

# Watson

## Flash Loader Program

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## Operating Manual

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# Version Control

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<b>Version of Operating Manual</b>	<b>Version of Related Software</b>	<b>Major changes to previous version</b>
1.0	2.00	Initial version EBd, LSs

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# 1 Purpose of this document

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This document describes how to use the Flash Loader program. You can use the program to download a binary program file to the flash memory in an xDSL modem such as a Watson modem.

## 2 Presentation

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### 2.1 System Architecture

The *FlashLoader.exe* program runs on any 32-bit MS Windows operating system. To download firmware to an SZ Watson modem you must connect a *serial port* (COM1 or COM2) of a personal computer to a *monitor* port of a modem as follows:

- Local downloading to an NTU or to an LTU
  - *Monitor* port on the NTU
  - *Monitor* port on the Alarm Control Unit (ACU) in the LTU rack
- DSL downloading to an NTU
  - *Monitor* port on the Alarm Control Unit (ACU) in the LTU rack

For *DSL downloading* you must establish the DSL connection between an LTU and the NTU. To start up a DSL link, you must configure the LTU as Master and the NTU as Slave. If both system units are configured as master or both are configured as slave, no start-up occurs. The link is working if the corresponding LED turns yellow.

It is possible to use the LTU in any of the 12 slots of the LTU rack and to connect the NTU on the A/B or on the C/D channel. Both selections can be configured (see section 3.1 Settings).

The LTU uses a 48V supply power. The NTU is powered remotely in slave mode.

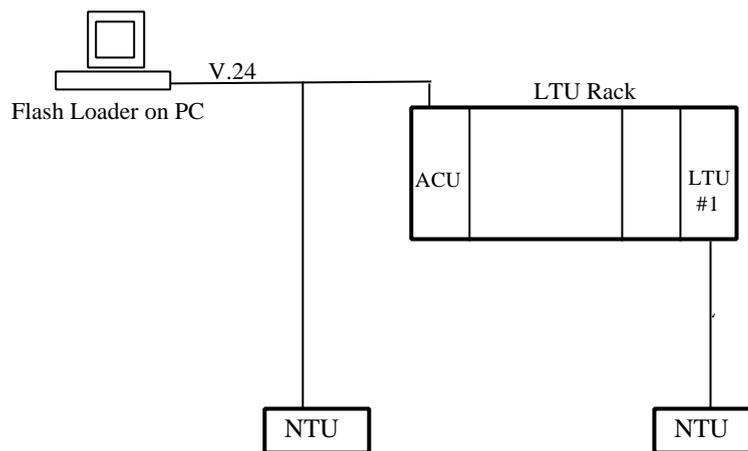


Figure 2-1: system architecture

## 2.2 Program loading procedure

There are several ways to do a download to an NTU or to an LTU. The five most important are listed below.

- |     |  |
|-----|--|
| LTU | <ul style="list-style-type: none"> <li>• Via ACU (local loading)</li> <li>• Via ACU 48R (local loading)</li> </ul>   |
| NTU | <ul style="list-style-type: none"> <li>• Direct local loading</li> <li>• Via LTU + ACU (DSL downloading)</li> <li>• Via LTU + ACU 48R (DSL downloading)</li> </ul> |

### 2.2.1 Local loading

A Watson modem reboots after erasing its application program. Its bootstrap program starts loading an application by sending Load-Start-Request on the V.24 interface.

Flash Loader starts sending the selected program file after receiving Load-Start-Request.

The modem sends a Failure message to stop the loading when program loading fails or an OK message when loading succeeds.

Failed loading causes restart of the loading procedure – the modem sends Load-Start-Request again.

### 2.2.2 Local broadcast loading

The broadcast loading operation erases the program of all selected LTUs, polls the LTUs to receive Load-Start-Requests, sends the program file, and then polls the LTUs to receive Loading-Status (OK or failure).

Polling the LTUs avoids collisions on the V.24 interface.

### **2.2.3 Loading over ACU 48R**

When using an ACU 48R additional configuration commands are necessary (see section 3.1.4.1 Set ACU commands). The ACU 48R needs to be in transparent transfer mode.

