

Vanguard TFTP Server

Release 6.1.S100

Introduction

The Trivial File Transfer Protocol (TFTP) Server Module provides the capability to download software image files and CMEM configuration files to a remote TFTP client using the TFTP file transfer protocol over the UDP/IP protocol stack. Multiple TFTP transfers are permitted at any one time. Parallel software image and CMEM configuration file transfers via different applications are permitted. The TFTP client on the PC, UNIX or Vanguard node can initiate to download software images and CMEM configuration files from the TFTP Server in the Vanguard node. The multiple TFTP clients (up to ten) can initiate file transfer at any one time.

■ Note

The Vanguard 7300 Series transfers only one software image at a time. The Vanguard 7300 Series does not support multiple file access.

Typical Examples

Three examples of TFTP server connections are defined:

- 1) Two Vanguards connected together via their Ethernet ports through a LAN are able to perform a TFTP image or CMEM transfer from the Vanguard acting as a TFTP server to the Vanguard acting as a TFTP client.
- 2) Two Vanguards connected together via their serial interface (i.e. LCON on the Frame relay or X.25) are able to perform a TFTP image or CMEM transfer from the Vanguard acting as a TFTP server to the Vanguard acting as a TFTP client.
- 3) Vanguard connected to a PC via a hub or Ethernet crossover cable is able to perform an image or CMEM transfer from the Vanguard acting as a TFTP Server to the PC acting as a TFTP Client.

External behavior

The TFTP Server provides packet sequencing to ensure proper delivery order and UDP provides check summing on each packet to ensure data integrity. The TFTP Server Module implementation of the TFTP protocol adheres to RFC 1350 and supports file transfers over UDP to remote TFTP clients that also adhere to RFC 1350.

Operator Interface

A CTP menu interface is provided to the operator to enable and disable the TFTP Server and to access status information about the most recent operation completed or the operation in progress. A parameter command is required to enable and disable a TFTP Server. The status and statistics information available to a CTP operator are displayed by the sequence of the TFTP Server's internal session. There is no configuration record (CMEM) for the TFTP Server parameter.

Configure TFTP Server Module

TFTP Server Configuration

TFTP Server modules are configured with the parameter value Enable and Disable:

Configure->Configure TFTP Server->TFTP Server Enable/Disable

After the TFTP Server is enabled or disabled, alarm messages are shown:

- "TFTP_SERVER: Server is Enabled! on Port:69"
- "TFTP_SERVER: Server is Disabled! on Port: 69"

Image Copy Node to Node Example

Software images can be copied from node to node using TFTP Server and Client.

TFTP sw download->current

1) Enter file name:

<i>Copy</i>	<i>File Name</i>
CMEM	*.mem
IMAGE	*.xrc
DESCRIPTION	*.des

The file name of image is "*.xrc". The TFTP Server on the node can download the software image to the multiple node with TFTP Client (up to ten).

■Note

Vanguard 7300 Series transfers only one software image at a time. The Vanguard 7300 Series does not support multiple file access.

2) Enter the IP address and the TFTP Server's IP address.

After initiating an image file transfer by the TFTP Client, the TFTP Server generates an XRC file format with flash binary data and shows the alarm message below:

"Image Downloading Start with 'filename' to 'IP Address'"

Image Copy Node to PC/UNIX

Software images can be copied from a node to PC or UNIX system using TFTP Client. The file name of software image is "*.xrc" and file transfer mode is binary mode, as shown below:

"TFTP -I IP_Address GET *.xrc"

The TFTP Server on node can download software image to the multiple TFTP Clients (up to ten).

After initiating an image file transfer by the TFTP Client, the TFTP Server generates an XRC file format with flash binary data and shows the alarm message below:

"Image Downloading Start with 'filename' to 'IP Address'"

The TFTP Client receives the "*.xrc" file and saves it into the PC or UNIX platform.

**CMEM Copy Node
to Node**

Configuration can be copied from node to node using TFTP Server and Client.

