

## 6.0 LOAD PROTOCOL DEFINITION

Note:

+ Fields repeated for each Header File.

1. Text string termination in a textual field described in Section 6.4.

Detailed description of each field:

File Length:

Binary, number of 8-bit words in this file including this field

Protocol Version:

Two bytes (ASCII characters) defining the Protocol Version as explained in Section 6.4, Protocol File Description.

Number of Header Files:

Binary, number of Header Files in the Header File List. Any .LUR file should contain at least one Header File.

Header File Name Length:

Binary, number of characters in the Header File Name (1 to 255 characters).

Header File Name:

1 to 255 characters (8-bit ASCII i.e., 2040-bits) as defined by the Header File Name Length field.

The text should be zero terminated 0x00 to indicate the end of the data.

Load Part Number Name Length:

Binary, number of characters in the Load Part Number (1 to 255 characters).

Load Part Number Name:

1 to 255 characters (8-bit ASCII i.e., 2040-bits) as defined by the Load Part Number Length field.

The text should be only printable characters, should not include control characters, and should have a maximum length of 255 characters (i.e., 2040-bits).

The text should be zero terminated 0x00 to indicate the end of the data.

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## 6.4.5 &lt;THW\_ID\_POS&gt;.LUS

Table 6.4.5-1

Name of Field	Field Size (bits)	Note
File Length	32	
Protocol Version	16	
Upload Operation Status Code	16	
Upload Status Description Length	8	
Upload Status Description	0 - 2040	1
Counter	16	
Exception Timer	16	
Estimated Time	16	
Load List Ratio	24	
Number of Header Files	16	
+ Header File Name Length	8	
+ Header File Name	8 – 2040	1
+ Load Part Number Name Length	8	
+ Load Part Number Name	8 – 2040	1
+ Load Ratio	24	
+ Load Status	16	
+ Load Status Description Length	8	
+ Load Status Description	0 – 2040	1

Note:

+ Fields are repeated as a group for each Header File, i.e., software load being uploaded.

1. Text string termination in a textual field described in Section 6.4

Detailed description of each field:

File Length:

Binary, number of 8-bit words in this file including this field

Protocol Version:

Two bytes (ASCII characters) defining the Protocol Version as explained in Section 6.4, Protocol File Description.

Upload Operation Status Code:

Binary, unsigned 16-bit value, 0XXXXX: Status code.

It gives the status of this operation.

The Status Codes used in this field are:

0x0001: The Target accepts the operation (not yet started).

0x0002: The operation is in progress.

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0x0003: The operation is completed without error.

0x0004: The operation is in progress, details provided in status description.

0x1003: The operation is aborted by the target hardware. Target hardware text is required in the status description field to identify the reason for this interruption.

0x1004: The operation is aborted in the target hardware due to the receipt of an abort error message sent by the data loader protocol.

0x1005: The operation is aborted in the target hardware due to the receipt of an abort error message initiated by an operator action.

The Status Codes are summarized in Section 6.4.10 "Data Load Status Code Table."

## COMMENTARY

The Upload Operation Status Code defines to the Data Loader the status of the entire load list. The Load Status Field is the status of each individual load contained in the List of Loads file sent to the Target Hardware by the Data Loader.

Upload Status Description Length:

Binary, number of characters in the Upload Status description field (0 to 255 characters).

Upload Status Description:

Description of the reason or additional information for the Status Code. Used for Status Code 0x1003 and 0x0004. For other Status Codes, the content of this field is ignored, but may contain data (i.e., left over data). Refer to Section 6.4.10 for more information.

The text should only be printable characters, should not include control characters, and should have a maximum length of 255 characters (i.e., 2040 bits).

The text should be zero terminated 0x00 to indicate the end of the data.

Counter:

Initial value is 0000.

Binary, 16-bit counter incremented by the Target Hardware before sending the file.

Set to 0x0000 after 0xFFFF. It allows the Data Loader to detect the duplication of files.

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### Exception Timer:

Binary, number of seconds during which the target is expected to be silent. During this delay the status file is not sent by the target hardware and it does not respond to any request from the data loader (0 to  $2^{16}-1$  seconds).

This field is used only if the Status Code field is 0x0002 or 0x0004 for the other status code this field must be set to 0x0000.

### Estimated Time:

Binary, estimated number of seconds to complete the operation (-1 to  $2^{15}-1$  seconds). The value “-1” means the Estimated Time is not given. Estimated Time is the time remaining to complete the operation as computed by the target hardware. As soon as possible during the operation, the target hardware should provide the Estimated Time.

