



Teldat Router

Generic Serial Interfaces

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Chapter 1

Synchronous Serial Interface Configuration



1. Assigning the Synchronous Serial Interface

To assign a synchronous serial interface to a determined device connector, enter the **SET DATA-LINK SYNC** command at the general configuration menu (*Config*>). Should the device have more than one connector, you will be prompted for the connector type (if necessary WAN or UART) and desired connector number. Contrariwise, the synchronous serial interface will be assigned to the only corresponding type of connector in the device.

```
Config>SET DATA-LINK SYNC
Config>
```

```
Config>SET DATA-LINK SYNC
name [serial0/0]?serial0/1
Config>
```

You can verify that the interface has been correctly assigned by listing all the interfaces in the device:

```
Config>LIST DEVICES

Interface      Con   Type of interface      CSR   CSR2  int
ethernet0/0   LAN1  Quicc Ethernet         fa200a00 fa203c00 5e
serial0/0     WAN1  Synchronous Serial Line fa200a20 fa203d00 5d
bri0/0        ISDN1 ISDN Basic Rate Int    fa200a40 fa203e00 5c
x25-node      ---   Router->Node           0       0       0
ppp1          ---   Generic PPP            0       0       0
ppp2          ---   Generic PPP            0       0       0
Config>
```

```
Config>LIST DEVICES

Interface      Con   Type of interface      CSR   CSR2  int
ethernet0/0   LAN1  Fast Ethernet interface fa200e00          27
serial0/0     WAN1  Synchronous Serial Line fa200a00 fa203c00 5e
serial0/1     WAN2  Synchronous Serial Line fa200a20 fa203d00 5d
serial0/2     WAN3  X25                    fa200a60 fa203f00 5b
bri0/0        ISDN1 ISDN Basic Rate Int    fa200a40 fa203e00 5c
x25-node      ---   Router->Node           0       0       0
Config>
```

Once the interface has been assigned you can begin the configuration process. However in order for changes to take effect and monitoring of the said interface can take place, you need to save the configuration and restart the device.

```
Config>SAVE
Save configuration [n]? y

Saving configuration...OK
Config>
*RESTART
Are you sure to restart the system?(Yes/No)? y
Restarting. Please wait ...
```

2. Configuration Commands

2.1. Accessing the Synchronous Serial Interface Configuration prompt

The synchronous serial line configuration commands must be entered at the configuration prompt associated to them (*SYNC config>*). Use the **NETWORK <id-ifc>** command (within the general configuration prompt *Config>*) to access the *SYNC config>* prompt where **<id-ifc>** is the identifier corresponding to the synchronous serial interface you wish to configure.

```
Config>NETWORK serial0/1
-- Interface Synchronous Serial Line. Configuration --
SYNC config>
```

Once you have accessed the synchronous serial line configuration prompt, you can entered the commands described below:

Command	Function
? (HELP)	Lists the available commands or their options.
DISABLE	Disables distinct interface parameters.
ENABLE	Enables distinct interface parameters.
ENCODING	Set NRZI or NRZ encoding.
FRAME-SIZE	Configure the MTU (maximum frame size).
IDLE	Configure the inactivity character.
LIST	Displays the values associated to the distinct interface parameters.
NO	Undoes command modifications.
SPEED	Configure the line speed.
TRANSMIT-DELAY	Configure the transmit delay.
EXIT	Exits the synchronous serial interface configuration prompt.

2.2. ? (HELP)

The ? (HELP) command lists the valid commands at the programmed router level. This command can also be used after a specific command in order to list the available options.

Syntax:

```
SYNC config>?
```

Example:

```
SYNC config>?  
DISABLE           De-invert the transmit clock  
ENABLE           Invert the transmit clock (DTE only)  
ENCODING         Set NRZI or NRZ encoding  
FRAME-SIZE      Configure the MTU  
IDLE            Configure the inactivity character  
LIST            List interface configuration  
NO              Set default config  
SPEED          Configure the line speed  
TRANSMIT-DELAY Configure the transmit delay  
EXIT  
SYNC config>
```

2.3. DISABLE

The **DISABLE** command permits you to disable the transmission clock inversion.

Syntax:

```
SYNC config>DISABLE <parameter>
```

Example:

```
SYNC config>DISABLE ?  
INVERT_TXC  
SYNC config>
```

a) DISABLE INVERT_TXC

Disables the transmission clock inversion. In order to configure this parameter the driver associated to this must be in DTE mode. Contrariwise, an error message will be displayed indicating that the said parameter cannot be configured. This parameter is disabled by default.

Syntax:

```
SYNC config>DISABLE INVERT_TXC
```

Example 1:

```
SYNC config>DISABLE INVERT_TXC  
SYNC config>
```

Example 2:

```
SYNC config>DISABLE INVERT_TXC  
Only available on DTE mode  
SYNC config>
```

2.4. ENABLE

The **ENABLE** command permits you to enable the transmission clock inversion.

