

# New IPEasy AT interface & Multi socket



**Making machines talk.**

# Distinctive features



- The new IPEasy interface allows the user to have multiple socket connections with or without CMux (up to 6)
- The new IPEasy interface allows the user to have multiple IP addresses with or without CMux (up to 2)
- All the connections are independent and every VPort2Skt link can be suspended with +++ sequence (socket still active)
- The new IPEasy interface allows the incoming data indication (SRING) during VPort2Skt link suspension
- On the suspended socket it is possible to recover pending data

# Distinctive features



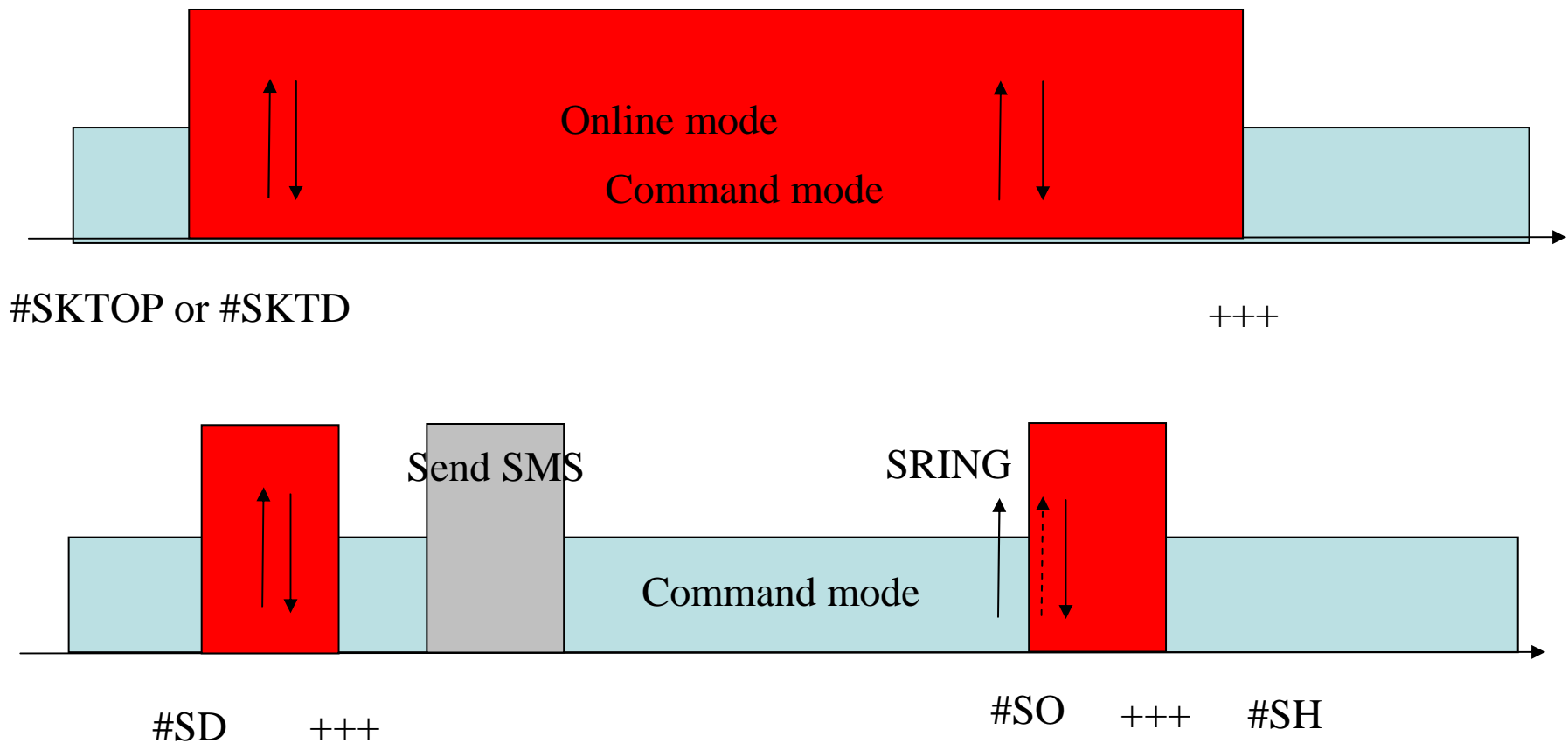
- The new IPEasy interface allows to configure the relation between the Cntx Id and the Conn Id
- The new IPEasy interface allows to know the socket status
- The new IPEasy interface allows up to 6 sockets on listen (different IP ports) with or without CMux
- Using the old IPEasy interface and CMux it is possible to open multiple sockets (one socket for every VPort)
- Using the old IPEasy interface and CMux it is possible to open multi listen sockets (one socket for every VPort)

# Distinctive features



- Up to 3 sockets running at the same time with CMux
- The new IPEasy interface allows power saving with active sockets
- The new IPEasy interface allows IPEasy and PPP at the same time (different context)
- Backward compatibility of the old IPEasy interface

