Data Transfer Handbook

Section 3 (part 2)

RGMA Gateway Interface Specification

ElectraLink Document Approval

Role	Name	Signature	Date
Author	P. Gath		
Reviewer	N. Mc Keown		

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Data Transfer Service - RGMA Gateway Interface Specification

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	NAME	SIGNATURE	DATE
AUTHOR(S)	Paul Gath		
REVIEWER(S)			
ElectraLink	Neil McKeown		
EDS	Alan McDonald		

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1 INTRODUCTION

This document provides the User with a Gateway overview including Gateway options, Network addressing options, User Host interfaces and configuration details when transferring RGMA-compliant data files across the ElectraLink Data Transfer Service.

This document only deals with High Volume Gateways and Low Volume Gateways. Information on Remote User Gateways can be found in the Remote Gateway User Guide.

1.1 Supporting Documentation

Toolset User Guide
Electronic File Transfer Specification
Technical Overview

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2 GATEWAY OPTIONS

This section describes the two principal options Users have for connecting to the EDS Data Transfer Service (DTS). The options provided cater for Users who make extensive use of the DTS, as well as those who make less frequent use of the service. For those Users who send and receive very low volumes of data, there is a third option described in the Remote Gateway User Guide, that permits files to be submitted to the service or collected from the service from a shared Gateway accessed via a dial-up connection.

2.1 High or Low Volume Gateway

2.1.1 High Volume Gateways

The High Volume Gateways (HVG) are located on User premises. They are designed to handle large volumes of message files per day on a 24 x 7 basis and are based on reliable Compaq Proliant servers running the Windows 2000 operating system. The server, on one side is connected via a router to the IP VPN and on the other is connected to the customer network via an appropriate network interface card for that User location.

The HVG supports FTP and X.400 application protocols for interfacing to User systems.

2.1.2 Low Volume Gateways

The Low Volume Gateways (LVG) are located on User premises. An LVG is designed for sites with a lower throughput requirement. The LVG are based on Compaq Proliant servers running Windows 2000 operating system. The server, on one side is connected via a router to the IP VPN and on the other side the server is connected to the customer network via an appropriate network interface card for that User location. The LVG supports FTP and X.400 application protocols for interfacing to User systems.

2.2 User LAN connection

HGVs and LVGs can be supplied with one of the following Network Interface options to suit the User's LAN environment:

- Ethernet
- FDDI
- Token Ring

2.3 DTS WAN

A HVG supports the following options for connecting to the DTS Wide Area Network. The choice will depend on expected data throughput to and from the Gateway.

- 128 kbit/s MPLS link
- 256 kbit/s MPLS link

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A LVG has the following link for connecting to the DTS Wide Area Network.

- 128 kbit/s MPLS link

2.3.1 ISDN Backup

In addition all gateways have an ISDN connection which acts as a backup in the event of failure of the MPLS WAN connection. The capacity of the ISDN connection is the same as the MPLS connection.

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3 NETWORK ADDRESSING

3.1 User LAN FTP over TCP/IP

To submit and receive RGMA User Files to the DTS through the Gateway, Users must allocate the Gateway an IP address from the range of IP addresses in use on their LAN. Users are responsible for configuring all routers and other network equipment on their LAN to enable the Gateway to connect to all the User Hosts configured to use the Gateway.

If a firewall exists between the Gateway and User Hosts, then it must be configured to permit FTP (port 21) traffic and HTTP (port 80) traffic to flow between the Gateway and User Hosts.

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4 USER HOST INTERFACES

4.1 FTP Concepts

The following section describes the FTP concepts and their related file system terminology. This specification is based on RFC959. The FTP interface uses the standard port 21 interface.

The FTP-based interface supports the transfer of RGMA User Files as files, one RGMA User File per file. It supports the following modes of operation based on FTP server/client combinations:

- Host Push
- Host Pull
- Gateway Push
- Gateway Pull

The operation of these modes is described in detail later.