Syntax:

```
SYNC config>ENABLE <parameter>
```

Example:

```
SYNC config>ENABLE ?  
INVERT_TXC  
SYNC config>
```

a) ENABLE INVERT_TXC

Enables the transmission clock inversion. In order to configure this parameter the driver associated to this must be in DTE mode. Contrariwise, an error message will be displayed indicating that the said parameter cannot be configured. This parameter is disabled by default.

Syntax:

```
SYNC config>ENABLE INVERT_TXC
```

Example 1:

```
SYNC config>ENABLE INVERT_TXC
SYNC config>
```

Example 2:

```
SYNC config>ENABLE INVERT_TXC
Only available on DTE mode
SYNC config>
```

2.5. ENCODING

Configures the line encoding to be used. The possible values are: NRZ (Not Return to Zero) and NRZI (Not Return to Zero Inverted). The default is NRZ.

Syntax:

```
SYNC config>ENCODING <type>
```

Example 1:

```
SYNC config>ENCODING NRZ
SYNC config>
```

Example 2:

```
SYNC config>ENCODING NRZI
SYNC config>
```

2.6. FRAME-SIZE

Configures the maximum frame size in bytes which can be transmitted by the interface (also known as MTU). Default value is 2048 bytes.

Syntax:

```
SYNC config>FRAME-SIZE <size>
```

Example:

```
SYNC config>FRAME-SIZE
Maximum Frame size           : [2048]? 2048
SYNC config>
```

2.7. IDLE

Configures the inactivity state of the HDLC frames in transmission. This parameters is used to determine the type of padding data sent when there are no packets to transmit. The possible values are: FLAG (continuous transmission of 0xFE) and MARK (continuous transmission of 0xFF). Default value is FLAG.

Syntax:

```
SYNC config>IDLE <tipo>
```

Example 1:

```
SYNC config>IDLE FLAG
SYNC config>
```

Example 2:

```
SYNC config>IDLE MARK
SYNC config>
```

2.8. LIST

The **LIST** command displays a list with the value associated to each of the synchronous serial interface configuration parameters on the screen.

Syntax:

```
SYNC config>LIST
```

Example:

```
SYNC config>LIST
Maximum Frame size      : 2048
Encoding                 : NRZ
Idle                     : FLAG
Clocking                 : EXTERNAL
Cable                    : DTE
Line speed (bps)        : 64000
Transmit delay (sec)    : 0
Invert TxClock          : NO
SYNC config>
```

2.9. SPEED

Configures the physical line speed in bps. Default value is 64000 bps.

Syntax:

```
SYNC config>SPEED <velocidad>
```

Example:

```
SYNC config>SPEED
Line speed (bps)       : [64000]? 64000
SYNC config>
```

2.10. TRANSMIT-DELAY

Configures the transmisión delay in seconds which is applied to packets transmitted by the interface. Default value is 0 seconds.

Syntax:

```
SYNC config>TRANSMIT-DELAY <delay>
```

Example:

```
SYNC config>TRANSMIT-DELAY
Transmit delay (sec)   : [0]? 0
SYNC config>
```

2.11. EXIT

The **EXIT** command returns you to the previous prompt level.

Syntax:

```
SYNC config>EXIT
```

Example:

```
SYNC config>EXIT  
Config>
```

Chapter 2
Synchronous Serial Interface
Monitoring



1. Monitoring Commands

1.1. Accessing the Synchronous Serial Interface Monitoring prompt

The synchronous serial line monitoring commands must be entered at the monitoring prompt associated to them (*SYNC>*). Use the **NETWORK <id-ifc>** command (within the general monitoring prompt, +) to access the *SYNC>* prompt where **<id-ifc>** is the identifier corresponding to the synchronous serial interface you wish to monitor.

```
+NETWORK serial0/0
-- Synchronous Serial Line Console --
SYNC>
```

Once you have accessed the synchronous serial line monitoring prompt, you can enter the commands described below:

Command	Function
? (HELP)	Lists the available commands or their options.
CLEAR	Clears the statistics associated to the synchronous serial interface.
EXIT	Exits the synchronous serial interface monitoring prompt.

1.2. ? (HELP)

The ? (HELP) command lists the valid commands at the programmed router level. This command can also be used after a specific command in order to list the available options.

Syntax:

```
SYNC>?
```

Example:

```
SYNC>?
CLEAR
EXIT
SYNC>
```

1.3. CLEAR

The **CLEAR** command permits you to delete (zeroize) all the statistics associated to the specified synchronous serial interface.

