V.92 - Commands

A new standard - **V.250-** defines the method for command and control of modems. This will allow for standard commands across different modem vendors.

The proposals in V.250 include V.92-specific commands. The [Lucent V.92 client](#) implements many of these proposed commands, and can also give some insight as to how certain new features will operate. Note: All commands that start with **+** need to terminate with a semicolon *if* it is not the last command in a string, ie: **+PCW=1;s38=0**. The semicolon should not be used if the command is the last in a string, ie: **s38=0+PCW=1**.

Modulation Select - The familiar **+MS=** command will be standard; **+MS=V92** will be the value to select V.92 as preferred modulation.

PCM Upstream - The command **+PIG=#** will control PCM upstream. The values are **0** to enable PCM upstream, and **1** to disable it. **Note:** I have been told that there will be no method of speed limiting the PCM upstream with V.92: it's either on or off; if the PCM upstream causes a reduction in downstream rate, there will be no way of 'tuning' it by setting limits on the up and downstream rates. **PCM upstream is not supported by all "V.92" modems.**

Modem documentation previously released by Zoom shows incorrect values for +PCM; however, the modem code shipped with those modems did not support PCM upstream.

Quick Connect - The command **+PQC=#** controls Quick Connect. The values are - **0** to enable Quick Connect (short phase 1 and phase 2 enabled); **1 -** enable short phase 1 only; **2 -** enable short phase 2 only; **3 -** disable short phase 1 and phase 2.

Call Waiting - +PCW=# will determine the behavior of the modem if a call-waiting signal is detected: the options are **0 -** enable for modem-on-hold and collect caller-id info if available; **1 -** Hang up; **2 -** Ignore.

Modem on Hold - The ISP V.92 client and server can be set to allow or deny modem on hold.

The command **+PMH=#** enables or disables modem on hold. Both client and server modems need **#=0** to allow allow modem on hold during a V.92 connection. (#=1 disables modem on hold.) If it is enabled,

The command **+PMHT=#** sets the modem as follows:

#	Description
0	Deny V.92 Modem-on-hold Request
1	Grant MOH with 10 second timeout
2	Grant MOH with 20 second timeout
3	Grant MOH with 30 second timeout
4	Grant MOH with 40 second timeout
5	Grant MOH with 1 minute timeout
6	Grant MOH with 2 minute timeout
7	Grant MOH with 3 minute timeout
8	Grant MOH with 4 minute timeout
9	Grant MOH with 6 minute timeout
10	Grant MOH with 8 minute timeout
11	Grant MOH with 12 minute timeout
12	Grant MOH with 16 minute timeout
13	Grant MOH with indefinite timeout

To initiate a modem on hold (the client could place an outgoing call while keeping the ISP connect on hold), compatible software would issue escape code to modem and give it the **Initiate Modem on Hold - +PMHR** command. The response to the command will be one of the values in the chart above which will allow the client software to keep track of, and alert the user to, the status of the modem hold. Modem on hold is also invoked in conjunction with call waiting if +**PMH=0** and +**PCW=0**.

 +PMHF initiates a hook flash.

To make an outgoing call while holding your Internet connection:

AT+PMHR - response will be value from above chart - server starts timer

AT+PMHF - your modem does a hook flash; gives you dial-tone on extension phone plugged into modem; You can place your call. When

finished and you hang up, the line will **RING**.

[I'm not sure what's next - probably either **ATO** or **ATA**]

V.44 Compression - V.44 and V.42 are enabled/disabled with the **+DS44=** command.

The V.250 spec includes up to 9 numeric values. The first two values control direction and compression negotiation:

 +DS44=direction,compression-negotiation where

 direction = 0, 1, 2 or 3:

   0 = No V.44

   1 = V.44 on Transmit Only

   2 = V.44 on Receive Only

   3 = V.44 in both or any direction

 compression negotiation = 0 or 1:

   0 = Do not disconnect if V.44 is not negotiated in specified direction

   1 = Disconnect if V.44 is not negotiated in specified direction

The additional 7 values, which may not be supported in all client modems, specify capability, maximum codewords, stringsize, and history:

Capability: 0,1, or 2 where 0=Stream method; 1=Packet Method; 2=Multi-packet method

Maximum codewords (tx and rx) = 256 - 65536

Maximum stringsize (tx and rx) = 32 - 255

Maximum history (tx and rx) = 512 - 65536

To examine your modem's setting: **AT+DS44?**

To list valid values for your modem: **AT+DS44=?**

Some Lucent/Agere modems use +DCS (not a V.250 command) to control compression:

+DCS= command:

+DCS=#,# where # = 0 or 1. The first # is for V.42, the second for V.44; a value of 0 disables, 1 enables.

To disable V.44 but keep V.42: **+DCS=1,0**