4.1.1 Supported command sets

The following tables show the minimum command sets that are supported by the service for Hosts configured for Host Push/Pull operation.

Server Command	Client Command	Description
USER	user	Identifies User to server
PASS	pass	Provides password to server
PORT	<none>	Identifies port to be used for data transfer
STOR	send/ put	Requests a transfer to the server machine
RETR	receive/ get	Requests a file to be transferred from the server machine
RNFR/ RNTO	rename	Provides Original name and New name for file to be renamed
NLST	ls	List the files in the specified directory
TYPE	type/ascii/e bcdic	Set the file transfer mode or coding
QUIT	quit/bye	Terminate the current session

Table 4-1 - Host FTP Server Commands

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Server Command	Client Command	Description
USER	user	Identifies User to server
PASS	pass	Provides password to server
PORT	<none>	Identifies port for data transfer
STOR	send/ put	Requests a transfer to the server machine
RETR	receive/ get	Requests a file to be transferred from the server machine
CWD	cd	Changes the current working directory to that specified
RNFR/ RNTO	rename	Provides Original name and New name for file to be renamed
NLST	ls	List the files in the specified directory
TYPE	type/ascii/e bcdic	Set the file transfer mode or coding
DELE	delete	Deletes the specified file
QUIT	quit / bye	Terminate the current session

Table 4-2 –DTS FTP Server Commands

4.1.2 Directory structures

The DTS Gateway provides the following structures for Hosts configured for Host Push, Host Pull or both.

Directory Name	Function
<user root>	root for user-specific directory system
out	files to be collected by the host
sent	files which have been collected by the host
temp	temporary directory for files from the host
in	files sent from the host

Table 4-3 –DTS FTP Directory Names

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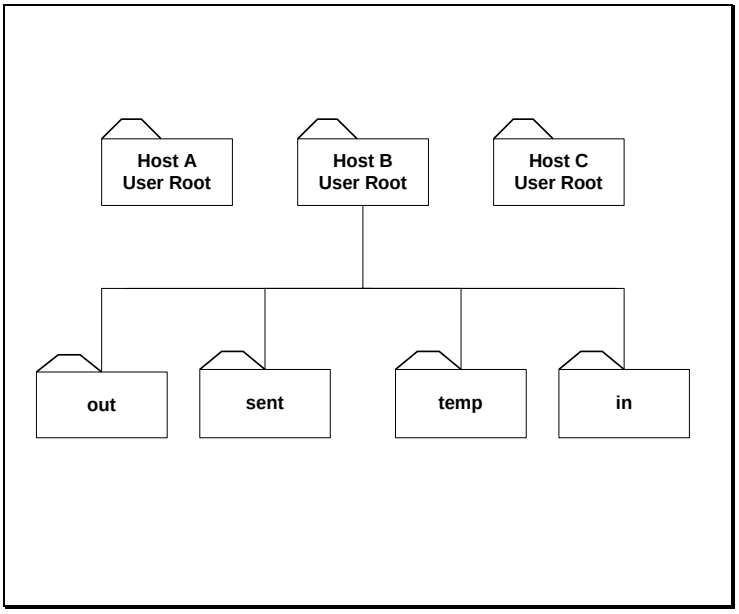

Figure 4.1-1 –DTS FTP Directory Relationships

Note: The directory name separator used by the host may be "\" or "/". The Gateway FTP server supports both.

Note that the names of the in, out, sent, and temp directories cannot be altered on the DTS.

4.2 User File Submission to DTS

4.2.1 Host Push (FTP)

The host connects to the DTS, using the IP address (or host name) of the Gateway, a username and password provided by the Service Provider, and the standard FTP port (21), representing the DTS's FTP server.

The commands that are to be supported by the DTS FTP server are shown in Table 4-2 DTS FTP Server Commands. The required directory names and structure, which support local hosts in this mode, are shown in Table 4-3 and Figure 4.1-1.

