Modem AT Command Set: Description Part 2/2 (6/95)

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TOPIC ---

This is part two of a two part article that includes a description of modem states as well as the AT command set.

DISCUSSION ---

Vn Verbalize

The V command allows you to choose whether result codes are displayed as code numbers or English words. Unless these messages are being read by a program that does not easily recognize strings of characters, the default setting (V1) is recommended.

  0   Displays result messages as code numbers (non-verbal).
  1   Displays result messages as English words (verbal).

Verbalize result codes

 0   OK Command is correct and has been completed
 1   CONNECT Connection established
 2   RING Incoming ring detected
 3   NO CARRIER No connection or lost the carrier
 4   ERROR Bad command
 5   CONNECT 1200 Connection established at 1200 bps
 6   NO DIALTONE Dial tone not detected in S7 seconds
 7   BUSY Busy tone detected
 8   NO ANSWER See ATD…@…
10   CONNECT 2400 Connection established at 2400 bps
11   CONNECT 4800 Connection established at 4800 bps
12   CONNECT 9600 Connection established at 9600 bps
15   CONNECT 7200 Connection established at 7200 bps
24   CONNECT 300/REL Connection with MNP 300 bps
25   CONNECT 1200/REL Connection with MNP 1200 bps
26   CONNECT 2400/REL Connection with MNP 2400 bps
27   CONNECT 4800/REL Connection with MNP 4800 bps
28   CONNECT 9600/REL Connection with MNP 9600 bps
29   CONNECT 7200/REL Connection with MNP 7200 bps
30   CONNECT 12000/REL Connection with MNP 12000 bps
31   CONNECT 14400/REL Connection with MNP 14400 bps

Protocol negotiation progress codes that work with ATW1 and S95.

```
40   CARRIER 300  Carrier detected at 300 bps
46   CARRIER 1200  Carrier detected at 1200 bps
47   CARRIER 2400  Carrier detected at 2400 bps
48   CARRIER 4800  Carrier detected at 4800 bps
49   CARRIER 7200  Carrier detected at 7200 bps
50   CARRIER 9600  Carrier detected at 9600 bps
51   CARRIER 12000  Carrier detected at 12000 bps
52   CARRIER 14400  Carrier detected at 14400 bps
66   COMPRESSION: CLASS 5  MNP class 5
67   COMPRESSION: V.42BIS  V.42 bis compression
69   COMPRESSION:NONE  No compression
70   PROTOCOL:NONE  Asynchronous mode
77   PROTOCOL:LAP-M  Error control mode with LAP-M protocol
80   PROTOCOL:ALT  Error control mode with MNP protocol
128  MODEM IN USE  Modem already in use for this or another application
```

Wn Progress result codes

The ATW setting determines whether progress result codes are displayed in addition to the ATX setting. Register S95 determines which progress result codes will be displayed.

```
  0   Progress codes 40 through 80 disabled.
  1   Progress codes 40 through 80 enabled.
  2   Progress codes enabled; identical to W1.
```

When writing a CCL script, pay attention to result codes for scripts that require a specific response. If progress codes are enabled, the following strings appear on the screen during a connection (in this example, V.22 bis connection with no error control):

- CARRIER 2400
- PROTOCOL:NONE
- CONNECT 2400

Xn Active result code

The result codes listed in Vn are divided into subsets that can be selected by the X command. Dial tone detection is enabled by X2 or X4. Busy tone detection is enabled by X3 or X4. The commands X0, X1, and X3 are appropriate for blind dialing. Blind dialing means the modem dials out even though a dial tone is not detected.

```
  0   Selects result codes 0 through 4 and 8.
  1   Selects result codes 0 through 5, 8, and 10 through 28.
  2   Selects result codes 0 through 6, 8, and 10 through 28.
  3   Selects result codes 0 through 5, 7, 8, and 10 through 28.
  4   Selects all result codes.
```

Yn Remote break handling

This command sets modem behavior for responding to a long break signal received from a remote modem:

- Greater than 1.6 seconds for an asynchronous connection.
- An attention frame for MNP or V.42.

0 The modem ignores any long breaks received from the remote modem.
1 On receiving a long break from the remote modem, the modem goes on-hook (hangs up) and returns to command state.
2 On receiving a long break from the remote modem, the modem returns to command state but remains connected to the remote modem (does not hang up).

Zn Reset

The Z command tells the modem to perform a software reset.

0 Loads Profile 0 into the active profile.
1 Loads Profile 1 into the active profile.

&Cn DCD options

Since bus modems have no DTE-DCE serial interface, this command has no effect and remains for scripting compatibility.
0–2 Return OK.

&Dn DTR options

Bus modems do not have a DTR line. For bus modems, an on-to-off DTR transition occurs when you close the connection tool or the application currently using the modem. In this case, the modem goes on-hook.
This command has no effect and remains for scripting compatibility.
0-3 Return OK. Default value is 3.

&F Recall default profile

The current active profile is replaced by the default factory configuration.

&Gn Guard tones

This command specifies whether guard tones should be transmitted. Guard tones are used in some telephone systems to allow proper data transfer over the network. They are not used in the United States.

0 Disables guard tone.
1 Same as 2.
2 Sends 1800 Hz guard tone.

&Kn Local flow control

This command specifies which kind of local flow control is used. Since bus modems have built-in flow control mechanisms between the DTE and the DCE, this command has no effect. Flow control characters generated by the application

software are always passed to the line.
This command has no effect and remains for scripting compatibility.
0-5 Respond OK, no action taken.

&Ln Switched/Leased line

This command affects the modem’s behavior during the call setup and carrier handshake phases at the beginning of a connection.