This field is used only if the Status Code field is 0x0002 or 0x0004. For all other Status Codes, this field is set equal to 0x0000

If the target hardware does not provide this value, the “Estimated Time” field must be set to 0xFFFF.

### Load List Ratio:

Three characters (8-bit ASCII) representing the percentage of the Load List completed.

Right adjusted field with leading blanks.

### Number of Header Files:

Binary, number of Header Files in the Load List. Before and during the list transfer step, the “Number of Header Files” field must be set to 0.

### Header File Name Length:

Binary, number of characters in the Header File Name (1 to 255 characters).

### Header File Name:

1 to 255 characters (8-bit ASCII) as defined by the Header File Name Length field.

The text should be zero terminated 0x00 to indicate the end of the data.

### Load Part Number Name Length:

Binary, number of characters in the Load Part Number (1 to 255 characters).

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### Load Part Number Name:

1 to 255 characters (8-bit ASCII) as defined by the Load Part Number Length field.

The text should be zero terminated 0x00 to indicate the end of the data.

### Load Ratio:

Right adjusted field with leading blanks.

Three characters (8-bit ASCII) representing the percentage of the specific load completed.

### Load Status:

Binary, unsigned 16-bits value, 0xXXXX: Status Code.

Status for each Header File, i.e., each software load being uploaded. It gives the status of the load defined by the associated Header File (not only the status of the upload of the Header File.)

### The Status Codes used in this field are:

0x0001: The operation is accepted (not yet started).

0x0002: The operation is in progress.

0x0003: The operation is completed without error

**0x0004: The operation is in progress, details provided in status description.**

0x1003: The operation is aborted by the target hardware. Target hardware text is required in the Status Description field to identify the reason for this interruption.

0x1004: The operation is aborted in the target due to the receipt of an abort error message sent by the Data Loader Protocol.

0x1005: The operation is aborted in the target due to the receipt of an abort error message initiated by an operator action.

0x1007: The load of this Header File has failed. Text is required in the "Status Description" field to explain the failure.

The Status Codes are summarized in Section 6.4.10 "Data Load Status Code Table."

### Load Status Description Length:

Binary, number of characters in the Status Description field (0 to 255 characters).

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### Load Status Description:

Description of the reason for the Status Code. Use for the Status Codes 0x0004, 0x1003 and 0x1007. For other status codes, the content of this field is ignored, but may contain data (e.g., left over data). Refer to Section 6.4.10 for more information.

The text should be only printable characters, should not include control characters, and should have a maximum length of 255 characters (i.e., 2040bits).

The text should be zero terminated 0x00 to indicate the end of the data.

### 6.4.6 <THW\_ID\_POS>.LNR

**Table 6.4.6-1**

Name of Field	Field Size ( bits)	Note
File Length	32	
Protocol Version	16	
Number of Files	16	
+ File Name Length	8	
+ File Name	8 – 2040	1
User Defined Data Length	8	
User Defined Data	0 – 2040	1

Note:

+ Fields repeated for each file to be downloaded.

1. Text string termination in a textual field described in Section 6.4

Detailed description of each field:

File Length:

Binary, number of 8-bit words in this file including this field.

Protocol Version:

Two bytes (ASCII characters) defining the Protocol Version as explained in Section 6.4, Protocol File Description.

Number of Files:

Binary, number of Files for this Downloading.

File Name Length:

Binary, number of characters in the File Name (1 to 255 characters i.e., 2040-bits).

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File Name:

1 to 255 characters (8-bit ASCII i.e., 2040-bits) as defined by the File Name Length field.

The text should be zero terminated 0x00 to indicate the end of the data.

User Defined Data Length:

Binary, number of bytes in the User Defined Data field (0 to 255 bytes).

User Defined Data:

0 to 255 bytes (8-bit) as defined by the User Defined Data Length field.

### 6.4.7 <THW\_ID\_POS>.LNS

**Table 6.4.7-1**

Name of Field	Field Size (bits)	Note
File Length	32	
Protocol Version	16	
Download Operation Status Code	16	
Download Status Description Length	8	
Download Status Description	0 – 2040	1
Counter	16	
Exception Timer	16	
Estimated Time	16	
Download List Ratio	24	
Number of Files	16	
+ File Name Length	8	
+ File Name	8 – 2040	1
+ File Status	16	
+ File Status Description Length	8	
+ File Status Description	0 – 2040	1

Note:

+ Fields repeated for each File

1. Text string termination in a textual field described in Section 6.4

Detailed description of each field:

File Length:

Binary, number of 8-bit words in this file including this field.

