (other monitor)
'23' = DualVideo local and local (PiP) (graphical monitor) and remote (other monitor)
'24' = Local and DualVideo local (PiP) (graphical monitor) and remote (other monitor)
'25' = Remote and local (PiP) (graphical monitor) and DualVideo local (other monitor)
'26' = Local and remote (PiP) (graphical monitor) and DualVideo local (other monitor)

Direction: RTE -> PC

Mode '<'
Type: 'S'
Sub-Type 'B'
Data: See above

9.18. Conference Gallery Layout configuration (SX)

PC sends this message to set or get the external MCU gallery layout configuration.

RTE send this message to reply.

Direction: PC -> RTE

Mode '&' / '?'
Type: 'S'
Sub-Type 'X'
Data: Gallery Layout active (valid only in read mode):
'0' = no
'1' = yes
Gallery Layout type (2 bytes):
'01' = Vertical 
'02' = Horizontal 
'03' = Presentation 
'04' = Continuous presence 
'05' = Video Full 

Dummies (10 bytes, must be 0) **(for future expansion)**

Direction: RTE -> PC

Mode '>'
Type: 'S'
Sub-Type 'X'
Data: See above

Data Description:

Gallery Layout active:

This is only a read field and is 1 if gallery layout is active, is 0 if it is not.

Gallery Layout type:

Define the video layout in the external MCU to see remote terminals and presentation in Gallery layout mode in which remotes video and presentation are sent in the same video flow. This field has no meaning if Gallery layout active is 0.

9.19. Multi image Command/Status (SD)

This message is sent by PC to RTE to change/request the multi image status.

RTE sends this message as response to a status request.

Direction: PC -> RTE

Mode '&' / '?'
Type: 'S'
Sub-Type 'D'
Data: Multi image mode (2 bytes):
'00'=Not visibile
'01'=PiP LeftUp
'02'=PiP RightUp
'03'=PiP RightDown
'04'=PiP LeftDown
'05'=PaP
'06'=PoP

Direction: PC -> RTE

Mode '<'
Type: 'S'
Sub-Type 'D'
Data: See above

Data Description:

Pay attention that PiP position must be coherently with PiP Position and Rotation configuration.

9.20. JPEG image capture Command (SI)

This message is sent by PC to RTE to capture video and store it in a jpg image and sent it to a FTP server.

Direction: PC -> RTE

Mode '&'
Type: 'S'
Sub-Type 'I'
Data: Action:

'F' = Set FTP URL
'U' = Set FTP username
'P' = Set FTP password
'J' = Capture image and send it to FTP server configured with F action command
'T' = Capture local/remote live/presentation image and send it to FTP server configured with F action command

Action type 'F'

FTP Server URL (max 60 ASCII chars)

Action type 'U'

FTP Username (max 60 ASCII chars)

Action type 'P'

FTP Password (max 60 ASCII chars):

If Action J

JPEG capture Password (max 29 ASCII chars):

If Action T

FTP Server URL (max 60 ASCII chars)Type (2 bytes):

'01' = Local video live
'02' = Local presentation
'03' = Remote video live
'04' = Remote presentation

JPEG capture Password (max 29 ASCII chars):

Data Description:

FTP Server URL:

Is the URL of server FTP, for example ftp://192.168.187.5

FTP Username:

Is username to access the server FTP.

FTP Password:

Is password to access the server FTP.

JPEG capture Password:

Is the password selected in the JPEG capture configuration to avoid that everyone can capture image from system.

This password is empty by default and it can be set in Configure/Advanced/Utilities/Remote Access/Web Video.

NOTES:

The file saved on FTP server is named image.jpg.

Before the first calling to the 'J' or 'T' command, please configure FTP parameters with 'F', 'U' and 'P' commands. Other calls to 'J' or 'T' commands can be made without reconfiguring FTP parameters.

Another way to capture the image is to call this HTTP URL https://xxx.xxx.xxx.xxx/web/utils/GetSnapshotEx.php?pw=password where xxx.xxx.xxx.xxx is the IP address of the XT system and password is the password set in Configure/Advanced/Utilities/Remote Access/Web Video configuration page (by default it is empty).

Starting from version 3_2_1_52 you can also use this URL https://xxx.xxx.xxx.xxx/web/utils/GetSnapshotEx.php?pw=password&type=video where xxx.xxx.xxx.xxx and password are the same as above, and type selects the video source to capture. If video=1 you can capture the local video live, if video=2 you can capture the remote video live, if video = 3 you can capture the local presentation, if video=4 you can capture the remote presentation.

Every time you call the HTTP URL, a new image is captured.

If SI AT command is used, the image can be downloaded only from FTP site.

If HTTP protocol is used, you must not use the SI command.

Pay attention that the image could not be downloaded or sent to FTP if the configuration doesn't allow it (not enabled, or IP address constraints or password wrong) or if the system is in power safe state.

9.21. Recording and Playing Command (SN)

This message is sent by PC to RTE to start or stop recording.

RTE sends this message as response to a status request.