Flash Loader supports the sending of commands to set and reset transparent mode on the channel between the ACU 48R (local) monitor interface and the V.24 interface on an LTU rack backplane.

### **2.2.4 DSL downloading**

For DSL downloading, the modem erases its old application program only after successful loading of a new program. A power off or a DSL link disconnection during DSL downloading causes reboot. The modem then restarts with the old application, and the download has to be retransmitted.

## 3 Usage

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### 3.1 Setting

Before the download is executed (by selecting a menu item in Menu→ Action...), some parameters have to be set to configure the download session. To change the default settings select the required menu items in the *Setting* popup menu.



Figure 3-1: Menu® Setting...

#### 3.1.1 Set File Path

Use the *Open Program File* dialogue box (Menu→ Setting→ Set File Path...) to set the File Path of the file that should be loaded. A file in binary format is requested (filename.bin).

#### 3.1.2 Reset File Path

Clear the File Path with Menu→ Setting→ Reset File Path... and confirm. For simple configurations this feature is not used.

### 3.1.3 Set Loader Communication

The *Set Loader Communication* dialogue box is used to set the

- COM Port Specify the connected COM port (COM1 or COM2)
- Baud rate Specify the baud rate for downloading a program to a modem over an LTU rack's V.24 interface (By default DSL modems use 19200 bps for the download protocol.)
- Parity and Stop bits Default: 8 Data, no Parity, and 1 Stop Bit
- Flow control settings
  - DTR/DSR Handshake protocol with Data Terminal Ready and Data Set Ready
  - RTS/CTS Handshake protocol with Request to Send and Clear to Send
  - XON/XOFF Enabled for Software handshaking

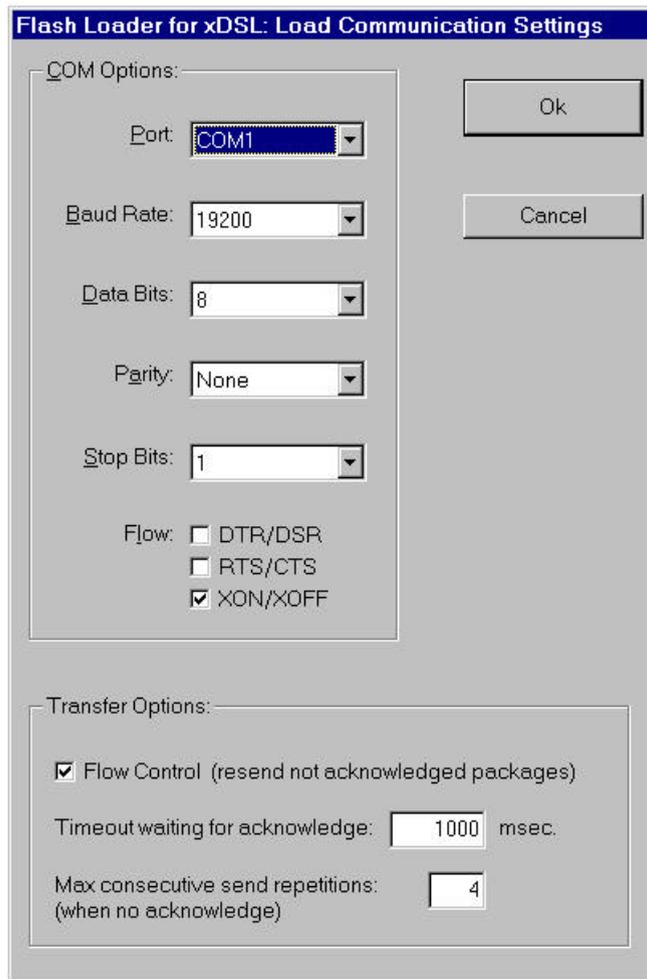


Figure 3-2: Menu® Settings® Set Loader Communication...

### 3.1.3.1 Set Transfer Flow Control

The Transfer Options are for enabling an end to end control in the download protocol.