Protocol Version:

Two bytes (ASCII characters) defining the Protocol Version as explained in Section 6.4, Protocol File Description.

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Download Operation Status Code:

Binary, unsigned 16-bits value, 0XXXXX: Status code.

It gives the status of this operation.

The Status Codes used in this field are:

0x0001: The Target accepts the operation (not yet started).

0x0002: The operation is in progress.

0x0003: The operation is completed without error.

**0x0004: The operation is in progress, details provided in status description.**

0x1003: The operation is aborted by the target hardware. LRU text is required in the Status Description field to know the reason for this interruption.

0x1004: The operation is aborted in the target hardware due to the receipt of an abort error message sent by the Data Loader Protocol.

0x1005: The operation is aborted in the target hardware due to the receipt of an abort error message initiated by an operator action.

The Status Codes are summarized in Section 6.4.10, "Data Load Status Code Table."

Download Status Description Length:

Binary, number of characters in the Download Status Description field (0 to 255 characters).

Download Status Description:

Description of the reason or additional information for the Status Code. Used only for Download Status Codes **0x0004 and 0x1003**. For other Status Codes, the content of this field is ignored, but may contain data (e.g., left over data). Refer to Section 6.4.10 for more information.

The text should only be printable characters, should not include control characters, and should have a maximum length of 255 characters (i.e., 2040bits).

The text should be zero terminated 0x00 to indicate the end of the data.

Counter:

Initial value is 0000.

Binary, 16-bit counter incremented by the Target Hardware before sending the file.



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Set to 0x0000 after 0xFFFF. This allows the Data Loader to detect the duplication of files.

**Exception Timer:**

Binary, number of seconds during which the target hardware is expected to be silent. During this delay, the status file is not sent by the target hardware and it does not respond to any request from the Data Loader (0 to 216 –1 seconds).

This field is used only if the Status Code field is 0x0002 or 0x0004, for the other Status code this field must be set to 0x0000.

**Estimated Time:**

Binary, estimated number of seconds to complete the operation (-1 to 215 -1 seconds). The value “-1” means the estimated time is not given. Estimated time is the time remaining to complete the operation as computed by the target hardware. As soon as possible during the operation, the target hardware should provide the estimated time.

This field is used only if the Status Code field is 0x0002 or 0x0004. For all other Status Codes, this field is set equal to 0x0000.

If the Target does not give this value, the “Estimated Time” field must be set to 0xFFFF.

**Download List Ratio:**

Three characters (8-bit ASCII) representing the percentage of the download completed. Right adjusted field with leading blanks.

**Number of Files:**

Binary, number of files in the download selected.

**File Name Length:**

Binary, number of characters in the File Name (1 to 255 characters)

**File Name:**

1 to 255 characters (8-bit ASCII) as defined by the File Name Length field.

The text should be zero terminated 0x00 to indicate the end of the data.

**File Status:**

Binary unsigned 16-bit value, 0XXXXX: Status Code. Thus, the file status is given for each file.

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The status codes used in this field are:

0x0001: The download of this file has not yet started.

0x0002: The operation is in progress.

0x0003: The download of this file has been completed without error.

0x0004: The operation is in progress, details provided in status description.

0x1003: The operation is aborted by the target, LRU text is required in the Status Description field to identify the reason for this interruption.

0x1004: The operation is aborted in the target hardware due to the receipt of an abort error message sent by the data loader protocol.

0x1005: The operation is aborted in the target due to the receipt of an abort error message initiated by an operator action.

0x1007: The download of this file has failed, text is required in the Status Description field to explain the failure.

The status codes are summarized in the Section 6.4.10 “Data Load Status Code Table.”

File Status Description Length:

Binary, number of characters in the File Status Description field (0 to 255 characters).

File Status Description:

Description of the reason for the Status Code. Used only for Status Codes 0x0004, 0x1003 and 0x1007. For other File Status Codes, the content of this field is ignored, but may contain data (i.e., left over data). Refer to Section 6.4.10 for more information.

The text should be only printable characters, should not include control characters, and should have a maximum length of 255 characters (i.e., 2040-bits).

The text should be zero terminated 0x00 to indicate the end of the data.