

Binary TelNet

BTEL.EXE

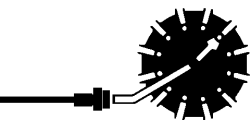
Installation and Operation
V1.00

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The Binary Telnet program, BTEL.EXE, is a support program for DSM3000/3200 , DSA3000/3200, and DTS3250 series modules. It supports communication to a DSM in a TelNet format. The TelNet program furnished with UNIX and Windows operating systems can only receive and save data from a DSM in ASCII format. BTEL is a modified version of TelNet that can receive and save BINARY formatted data to a file. It also supports post test conversion of the binary data to an ASCII column format compatible with spreadsheet programs. BTEL is a console based program capable of running in Windows 98 and Windows NT/2000/XP operating systems.

Local Mode Commands

| | |
|-------------|--|
| COMMAND | OPEN BINARY LOG FILE |
| SYNTAX | BLOG [<file name>] |
| ARGUMENTS | <file name> - File Name - Optional |
| DESCRIPTION | Opens the named file and starts logging just binary data to it. If the optional file name is entered, it is opened. If no file name is entered it uses the file named in the BFILE configuration variable. If a file exists with the same name, it is deleted. The file name must conform to DOS limitations. If the file is located in a directory other than the directory where BTEL is installed, the full path must be entered. |
| RETURNS | <n/> <n/> - end of line |
| EXAMPLE | To open a log file on the host computer, in a data directory, Type: BLOG c:\data\data.log |

| | |
|-------------|---|
| COMMAND | CLOSE BINARY LOG FILE |
| SYNTAX | CBLOG |
| ARGUMENTS | None |
| DESCRIPTION | Closes the binary log file and flushes and data from the buffer |
| RETURNS | <n/> <n/> - end of line |

| | |
|-------------|-----------------------------|
| COMMAND | CLOSE ASCII LOG FILE |
| SYNTAX | CLOG |
| ARGUMENTS | None |
| DESCRIPTION | Closes log file |
| RETURNS | <n/> <n/> - end of line |

| | |
|-------------|--|
| COMMAND | CLOSE CONNECTION TO SERVER |
| SYNTAX | CLOSE |
| ARGUMENTS | None |
| DESCRIPTION | Closes a connection to a server. Assuming that BTEL was in pass-through mode, the operator must enter local mode by issuing the "CTRL]" keys. |
| RETURNS | <n/> <n/> - end of line |

COMMAND **CONVERT FILE**
SYNTAX **CVT <output file name> <input file name>**
ARGUMENTS <output file name> - The name of the file where converted data are to be written. If no output file name is entered, Data are output to a default file: Data.txt.
 <input file name> - The name of the file where binary data to be converted are stored. If no input file name is entered, Data will be converted using the data stored in the file named in the BFILE variable.

DESCRIPTION Converts the input binary file to an output ASCII file. The output data is put in columns, with one column for each channel. The first column is the frame number. When using large number of channels, the file should be read into a spreadsheet using a space as a delimiter. If an input file is named, the output file must be named. The file name must conform to DOS limitations. If the file is located in a directory other than the directory where BTEL is installed, the full path must be entered.

 The conversion will report any missing frames as they are encountered. The output file will contain a summary of all missing frames at the end of the file.

RETURNS <n/>
 <n/> - end of line

EXAMPLE1 To convert the default log file from binary to ASCII, type:

CVT

EXAMPLE2 To convert a binary log file in the data directory to an ASCII file in the archive directory, Type:

CVT c:\data\data.bin c:\archive\test1.txt

COMMAND **LIST**
SYNTAX **LIST**
ARGUMENTS None
DESCRIPTION Lists the current settings of all the configuration variables. The list command prints the config.txt file to the display. The LIST command will only show the server type enabled.