Direction:	PC -> RTE
Mode	'&'
Type:	'S'
Sub-Type	'N'
Data:	Command: 'A' = Action related to recording 'P' = Action related to playing 'B' = Set FTP URL

'U' = Set FTP username
'V' = Set FTP password
'C' = Send recorded file to FTP server configured with B action command

Command type 'A'

Action type :

'1' = Start recording
'2' = Pause recording
'3' = Resume recording
'4' = Stop recording

Location:

'1' = USB storage
'2' = Equinox Recording Server

Command type 'P'

Index of file to play (5 bytes):

'00001'...'number of files'

Action type :

'1' = Start playing
'2' = Pause playing
'3' = Resume playing
'4' = Forward playing
'5' = Backward playing
'6' = Stop playing

Step for forward or backward: each step is 30 seconds (two bytes) :

'00' ...'99'

Command type 'B'

FTP Server URL (max 60 ASCII chars)

Command type 'U'

FTP Username (max 60 ASCII chars)

Command type 'V'

FTP Password (max 60 ASCII chars):

Command type C

File Index (5 bytes) :

'00001' .... 'number of files'

Direction: PC -> RTE

Mode '?'
Type: 'S'
Sub-Type 'N'
Data: Command:

'A' = Status of action related to recording
'S' = Availability of recording
'T' = Time left on USB device
'P' = Playing information

'F' = File to play information
'M' = First part of file name to play
'O' = Second part of file name to play
'N' = Number of files which can play
'B' = Total space on USB device
'D' = Space left on USB device

Command type 'A'
None

Command type 'S'
None

Command type 'T'
None

Command type 'P'
None

Command type 'F'
Index of file (5 bytes):
'00001' ... 'number of files'

Command type 'M'
None

Command type 'O'
None

Command type 'N'
None

Command type 'B'
None

Command type 'D'
None

Direction: RTE -> PC

Mode '<'
Type: 'S'
Sub-Type 'N'
Data: Command:
'A' = Status of action related to recording
'S' = Availability of playing/recording
'T' = Time left on USB device
'P' = Playing information
'F' = File to play duration and date and time
'M' = First part of file name to play
'O' = Second part of file name to play
'N' = Number of files which can play
'B' = Total space on USB device
'D' = Space left on USB device

Command type 'A'

Status:

'1' = idle
'2' = recording on USB
'3' = paused
'4' = recording on Recording Server
'5' = recording initiating on Recording Server

Dummy (10 bytes, must be 0)

Command type 'S'

Recording Available:

'1' = yes
'0' = no

Playing Available:

'1' = yes
'0' = no

Dummy (9 bytes, must be 0)

Command type 'T'

ASCII string in format hh:mm (5 bytes)

Command type 'P'

Status:

'1' = idle
'2' = playing
'3' = paused

Playing time elapsed in seconds (8 bytes) :

'00000000' ... '99999999'

Dummy (10 bytes, must be 0)

Command type 'F'

Index of file (5 bytes):

'00001'...'number of files'

Playing time duration and date- and time in format :
hh:mm:ssdd/mm/yyyy, hh:mm:ss (28 bytes)

Command type 'M'

Index of file (5 bytes):

'00001'...'number of files'

First part of file name (max 64 ASCII chars)

Command type 'O'

Index of file (5 bytes):

'00001'...'number of files'

Second part of file name (max 64 ASCII chars)

Command type 'N'

Number of files in the system (5 bytes)

'00000'...'99999'

Command type 'B'

ASCII string in format **"number unit-of-measure"**

Command type 'D'

ASCII string in format **"number unit-of-measure"**

Data Description:

Location

This parameter specifies where recording must done. Pay attention that this must be coherent with location set in recording configuration, so if in configuration location is equal to USB, if this command requests to register on Equinox Recording Server, the command fails.

Action type:

After pausing recording only resume or stop action can be performed.

Time Left on USB device

This is valid only if recording is available.

Step for forward or backward

Every step is about 30 second, so if step is '05' playing go forward or backward 2 minutes and 30 seconds

FTP Server URL:

Is the URL of server FTP, for example ftp://192.168.187.5

FTP Username:

Is username to access the server FTP.

FTP Password:

Is password to access the server FTP.

NOTES:

The file saved on FTP server has the same name as the original file saved on XT system.

Before the first calling to the 'S' command, please configure FTP parameters with 'B', 'U' and 'V' commands. Other calls to 'S' commands can be made without reconfiguring FTP parameters.

Command type 'B' and 'D'

The total space and the space free left on USB device are expressed as an ASCII string like "10 MB" or "1,5 GB" depending on the number of bytes.

9.22. Local Presentation Command (SQ)

This message is sent by PC to RTE to start or stop local presentation.

RTE sends this message as response to a status request.

Direction: PC -> RTE

Mode '&'
Type: 'S'
Sub-Type 'Q'
Data: Command:
'0' = Activation of local Presentation

Command type '0'
Action type :
'1' = Start presentation
'0' = Stop presentation
Action type :
'08' = Automatic

Direction: PC -> RTE

Mode '?'
Type: 'S'
Sub-Type 'Q'
Data: Command:
'0' = Local presentation statusio

Command type '0'
None

Direction: RTE -> PC

Mode '<'
Type: 'S'
Sub-Type 'Q'
Data: Command:
'0' = Local presentation status

Command type 'A'
Status:
'0' = not activated
'1' = activated
Video Source Index (2 bytes)
'08' = Automatic

Data Description:

9.23. Do Not Disturb (DND) Command/Status (SR)

This message is sent by RTE to PC to indicate the self-view status.

PC sends this message to modify or know the self-view status.