The *Transfer Flow Control* check box should be checked only for remote loading over a DSL link because the flow control slows down downloading.

End to end flow control causes a re-sending of corrupted data packages instead of a restart of the entire download procedure.

### 3.1.4 Set Erase Commands

The *Set Erase Commands* dialogue box is used to enable and to specify the commands required to erase the program on a single modem. Each given command is sent followed by a carriage return character. The commands are sent at the baud rate (default 9600 bps) given in the *Erase Communication Setting* dialogue box (Menu→ Setting → Set Erase Commands Communication...).

You cannot display the *Set Erase Commands* dialogue box unless the “Enable Broadcast Loading” menu item is checked (√). This item is found in Menu→ Setting → Enable Broadcast Loading.

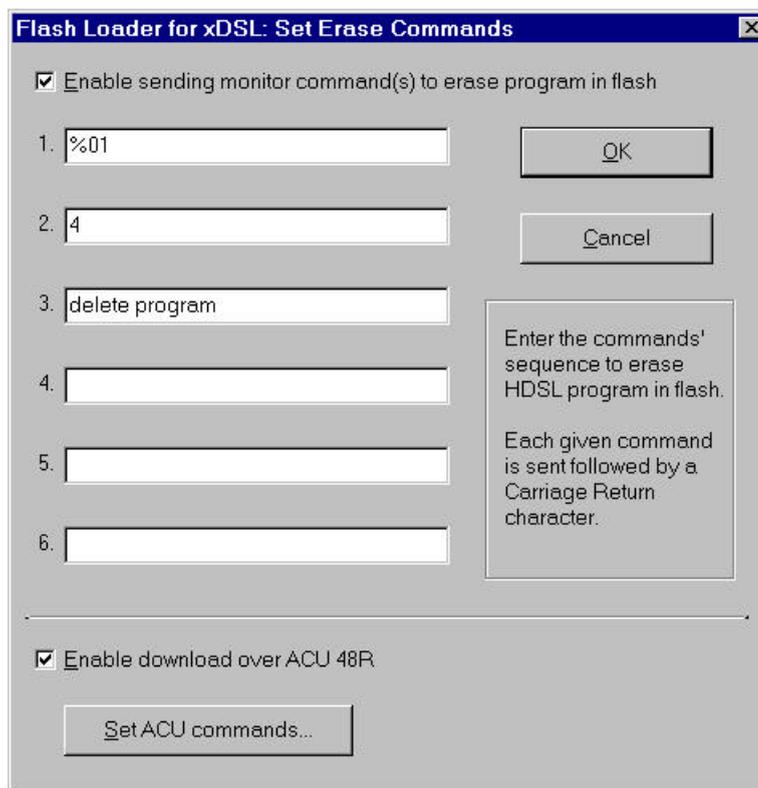


Figure 3-3: Menu® Setting® Set Erase Commands...

The commands shown above erase the program in LTU #1:

1. %01	Select LTU #1
2. 4	Select Main Menu→ Security and remote Management (SM) of E1 Monitor
3. delete program	Delete program

After sending the erase commands Flash Loader switches to the loading baud rate. It starts sending the program file after receiving Load-Start-Request from the modem that erased its application.

A successful download to the NTU connected to LTU #2 is executed with the following commands:

1. %02	Select LTU #2
2. m	Jump to Main Menu of E1 Monitor
3. 4	Select Main Menu→ Security and remote Management (SM) of E1 Monitor
4. download 2	Download program to NTU

%xx must correspond to the selected LTU slot in the LTU rack. For the addressing scheme of LTUs see the *Watson 5 Operation Manual*. Of special interest are the relationship between the A/B interfaces and LTU slot numbers 1 to 12 and the relationship between the C/D interfaces and LTU slot numbers 13 to 24.

*download 2* switches to the loading baud rate and, upon receiving Load-Start-Request from the modem, sends the program. After a successful download the modem erases its previous application, loads the new application, and reboots to execute the new program.