# New IPEasy interface idea



# New IPEasy interface



AT Command	Command behavior	Disconnect behavior (+++)
#SKTOP	PDP context activation Socket opening [CONNECT]	Close socket [NO CARRIER] PDP context deactivation
#SKTD	Socket opening [CONNECT]	Socket closing [NO CARRIER]
#SD	Socket opening [CONNECT]	VPort2Skt link suspension [OK] (Socket active)
#SO	Com2Skt link resumption [CONNECT]	VPort2Skt link suspension [OK] (Socket active)
#SH	Socket closing [NO CARRIER]	

# New IPEasy interface



AT Command	Command behavior	Disconnect behavior (+++)
#SKTL	Start listen [OK] Auto answer [CONNECT]	Close socket [NO CARRIER]
#SL	Start listen [OK] No auto answer [SRING]	
#SA	Accept the incoming connection [CONNECT]	VPort2Skt link suspension [OK] (Socket active)
#SS	Socket status	

# GSM/GPRS interface VS New IPEasy interface



## ➤ **GSM/GPRS**      → *New IPEasy Interface*

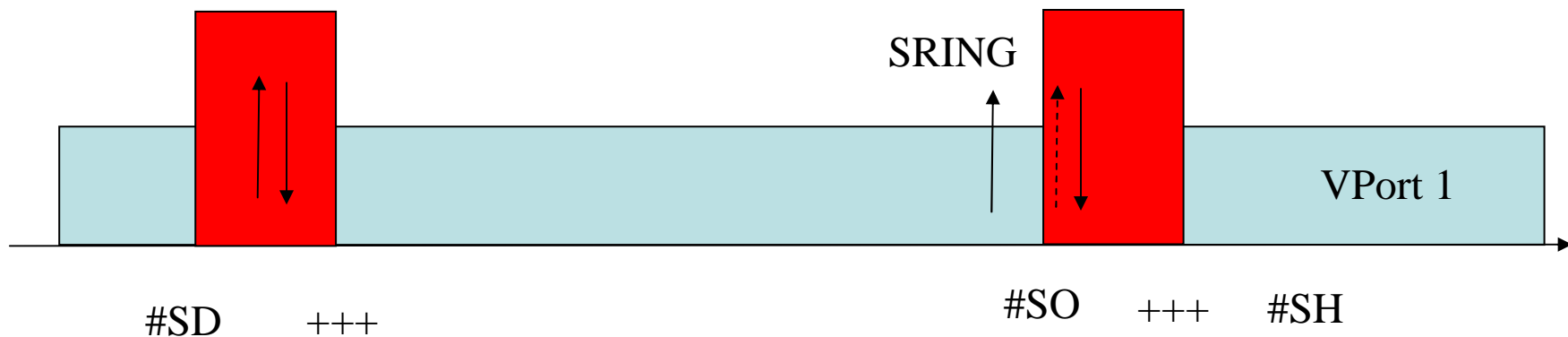
- |                    |                         |
|--------------------|-------------------------|
| ➤ AT <b>D</b> 123  | → AT#S <b>D</b> = n,... |
| ➤ +++              | → +++                   |
| ➤ AT <b>O</b>      | → AT#S <b>O</b> = n     |
| ➤ AT <b>H</b>      | → AT#S <b>H</b> = n     |
| ➤ AT <b>A</b>      | → AT#S <b>A</b> = n     |
| ➤ AT+C <b>GACT</b> | → AT#S <b>GACT</b>      |