Syntax:

```
SYNC>CLEAR
```

Example:

```
SYNC>CLEAR
SYNC>
```

1.4. EXIT

The **EXIT** command returns you to the previous prompt level.

Syntax:

```
SYNC>EXIT
```

Example:

```
SYNC>EXIT  
+
```

2. Monitoring the Synchronous Serial Interface from the General Menu

All the statistics associated to a specific synchronous serial interface can be viewed from the general monitoring prompt (+). Additionally you can view other information such as the state of the serial line signals, the type of driver, the line speed and the time lapsed since the last port reset.. For this enter the **DEVICE <id-ifc>** command where **<id-ifc>** is the identifier of the specified interface.

Example:

```
+DEVICE serial0/0

Ifc Interface      CSR      Vect      Auto-test  Auto-test  Maintenance
1   SYNC/0        fa200a20  5D        valids     failures   failures
                                0          0          0

Driver type:          DTE
Line speed:          unknown
Last port reset:     1 hour, 26 minutes, 1 second ago

      V.24
      circuit  Nicknames  State
      -----  -
          105      RTS      ON
          106      CTS      ON
          107      DSR      ON
          108      DTR      ON
          109      DCD      ON

Input frame errors:
CRC error              =          0  alignment (byte length) =          0

missed frame          =          0  too long (> 02062 bytes) =          0

aborted frame         =          0  DMA/FIFO overrun       =          0

Output frame counters:
DMA/FIFO underrun errs =          0  Output aborts sent     =          0
+
```

Chapter 3
Asynchronous Serial Interface
Configuration



1. Assigning the Asynchronous Serial Interface

To assign an asynchronous serial interface to a determined device connector, enter the **SET DATA-LINK ASYNC** command at the general configuration menu (*Config>*). Should the device have more than one connector, you will be prompted for the connector type (if necessary WAN or UART) and desired connector number. Contrariwise, the asynchronous serial interface will be assigned to the only corresponding type of connector in the device.

```
Config>SET DATA-LINK ASYNC
Config>
```

```
Config>SET DATA-LINK ASYNC
name [serial0/0]?serial0/2
Config>
```

You can verify that the interface has been correctly assigned by listing all the interfaces in the device:

```
Config>LIST DEVICES
```

Interface	Con	Type of interface	CSR	CSR2	int
ethernet0/0	LAN1	Quicc Ethernet	fa200a00	fa203c00	5e
serial0/0	WAN1	Asynchronous Serial Line	fa200a20	fa203d00	5d
bri0/0	ISDN1	ISDN Basic Rate Int	fa200a40	fa203e00	5c
x25-node	---	Router->Node	0		0
ppp1	---	Generic PPP	0		0
ppp2	---	Generic PPP	0		0

```
Config>
```

```
Config>LIST DEVICES
```

Interface	Con	Type of interface	CSR	CSR2	int
ethernet0/0	LAN1	Fast Ethernet interface	fa200e00		27
serial0/0	WAN1	Asynchronous Serial Line	fa200a00	fa203c00	5e
serial0/1	WAN2	Asynchronous Serial Line	fa200a20	fa203d00	5d
serial0/2	WAN3	X25	fa200a60	fa203f00	5b
bri0/0	ISDN1	ISDN Basic Rate Int	fa200a40	fa203e00	5c
x25-node	---	Router->Node	0		0
ppp1	---	Generic PPP	0		0
ppp2	---	Generic PPP	0		0

```
Config>
```

Once the interface has been assigned you can begin the configuration process. However in order for changes to take effect and monitoring of the said interface can take place, you need to save the configuration and restart the device.

```
Config>SAVE
Save configuration [n]? y

Saving configuration...OK
Config>
*RESTART
Are you sure to restart the system?(Yes/No)? y
Restarting. Please wait ...
```


2. Configuration Commands

2.1. Accessing the Asynchronous Serial Interface Configuration prompt

The asynchronous serial line configuration commands must be entered at the configuration prompt associated to them (*ASYNC config*>). Use the **NETWORK <id-ifc>** command (within the general configuration prompt *Config*>) to access the *ASYNC config*> prompt where <id-ifc> is the identifier corresponding to the asynchronous serial interface you wish to configure.

```
Config>NETWORK serial0/3
-- Interface Asynchronous Serial Line. Configuration --
ASYNC Config>
```

Once you have accessed the asynchronous serial line configuration prompt, you can enter the commands described below:

Command	Function
? (HELP)	Lists the available commands or their options.
DATA-BITS	Set the number of bits per character.
FRAME-SIZE	Set frame size.
LIST	Displays the values associated to the distinct interface parameters.
NO	Undoes command modifications.
PARITY	Set number character parity.
SPEED	Set line speed.
STOP-BITS	Set number of stop bits per character.
EXIT	Exits the asynchronous serial interface configuration prompt.