### 3.1.4.1 Set ACU commands

Checking the "Enable download over ACU 48R" check box in the *Set Erase Commands* dialogue box instructs Flash Loader to send ACU 48R commands. These commands set and reset transparent mode on the channel between the ACU 48R (local) monitor interface and the V.24 interface on an LTU rack backplane.

Click on the *Set ACU commands* button in the *Set Erase Commands* dialogue box to open the *Set ACU 48R Commands* dialogue box if you want to change the default commands sent to an ACU.

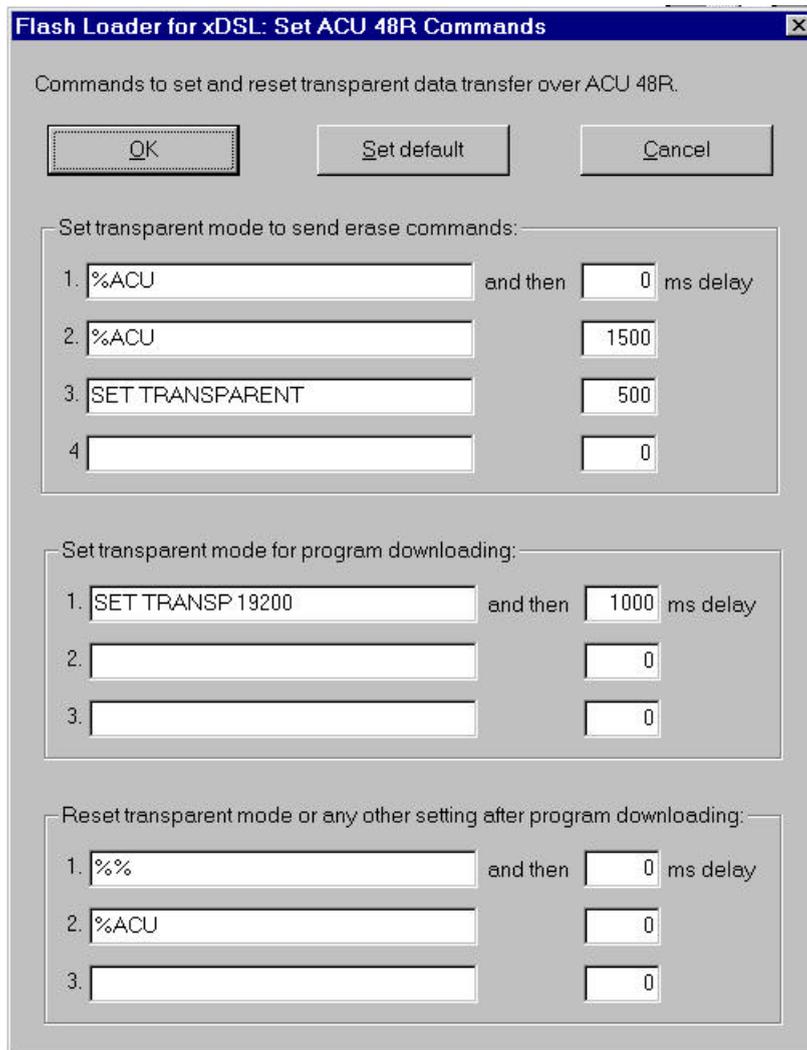


Figure 3-4: Menu® Setting® Set Erase Commands: Set ACU commands Button

Setting an ACU 48R to transparent mode allows program download over the ACU 48R V.24 interface.

### 3.1.5 Enable Broadcast Loading

Check (√) the “Enable Broadcast Loading” menu item (Menu→ Setting→ Enable Broadcast Loading) to enable broadcast loading on an LTU rack. See also section 3.1.6 Set Broadcast Loading below.

### 3.1.6 Set Broadcast Loading

The *Set Broadcast Loading* dialogue box is used to set the commands required to erase programs and to select the LTU(s) that should load a new program.

**CAUTION:** All selected LTUs will be reloaded.

You can display this dialogue box only when the “Enable Broadcast Loading” menu item is checked (√).