For **outbound** transfers, that is, User Files from the User host to the DTS, the procedure is as follows:

(a) The host connects to the DTS FTP server, using the pre-configured user id and password. The user is automatically dropped into the <user root> directory specific to that host by the DTS, and from there is only allowed access to the in, out, sent and temp directories for the specific host. If a user wants to send or receive from multiple hosts, they must log out and back in again with the username and password of each host individually.

(b) The host performs a cd/CDW command to switch to the 'host-specific' *temp* directory within user root directory (*hostb* in Figure 4.1-1);

(c) The host transfers each User File to the DTS as a file, using the FTP put/STOR command, with appropriate FTP transfer format commands that cause a standard file to be created/written, into the host-specific *temp* directory;

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(d) Following successful transfer, the host uses the FTP rename/RNFR/RNTO command to move the file from the *temp* directory to the *in* directory, using a name which prevents overwriting of any previously transferred files; in fact, such an overwriting/ replacement is not generally possible with a rename;

(e) At a configured interval suitable to meet the overall service levels, the DTS checks the contents of the *in* directory, and processes any files found there; each processed file will be deleted.

This mechanism permits the DTS to determine the physical source of the received User Files by their location, that is, in the host-specific *in* directory.

4.2.2 Host Push (X400)

X400 O/R address routes the User File to the target Gateway. The target Gateway X400 Access Unit accepts the User File and passes it to the DTN for processing.

4.2.3 Gateway Pull (FTP)

(a) The host application deposits each User File in the *out* directory, discernible as a distinct "file" using the FTP `ls/NLST` command; names are not significant;

(b) at an interval which may be specified per host, for example every 60 seconds, the Gateway connects to the host's FTP server, using a configured user id and password;

(c) The Gateway scans the host *out* directory mentioned above for files to transfer, using the `ls/NLST` command;

(d) each file is transferred to the Gateway, using the get/`RETR` command, producing a file, with no implied record delimiters or structure;

(e) following a successful transfer, the Gateway moves the User File using the FTP `rename/RNFR/RNTO` command to the *sent* directory, from which it may be removed at some future time by a host-supplied facility; this mechanism prevents re-sending, or rather re-collection, of data by the Gateway, and assumes that, in UNIX terminology, the *out* and *sent* directories are in the same file system.

(f) The DTN default file collection order is based on the alphanumeric filename of the list of files waiting to be collected. Users can request this to be changed on a per host basis, to chronological file collection order based on the creation date of the file.

4.3 Routing Received User Files to User Hosts

A database in the DTS holds all Routing details. Using information contained within a User file, the DTS can Route the file to the correct destination Host.

Users can view Routing Details and Create, Modify, Copy and Delete them by using a Browser based Automated Configuration Management Tool (ACMT). Please refer to DTS ACMT User Guide for more information.

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4.4 Filenames of User Files

For outbound files (Host to DTS), the DTS accepts filenames of up to 35 characters or numerals. The filename is carried through the DTS to the target host i.e. the filename is preserved for RGMA files throughout the data transfer processed. The recipient receives a file with the same name as the original data file sent by the sender. Please *NOTE* the onus is on the sender to agree a file naming convention in advance of the transfer.

4.5 User File Receipt from DTS

For **inbound** transfers, i.e. User Files from the DTS to the local Host, the procedure is as follows:

4.5.1 Host Pull (FTP)

(a) The DTS renames User Files from the temporary directory into the Host-specific *out* directory;

(b) The Host connects to the DTS FTP server, using the Username and password supplied by EDS. The DTS automatically drops the User into the <User root> directory specific to that Host, and from there the User is only allowed access to the in, out, sent and temp directories for that specific Host. If a User wants to send or receive from multiple Hosts, they must log out and back in again with the Username and password of each Host individually.

(c) The Host performs a cd/CDW command to switch to the Host-specific *out* directory within the User root directory;

(d) The Host checks the contents of the *out* directory using the FTP ls/NLST command;

(e) Each file detected is transferred by the Host using the FTP receive/RETR command; appropriate FTP transfer format commands must be issued to ensure that the transferred data is accessible to the receiving application;

(f) Following successful transfer, the Host uses the FTP delete/DELE command to remove the transferred file; this prevents spurious re-transmission (re-collection) of the file in a future session.