Direction: PC -> RTE

Mode '&' / '?'
Type: 'S'
Sub-Type 'R'
Data: Do not disturb (DND):
'0' = Disable
'1' = Enable

Direction: RTE -> PC

Mode '<'
Type: 'S'
Sub-Type 'R'
Data: Do not disturb (DND):
'0' = Disabled
'1' = Enabled
'2' = Enabled except Trusted

9.24. Send chat message (SU)

This message is sent by RTE to notify an error on the received message:

Direction: PC -> RTE

Mode 'S'
Type: 'U'
Sub-Type '&'
Data: Command:
'M' = Message to send

Command type 'M'
Text message (max 60 ASCII chars)

Data Description:

9.25. Control & Indication Error Message (SE)

This message is sent by RTE to notify an error on the received message:

Direction: RTE -> PC

Mode <‘
Type: ‘S’
Sub-Type ‘E’
Data: Message Type
Sub-type
Error:
’1’ = Bad parameter
’2’ = Unknown message
’3’ = Wrong message length
‘4’ = Bad mode
‘5’ = Unable to execute command
Sub-code
If Unable to execute command
‘0’ = system timeout
‘1’ = system busy
If Bad parameter
Index number of wrong parameter

The control and indication messages can be used by PC to perform some actions to manage the system.

RTE sends these messages to notify some system's status changes.

10.1. System configuration change indication (FA)

PC sends this message to configure what kind of notification is interested.

RTE sends this message to PC to show a status change on system configuration.

To know what is changed the PC must send one or more commands related to the configuration.

Direction: PC -> RTE

Mode '&'
Type: 'F'
Sub-Type 'A'
Data: Configure notification:
- Configuration:
  - '0' = No notification on configuration changes
  - '1' = Notification on configuration changes
- Licenses:
  - '0' = No notification on licenses changes
  - '1' = Notification on licenses changes
- Recent Call list:
  - '0' = No notification on addressbook changes
  - '1' = Notification on addressbook changes
- Addressbook:
  - '0' = No notification on addressbook changes
  - '1' = Notification on addressbook changes
- LDAP:
  - '0' = No notification on LDAP changes
  - '1' = Notification on LDAP changes

Direction: RTE -> PC

Mode '<'
Type: 'F'
Sub-Type 'A'
Data: Configuration changed (3 bytes):
- '001' = Network IP (ND)
- '002' = NAT & Dynamic Ports (NTI)
- '003' = QoS (NQ)
- '004' = Terminal mode and capabilities (TF and TI)
- '005' = Network H.323 (NH)
- '006' = Network SIP/ISDN/H323 (NM, NA, NH, NO, TH and TF for ISDN only)
- '007' = Terminal MCU (TM)
- '008' = Terminal Location Parameters (TQ)

'009' = Terminal Date & Time (TT)
'010' = Terminal Date & Time Extended (TB)
'011' = Terminal Call preferences (TAD, NA, TAN, TAA, TC and TU)
'012' = Terminal Encryption (TO)
'013' = Video Quality(TAB and TY)
'014' = User preferences (TAC, TQ and TD)
'015' = PowerOff (TS)
'016' = Passwords
'017' = Monitor (TAV, TAL, TG and TS)
'018' = Camera (TU, TV)
'019' = Audio (TN)
'020' = Diagnostic Tools (RN and RA)
'021' = Predefined Party (NP)
'022' = Web (NK)
'023' = Web Video (RW)
'024' = Telnet (RT)
'025' = Download (RD)
'026' = AT Commands
'027' = SNMP (NS)
'028' = Recording (TJ)
'029' = Avaya Scopia® control
'030' = Equinox management (RS)
'031' = Import/Export (TKR)
'032' = Screen Link/Mobile Linkl (RB)
'033' = Licenses (TW)
'034' = Recent Calls list (DW, DT)
'035' = Addressbook (DF, DR, DL)
'036' = LDAP (DG, DP, DC)
'037' = Calendar (RF, DN)

Dummies (10 bytes, must be 0) **(for future expansion)**

Data Description:

10.2. System download indication (FD)

RTE sends this message to PC to notify download status.

Direction: RTE -> PC

Mode '<'
Type: 'F'
Sub-Type 'D'
Data: Download Status (two bytes):
'01' = In-progress
'02' = Ended
Download Result (two bytes):
'01' = Success
'02' = Failure

Download Failure Reason (two bytes):
'00' = None
'01' = Interrupted
'02' = Password needed
'03' = Board error
Dummies (20 bytes, must be 0) **(for future expansion)**

Data Description:

10.3. System diagnostic indication (FB)

RTE sends this message to PC to notify system diagnostic status.

Direction: RTE -> PC

Mode '<'
Type: 'F'
Sub-Type 'B'
Data: High temperature alarm:
'1' = Alarm on
'2' = Alarm off
Gatekeeper alarm:
'1' = Alarm on
'2' = Alarm off
Dummies (20 bytes, must be 0) **(for future expansion)**

Data Description:

10.4. Alarm indication (FC)

RTE sends this message to PC to notify alarm status.

Direction: RTE -> PC

Mode '<'
Type: 'F'
Sub-Type 'C'
Data: Alarm type (three bytes):
'001' = Temperature alarm
'002' = System reset alarm
'003' = Unplug video alarm
'004' = Unplug audio alarm
'005' = System stuck alarm
'006' = Network link down alarm
'007' = Low connection link quality alarm
'008' = Telepresence slave connection alarm
'009' = LDAP server connection alarm
'010' = Cloud server connection alarm
'011' = Download failed alarm
'012' = Download restored alarm
'013' = Gatekeeper server registration alarm

'014' = SIP server registration alarm
'015' = Presence server registration alarm
Alarm status:
'0' = Alarm off
'1' = Alarm on
Dummies (20 bytes, must be 0) **(for future expansion)**

Data Description:

10.5. Send command to start browser with URL (FF)

RTE sends this message to PC to notify alarm status.

Direction: RTE -> PC

Mode '&'
Type: 'F'
Sub-Type 'F'
Data: Item:
'A' = First part of URL
'B' = Second part of URL
'W' = Starts browser with URL

Item type 'A'
First part URL string (first 64 chars)

Item type 'B'
Second part URL string (max 64 chars)

If item W (Write data) :
Attention: without this command browser doesn't start

Data Description:

10.6. Calendar indication (FG)

RTE sends this message to PC to notify some changes in calendar meeting's list.