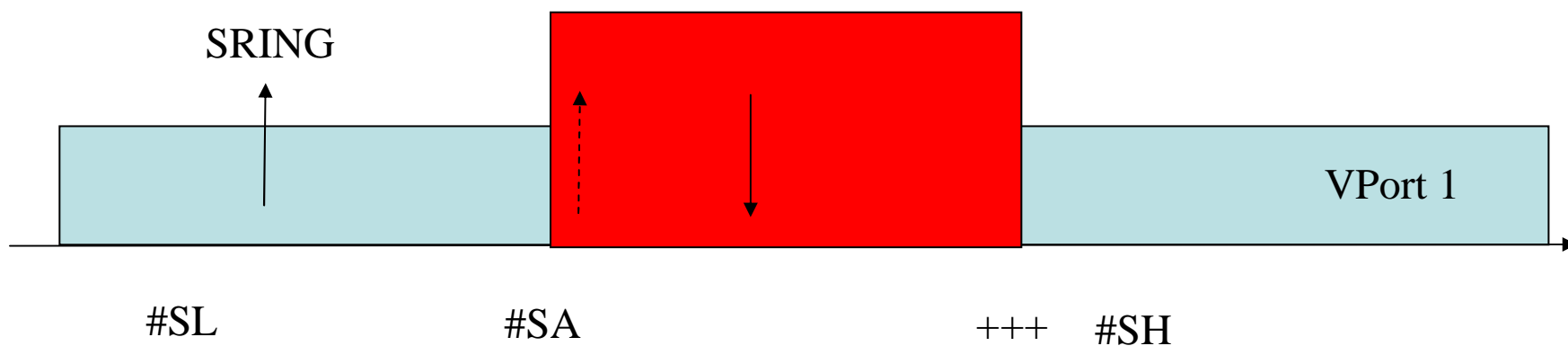
# Single socket & single VPort



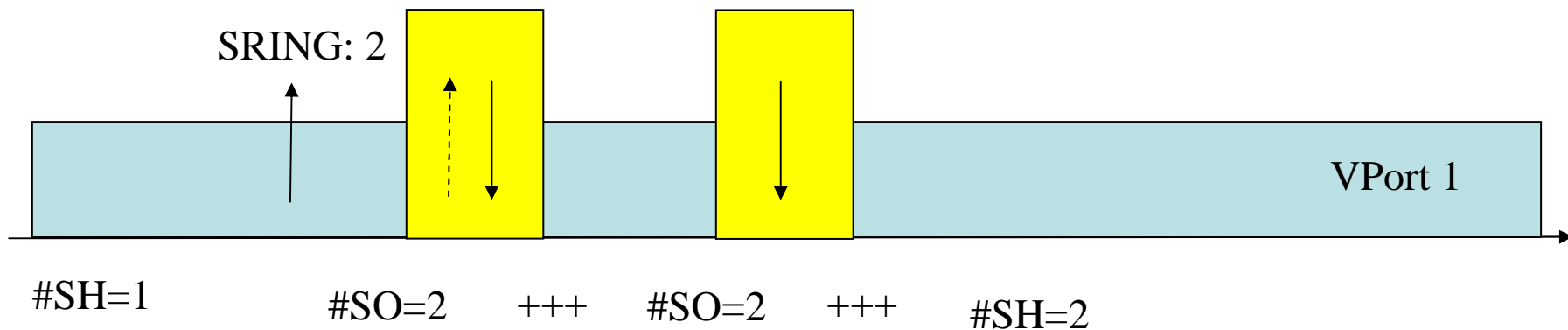
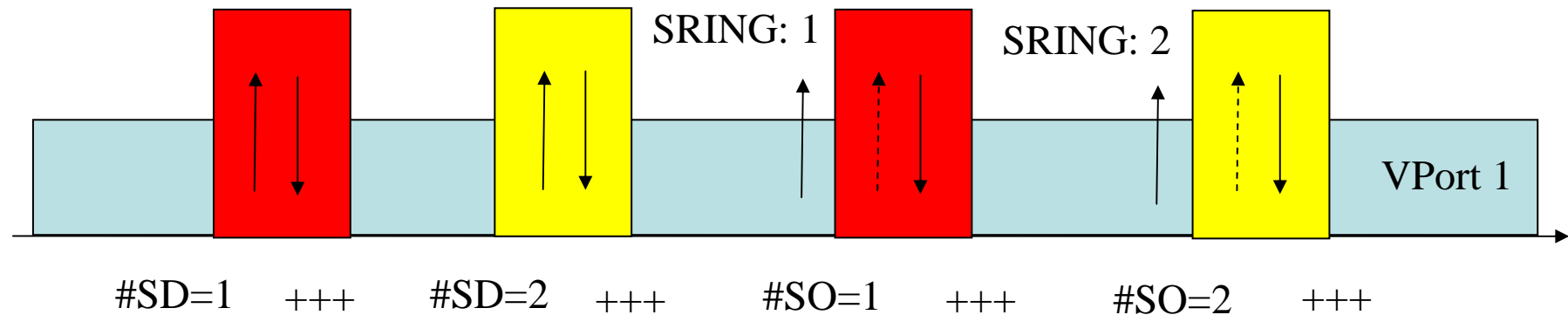
## ➤ Outgoing connections



