DRFP
(DECI2 Remote File Protocol) Specification

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About This Manual

This is the Runtime Library Release 2.4 version of *DRFP (DECI2 Remote File Protocol) Specification* manual.

It describes the DRFP, which is a protocol that allows a target to access files on a host.

Changes Since Last Release

None

Related Documentation

Note: the Developer Support Web site posts current developments regarding the Libraries and also provides notice of future documentation releases and upgrades.

Typographic Conventions

Certain Typographic Conventions are used throughout this manual to clarify the meaning of the text:

Convention	Meaning
`courier`	Indicates literal program code.
italic	Indicates names of arguments and structure members (in structure/function definitions only).
medium bold	Indicates data types and structure/function names (in structure/function definitions only).
blue	Indicates a hyperlink.

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Overview

DRFP is a protocol that allows a target to access files on a host. The DRFP protocol numbers are shown below. These two protocols are collectively known as DRFP.

File access from the EE: DRFP0 = 0x0120

File access from the IOP: DRFP1 = 0x0121

The DRFP protocol driver is only implemented for the IOP. File accesses from the EE involve communicating with the IOP using a method different from DECI2, then communicating with the host through the DRFP protocol driver on the IOP. Thus, for both the EE and IOP protocols, the target node will be 'I'.

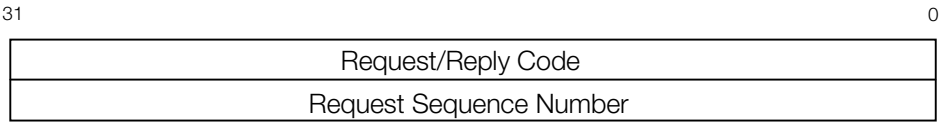
The application on the host is a server that replies to requests from the protocol driver on the target.

Message Format

DRFP messages are sent using a basic DECI2 header.

The DFRP header shown below follows the DECI2 header.

Figure 1: The basic DRFP message header



Request/Reply Code

Indicates the request/reply code. The five types of requests and corresponding replies are shown below.

DRFP_CODE_OPEN (0), DRFP_CODE_OPENR (1)

DRFP_CODE_CLOSE (2), DRFP_CODE_CLOSER (3)

DRFP_CODE_READ (4), DRFP_CODE_READR (5)

DRFP_CODE_WRITE (6), DRFP_CODE_WRITER (7)

DRFP_CODE_SEEK (8), DRFP_CODE_SEEKR (9)

Request Sequence Number

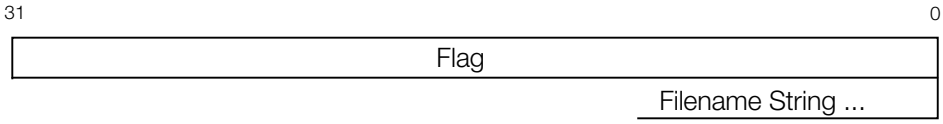
The request sequence number is an integer that is incremented each time a request message is generated. A reply message will contain the request sequence number of the corresponding request message.

Messages

DRFP_CODE_OPEN

DRFP_CODE_OPEN is a message to request that a file be opened. The format of the data following the DRFP header is shown below.

Figure 2: The DRFP_CODE_OPEN message



Flag

The lower 16 bits of Flag indicate the following:

DRFP_RDONLY	0x0001	Open read-only
DRFP_WRONLY	0x0002	Open write-only
DRFP_RDWR	0x0003	Open read/write
DRFP_CREAT	0x0200	If file does not exist, create file
DRFP_TRUNC	0x0400	When opening file for writing, discard contents and set size to 0
DRFP_EXCL	0x0800	When creating a file, an error will be generated if a file having the same name already exists

The upper 16 bits of Flag are a function of the host system on which the file server application is running. For example, if the host is UNIX, file permissions can be specified. If the permissions are set to 0, the default permissions for the file server application will be used.

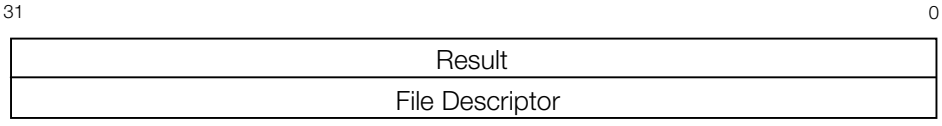
Filename String

A null-terminated string representing the filename to be opened.