RETURNS <n/>
 <n/> - end of line

EXAMPLE1 A typical result of a LIST command when a DTS module is interfaced to the BTEL program may appear as:

SET DTS 16
 SET NUMFRAMES 100
 SET BRCV 1000
 SET ECHO 1
 SET IP 191.30.85.5
 SET BFILE Data.bin
 SET AFILE Data.log
 SET UDPPORT 23

COMMAND **OPEN ASCII LOG FILE**
SYNTAX **LOG <file name>**
ARGUMENTS File Name
DESCRIPTION Opens log session to the named file and starts logging ASCII data to it. If the optional file name is entered, it is opened. If no file name is entered it uses the file named in the AFILE set variable. If a file exists with the same name, it is deleted. The file name must conform to DOS limitations. If the file is located in a directory other than the directory where BTEL is installed, the full path must be entered.

RETURNS
<n/>
<n/>> - end of line

COMMAND **CONNECT TO SERVER**
SYNTAX **OPEN [<ip address>]**
ARGUMENTS IP Address
DESCRIPTION Connects to a server. If successful, BTEL enters pass-through mode. The IP address is optional. If an IP address is not entered, the BTEL program will use the address stored in the IP configuration variable.

RETURNS
<n/>
<n/>> - end of line

COMMAND **QUIT**
SYNTAX **QUIT**
ARGUMENTS None
DESCRIPTION Exits BTEL

RETURNS
<n/>
<n/>> - end of line

COMMAND **SAVE**
SYNTAX **SAVE**
ARGUMENTS None
DESCRIPTION Saves the current settings

RETURNS
<n/>
<n/>> - end of line

COMMAND **SET CONFIGURATION VARIABLE**
SYNTAX **SET <configuration variable> [<setting>]**
ARGUMENTS Configuration Variable - One of the valid configuration variables
 Setting - The setting of the variable, if required
DESCRIPTION Set the configuration variables

RETURNS
<n/>
<n/>> - end of line

Configuration Variables

VARIABLE **AFILE <file name>**
VALID VALUES any valid file name
DEFAULT VALUE data.log
DATA TYPE string
DESCRIPTION This is the name of the file used to store the ASCII logged data. The file name must conform to DOS limitations. If the file is located in a directory other than the directory where BTEL is installed, the full path must be entered.

VARIABLE **BFILE <file name>**
VALID VALUES any valid file name
DEFAULT VALUE data.bin
DATA TYPE string
DESCRIPTION This is the name of the file used to store the binary data if a file name is not specified when the BLOG command is executed. The file name must conform to DOS limitations. If the file is located in a directory other than the directory where BTEL is installed, the full path must be entered.

VARIABLE **BRCV <value>**
VALID VALUES 1 to 10000
DEFAULT VALUE 1000
DATA TYPE integer
DESCRIPTION Number of binary packets received before a status update..

VARIABLE **DSA <frame size>**
VALID VALUES 16, 32 or 64
DEFAULT VALUE 16
DATA TYPE integer
DESCRIPTION Sets the server type to DSA with the expected frame size. The size is expressed as the number of channels. All channels from all enabled modules will be scanned. The default value is the minimum number of channels. This variable will not be displayed by a LIST command if it is not enabled. If this variable is enabled, the variables DSM, RAD, and DTS may not be enabled.

VARIABLE **DSM <frame size>**
VALID VALUES 1 to 512
DEFAULT VALUE 512
DATA TYPE integer
DESCRIPTION Sets the server type to DSM with the expected frame size. The size is expressed as the number of channels. All channels from all enabled modules will be scanned. The default value is the maximum number of channels. This variable will not be displayed by a LIST command if it is not enabled. If this variable is enabled, the variables DSA, RAD, and DTS may not be enabled.

VARIABLE **DTS <frame size>**
VALID VALUES 16, 32, or 64
DEFAULT VALUE 16
DATA TYPE integer
DESCRIPTION Sets the server type to DTS with the expected frame size. The size is expressed as the number of channels. All channels from all enabled modules will be scanned. The default value is the minimum number of channels. This variable will not be displayed by a LIST command if it is not enabled. If this variable is enabled, the variables DSM, DSA, and RAD may not be enabled.