Direction: RTE -> PC

Mode '<'
Type: 'F'
Sub-Type 'G'
Data:

Dummies (20 bytes, must be 0) **(for future expansion)**

Data Description:

When this message is received by a client, it should update its calendar by calling the DO and DA messages.

10.7. Streaming Management (FH)

This message is sent by PC to RTE to start/stop streaming.

Direction: RTE -> PC

Mode '&' / '?'
Type: 'F'
Sub-Type 'H'
Data: Item:
'A' = Start/Stop streaming

Item type 'A'
'0' = Stop streaming
'1' = Start streaming
Dummies (10 bytes, must be 0) **(for future expansion)**

Direction: RTE -> PC

Mode '<'
Type: 'F'
Sub-Type 'H'
Data: See above.

Data Description:

10.8. Control & Indication Extended Error Message (FE)

This message is sent by RTE to notify an error on the received message:

Direction: RTE -> PC

Mode '<'
Type: 'F'
Sub-Type 'E'
Data: Message Type
Sub-type
Error:
'1' = Bad parameter
'2' = Unknown message
'3' = Wrong message length
'4' = Bad mode
'5' = Unable to execute command
Sub-code
If Unable to execute command
'0' = system timeout
'1' = system busy
If Bad parameter
Index number of wrong parameter

The certificate management messages can be used by PC to perform some actions for SSL/TLS server/client certificates used by the system.

11.1. Create a Certificate Signing Request (CSR) (AA)

PC sends this message to create a new Certificate Signing Request (CSR).

This message is sent by the RTE to reply to a reading request.

Direction: PC -> RTE

Mode '& / '?''
Type: 'A'
Sub-Type 'A'
Data: Protocol type (2 bytes):
'01'= TLS
'02'= WEB
'03'= 802.1x
'04'= Recording
Command type:
'N' = System Name or IP address
'C' = Country
'S' = State Full Name
'L' = Locality
'O' = Organization
'U' = Organizational Unit
'M' = E-mail
'W' = Create

Item type 'N'
System Name or IP address (max 64 ASCII chars)

Item type 'C'
Country (max 2 ASCII chars)

Item type 'S'
State Full Name (max 64 ASCII chars)

Item type 'L'
Locality (max 64 ASCII chars)

Item type 'O'
Organization (max 64 ASCII chars)

Item type 'U'
Organizational Unit (max 64 ASCII chars)

Item type 'M'
E-mail (max 64 ASCII chars)

If command type 'W' (Create CSR) :
None

Direction: RTE -> PC

Mode '<'
Type: 'A'
Sub-Type 'A'
Data: See above

Data Description:

11.2. Certificate transfer management (AB)

This message is sent by PC to RTE to download or upload certificates.

Direction: PC -> RTE

Mode '&'
Type: 'A'
Sub-Type 'B'
Data: Command Type:

'F' = Set FTP URL
'U' = Set FTP username
'P' = Set FTP password
'S' = Send CSR file to FTP server configured by F command
'R' = Download a new certificate from the FTP server configured by F command

Item type 'F'

FTP Server URL (max 60 ASCII chars)

Item type 'U'

FTP Username (max 60 ASCII chars)

Item type 'P'

FTP Password (max 60 ASCII chars)

Item type 'S'

Protocol Type (2 bytes):

'01'= TLS
'02'= WEB
'03'= 802.1x
'04'= Recording

Certificate type (2 bytes):

'01'= CSR

Command type 'R'

Protocol Type (2 bytes):

'00'= None (used with type 4)
'01'= TLS
'02'= WEB

‘03’= 802.1x
‘04’= Recording
Certificate type (2 bytes):
‘01’= Authority Certificate
‘02’= System Signed Certificate
‘03’= System Certificate in PKCS#12 format
‘04’= Authority Root Certificate
‘05’= System and Authority Certificate in PKCS#7 format

Data Description:

Command ‘R’

The R command is used to download a new certificate from the URL previously specified by F command. Certificate must be renamed in this manner depending on the Certificate Type and must be in the same directory of the URL set by F command:

Authority Certificate : **cacert.pem**
System Signed Certificate : **cert.pem**
System Certificate in PKCS#12 format : **pkcs.p12**
Authority Root Certificate : **caroot.pem**
System and Authority Certificate in PKCS#7 **pkcs.p7**

11.3. Certificate management (AC)

This message is sent by PC to RTE to make action on certificates or to read info about certificate status.

It is sent by RTE to PC as an answer to reading request.

Direction: PC -> RTE

Mode ‘&’
Type: ‘A’
Sub-Type ‘C’
Data: Command Type:
’I’ = Import a certificate
’A’ = Apply a certificate
’D’ = Delete a system certificate
’R’ = Delete Root CA certificate
’B’ = Back-up and restore

Command type ‘I’
Protocol Type (2 bytes):
‘00’= None (used with type 4)
‘01’= TLS
‘02’= WEB
‘03’= 802.1x
‘04’= Recording
Certificate type (2 bytes):

‘01’= Authority Certificate
‘02’= System Signed Certificate
‘03’= System Certificate in PKCS#12 format
‘04’= Authority Root Certificate
‘05’= System and Authority Certificate in PKCS#7 format
‘02’= WEB
‘03’= 802.1x
‘04’= Recording
PKCS#12 password (max 32 ASCII chars)

Command type ‘A’
Protocol Type (2 bytes):
‘01’= TLS
‘02’= WEB
‘03’= 802.1x
‘04’= Recording