DRFP_CODE_OPENR

DRFP_CODE_OPENR is a reply message for file open requests.The DFRP header shown below follows the DECI2 header.

Figure 3: The DRFP_CODE_OPENR message



Result

0 if the file was opened successfully. Otherwise, Result is set to one of the error codes below. If an error other than the ones shown below is generated, the lower 16 bits will be set to 0xffff.

DRFP_EACCES (13)	Permission violation
DRFP_EDQUOT (122)	Space could not be allocated in directory
DRFP_EEXIST (17)	File already exists
DRFP_ENOENT (2)	File cannot be found or illegal filename
DRFP_ENOSPC (28)	Space could not be allocated in disk
DRFP_ENFILE (23)	The maximum number of files that can be opened simultaneously has been reached
DRFP_EROFS (30)	Attempt to write open on a read-only disk
DRFP_EBADF (9)	File number is incorrect
DRFP_EIO (5)	I/O error
DRFP_EISDIR (21)	Directory has been opened

File Descriptor

Set to a file number indicating the opened file. This number is used when reading, writing, and closing the file on the target.

DRFP_CODE_CLOSE

DRFP_CODE_CLOSE is a message requesting that a file be closed. The format of the data following the DRFP header is shown below.

Figure 4: The DRFP_CODE_CLOSE message

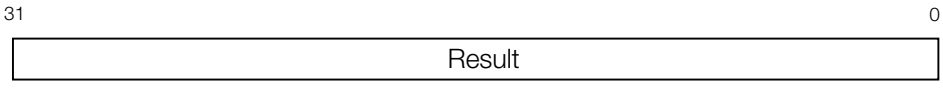
File Descriptor

Set to the file number.

DRFP_CODE_CLOSER

DRFP_CODE_CLOSER is a reply message sent in response to a close file request. The DFRP header shown below follows the DECI2 header.

Figure 5: The DRFP_CODE_CLOSER message



result

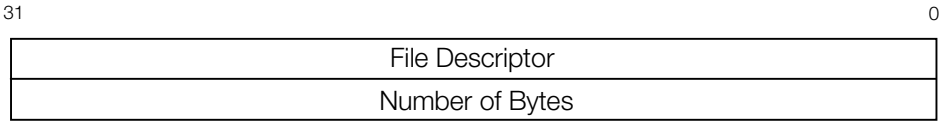
0 if the file was closed successfully. Otherwise, result is set to one of the error codes shown below. If an error other than the ones shown below is generated, the lower 16 bits are set to 0xffff.

DRFP_EBADF (9) File number is incorrect.

DRFP_CODE_READ

DRFP_CODE_READ is a message requesting a file read. The format of the data following the DRFP header is shown below.

Figure 6: The DRFP_CODE_READ message



File Descriptor

Set to the file number.

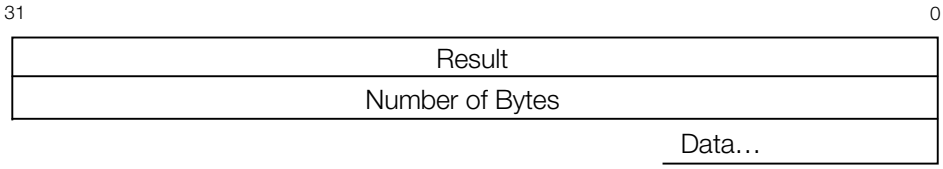
Number of Bytes

Set to the number of bytes of data to be read.

DRFP_CODE_READR

DRFP_CODE_READR is a reply message sent in response to a read file request. The DFRP header shown below follows the DECI2 header.

Figure 7: The DRFP_CODE_READR message



Result

0 if data was read successfully. Otherwise, Result is set to one of the error codes shown below.

If an error other than those shown below is generated, the lower 16 bits will be set to 0xffff.

DRFP_EBADF	(9)	File number is incorrect.
DRFP_EIO	(5)	I/O error.