VARIABLE **RAD <frame size>**
VALID VALUES 1 to 512
DEFAULT VALUE 512
DATA TYPE integer
DESCRIPTION Sets the server type to RAD with the expected frame size. The size is expressed as the number of channels. The default value is the maximum number of channels. This variable will not be displayed by a LIST command if it is not enabled. If this variable is enabled, the variables DSA, DSM and DTS may not be enabled. This variable should be used for DSM3400 series modules.

VARIABLE **ECHO <setting>**
VALID VALUES 0 or 1
DEFAULT VALUE 0
DATA TYPE string
DESCRIPTION Local echo - Sets local echo on or off. 0 disables local echo, 1 enables local echo. This variable may have to be set to 1 to display keyboard entries on the local screen.

VARIABLE **IP <address>**
VALID VALUES Any valid IP address
DEFAULT VALUE 0
DATA TYPE string
DESCRIPTION This is the IP address of the DSM, DTS or DSA module

VARIABLE **NUMFRAMES <number of frames>**
VALID VALUES See Description
DEFAULT VALUE 100
DATA TYPE integer
DESCRIPTION Sets the maximum number of frames expected to receive. The maximum setting is determined by the amount of available memory in the host computer. Available memory is total system memory less the memory in use. The amount of memory in use in any given system is a function of the operating system and the applications and processes running in the background. If the value of numframes is too large and there is not enough memory available, an error will occur when the binary log file is opened.

| | |
|---------------|---|
| VARIABLE | UDPPORT <port> |
| VALID VALUES | any valid IP port number |
| DEFAULT VALUE | 23 |
| DATA TYPE | integer |
| DESCRIPTION | Port to receive binary UDP data. This port must match the port specified in the module configuration. The module configuration variables are: DSM3000/3200: SET BINADDR <port> <ip address> DSA3200: SET HOST<IP Address> <port> U DTS3250: SET HOST <IP Address> <port> |

Program Installation

1. Create a Folder named: BTEL on the host computer.
2. Copy the BTEL file from the Installation Disk to the BTEL folder. The BTEL program may be run from the installation disk, but data transfer speeds may be affected.

Program Startup

Initial Operation

To start BTEL type: **BTEL**.

The BTEL program will look for a file named CONFIG.TXT. This file contains the default settings for BTEL. For the initial opening of the program, this file will not be found. BTEL will indicate an error:

ERROR: Could not open configuration file CONFIG.TXT. Using defaults.

The defaults are:

```

SET DSM 512
SET NUMFRAMES 100
SET BRCV 1000
SET ECHO 1
SET IP 0
SET BFILE Data.bin
SET AFILE Data.log
SET UDPPORT 23

```

Set the parameters for operation with the module under test. Type LIST to view the default settings. Change the parameters as required by using the SET <configuration variable> command.

Modes of Operation

The BTEL program will have two modes of operation: local and pass-through. Pressing the CTRL key and the] key (CTRL+]) - Toggles between local and pass-through mode.

Local Mode

In local mode, all commands are used to control the BTEL program. When in the local mode, the prompt "LOCAL>" is shown. This mode is used to:

1. Define the module type
3. Define the module IP address
4. Define the number of data frames.
5. Define, open and close Log file.
6. Open and close connections to the module.
7. Convert the binary file to an ASCII file.
8. Close the BTEL program.

Pass-through Mode

In pass-through mode, all data typed is passed through to the server. All ASCII data returned from the server is displayed on the screen, all binary data is written to the specified file. The binary data can be converted to ASCII form afterwards in local mode. This mode does not have a special prompt. This mode is used to:

1. Configure the module
2. Acquire the data

Module Setup

In order for the BTEL program to acquire data from a DSA, DSM, or DTS module, the module must be configured correctly. Once the BTEL program is in the pass through mode, commands may be set to, and information received from, the module. Changes to the module configuration may be made using the BTEL program in the pass through mode. If changes are made to the module setups, the power must be cycled for the changes to be fully effective. The recommended settings for each type module are listed below.