2.2. ? (HELP)

The ? (HELP) command lists the valid commands at the programmed router level. This command can also be used after a specific command in order to list the available options.

Syntax:

```
ASYNC Config>?
```

Example:

```
ASYNC Config>?
DATA-BITS      Set number of bits per character
FRAME-SIZE     Set frame size
LIST           List configuration
NO             Set default config
PARITY         Set number character parity
SPEED          Set speed
STOP-BITS      Set number of stop bits per character
EXIT          Return to previous menu
ASYNC Config>
```

2.3. DATA-BITS

Configures the number of data bits. The possible values are 5, 6, 7 and 8. Default value is 8.

Syntax:

```
ASYNC Config>DATA-BITS <number>
```

Example:

```
ASYNC Config>DATA-BITS 8
ASYNC Config>
```

NOTE: Please note that if you wish to mount a PPP interface over an asynchronous serial interface, the number of data bits must be 8 (mandatory).

2.4. FRAME-SIZE

Configures the maximum frame size in bytes which can be transmitted by the interface (also known as MTU). Default value is 2048 bytes.

Syntax:

```
ASYNC Config>FRAME-SIZE <size>
```

Example:

```
ASYNC Config>FRAME-SIZE
Maximum Frame size           : [2048]? 2048
ASYNC Config>
```

2.5. LIST

The **LIST** command displays a list with the value associated to each of the asynchronous serial interface configuration parameters on the screen.

Syntax:

```
ASYNC Config>LIST
```

Example:

```
ASYNC Config>LIST
Maximum Frame size           : 2048
Cable                         : DCE
Line speed (bps)             : 64000
Data bits                     : 8
Parity                        : NONE
Stop bits                     : 1
ASYNC Config>
```

2.6. PARITY

Sets the parity type. The possible values are: EVEN, MARK, NONE (if you do not wish to use parity), ODD and SPACE. The default value is NONE.

Syntax:

```
ASYNC Config>PARITY <type>
```

Example:

```
ASYNC Config>PARITY NONE  
ASYNC Config>
```

2.7. SPEED

Configures the physical line speed in bps. Default value is 64000 bps.

Syntax:

```
ASYNC Config>SPEED <speed>
```

Example:

```
ASYNC Config>SET SPEED  
Line speed (bps) : [64000]? 64000  
ASYNC Config>
```

2.8. STOP-BITS

Configures the number of stop bits. The possible values are: 1 and 2. The default value is 1.

Syntax:

```
ASYNC Config>STOP-BITS <number>
```

Example:

```
ASYNC Config>STOP-BITS 1  
ASYNC Config>
```

2.9. EXIT

The **EXIT** command returns you to the previous prompt level.

Syntax:

```
ASYNC Config>EXIT
```

Example:

```
ASYNC Config>EXIT  
Config>
```

Chapter 4
Asynchronous Serial Interface
Monitoring



1. Monitoring Commands

1.1. Accessing the Asynchronous Serial Interface Monitoring prompt

The asynchronous serial line monitoring commands must be entered at the monitoring prompt associated to them (*ASYNC*>). Use the **NETWORK** <id-ifc> command (within the general monitoring prompt, +) to access the *ASYNC*> prompt where <id-ifc> is the identifier corresponding to the asynchronous serial interface you wish to monitor.

```
+NETWORK serial0/3
-- Asynchronous Serial Line Console --
ASYNC>
```

Once you have accessed the asynchronous serial line monitoring prompt, you can entered the commands described below:

Command	Function
? (HELP)	Lists the available commands or their options.
CLEAR	Clears the statistics associated to the asynchronous serial interface.
EXIT	Exits the asynchronous serial interface monitoring prompt.

1.2. ? (HELP)

The ? (HELP) command lists the valid commands at the programmed router level. This command can also be used after a specific command in order to list the available options.

Syntax:

```
ASYNC>?
```

Example:

```
ASYNC>?
CLEAR
EXIT
ASYNC>
```

1.3. CLEAR

The **CLEAR** command permits you to delete (zeroize) all the statistics associated to the specified asynchronous serial interface.

Syntax:

```
ASYNC>CLEAR
```

Example:

```
ASYNC>CLEAR
ASYNC>
```

1.4. EXIT

The **EXIT** command returns you to the previous prompt level.

Syntax:

```
ASync>EXIT
```

Example:

```
ASync>EXIT  
+
```

2. Monitoring the Asynchronous Serial Interface from the General Menu

All the statistics associated to a specific asynchronous serial interface can be viewed from the general monitoring prompt (+). Additionally you can view other information such as the state of the serial line signals, the type of driver, the line speed, the average throughput, the last throughput, the number of bits per character, the number of stop bits, the type of parity and the time lapsed since the last port reset. For this enter the **DEVICE <id-ifc>** command where **<id-ifc>** is the identifier of the specified interface.