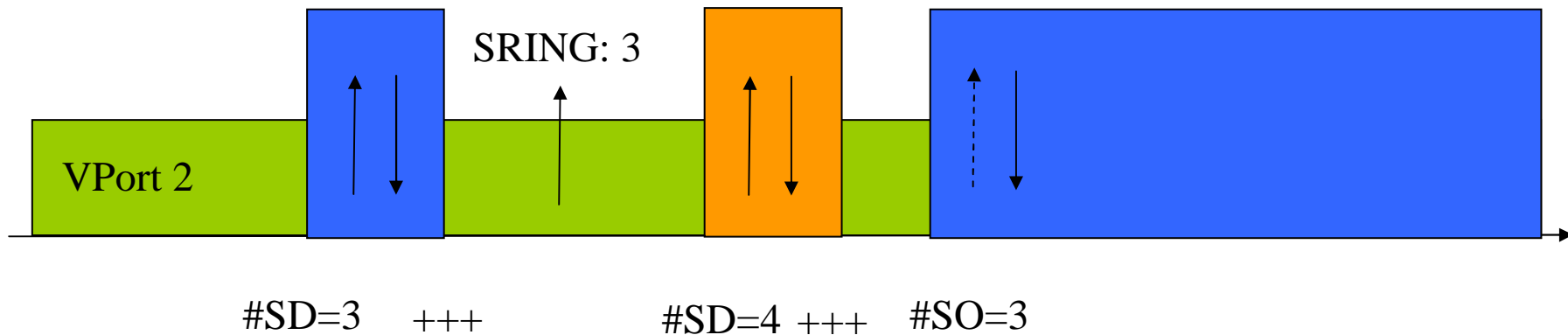
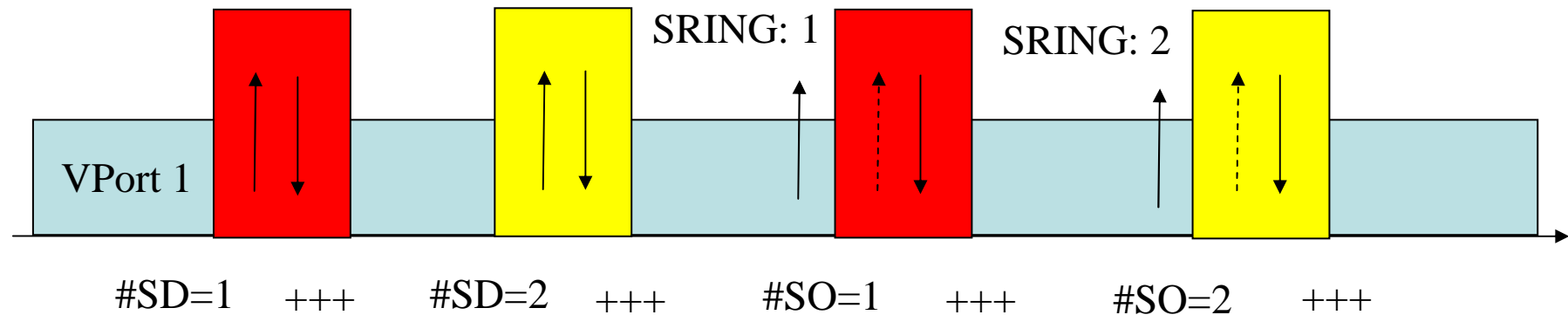
## ➤ Incoming Connections



# Multi socket & single VPort



# Multi socket & multi VPort



# New IPEasy interface



- AT#SD = <Conn Id>, <Udp or Tcp>, <Remote Port>,<IP address> [, <Linger Time> [, <Local Port>] ]
- AT#SO = <Conn Id>
- AT#SH = <Conn Id>
- AT#SL = <Conn Id>, <Listen mode>, <Listen port>[, <Linger Time>]
- AT#SA = < Conn Id >

# New IPEasy interface



- AT#SS?
- AT#SCFG = <Conn Id>, <Cntx Id>, <Pkt sz>, <Global To>, <Conn To>, <Tx To>
- AT#SGACT = <Cntx Id>, <Status> [, <Username>, <Passwd>]

# Old IPEasy & old internal IP structure



**Cntx Id 1**



**Conn Id 1**



**VPort 1**

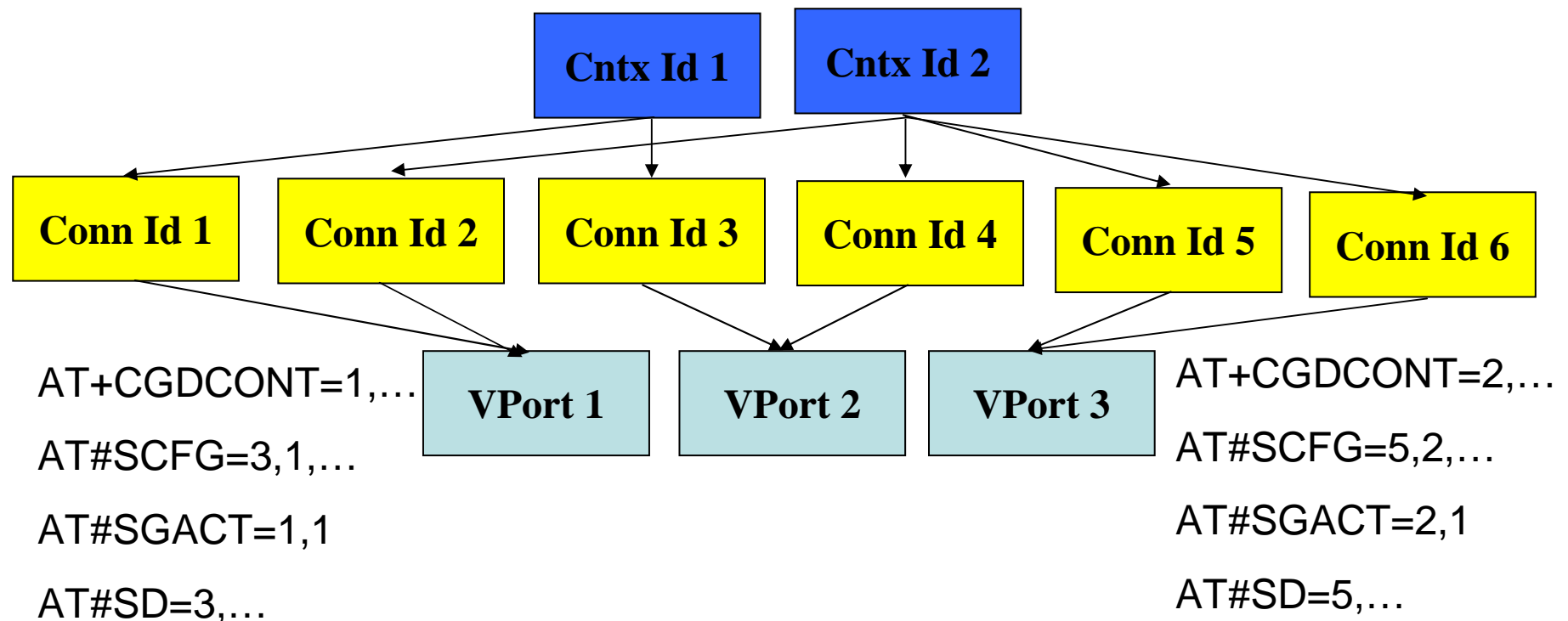
AT+CGDCONT=1,...