Command type ‘D’
Protocol Type (2 bytes):
‘01’= TLS
‘02’= WEB
‘03’= 802.1x
‘04’= Recording

Command type ‘R’
Index (2 bytes):
‘00’...‘Number of Root CA Certificates - 1’

Command type ‘B’
Protocol Type (2 bytes):
‘01’= TLS
‘02’= WEB
‘03’= 802.1x
‘04’= Recording
Operation type (2 bytes)
‘01’= Backup into USB key
‘02’= Export PKCS#12 file
‘02’= Backup into USB key and Remove
‘03’= Restore
PKCS#12 password (max 32 ASCII chars)

Direction: PC -> RTE

Mode ‘?’
Type: ‘A’
Sub-Type ‘C’
Data: Command Type:
’G’ = Generic Information

Command type 'G'

Protocol Type (2 bytes):

'01'= TLS
'02'= WEB
'03'= 802.1x
'04'= Recording

Direction: RTE-> PC

Mode '>'
Type: 'A'
Sub-Type 'C'
Data: Command Type:

'G' = Generic Information

Command type 'G'

Protocol Type (2 bytes):

'01'= TLS
'02'= WEB
'03'= 802.1x
'04'= Recording

Certificate Status (2 bytes):

'00'= No certificate
'01'= CSR has been created
'02'= CSR has been downloaded
'03'= Authority certificate has been imported
'04'= Signed system certificate has been imported
'05'= A valid certificate is in use

Dummy (15 bytes, must be 0) **(for future expansion)**

Data Description:

Command type A

This command must be sent after importing the CA and system certificates to enable the system to start to use them.

11.4. Read Root Certificate data (AR)

This message is sent by PC to RTE to read data about Root Authority certificates

This message is sent by RTE to PC to answer to the read request.

Direction: PC -> RTE

Mode '?'
Type: 'A'
Sub-Type 'R'
Data: Command Type:

'G' = Generic Information
'S' = Read first part of Subject
'T' = Read second part of Subjec

Command type 'G'

None

Command type 'I'

Index (2 bytes):
'00'... Number of Root CA Certificates - 1'

Direction: RTE -> PC

Mode '<'
Type: 'A'
Sub-Type 'D'
Data: Response Type:

'G' = Generic

'S' = First part of Subject

'T' = Second part of Subject

Response type 'G'

Number of Root CA Certificates (2 bytes):
'00'...'99'
Dummy (15 bytes, must be 0) **(for future expansion)**

Response type 'S'

Index (2 bytes):
'00'... Number of Root CA Certificates - 1'
First part of Subject (max 64 ASCII chars)

Response type 'T'

Index (2 bytes):
'00'... Number of Root CA Certificates - 1'
Second part of Subject (max 64 ASCII chars)

Data Description:

11.5. Certificate Error Message (AE)

This message is sent by RTE to notify an error on the received message:

Direction: RTE -> PC

Mode '<'
Type: 'A'
Sub-Type 'E'
Data: Message Type
Sub-type
Error:

'1' = Bad parameter

'2' = Unknown message

'3' = Wrong message length

'4' = Bad mode

'5' = Unable to execute command

Sub-code

If Unable to execute command

‘0’ = system timeout

‘1’ = system busy

If Bad parameter

Index number of wrong parameter

The Diagnostic messages are used to know some HW, SW or feature status.

12.1. Connection Status (PC)

This message is sent by PC to RTE in order to know the connection status and the status of the local and remote terminal's parameters.

Direction: PC -> RTE

Mode '?'
Type: 'P'
Sub-Type 'C'
Data: Terminal Number (2 ASCII digits):

Direction: PC -> RTE

Mode '<'
Type: 'P'
Sub-Type 'C'
Data: Terminal Number (2 bytes):
Type (2 bytes):
- 'G0' = Generic Information
- 'N0' = Call number
- 'M0' = Terminal name
- 'RT' = Rate Tx parameters
- 'RR' = Rate Rx parameters
- 'AT' = Audio Tx parameters
- 'AR' = Audio Rx parameters
- 'VT' = Video Tx parameters
- 'VR' = Video Rx parameters
- 'HT' = Dual Video Tx parameters
- 'HR' = Dual Video Rx parameters
- 'PR' = Packet Rx percentage lost
- 'PT' = Packet Tx percentage lost
- 'JR' = Packet Rx jitter
- 'JT' = Packet Tx jitter
- 'L0' = Link quality indicator

If Type = 'G0'

Interface (2 bytes):
- '01' = LAN
- '06' = SIP

Mcu (1 byte):
- '0' = point-to-point
- '1' = multiconference activated

Outgoing (1 byte):
- '0' = incoming
- '1' = outgoing

Dummy (1 byte, must be 0) **(for future expansion)**
Audio Loop Mode (1 byte):
- '1' = audio looped
- '0' = audio not looped

Video Loop Mode (1 byte):

'1' = video looped
'0' = video not looped

Dual Video Loop Mode (1 byte):
'1' = dual video looped
'0' = dual video not looped

H.239(1 byte):
'1' = dual video with H.239 protocol
'0' = dual video with a proprietary protocol

If Type = 'N0'

Call number (max 64 ASCII chars)

If Type = 'M0'

Terminal Name (max 64 ASCII chars)

If Type = 'RT' or Type = 'RR'