The DTS relinquishes responsibility for the User File to be transferred, once the file has been completely written to disk and renamed into the Host-specific *out* directory.

Files will be held in the Host specific *out* directory for a maximum of 14 calendar days. If the Host has not collected them within 14 days of delivery they will be deleted.

4.5.2 Gateway Push (X400)

The DTN will submit the User file to the target Gateway X400 Access Unit. From there it is routed to the target Host X400 O/R.

4.5.3 Gateway Push (FTP)

(a) On demand, following receipt of data for the local host from the DTN, the Gateway attaches to the host's FTP server, using a configured user id and password;

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(b) The Gateway confirms that there is no existing file with the same filename in the temp directory on the user host. If an existing file is found, the filename will be regenerated using the filename template to get a unique filename.

(c) The Gateway uses the FTP put/STOR command to send each User File to the temp directory, using names which are sufficiently unique to prevent overwriting of any data currently being transferred or already in this directory.

(d) Following successful transfer of each User File, the Gateway moves the file to the in directory using the FTP rename/RNFR/RNTO command; this mechanism prevents the host attempting to process a file before it has been completely transferred and assumes that, in UNIX terminology, the temp and in directories are in the same file system;

(e) The host application regularly checks the in directory for incoming data/response files.

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5 USING BACKUP GATEWAYS

5.1 Warm Standby Gateway

This capability provides an additional HVG to a user. This is typically installed at a different geographical location to a User's primary Gateway, usually at a dedicated Disaster Recovery site. Under normal circumstances, no data is sent or received by the WSG. The server is connected to the IP VPN via a single CISCO router with no ISDN backup.

Changeover to the WSG will necessitate re-configuration of the EDS DTS to route RGMA User Files to the WSG and onward to (or to collect traffic from) User host systems (which themselves may have different network addresses). Following re-configuration, all traffic destined for the primary Gateway is automatically routed to the WSG. Similarly, under these circumstances, User Hosts operating in Host Push or Host Pull modes must be re-configured to use the WSG rather than their primary Gateway.

5.2 Central Backup Gateway

This server is clone of a HVG and can be brought on line to replace a HVG or LVG in the event of failure.

5.3 User Controlled Backup Gateway

An additional HVG is provided at the secondary data centre to be used as part of an overall disaster recovery policy for users. It is similar to the Central Backup Gateway provided at the primary hub, but Users, not EDS, will invoke its use, by a request to EDS.

The UCBG is shared by a number of Users. Use of the UCBG at any one time is limited to one User.

Access to the UCBG is via an additional Router and ISDN connection located at a site determined by the user. The user routes traffic via this connection to the UCBG. Please confirm with the ElectraLink Helpdesk to confirm if your organisation is a UGBG member.

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6 SUPPORT

6.1 The Request Management Service (RMS)

All help requests should be made to the EDS Request Management Service (RMS). The RMS is the single point of contact for ElectraLink Users in respect of incident or problem reporting. The RMS is available 24 hours a day, 7 days a week.

6.2 RMS Roles and Responsibilities

The RMS accepts and logs calls from Users, and routes incidents or problems to the relevant expert domains responsible for incident clearance. They are also responsible for the progression of incidents with the relevant expert domains, and for the provision of feedback to the User on incident progress.

6.3 Contacting the RMS

The contact number for the RMS is: - 0191 587 8361.
On connection to the RMS a User is greeted by a recorded welcome message and details of any major incidents are also provided. The User is automatically directed to an RMS agent. In order to log the incident or problem, the RMS agent will require the following information:

- User name (or case reference number)
- Contact number and extension
- Location and building

The User is provided with a unique case reference number. This number should be retained and must be quote on subsequent calls to the RMS when making further enquiries about that specific incident or problem.

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