Number of Bytes

The size (number of bytes) of the data that was read.

Data

The data that was read.

The returned data size will be smaller than the requested read data size in the following cases:

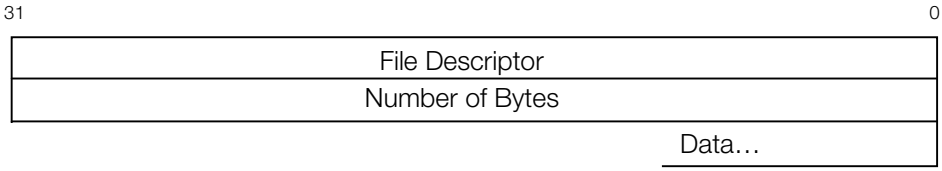
1. The data size specified in DRFP_CODE_READ won't fit in a packet
2. The end of the file was reached

If the Number of Bytes is 0 on the target side and Result is also 0, then it is assumed that the end of the file has been reached.

DRFP_CODE_WRITE

DRFP_CODE_WRITE is a message to request a file write. The format of the data following the DRFP header is shown below.

Figure 8: The DRFP_CODE_WRITE message



File Descriptor

Set to the file number.

Number of Bytes

Set to the number of bytes to be written.

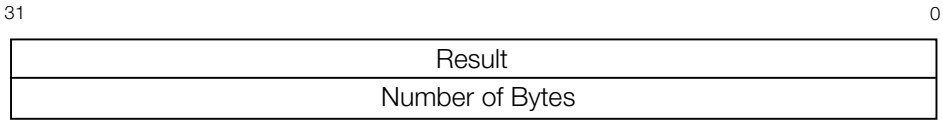
Data

The data to be written.

DRFP_CODE_WRITER

DRFP_CODE_WRITER is a reply message sent in response to a write file request. The DFRP header shown below follows the DECI2 header.

Figure 9: The DRFP_CODE_WRITER message



Result

0 if data was written successfully. Otherwise, Result is set to one of the error codes shown below.

If an error other than the ones shown below is generated, the lower 16 bits are set to 0xffff.

DRFP_EBADF (9) File number is incorrect
DRFP_EIO (5) I/O error

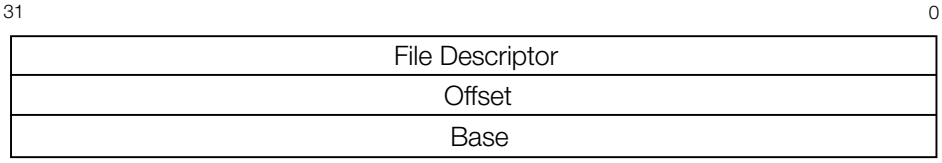
Number of Bytes

Set to the number of bytes written to the file.

DRFP_CODE_SEEK

DRFP_CODE_SEEK is a message requesting a file seek. The format of the data following the DRFP header is shown below.

Figure 10: The DRFP_CODE_SEEK message



File Descriptor

Set to the file number.

Offset

Set to the file pointer offset, in bytes.

Base

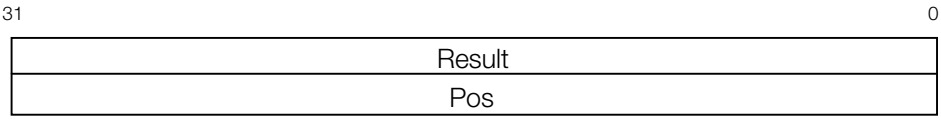
Set to either 0, 1, or 2 and indicates the reference position for Offset.

0 from the start of the file
1 from the current position
2 from the end of the file

DRFP_CODE_SEEKR

DRFP_CODE_SEEKR is a reply message sent in response to a file seek request. The DFRP header shown below follows the DECI2 header.

Figure 11: The DRFP_CODE_SEEKR message



Result

0 if the seek was successful. Otherwise, Result is set to one of the error codes shown below.

If an error other than the ones shown below is generated, the lower 16 bits are set to 0xffff.

DRFP_EBADF (9) File number is incorrect

Pos

Set to the file pointer position after the seek.