DSA 3000 Series

SET BIN 1
SET FORMAT 0
SET PAGE 0
SET FPS xx

Where: xx is the number of frames to be transmitted - this must match the setting of NUMFRAMES

SET PORT 23
SET NETTYPE UDP

DSA 3200 Series

SET BIN 1
SET FORMAT 0
SET PAGE 0
SET FPS xx

Where: xx is the number of frames to be transmitted - this must match the setting of NUMFRAMES

SET TIME 0
SET PORT 23
SET HOST <IP Address> <port> U

Where: IP Address is the IP address of the host computer.
Port is the data port to be used - port 23 is recommended
U is UDP data transmission

DTS3250 Series

SET BIN 1
SET FORMAT 0
SET PAGE 0
SET FPS xx

Where: xx is the number of frames to be transmitted - this must match the setting of NUMFRAMES

SET TIME 0
SET HOST <IP Address> <port>

Where: IP Address is the IP address of the Host Computer. Port 23 is recommended

DSM3000/3200 Series

SET BIN 1
SET FORMAT 0
SET PAGE 0
SET FPSn xx

Where: n is the Scan Group number
xx is the number of frames to be transmitted - this must match the setting of NUMFRAMES

SET BINADDR <port> <IP Address>

Where: IP Address is the IP address of the Host Computer.
Port is the data port

DSM3400 Series

SET BIN 1

SET FORMAT 0

SET PAGE 0

SET FPSn xx

Where: n is the Scan Group number

xx is the number of frames to be transmitted - this must match the setting of NUMFRAMES

SET BINADDR <port> <IP Address>

Where: IP Address is the IP address of the Host Computer.

Port is the data port

NOTE: For DSM 3400 series modules, use the RAD variable to define the frame size.

RAD3200 Series

SET BIN 1

SET FORMAT 0

SET PAGE 0

SET FPSn xx

Where: n is the Scan Group number

xx is the number of frames to be transmitted - this must match the setting of NUMFRAMES

SET BINADDR <port> <IP Address>

Where: IP Address is the IP address of the Host Computer.

Port is the data port

Program Operation

Start the BTEL program by clicking on the BTEL.exe program in the BTEL folder, or by using the Start, Run command window. A DOS window will open, and the program will be in the LOCAL Mode.

The BTEL program must be set up to interface with the module under test. The setup information is contained in the CONFIG.TXT file in the BTEL folder. The settings may be displayed by entering a LIST command. The settings will reflect the last saved configuration.

Example 1:

A DSM at address 191.30.30.20 is to be configured to send binary data over the UDP port 23. The data are to be logged to a binary file named data.bin. 6000 frames of data are to be sent. Each frame contains 192 channels. After the data are logged, they are to be converted to ASCII format.

```
Select: Start
Select: Run
Enter:  C:\path\Btel           This will start the BTEL program
```

At the LOCAL prompt, Type:

```
LIST                               This will show the current saved configuration

SET DTS 16                         The module type is a DTS3250/16TX
SET NUMFRAMES 100                  100 Frames of data will be collected
SET BRCV 10                        The program will report receipt of every 10 frames
SET ECHO 1                          Local echo is on
SET IP 191.30.85.5                 The IP address of the DTS module
SET BFILE Data.bin                 The name of the Binary Log file
SET AFILE Data.log                 The name of the Converted ASCII File
SET UDPPORT 23                     The UDP Port to be used
```

To change the configuration to match the current test, Type:

```
SET DSM 192                        Sets the module type to a DSM with 192 channels
SET BFILE data.bin                  Names the binary data file
SET IP 191.30.30.20                 Identifies the IP address of the DSM
SET UDPPORT 23                      Identifies the UDP Port of the DSM
SET NUMFRAMES 6000                 Sets the number of data frames to be acquired
SET BRCV 1000                       The program will report receipt of every 1000 data frames
SAVE                                 Saves the current configuration to disk
BLOG                                 Opens the Binary Data Log File
OPEN                                 Connects the Host computer to the DSM
```

The BTEL program will switch to the Pass Through Mode if the connection is successful. When BTEL is in the pass through mode, a user may communicate with the module. Before taking data, the DSM settings should be checked.