Example:

```
+DEVICE serial0/3

Ifc Interface      CSR      Vect      Auto-test  Auto-test  Maintenance
1   ASYNC/0      fa200a20  5D        valids     failures   failures
                                0          0          0

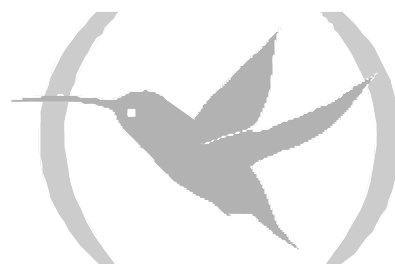
Interface      DCE
Speed (bps)    =          64000
Throughput (bps) =          0
Last throughput (bps) =          0
Bits per character =          8
Stop bits      =          1
Parity selected =          NONE
Last reset     = 1 hour, 6 minutes, 27 seconds ago

          V.24
          circuit  Nicknames  State
          -----  -
          105      RTS        ON
          106      CTS        ON
          107      DSR        ON
          108      DTR        ON
          109      DCD        ON
          125      RI         ---
          141      LL         ---

Statistics:
Parity errors   =          0
Data errors    =          0
Overrun errors =          0
+
```

Chapter 5

AT Commands Interface Configuration



1. Assigning the AT Commands Interface

To assign an AT commands interface to a determined device connector, enter the **SET DATA-LINK AT** command at the general configuration menu (*Config>*). Should the device have more than one connector, you will be prompted for the connector type (if necessary WAN or UART) and desired interface identifier. Contrariwise, the AT commands interface will be assigned to the only corresponding type of connector in the device.

```
Config>SET DATA-LINK AT
Config>
```

```
Config>SET DATA-LINK AT
name [serial0/0]?serial0/2
Config>
```

You can verify that the interface has been correctly assigned by listing all the interfaces in the device:

```
Config>LIST DEVICES
```

Interface	Con	Type of interface	CSR	CSR2	int
ethernet0/0	LAN1	Quicc Ethernet	fa200a00	fa203c00	5e
serial0/0	WAN1	AT COM	fa200a20	fa203d00	5d
bri0/0	ISDN1	ISDN Basic Rate Int	fa200a40	fa203e00	5c
x25-node	---	Router->Node	0		0
ppp1	---	Generic PPP	0		0

```
Config>
```

```
Config>LIST DEVICES
```

Interface	Con	Type of interface	CSR	CSR2	int
ethernet0/0	LAN1	Fast Ethernet interface	fa200e00		27
serial0/0	WAN1	Synchronous Serial Line	fa200a00	fa203c00	5e
serial0/1	WAN2	Synchronous Serial Line	fa200a20	fa203d00	5d
serial0/2	WAN3	AT COM	fa200a60	fa203f00	5b
bri0/0	ISDN1	ISDN Basic Rate Int	fa200a40	fa203e00	5c
x25-node	---	Router->Node	0		0

```
Config>
```

Once the interface has been assigned you can begin the configuration process. However in order for changes to take effect and monitoring of the said interface can take place, you need to save the configuration and restart the device.

```
Config>SAVE
Save configuration [n]? y

Saving configuration...OK
Config>
*RESTART
Are you sure to restart the system?(Yes/No)? y
Restarting. Please wait ...
```

2. Configuration Commands

2.1. Accessing the AT Commands Interface Configuration prompt

The AT commands interface configuration commands must be entered at the configuration prompt associated to them (*AT config*>). Use the **NETWORK** <id-ifc> command (within the general configuration prompt *Config*>) to access the *AT config*> prompt where <id-ifc> is the identifier corresponding to the AT commands interface you wish to configure.

```
Config>NETWORK serial0/3
-- Interface AT. Configuration --
AT config>
```

Once you have accessed the AT commands interface configuration prompt, you can enter the commands described below:

Command	Function
? (HELP)	Lists the available commands or their options.
ADDITIONAL-CONTROL-COMMAND	Set additional AT commands.
CONNECTION-MODE	Set connection mode.
CTS-CONTROL-COMMAND	Set AT command for CTS signal control.
DATA-BITS	Set number of bits per character.
DCD-CONTROL-COMMAND	Set AT command for DCD signal control.
DIAL-MODE	Set dial mode.
DISABLE	Disable some features.
DSR-CONTROL-COMMAND	Set AT command for DSR signal control.
DTR-CONTROL-COMMAND	Set AT command for DTR signal control.
ENABLE	Enable some features.
FLOW-CONTROL-COMMAND	Set AT command for flow control.
FRAME-SIZE	Set frame size.
LIST	Displays the values associated to the distinct interface parameters.
NO	Undoes command modifications.
NUMBER-RINGS	Set number of rings for auto answer.
PARITY	Set character parity.
RING-TONE-LENGTH	Set ring tone and silence lengths.
SPEED	Set speed.
STOP-BITS	Set number of stop bits per character.
V42-CONTROL-COMMAND	Set AT command for V.42 comp. and error correct.
WAIT-TIME	Set maximum connection time.
EXIT	Exits the AT commands interface configuration prompt.