AT#GPRS=1

AT#SKTD=...

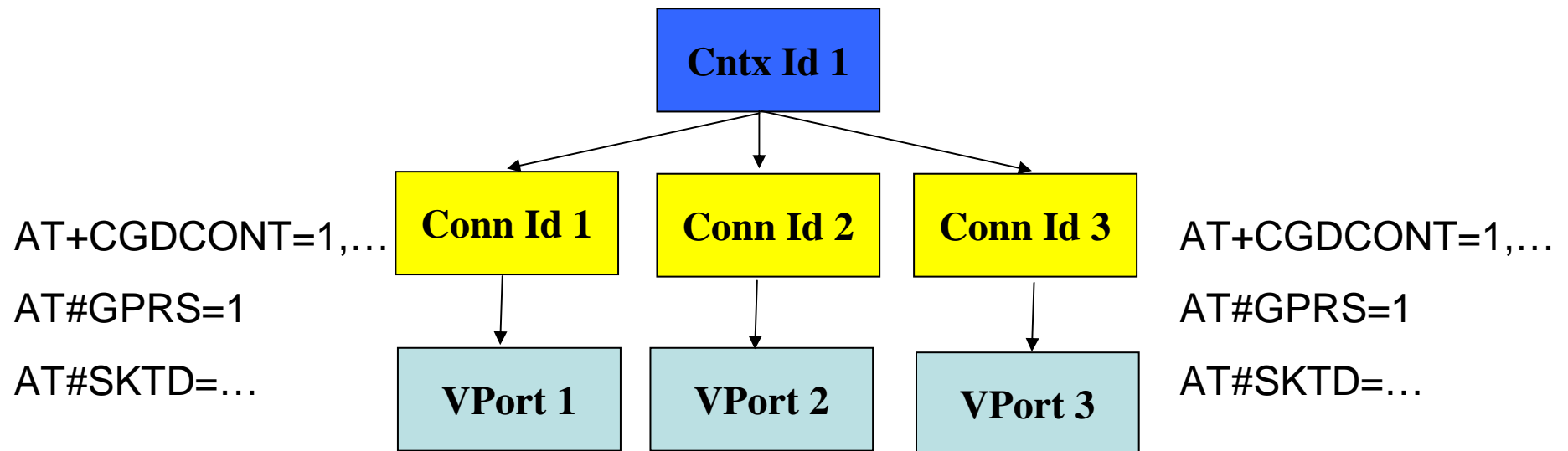
- Single context
- Single socket

# New IPEasy & new internal IP structure



- Multiple Cntx Id (up to 2)
- Multiple sockets (up to 6)
- Cntx Id <-> Conn Id configurability