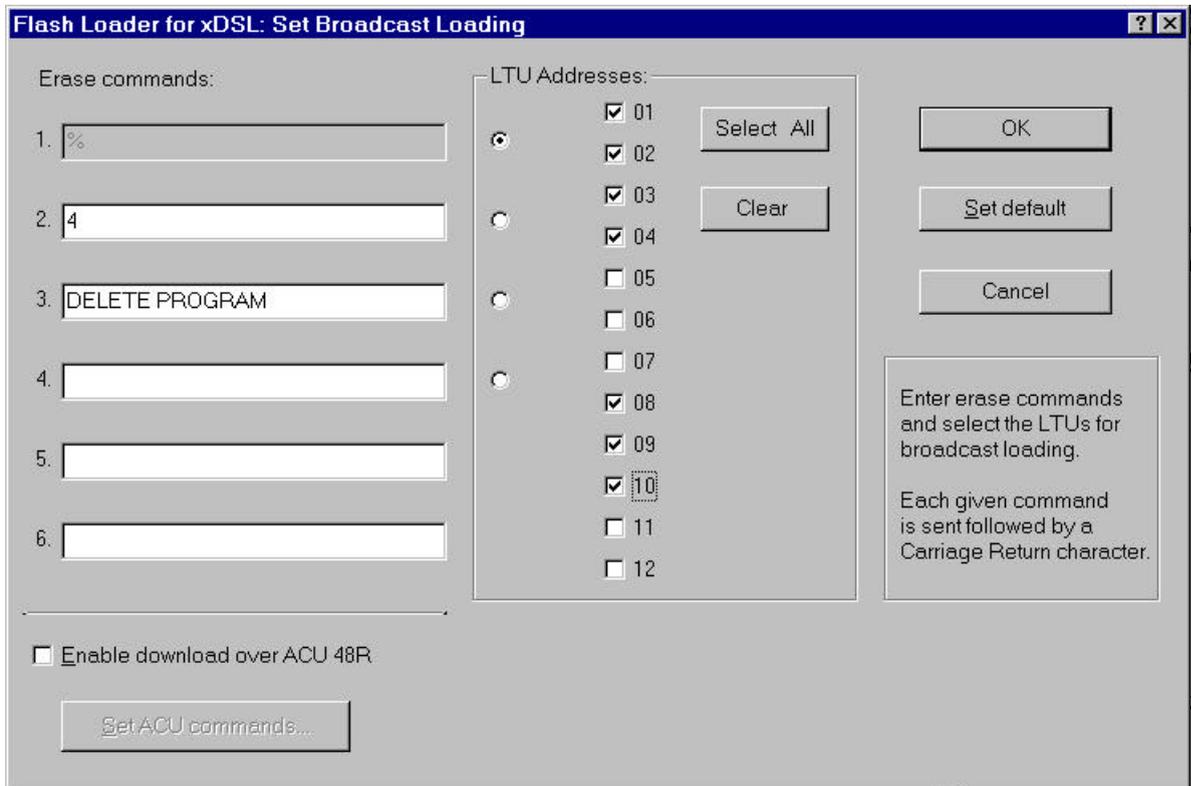


Figure 3-5: Menu® Setting® Set Broadcast Loading...

For "enable download over ACU 48R" see 3.1.4.1 Set ACU commands.

### 3.1.7 Enable auto Load after Receiving Request

Checking the *Enable: auto Load after Receiving Request* menu item (Menu→ Setting→ Enable: auto Load after Receiving Request) causes Flash Loader to automatically start loading after receiving Load-Start-Request from a Watson modem.

### 3.1.8 Enable disconnect COM after successful Load

Checking the *Enable: disconnect COM after successful Load* menu item (Menu→ Setting→ Enable: disconnect COM after successful Load) causes Flash Loader to disconnect the COM port after successful program loading.

## 3.2 Action

If Flash Loader is configured, a download session with a Watson modem can be started using commands from the *Action* menu.