TFTP restore configuration

The file name of the configuration is “*.mem”. The TFTP Server on the node can download configuration to multiple nodes with TFTP Client (up to ten). After initiating a configuration file transfer by the TFTP Client, the TFTP Server generates binary file formats with configuration data and shows the alarm message below:

"CMEM Downloading Start with 'filename' to 'IP Address' "

**CMEM Copy Node
to PC/UNIX**

Configuration can be copied from node to PC or UNIX system using TFTP Client. The file name of configuration is “*.mem” and the file transfer mode is binary, as shown below:

"tftp -l IP_Address GET *.mem"

The TFTP Server on the node can download the configuration to the multiple TFTP Client (up to ten). After initiating configuration file transfer by the TFTP Client, the TFTP Server generates binary file formats with configuration data and shows the alarm message below:

"CMEM Downloading Start with 'filename' to 'IP Address' "

The TFTP Client receives the “*.mem” file and saves it into the the PC or UNIX platform.

**Description Copy
Node to PC/UNIX**

Description can be copied from a node to PC or UNIX system using TFTP Client. The file name of description is “*.des” and the file transfer mode is text mode, as shown below:

"tftp IP_Address GET *.des"

The TFTP Server on the node can download the description to the multiple TFTP Clients (up to ten). After initiating a description file transfer by the TFTP Client, the TFTP Server generates text file formats with description data and the alarm message shown is:

"Descript Downloading Start with 'filename' to 'IP Address' "

The TFTP Client receives “*.des” files and saves them into the PC or UNIX platform.

**Vanguard
Platform Function**

The following table shows the individual function of each platform:

<i>Platform</i>	<i>Image Copy (Session Number)</i>	<i>CMEM Copy (Session Number)</i>
Vanguard 7300 Series	Node to Node (1) Node to PC/Unix (1)	Node to Node (10) Node to PC/Unix (10)
Vanguard 6435/6455	Node to Node (10) Node to PC/Unix (10)	Node to Node (10) Node to PC/Unix (10)
Vanguard 320	Node to Node (5) Node to PC/Unix (5)	Node to Node (5) Node to PC/Unix (5)
Vanguard 340	Node to Node (10) Node to PC/Unix (10)	Node to Node (10) Node to PC/Unix (10)

Status and Statistics

Introduction

The TFTP Server Status and Statistics Menu is used to display information related to the most recent TFTP Server operation, including an operation in progress. Figure 1 shows the menu and format of the display:

```
Status/Statistics -> TFTP Server Stats:
Status (server session id):
Operation:
IP Address: Node: CLIENT Address: 100 Date: 15-OCT-2002
File Name: TFTP Server Status and Statistics
Time Stamp:
Byte Count: TFTP Server is running!

Server Session ID: 1
Status: TFTP: Operation successful
Last Operation: Get Current Image File
File Name: 6455.xrc
Time Stamp: 01-OCT-2002 21:23:11
Byte Count: 3483096

Press any key to continue (ESC to exit)...
```

Figure 1. TFTP Server Status and Statistics Menu

If operation is “No transfer since Server Enabled”, then the Status parameter is displayed. After the status and statistics have been printed, the operator is prompted to continue for the next Server session. The “ESC” key returns you to the Main Menu. The detailed parameters description is shown in following table.

<i>Parameter</i>	<i>Description</i>
Status	One of the following text strings: "TFTPS: No transfers since Server enabled" "TFTPS: Transfer in progress" "TFTPS: Operation successful" "TFTPS: CMEM access failure" "TFTPS: Local transfer failure" "TFTPS: Remote transfer failure" "TFTPS: System failure" "TFTPS: UDP registration failure" "TFTPS: Flash read failure" "TFTPS: Get Des File download Failure"
Operation	One of the following text strings: "Get Description file" "Get Current Image file" "Get Current CMEM file"
IP Address	X.X.X.X where X<256 : client IP Address
File Name	A text string of no more than 80 characters
Time Stamp	"dd-mmm-yyyy hh-mm-ss" (All values are numbers except for mmm which is the first 3 characters of the name of the month.)
Byte Count	Long integer : current transfer byte