# Old IPEasy & new internal IP structure



- Single context
- Up to 3 sockets on different VPorts



# IP Easy interface Reorganization



## ➤ *Old interface*

- AT#SKTOP
- AT#SKTD
- AT#SKTSET
- AT#SKTSAV

➤ AT#GPRS

- +++ after AT#SKTD
- +++ after AT#SKTOP

## → *New interface*

- AT#SGACT; AT#SD
- AT#SD
- not needed
- not needed

→ AT#SGACT

- +++; AT#SH
- +++; AT#SH; AT#SGACT

# IPEasy interface Reorganization



## ➤ *Old interface*

- AT#USERID
- AT#PASSWORD

- AT#PKTSZ
- AT#DSTO
- AT#SKTTO
- AT#SKTCT

## → *New interface*

- AT#SGACT
- AT#SGACT

- AT#SCFG
- AT#SCFG
- AT#SCFG
- AT#SCFG

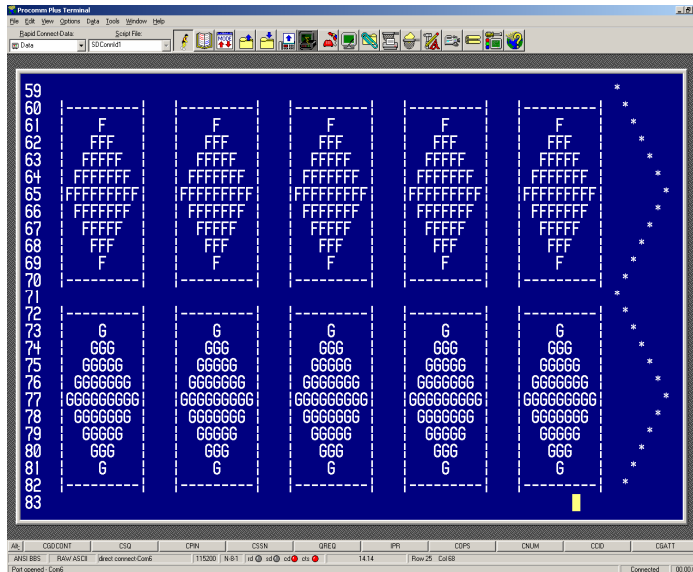
# Example 1: socket suspension

A screenshot of the Procomm Plus Terminal application window. The window has a menu bar (File, Edit, View, Options, Data, Tools, Window, Help) and a toolbar with various icons. Below the toolbar, there are fields for "Rapid Connect-Data:" (set to "Data") and "Script File:" (set to "DL\_SD"). The main terminal area has a blue background and displays the following text:

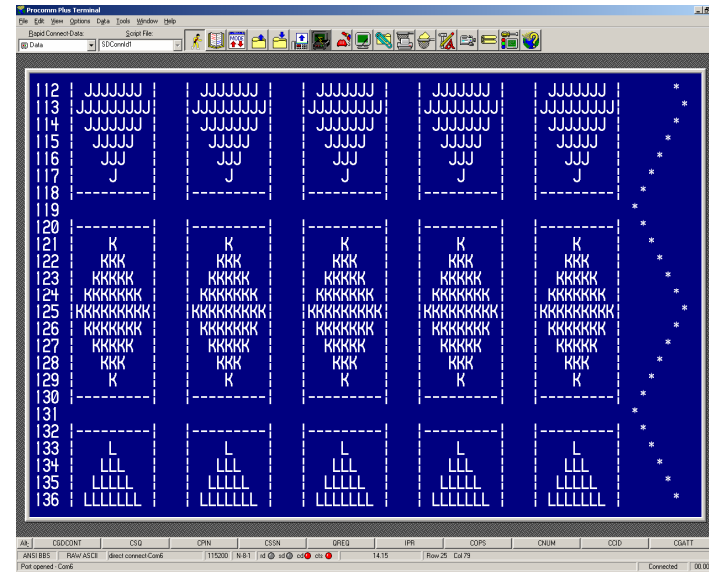
```
at#sd=1,0,10510,"194.185.15.73"  
CONNECT  
socket 1  
  
OK  
at#sd=5,0,10510,"194.185.15.73"  
CONNECT  
  
OK  
  
SRING: 5  
at#sa=5  
CONNECT  
socket 2  
  
OK  
█
```

The status bar at the bottom contains several fields: "Alt:", "CGDCONT", "CSQ", "CPIN", "CSSN", "QREQ", "IPR", "COPS", "CNUM", "CCID", "CGATT", "ANSI BBS", "RAW ASCII", "direct connect-Com7", "115200", "N-8-1", "rd", "sd", "cd", "cts", "9.45", "Connected", and "00.21.22".

# Example 2: multi download

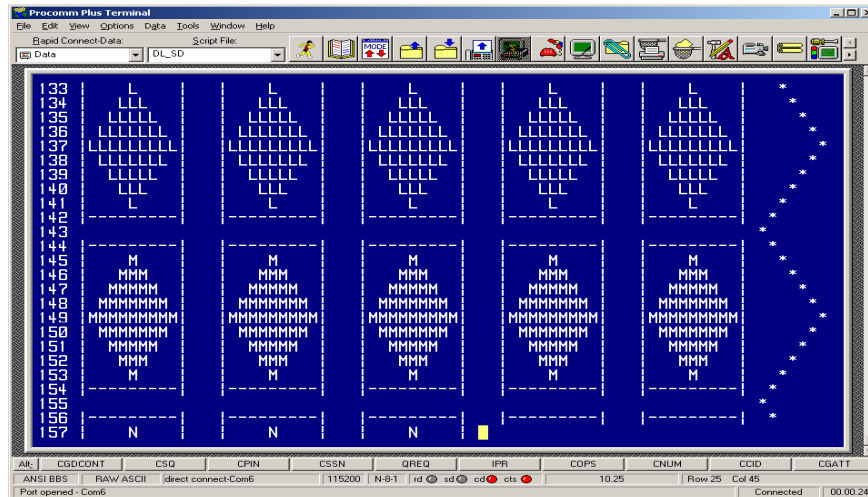


Download from Telit  
server on VPort 1 (Skt 1)