2.2. ? (HELP)

The ? (HELP) command lists the valid commands at the programmed router level. This command can also be used after a specific command in order to list the available options.

Syntax:

```
AT config>?
```

Example:

```
AT config>?
ADDITIONAL-CONTROL-COMMAND    Set additional AT commands
CONNECTION-MODE                Set connection mode (Dial command or DTR)
CTS-CONTROL-COMMAND           Set AT command for CTS signal control
DATA-BITS                      Set number of bits per character
DCD-CONTROL-COMMAND           Set AT command for DCD signal control
DIAL-MODE                      Set dial mode (tone or pulse)
DISABLE                        Disable some features
DSR-CONTROL-COMMAND           Set AT command for DSR signal control
DTR-CONTROL-COMMAND           Set AT command for DTR signal control
ENABLE                         Enable some features
FLOW-CONTROL-COMMAND          Set AT command for flow control
FRAME-SIZE                     Set frame size
LIST                           List configuration
NO                              Set default config
NUMBER-RINGS                   Set number of rings for auto answer
PARITY                         Set character parity
RING-TONE-LENGTH              Set ring tone and silence lengths
SPEED                          Set speed
STOP-BITS                      Set number of stop bits per character
V42-CONTROL-COMMAND           Set AT command for V.42 comp. and error correct.
WAIT-TIME                      Set maximum connection time
EXIT                           Return to previous menu
AT config>
```

2.3. ADDITIONAL-CONTROL

Configures additional AT commands for modem configuration. A character string of up to 59 characters is admitted. None has been configured by default.

Syntax:

```
AT config>ADDITIONAL-CONTROL
```

Example:

```
AT config>ADDITIONAL-CONTROL
Additional AT commands[hola "IP=192.6.2.8"]? +CGDCONT=9,"IP","teldatw.es"
AT config>LIST
Connection mode           = C (Commands)
Dial mode                 = T (Tone)
DCD control command       = &C1
DSR control command       = &S0
DTR control command       = &D2
CTS control command       = &R0
V.42/v.42 bis command     = &Q5
Flow control command     = &K3
Additional AT commands    = +CGDCONT=9,"IP","teldatw.es"
Maximum Frame Size       = 2048
Number of rings           = 1
Ring tone length         = 15
Silence between tones    = 30
Data bits                 = 8
Parity                    = NONE
Stop bits                 = 1
Line Speed (bps)         = 57600
```

```
Local telephone      =  
Wait time            = 30  
Flow control option  = Disabled  
AT config>>
```

2.4. CONNECTION

Configures the connection mode. This parameter permits you to specify if the modem should be previously configured through commands in order to carry out the call (*Commands*), or if contrariwise the corresponding signal should be directly set to ON so that the modem carries out the call to the internally configured number (*DRT*). The default value is *Commands*.

Syntax:

```
AT config>CONNECTION
```

Example:

```
AT config>CONNECTION  
Connection Mode (C = Commands, D = DTR) = C  
AT config>
```

2.5. CTS-CONTROL

Configures the CTS control command. The default value is “&R1”.

Syntax:

```
AT config>CTS-CONTROL <command>
```

Example:

```
AT config>CTS-CONTROL  
CTS control command = [&R1]? &R1  
AT config>
```

2.6. DATA-BITS

Configures the number of data bits. The possible values are 5, 6, 7 and 8. Default value is 8.

Syntax:

```
AT config>DATA-BITS <number>
```

Example:

```
AT config>DATA-BITS 8  
AT config>
```

NOTE: Please note that if you wish to mount a PPP interface over an AT commands interface, the number of data bits must be 8 (mandatory).

2.7. DCD-CONTROL

Configures the DCD control command. The default value is “&C1”.

Syntax:

```
AT config>DCD-CONTROL <command>
```

Example:

```
AT config>DCD-CONTROL
DCD control command = [&C1]? &C1
AT config>
```

2.8. DIAL

Configures the dialing mode. This parameter permits you to specify if dialing must be carried out through tones (*Tone*) or through pulses (*Pulse*). The default value is *Tone*.

Syntax:

```
AT config>DIAL
```

Example:

```
AT config>DIAL
Dial Mode (T = Tone, P = Pulse) = T
AT config>
```

2.9. DISABLE

The **DISABLE** command permits you to disable the flow control option and the modem auto detection.