Rate value (fixed to 10 digits)
'0000000000' = no rate
'0000000001' = 64K
'0000000002' = 2x64K
'0000000003' = 3x64K
'0000000004' = 4x64K
'0000000005' = 5x64K
'0000000006' = 6x64K
'0000000007' = 7x64K
'0000000008' = 8x64K
'0000000009' = 9x64K
'0000000010' = 10x64K
'0000000011' = 11x64K
'0000000012' = 12x64K
'0000000013' = 128K
'0000000014' = 192K
'0000000015' = 256K
'0000000016' = 320K
'0000000017' = 384K
'0000000018' = 448K
'0000000019' = 512K
'0000000020' = 768K
'0000000021' = 1152K
'0000000022' = 1472K
'0000000023' = 1536K
'0000000024' = 1920K
'0000000025' = 2560K
'0000000026' = 3072K
'0000000027' = 3584K
'0000000028' = 4096K
'0000000029' = 4608K
'0000000030' = 5120K
'0000000031' = 5632K
'0000000032' = 6144K
'0000000033' = 6656K
'0000000034' = 7168K
'0000000035' = 7680K
'0000000036' = 8192K
'0000000037' = 576K
'0000000038' = 640K
'0000000039' = 704K
'0000000040' = 1728K
'0000000041' = 2048K

‘0000000042’ = 896K
‘0000000043’ = 1024K
‘0000000044’ = 1280K
‘0000000045’ = 1408K
‘0000000046’ = 8128K
‘0000000047’ = 10240K
All other values represent the real rate value.
Current rate value (fixed to 10 digits)
Same as rate valu

If Type = ‘AT’ or Type = ‘AR’

Audio Coding (2 bytes)
‘00’ = Automatic
‘01’ = G.711 64K U low
‘02’ = G.711 56K U low
‘03’ = G.711 48K U low
‘04’ = G.711 64K A low
‘05’ = G.711 56K A low
‘06’ = G.711 48K A low
‘07’ = G.722 64K
‘08’ = G.722 56K
‘09’ = G.722 48K
‘10’ = G.728
‘11’ = G.722_1
‘12’ = G.722_1 32K
‘13’ = G.722_1 24K
‘14’ = G.723
‘15’ = MP4-AACLD
‘16’ = MP4-AACLD 48K
‘17’ = MP4-AACLD 56K
‘18’ = MP4-AACLD 64K
‘19’ = MP4-AACLD 128K
‘20’ = PT 724
‘21’ = PT 716
‘22’ = G.722_1 Annex C
‘23’ = G.722_1 Annex C 24K
‘24’ = G.722_1 Annex C 32K
‘25’ = G.722_1 Annex C 48K
‘26’ = G.729 A
‘28’ = G.719 32K
‘29’ = G.719 48K
‘30’ = G.719 64K
‘31’ = G.719 96K
‘32’ = G.719 128K
‘33’ = OPUS
‘27’ = Audio Off
Audio bit rate value (fixed to 10 digits)
Audio frame/packet value (fixed to 5 digits)
Audio lost packets value (fixed to 5 digits)

If Type = ‘VT’ or Type = ‘VR’

Video Coding (2 bytes)
‘00’ = Automatic
‘01’ = H.261
‘02’ = H.261 CIF
‘03’ = H.261 QCIF
‘04’ = H.263
‘05’ = H.263 CIF
‘06’ = H.263 QCIF

‘07’ = H.263 SQCIF
‘08’ = H.263 4QCIF
‘09’ = H.263 1280x1024
‘10’ = H.263 1024x768
‘11’ = H.263 800x600
‘12’ = H.263 640x480
‘13’ = H.263 SIF
‘14’ = H.263 4SIF
‘15’ = H.263 ICIF
‘16’ = H.263 ISIF
‘17’ = H.264/H.265
‘18’ = H.264/H.265 CIF
‘19’ = H.264/H.265 QCIF
‘20’ = H.264/H.265 SQCIF
‘21’ = H.264/H.265 4CIF
‘22’ = H.264/H.265 1280x1024
‘23’ = H.264/H.265 1024x768
‘24’ = H.264/H.265 800x600
‘25’ = H.264/H.265 640x480
‘26’ = H.264/H.265 SIF
‘27’ = H.264/H.265 4SIF
‘28’ = H.264/H.265 ICIF
‘29’ = H.264/H.265 ISIF
‘30’ = H.263 320x240
‘31’ = H.263 528x400
‘32’ = H.263 576x448
‘33’ = H.263 512x288
‘34’ = H.263 768x448
‘35’ = H.263 1024x576
‘36’ = H.263 1280x720
‘37’ = H.263 Custom
‘38’ = H.264/H.265 320x240
‘39’ = H.264/H.265 528x400
‘40’ = H.264/H.265 576x448
‘41’ = H.264/H.265 512x288
‘42’ = H.264/H.265 768x448
‘43’ = H.264/H.265 1024x576
‘44’ = H.264/H.265 1280x720
‘45’ = H.264/H.265 Custom
‘46’ = H.264/H.265 Sharpness
‘48’ = H.261 Custom
‘49’ = H.264/H.265 1920x1080
‘50’ = H.263 1920x1080
‘51’ = H.264/H.265 400x224
‘52’ = H.263 400x224
‘53’ = H.264/H.265 1280x768
‘54’ = H.264/H.265 1440x900
‘55’ = H.264/H.265 1680x1050
‘56’ = H.264/H.265 1600x1200
‘57’ = H.264/H.265 1920x1200
‘58’ = H.264/H.265 624x352
‘59’ = H.264/H.265 576x336
‘47’ = Video Off
Video used bit rate value (fixed to 10 digits)
Video max bit rate value (fixed to 10 digits)
Video frame rate value (fixed to 5 digits)
Video lost packets value (fixed to 5 digits)