  0   Selects switched (dial-up) line.
  1   Selects conditioned leased line.

&Pn Pulse mode make/break ratio
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  0   Sets the dial pulse make/break ratio at 39%/61%.
  1   Sets the dial pulse make/break ratio at 33%/67%.

&Qn Connection mode

This command allows you to enable and disable error control mode. The &Q command setting has precedence over \N command setting and registers S36 and S48.

  0   Asynchronous mode (no error control, disables V.42 and MNP).
  5   Error control mode Instructs the modem to make a connection
      using V.42/MNP and fallback as necessary (see S36 and S48 registers).
  6   Same as 0.

&Rn CTS/RTS

Since integrated modems have no DTE-DCE serial interface, this command has no effect and remains for scripting compatibility.
0–1 Return OK.

&Sn DSR

Since integrated modems have no DTE-DCE serial interface, this command has no effect and remains for scripting compatibility.
0–2 Return OK.

&Tn Self-tests

The following diagnostic tests are provided. These tests are available only when no error protocol is engaged. The duration of each test is controlled by register S18.

  0   Terminate the test Used to terminate (escape from) a test in
      progress and return to command state, if S18=0.
  1   Local analog loopback Initiates a local analog loopback test.
      The escape sequence must be entered to terminate this test. This
      mode tests the local modem and data terminal equipment.
  3   Local digital loopback Initiates a local digital loopback test.
      The modem echoes characters back to the remote modem exactly as
      received.

4 Enable the remote digital loopback Enables the modem to respond to a remote modem attempting to place it in digital loopback test. If a remote modem places the local modem in remote digital loopback mode, the local modem echoes characters back to the remote modem exactly as received from the remote modem.

5 Disable the remote digital loopback Prevents the modem from responding to a remote modem attempting to place it in the digital loopback mode.

6 Remote digital loopback test In this mode, characters sent to the remote modem are echoed back to the local modem exactly as they were received by the remote modem. This mode tests both local and remote modems and telephone circuits.

7 Remote digital loopback with self-test Initiates a Remote Digital Loopback (like &T6) with self-test data pattern generation and error checking.

8 Local analog loopback with self-test Initiates a Local Analog Loopback (like &T1) with self-test data pattern generation and error checking.

The tests terminate when an AT&T0 command is issued or when register S18 expires. In the self-test mode, an error counter counts the number of errors and sends the final result to the host at the end of the test. The maximum number of errors that can be counted is 255.

Note: &T1 takes an optional parameter (a single character, A or O) to indicate whether the analog loopback must be done in originate (default) or answer mode.

&Un Trellis coding

Enables/disables Trellis code modulation in V.32.

0 Enable Trellis coding.

1 Disable Trellis coding.

&Vn Display profiles

Displays the following information

- Active profile
- Stored profile 0
- Stored profile 1
- Stored telephone numbers (see AT&Z).

&Wn Profile saving

This command saves the current active profile.

0 Saves the active profile into profile 0.

1 Saves the active profile into profile 1.

&Xn Synchronous clock source

Ignored. Always returns OK. The modem does not support synchronous modes.

&Yn Specify start-up profile

Allows choosing between two different configurations at start-up.

  0   Specifies saved profile 0 as start-up configuration.
  1   Specifies saved profile 1 as start-up configuration.

&Zn=s Store phone number

Stores the dial string s(64 characters maximum) in location n. The value of n can be equal to 0, 1, or 2. Note that the dial string s is constructed in the same fashion as the ATD command. It therefore must be the last command on the command line and no other characters should follow it in the dial string.

MNP-specific AT commands

\Bn Send break

Sends a break on the line for n times 100 milliseconds (n ranges from 1 to 9).

%Cn Compression enable

Enables/disables MNP Class 5 data compression during MNP reliable connections.

  0   Disables MNP 5data compression.
  1   Enables MNP 5 data compression.

\Gn DCE flow control

Enables/disables modem-to-modem flow control. Coupled with \X, it determines whether flow control characters are passed through or filtered.

  0   Disables modem-to-modem flow control.
  1   Enables modem-to-modem flow control.

\Nn MNP feature selection

Determines whether MNP error control is used in connections. The \N command setting also updates register S36.
The &Q command setting has precedence over \N command setting and registers.

  0-1 Normal mode MNP disabled.
  2   Reliable mode The modem will interrogate the remote modem
       for MNP capabilities. If the remote modem does not support MNP,
       the local modem hangs up.
  3   Auto-reliable mode The modem interrogates the remote modem for
       MNP capabilities. If the remote modem supports MNP, a reliable
       connection is established. If the remote modem does not support
       MNP, a normal connection is established.

\O   MNP link negotiation

Treated as ATO0 command. Modem returns to online state. MNP Link is not

negotiated.

\Tn Inactivity timer

Where n is a decimal integer between 0 and 90 specifying minutes. Sets the number of minutes the modem waits before automatically hanging up when data is not sent or received. The default option n=0 disables the timer.

\U   MNP link negotiation

Treated as ATO0 command. Modem returns to online state. MNP link is not terminated.

\Vn MNP result codes
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0   Disables modified MNP result codes.
1   Enables modified standard MNP result codes 24 to 28.
2   Returns OK. No effect.

\Xn Flow control processing
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0 No pass-through flow control If modem-to-modem flow control is enabled, AT\G1, XON/XOFF characters received from the line are filtered out of the data stream; they are not passed to the DTE.
1 Pass-through flow control If modem-to-modem flow control is enabled, AT\G1, XON/XOFF flow control characters received from the line are passed through to the DTE.

\Y   MNP link signaling

Treated as ATO0 command. Modem returns to online state. MNP link is not negotiated.

\Z   MNP termination

Treated as ATO0 command. Modem returns to online state. MNP link is not negotiated.

Support Information Services

Keywords: <None>

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