Verify the DSM Settings. The critical settings are:

SET BIN 1
SET FORMAT 0
SET PAGE 0
SET FPSn xx

Where: xx is the number of frames to be transmitted
n is the Scan Group number

SET BINADDR 23 <IP Address>

Where: IP Address is the IP address of the Host Computer.

If changes are made to the DSM BINADDR configuration variable, the power must be cycled for the change to be effective.

When the DSM setup is correct,

Type: SCAN The data collection will commence, status information will be displayed as scanning proceeds. The Read messages are displayed every N packets received, based on the setting of BRCV .

When the data collection is complete,

Press: CTRL +] keys to enter local mode.

From the LOCAL prompt,

Type: CBLOG Close the Binary Log File
CVT Convert the Binary Log File: data.bin to ASCII data in the output file data.txt

If the data collection is complete,

Type: CLOSE Disconnect the Host computer from the DSM
QUIT Exit the BTEL program

Example 2:

A DTS 3250/16Tx at address 191.30.85.146 is to be configured to send binary data over the UDP port 23. The data are to be logged to a binary file named data.bin in a folder named: data. 1000 frames of data are to be sent. Each frame contains 16 channels. After the data are logged, they are to be converted to ASCII format and stored in a file named test1 in the data folder.

Select: Start
Select: Run
Enter: C:\path\Btel This will start the BTEL program

At the LOCAL prompt, Type:

| | |
|----------------------|---|
| LIST | This will show the current saved configuration |
| SET DSM 192 | The module type is a DSM with 192 channels |
| SET NUMFRAMES 6000 | 6000 Data Frames are to be collected |
| SET BRCV 1000 | The program will report receipt of each 1000 frames |
| SET ECHO 1 | Echo is on |
| SET IP 192.168.20.20 | The current module IP Address |
| SET BFILE data.bin | The name of the Binary Log file |
| SET AFILE Data.log | The name of the Converted ASCII File |
| SET UDPPORT 23 | Identifies the UDP Port of the current module |

To change the configuration to match the current test, Type:

| | |
|-----------------------------|---|
| SET DTS 16 | The module type is a DTS3250/16Tx |
| SET NUMFRAMES 1000 | 1000 Frames of data will be collected |
| SET BRCV 100 | The program will report receipt of every 100 frames |
| SET IP 191.30.85.146 | The IP address of the DTS module |
| SET BFILE c:\data\data.bin | Names the binary data file and path |
| SET AFILE c:\data\test1.txt | Names the converted ASCII file and path |
| SAVE | Saves the current configuration to disk |
| BLOG | Opens the Binary Data Log File |
| OPEN | Connects the Host computer to the DSM |

The BTEL program will switch to the Pass Through Mode if the connection is successful. When BTEL is in the pass through mode, a user may communicate with the module. Before taking data, the DTS settings should be checked.

Verify the DTS Settings. The critical settings are:

| | |
|--------------------------|---|
| SET BIN 1 | |
| SET FORMAT 0 | |
| SET PAGE 0 | |
| SET FPS 1000 | |
| SET TIME 0 | |
| SET HOST <IP Address> 23 | Where: IP Address is the IP address of the Host Computer. |

If changes are made to the DTS HOST configuration variable, the configuration must be SAVED and the power must be cycled for the change to be effective.