Video Annex F:
'1' = used
'0' = not used
Video Annex I:
'1' = used
'0' = notused
Video Annex J:
'1' = used
'0' = notused
Video Annex T:
'1' = used
'0' = notused
Video width value in pixels (fixed to 5 digits)
Video height value in pixels (fixed to 5 digits)
Video H.264/H.265 Profile Type (2 bytes)
'00' = H.264 base Profile
'01' = H.264 High Profile
'02' = H.264 TSVC Profile
'03' = H.264 High-TSVC Profile
'04' = H.265 base Profile
'05' = H.265 TSVC Profile

If Type = 'HT' or Type = 'HR'

Dual video Coding (2 bytes)
See video coding values used for video
Dual video used bit rate value (fixed to 10 digits)
Dual video max bit rate value (fixed to 10 digits)
Dual video frame rate value (fixed to 5 digits)
Dual video lost packets value (fixed to 5 digits)
Dual video Annex F:
'1' = used
'0' = not used
Dual video Annex I:
'1' = used
'0' = not used
Dual video Annex J:
'1' = used
'0' = not used
Dual video Annex T:
'1' = used
'0' = not used
Dual video width value in pixels (fixed to 5 digits)
Dual video height value in pixels (fixed to 5 digits)
Video H.264/H.265 Profile Type (2 bytes)
'00' = H.264 base Profile
'01' = H.264 High Profile
'02' = H.264 TSVC Profile
'03' = H.264 High-TSVC Profile
'04' = H.265 base Profile
'05' = H.265 TSVC Profile

If Type = 'DT' or Type = 'DR'

T.120 opened:
'1' = opened
'0' = closed
H.224 opened:

'1' = opened
'0' = closed
Dummy (10 bytes, must be 0) **(for future expansion)**
Dummy (10 bytes, must be 0) **(for future expansion)**
Dummy (10 bytes, must be 0) **(for future expansion)**
Dummy (10 bytes, must be 0) **(for future expansion)**

If Type = 'PT' or Type = 'PR'

Video lost packet percentage (fixed to 2 digits)
Dual Video lost packet percentage (fixed to 2 digits)
Audio lost packet percentage (fixed to 2 digits)

If Type = 'JT' or Type = 'JR'

Video jitter (msec) :
ASCII string NOT null terminated 4 bytes in format x.xx
Dual Video Video jitter (msec))
ASCII string NOT null terminated 4 bytes in format x.xx
Audio jitter (msec)
ASCII string NOT null terminated 4 bytes in format x.xx
Dummy (40 bytes, must be 0) **(for future expansion)**

If Type = 'L0'

Network quality level (2 bytes):
'00' ...'05'
Audio quality level (2 bytes):
'00' ...'05'
Video quality level (2 bytes):
'00' ...'05'
Dual video quality level (2 bytes):
'00' ...'05'

Data Description:

Terminal Number:

If the system is connected point-to-point, this value is always "00". If the system manage a multiconference, this value can be the number of the terminal connected (the same number that you can see in the system interface).

Quality Level:

A low value shows a low quality level

12.2. System's serial numbers (PS)

This message is sent by PC to RTE in order to know system's serial numbers.

Direction:	PC -> RTE
Mode	'?'
Type:	'P'
Sub-Type	'S'
Data:	Serial number type
	'1' = Codec serial number
	'2' = Board serial number

Direction: RTE -> PC

Mode '<'
Type: 'P'
Sub-Type 'S'
Data: Serial number type:
'1' = Codec serial number
'2' = Board serial number
Serial number (max 32 ASCII chars)

12.3. Call Interface Status (PG)

This message is sent by PC to RTE in order to know if there are some errors on the call interface.

Direction: PC -> RTE

Mode '?'
Type: 'P'
Sub-Type 'G'
Data: Call interface:
'E' = Link Eth0
'F' = Link Eth1
'G' = Gatekeeper
'P' = Proxy
'R' = Registar

Direction: RTE -> PC

Mode '<'
Type: 'P'
Sub-Type 'G'
Data: Call Interface:

If Call Interface = 'E'
Status :
'0' = Physical is down
'1' = Physical is up
'2' = Address conflict

If Call Interface = 'F'
Status :
'0' = Physical is down
'1' = Physical is up
'2' = Address conflict

If Call Interface = 'G'
Status :
'0' = Gatekeeper is not connected or disabled
'1' = Gatekeeper is connected
'2' = Gatekeeper registration is in progress

If Call Interface = 'P'

Status :

'0' = Proxy is not connected
'1' = Proxy is connected
'2' = Proxy registration is in progress

If Call Interface = 'R'

Status :

'0' = Registar is not connected
'1' = Registar is connected
'2' = Registar registration is in progress

12.4. Download status (PD)

This message is sent by PC to RTE in order to know if a download is finished in a correct manner.

Direction:	PC -> RTE
Mode	'?'
Type:	'P'
Sub-Type	'D'
Data:	None
Direction:	RTE -> PC
Mode	'<'
Type:	'P'
Sub-Type	'D'
Data:	Status: '0' = Download not completed '1' = Download completed Dummy (1 byte, must be 0) **(for future expansion)**

12.5. Debug log file management (PL)

This message is sent by PC to RTE in order to set the log debug file enabled and levels of debug.

Direction:	PC -> RTE
Mode	'&'
Type:	'P'
Sub-Type	'L'
Data:	Enable Log: '0' = not enable '1' = enable Module to debug: '0' = Automatic '1' = Call '2' = Graphic '3' = System

Level of debug:
- '0' = Level 0
- '1' = Level 1
- '2' = Level 2
- '3' = Level 3
- '4' = Level 4
- '5' = Level 5

12.6. Audio test (PA)

This message is sent by PC to RTE in order to produce a sound.