Syntax:

```
AT config>DISABLE <parameter>
```

Example:

```
AT config>DISABLE ?
FLOW-CTRL-OPTION
MODEM-AUTO-DETECTION
AT config>
```

a) DISABLE FLOW-CTRL-OPTION

Disables the flow control. With this parameter disabled flow control will not be available in the interface. The default value is disabled.

Syntax:

```
AT config>DISABLE FLOW-CTRL-OPTION
```

Example:

```
AT config>DISABLE FLOW-CTRL-OPTION
AT config>
```

b) DISABLE MODEM-AUTO-DETECTION

Disables ring pattern detection. The default value is disabled.

Syntax:

```
AT config>DISABLE MODEM-AUTO-DETECTION
```

Example:

```
AT config>DISABLE MODEM-AUTO-DETECTION
AT config>
```

2.10. DSR-CONTROL

Configures the DSR control command. The default value is “&S1”.

Syntax:

```
AT config>DSR-CONTROL <command>
```

Example:

```
AT config>DSR-CONTROL
DSR control command = [&S1]? &S1
AT config>
```

2.11. DTR-CONTROL

Configures the DTR control command. The default value is “&D2”.

Syntax:

```
AT config>DTR-CONTROL <command>
```

Example:

```
AT config>DTR-CONTROL
DTR control command = [&D2]? &D2
AT config>
```

2.12. ENABLE

The **ENABLE** command permits you to enable the flow control option and the modem auto detection.

Syntax:

```
AT config>ENABLE <parameter>
```

Example:

```
AT config>ENABLE ?
FLOW-CTRL-OPTION
MODEM-AUTO-DETECTION
AT config>
```

a) ENABLE FLOW-CTRL-OPTION

Enables the flow control. With this parameter enabled flow control will be available in the interface. This is disabled by default.

Syntax:

```
AT config>ENABLE FLOW-CTRL-OPTION
```

Example:

```
AT config> ENABLE FLOW-CTRL-OPTION
AT config>
```

b) ENABLE MODEM-AUTO-DETECTION

Enables modem auto detection. With this parameter enabled, a call can be identified as a management call once the configured number of rings followed by the configured silence interval have been produced. This parameter is disabled by default.

Syntax:

```
AT config>ENABLE MODEM-AUTO-DETECTION
```

Example:

```
AT config>ENABLE MODEM-AUTO-DETECTION
AT config>
```

2.13. FLOW-CONTROL

Configures the flow control command. The default value is “&K3”.

Syntax:

```
AT config>FLOW-CONTROL <command>
```

Example:

```
AT config>FLOW-CONTROL
Flow control command = [&K3]? &K3
AT config>
```

2.14. FRAME-SIZE

Configures the maximum frame size in bytes which can be transmitted by the interface (also known as MTU). Default value is 2048 bytes.

Syntax:

```
AT config>FRAME-SIZE <size>
```

Example:

```
AT config>FRAME-SIZE
Maximum Frame size : [2048]? 2048
AT config>
```

2.15. LIST

The **LIST** command displays a list with the value associated to each of the AT commands interface configuration parameters on the screen.

Syntax:

```
AT config>LIST
```

Example:

```
AT config>LIST
Connection mode      = C (Commands)
Dial mode            = T (Tone)
DCD control command  = &C1
DSR control command  = &S1
DTR control command  = &D2
CTS control command  = &R1
V.42/v.42 bis command = &Q5
```

```
Flow control command = &K3
Additional AT commands=
Maximum Frame Size   = 2048
Number of rings      = 1
Ring tone length     = 15
Silence between tones = 30
Data bits            = 8
Parity               = NONE
Stop bits            = 1
Line Speed (bps)    = 64000
Local telephone      =
Wait time            = 30
Flow control option  = Disabled
Modem Auto detection = Disabled
AT config>
```

2.16. NUMBER-RINGS

Configures the number of rings that the modem must wait before accepting an incoming call, should these be enabled (*Automatic Answer = Enabled*). The default value is 1.

Syntax:

```
AT config>NUMBER-RINGS
```

Example:

```
AT config>NUMBER-RINGS
Number of rings for automatic answer = 1
AT config>
```

2.17. PARITY

Sets parity type. The possible values are: EVEN, MARK, NONE (if you do not wish to use parity), ODD and SPACE. The default value is NONE.

Syntax:

```
AT config>PARITY <type>
```

Example:

```
AT config>PARITY NONE
AT config>
```

2.18. RING-TONE-LENGTH

Configure the tone and the silence duration for a ring signal. Given that the ring signal differs depending on the telephone network (generally in different countries), it may be necessary to modify these parameters. These parameters only affect the management function through AT. This is configured in tenths of seconds and the default value is 15 for the tone and 30 for the silence.