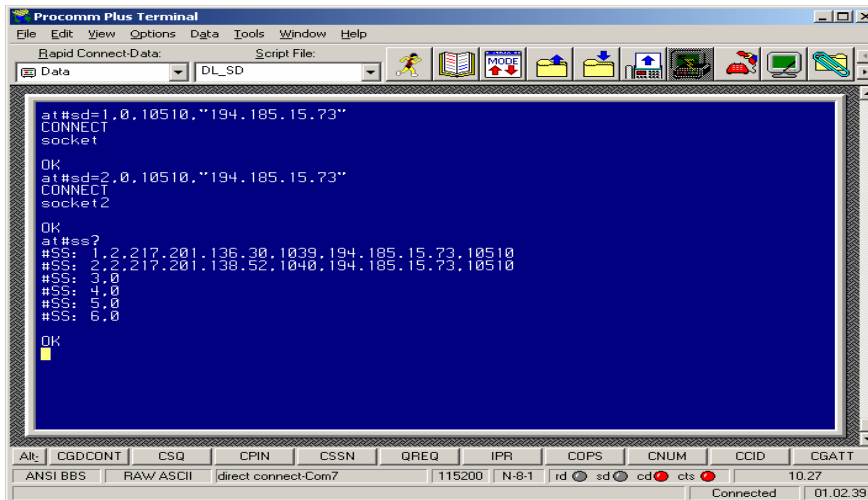


Download from Telit  
server on VPort 2 (Skt 2)

# Example 3: download & double echo

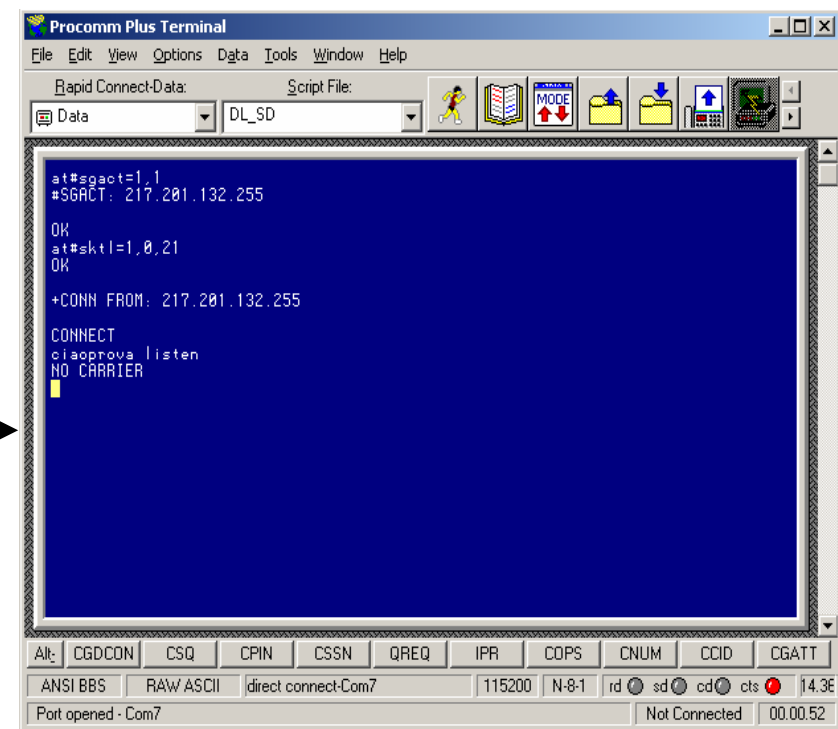
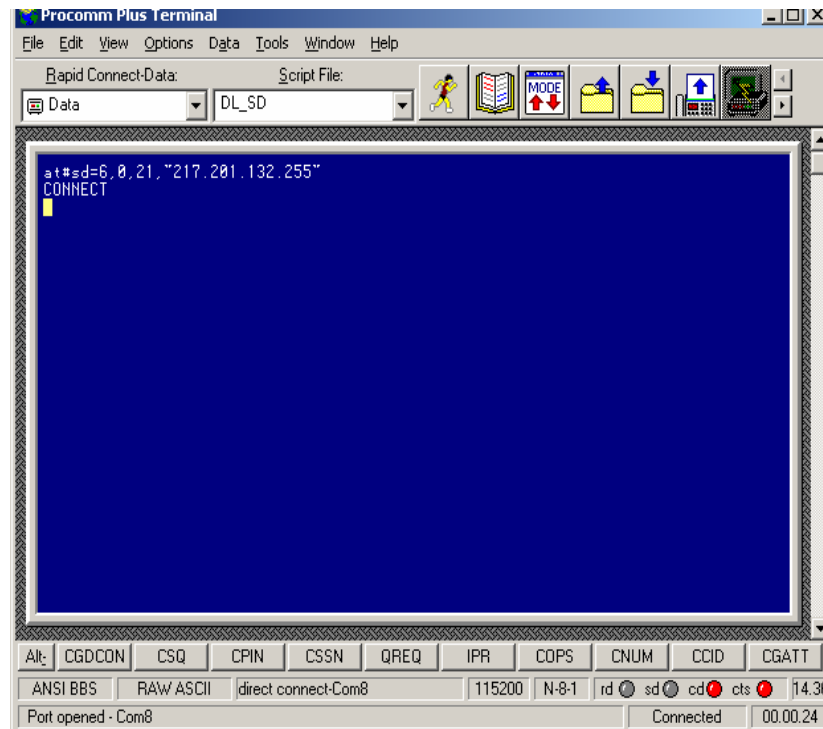