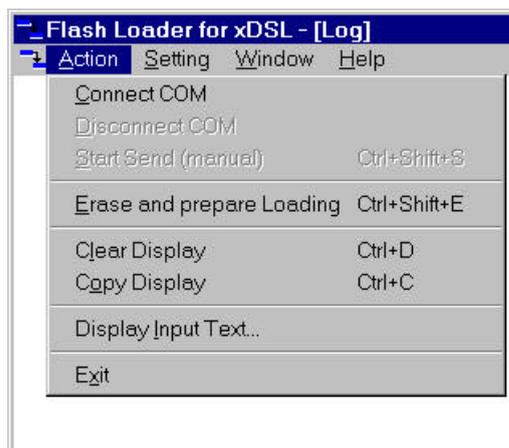


Figure 3-6: Menu® Action

### 3.2.1 Connect COM

Establish a connection via the selected COM port, and switch to the “loading” baud rate (usually 19200 bps). Use *Connect COM* when a modem’s program is already erased.

Do not use this action for broadcast loading!

### 3.2.2 Disconnect COM

Release the connection on the COM port.

### 3.2.3 Start Send

Manually start loading. The program file is sent without waiting for a modem’s Load-Start-Request.

Manual loading is used in local loading.

### 3.2.4 Erase and prepare Loading

Send commands to erase a modem’s program in flash and start loading after receiving Load-Start-Request.

We strongly recommend using this action for DSL downloading to an NTU. The action combines several steps: Read configured parameters, establish connection, download, and disconnect.

### 3.2.5 Clear Display

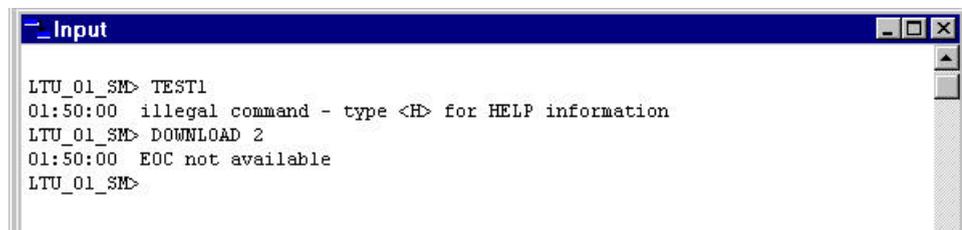
Clear display of active window.

### 3.2.6 Copy Display

Copy display of active window to Windows Clipboard.

### 3.2.7 Display

Display input text on the COM port in an MDI (Multiple Document Interface) child window.



```
LTU_01_SM> TEST1
01:50:00 illegal command - type <H> for HELP information
LTU_01_SM> DOWNLOAD 2
01:50:00 EOC not available
LTU_01_SM>
```

Figure 3-7: Example of possible Input Window

### 3.2.8 Exit

Exit Flash Loader.

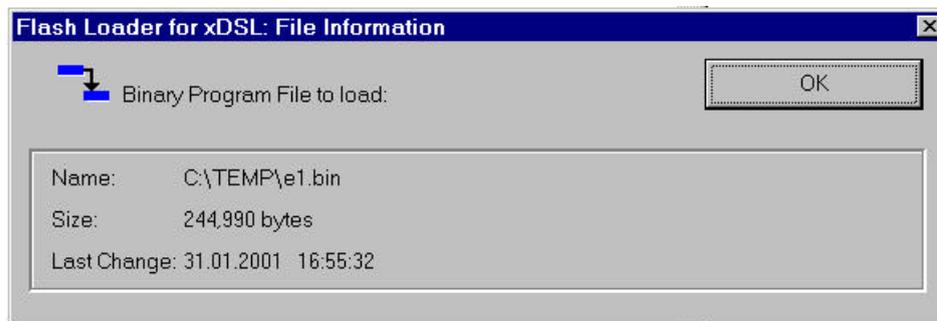
## 3.3 Help

### 3.3.1 About

In Menu→ Help→ About you find information about Flash Loader. There is no online help in this program version.

### 3.3.2 File Information

Menu→Help→File Information displays information about the file to be loaded.



**Figure 3-8: Menu® Help® File Information**