NOTE: We do not recommend that this parameter be modified unless you experience problems with the management or with “wakeup” via the modem. Should this occur, please check the values that need to be configured with telephone company that provides this service.

Syntax:

```
AT config>RING-TONE-LENGTH
```

Example:

```
AT config>RING-TONE-LENGTH
Ring pattern: ring signal tone length (tenths of a second) = [15]?
Ring pattern: silence between ring tones (tenths of a second) = [30]?
AT config>
```

2.19. SPEED

Configures the physical line speed in bps. This value must be between the following multiples of 1200: 2400, 4800, 9600, 19200, 38400 and 57600 bps. However, we recommend that this value be that immediately above the modem transfer speed with the other end. E.g. if the modem is 56 Kbps, you should select 57600 bps. The default value is 64000 bps.

Syntax:

```
AT config>SPEED <speed>
```

Example:

```
AT config>SPEED
Line speed (bps) : [64000]? 57600
AT config>
```

2.20. STOP-BITS

Configures the number of stop bits. The possible values are: 1 and 2. The default value is 1.

Syntax:

```
AT config>STOP-BITS <number>
```

Example:

```
AT config>SET STOP-BITS 1
AT config>
```

2.21. V42-CONTROL

Configures the V.42/V.42 bis control command. The default value is “&Q5”.

Syntax:

```
AT config>V42-CONTROL <command>
```

Example:

```
AT config>V42-CONTROL
V.42/V.42 bis command = [&Q5]? &Q5
AT config>
```

2.22. WAIT-TIME

Configures the wait time in seconds for call establishment. The default value is 30 seconds.

Syntax:

```
AT config>WAIT-TIME <time>
```

Example:

```
AT config>WAIT-TIME
Waiting establishment time (s) = [30]? 30
AT config>
```

2.23. EXIT

The **EXIT** command returns you to the previous prompt level.

Syntax:

```
AT config>EXIT
```

Example:

```
AT config>EXIT
Config>
```

Chapter 6

AT Commands Interface Monitoring



1. Monitoring Commands

1.1. Accessing the AT Commands Interface Monitoring prompt

The AT commands interface monitoring commands must be entered at the monitoring prompt associated to them (*AT>*). Use the **NETWORK <id-ifc>** command (within the general monitoring prompt +) to access the *AT>* prompt where <id-ifc> is the identifier corresponding to the AT commands interface you wish to monitor.

```
+ NETWORK serial0/3
-- AT Console --
AT>
```

Once you have accessed the AT commands interface monitoring prompt, you can enter the commands described below:

Command	Function
? (HELP)	Lists the available commands or their options.
LIST	Displays monitoring information for the AT commands interface.
EXIT	Exits the AT commands interface monitoring prompt.

1.2. ? (HELP)

The ? (HELP) command lists the valid commands at the programmed router level. This command can also be used after a specific command in order to list the available options.

Syntax:

```
AT>?
```

Example:

```
AT>?
LIST
EXIT
AT>
```

1.3. LIST

The **LIST** command permits you to view the monitoring information associated to the AT commands interface in question.

Syntax:

```
AT>LIST
```

Example:

```
AT>LIST
State                = HANGING UP
Call request         = 2
Telephone number     = 0908274101
Total connection time = 1 minute 46 seconds
Current connection time = 33 seconds
Time to establish connection = 22 sec
AT>
```

1.4. EXIT

The **EXIT** command returns you to the previous prompt level.

Syntax:

```
AT>EXIT
```

Example:

```
AT>EXIT
+
```

2. Monitoring the AT Commands Interface from the General Menu

All the statistics associated to a specific AT commands interface can be viewed from the general monitoring prompt (+). Additionally you can view other information such as the state of the serial line signals, the type of driver (DTE), the line speed, the average throughput, the last throughput, the number of bits per character, the number of stop bits, the type of parity and the time lapsed since the last port reset. For this enter the **DEVICE <id-ifc>** command at the said prompt where **<id-ifc>** is the identifier of the specified interface.

Example:

```
+ DEVICE serial0/3

Ifc Interface      CSR      Vect      Auto-test  Auto-test  Maintenance
1   SL/0          fa200a20  5D        valids     failures   failures
                                1          3          0
  Interface DTE
    V.24 circuits:105 106 107 108 109 125 141
    Nicknames:      RTS CTS DSR DTR DCD RI  LL
    State:          ON  ON  OFF ON  OFF --- ---

Speed (bps)          =      19200
Throughput (bps)     =      20181
Last throughput (bps) =      20400
Bits per character   =           8
Stop bits            =           1
Parity selected      =      NONE
Parity errors        =           0
Data errors          =           0
Overrun errors       =           0
Last reset           = 4 minutes 27 seconds
+
```