Direction:	PC -> RTE
Mode	'&'
Type:	'P'
Sub-Type	'A'
Data:	Sound Type '1' = Continuous tone '2' = Ring Status: '0' = Stop '1' = Start Dummy (1 byte, must be 0) **(for future expansion)**

12.7. Generic System Info (PI)

This message is sent by PC to RTE in order to get some system generic info.

Direction:	PC -> RTE
Mode	'?'
Type:	'P'
Sub-Type	'I'
Data:	None
Direction:	RTE -> PC
Mode	'<'
Type:	'P'
Sub-Type	'I'
Data:	System Type (2 bytes): '02' = XT5000 '03' = XT7000 '04' = Konftel CC200 System Sub-Type (2 bytes): '00' = No subtype '02' = Executive '03' = IP Office '04' = 720p '05' = XT3100

System Board (2 bytes):
‘02’ = Phoenix
‘03’ = Android
Dummy (5 bytes, must be 0) **(for future expansion)**

12.8. System Model Name (PIS)

This message is sent by PC to RTE in order to get the system model name.

Direction:	PC -> RTE
Mode	‘?‘
Type:	‘P’
Sub-Type	‘I’
Data:	Information: ‘S’ = System model name
Direction:	RTE -> PC
Mode	‘<’
Type:	‘P’
Sub-Type	‘I’
Data:	Information: ‘S’ = System model name

If Information = S
System model name (max 64 ASCII chars)

12.9. System component Status (PB)

This message is sent by PC to RTE in order to get system component status info.

Direction:	PC -> RTE
Mode	‘?‘
Type:	‘P’
Sub-Type	‘B’
Data:	Type of component: ‘B’= Remote control battery state ‘T’= Internal Temperature ‘A’= Audio input/output connection status ‘V’= Video input/output connection status ‘P’= Audio input/output peak and noise level ‘S’= Alarm status

If type of component ‘B’:
None

If type of component ‘T’:
None

If type of component ‘A’:
None

If type of component 'V':

None

If type of component 'P':

Audio source (2 bytes):

'01' = POD1 audio input
'02' = POD2 audio input
'03' = Digital audio input
'04' = HD1 audio input
'05' = HD2 audio input (valid only for XT7000)
'06' = Analog audio input
'07' = USB camera audio input
'08' = USB microphone audio input
'09' = Track1 audio output
'10' = Track2 audio output
'11' = Tx audio stream
'12' = Rx audio stream

If type of component 'S

None

Direction: RTE -> PC

Mode '<'
Type: 'P'
Sub-Type 'B'
Data: Type of component:

'B' = Remote control battery state
'T' = Internal Temperature
A'= Audio input/output connection status
'V'= Video input/output connection status
'P'= Audio input/output peak and noise level
'S'= Alarm status

If component 'B':

'1' = Charged
'2' = Half Charged
'3' = Not Charged

If component 'T':

Temperature in Celsius degrees (2 bytes):

'00' ... '99'

If component 'A':

POD1 input:

'0'= no cable
'1'= connected

POD2 input:

'0'= no cable
'1'= connected

HD1 input:

'0'= no cable
'1'= connected

HD2 input (only XT7000):

'0'= no cable
'1'= connected

USB camera input:
'0'= no cable
'1'= connected
USB microphone input:
'0'= no cable
'1'= connected
Digital input:
'0'= no cable
'1'= connected
Analog input:
'0'= no cable
'1'= connected
HD1 output:
'0'= no cable
'1'= connected
HD2 output:
'0'= no cable
'1'= connected
USB headset output:
'0'= no cable
'1'= connected
Digital output:
'0'= no cable
'1'= connected
Analog output:
'0'= no cable
'1'= connected
Dummy (7 bytes, must be 0) **(for future expansion)**

If component 'V':

HD1 camera:
'0'= no cable
'1'= connected
HD2 camera (only XT7000):
'0'= no cable
'1'= connected
DVI camera:
'0'= no cable
'1'= connected
USB camera:
'0'= no cable
'1'= connected
HD1 monitor:
'0'= no cable
'1'= connected
HD2 monitor:
'0'= no cable
'1'= connected
Dummy (14 bytes, must be 0) **(for future expansion)**

If type of component 'P':

Audio source (2 bytes) (see above):
Peak value channel 1 (2 bytes):
'00'...'60'
Peak value channel 2 (2 bytes)
'00'...'60'
Peak value channel 3 (2 bytes)
'00'...'60'
Noise value channel 1 (2 bytes)

‘00’...’60’
Noise value channel 2 (2 bytes)
‘00’...’60’
Noise value channel 3 (2 bytes)
‘00’...’60’

If component ‘S’

High Temperature Alarm Status:
‘1’ = Alarm On
‘2’ = Alarm Off
Dummy (20 bytes, must be 0) **(for future expansion)**

12.10. Diagnostic Error Message (PE)

This message is sent by RTE to notify an error on the received message:

Direction:	RTE -> PC
Mode	‘<‘
Type:	‘D’
Sub-Type	‘E’
Data:	Message Type
	Sub-type
	Error:
	’1’ = Bad parameter
	’2’ = Unknown message
	’3’ = Wrong message length
	‘4’ = Bad mode
	‘5’ = Unable to execute command
	Sub-code
	‘0’ = system timeout
	‘1’ = system busy
	If Bad parameter
	Index number of wrong parameter

931501001 -ENG-R1A

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High audio quality is essential for efficient meetings, and this is why our patented OmniSound® audio technology is built into all Konftel conference phones. The company's products are sold globally under the Konftel name and our headquarters are in Sweden

Find out more about the company and our products at **www.konftel.com**

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