When the DTS setup is correct,

Type: SCAN The data collection will commence , status information will be displayed as scanning proceeds. The Read messages are displayed every N packets received, based on the setting of BRCV .

When the data collection is complete,

Press: CTRL +] keys to enter local mode.

From the LOCAL prompt,

Type: CLOG Close the Binary Log File
 CVT Convert the Binary Log File: c:\data\data.bin to ASCII data in the output file
 c:\data\test1.txt

If the data collection is complete,

Type: CLOSE Disconnect the Host computer from the DTS
 QUIT Exit the BTEL program

Example 3:

A DSA 3200/16Tx at address 191.30.80.144 is to be configured to send binary data over the UDP port 23. The data are to be logged to a binary file named data.bin in a folder named: data. 1000 frames of data are to be sent. Each frame contains 16 channels. After the data are logged, they are to be converted to ASCII format and stored in a file named test2 in the data folder.

Select: Start
Select: Run
Enter: C:\path\Btel This will start the BTEL program

At the LOCAL prompt, Type:

| | |
|----------------------|---|
| LIST | This will show the current saved configuration |
| SET DSM 192 | The module type is a DSM with 192 channels |
| SET NUMFRAMES 6000 | 6000 Data Frames are to be collected |
| SET BRV 1000 | The program will report receipt of each 1000 frames |
| SET ECHO 1 | Echo is on |
| SET IP 192.168.20.20 | The current module IP Address |
| SET BFILE data.bin | The name of the Binary Log file |
| SET AFILE Data.log | The name of the Converted ASCII File |
| SET UDPPORT 23 | Identifies the UDP Port of the current module |

To change the configuration to match the current test, Type:

| | |
|-----------------------------|---|
| SET DSA 16 | The module type is a DSA3200/16Tx |
| SET NUMFRAMES 1000 | 1000 Frames of data will be collected |
| SET BRV 100 | The program will report receipt of every 100 frames |
| SET IP 191.30.80.144 | The IP address of the DSA module |
| SET BFILE c:\data\data.bin | Names the binary data file and path |
| SET AFILE c:\data\test2.txt | Names the converted ASCII file and path |
| SAVE | Saves the current configuration to disk |
| BLOG | Opens the Binary Data Log File |
| OPEN | Connects the Host computer to the DSA |

The BTEL program will switch to the Pass Through Mode if the connection is successful. When BTEL is in the pass through mode, a user may communicate with the module. Before taking data, the DSM settings should be checked.

Verify the DSA Settings. The critical settings are:

| | |
|----------------------------|---|
| SET BIN 1 | |
| SET FORMAT 0 | |
| SET PAGE 0 | |
| SET FPS 1000 | |
| SET TIME 0 | |
| SET HOST <IP Address> 23 U | Where: IP Address is the IP address of the Host Computer. |

If changes are made to the DSA HOST configuration variable, the configuration must be SAVED and the power must be cycled for the change to be effective.

When the DSA setup is correct,

Type: SCAN The data collection will commence , status information will be displayed as scanning proceeds. The Read messages are displayed every N packets received, based on the setting of BRCV .

When the data collection is complete,

Press: CTRL +] keys to enter local mode.

From the LOCAL prompt,

Type: CLOG Close the Binary Log File
CVT Convert the Binary Log File: c:\data\data.bin to ASCII data in the output file c:\data\test1.txt

If the data collection is complete,

Type: CLOSE Disconnect the Host computer from the DSA
QUIT Exit the BTEL program

Notes

1. If during the CVT process, the BTEL reports that too many frames are missing, the most likely problem is a host computer that is too slow or a busy network.
2. TCP binary transfer is not supported.
3. After connection to the module under test, press Enter a few times to clear the network buffer.
4. If multiple data files will be logged, the BFILE file name must be changed before acquiring the next data file or the older data will be overwritten.
5. If the setting of NUMFRAMES and FPS do not match, the BTEL program will shut down with "FATAL" errors.