Download from Telit  
server on VPort 1 (Skt 1)



Echo from Telit server on  
VPort 2 (Skt 2 + Skt 3 )

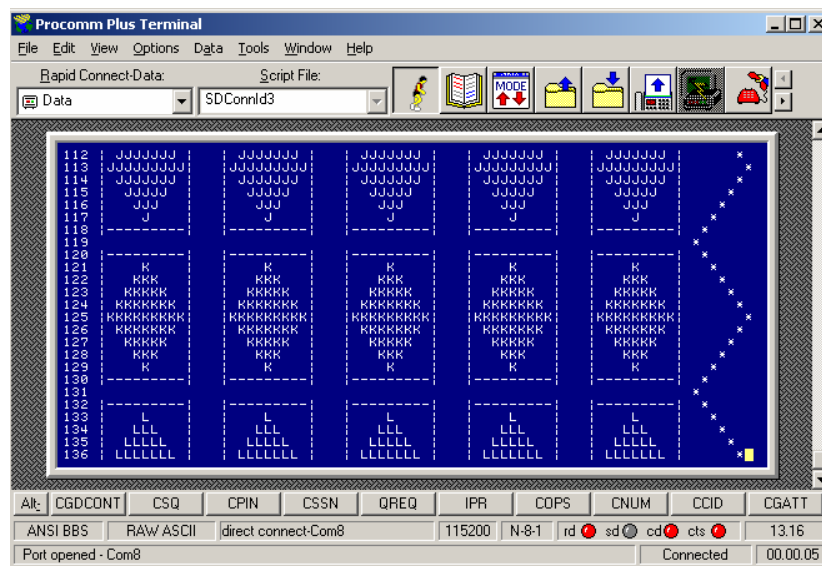
# Example 4: server & client



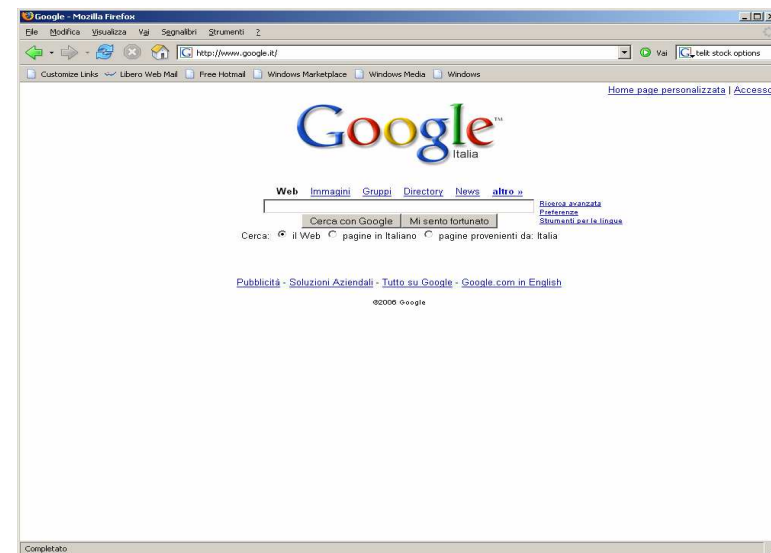
Skt 2 on VPort 1 connects  
to Skt 1

Skt 1 on listen on VPort 2

# Example 5: IPEasy & PPP



Download from Telit  
server on VPort 1



PPP connection on VPort 2

# Limitations



- No IPEasy support with FTP and Email at the same time
- #SKTOP not more available if CMux enabled
- PPP and IPEasy functionalities not on the same IP Address (PPP uses always the first Cntx Id)
- Multi listen only on different IP ports



