



FLoader

User's Manual

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September, 2005**

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PREFACE



Thank you for purchasing your JNS receiver (the «Product»). The materials available in this manual (the «Manual») have been prepared by Javad Navigation Systems, Inc. («JNS») for owners of JNS products. This Manual is designed to assist owners with the use of software (the «Software») to be used with the Product and its use is subject to these terms and conditions (the «Terms and Conditions»).

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PREFACE

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About This Manual

Welcome to the FLoader User's Manual!

This manual explains how to install, set up, and use the JNS Firmware Loader. For best performance of this software, please read all of the instructions carefully. They were especially designed to help you correctly install and operate this program. This manual assumes that you are familiar with GPS and also have some knowledge of working with JNS receivers.

The following words in this Manual have the definitions set forth below:

- **CDU-1** – controller, produced by JNS.
- **Current Folder** – folder on PC, where "FLoader.exe" and "floader.ini" files are situated, or "Start_in" folder, specified in the FLoader program shortcut.
- **Device** – Device means JNS receiver or JNS receiver's power board or CDU-1 controller.
- **Firmware** – special software designed especially for given Device.
- **Flash file** – firmware file, loaded into Device Flash memory.
- **FLoader** – software, designed for firmware loading into devices, produced by JNS.
- **"INI" file** – file that contains FLoader program settings (the full name of this file: "floader.ini").
- **Power On Capture** – capturing method, when Device is captured for firmware loading on startup time. This method requires Device power OFF/ON cycle at the special moment of time.
- **PC** – personal computer.
- **RAM file** – firmware file, loaded into Device RAM.
- **Receiver** – satellite navigation receiver, produced by JNS.
- **Receiver's Power Board** – special board, installed in some of JNS receivers.
- **Soft Break Capture** – capturing method, when Device is captured for firmware loading by sending special command to Device.

Symbols and Typographic Conventions

This manual uses the following text conventions

Example	Description
---------	-------------

<i>clock offset</i>	This format is used in definitions or when it is necessary to emphasize that the marked term is technical jargon.
Satellites	This format represents titles of dialog windows/boxes, names of menu options.
Internal	This format identifies program interface objects, such as checkboxes, edit boxes, radio buttons, etc.
Ctrl+V	This format is used to specify keys and key combinations.
Temp	This format is used to enter various string information (e.g., file and directory names) as well as operator commands.

Also, in this manual you will find four levels of special visual cues to certain types of information.

Tip: Supplementary information that can help you configure, maintain, or set up a system.

Notice: *Supplementary information that can have an affect on system operation, system performance, measurements, or personal safety.*

CAUTION: ***Notification that an action has the potential to adversely affect system operation, system performance, data integrity, or personal health.***

WARNING: **Notification that an action will result in system damage, loss of data, loss of warranty, or personal injury.**

DANGER: **UNDER NO CIRCUMSTANCES SHOULD THIS ACTION BE PERFORMED.**

QUICK FLOADER REFERENCE



This chapter contains a number of step-by-step instructions that will walk you through the most frequent software procedures, focusing only on the configuration procedures most likely to be used.

It is addressed to those users wishing to know how to load the new firmware using FLoader. Because it is a quick reference, this chapter does not contain a detailed description of the settings listed. For a detailed information about the settings used, refer to the corresponding sections of the second chapter.

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How to...

Install / uninstall FLoader

The FLoader software is distributed as single **FLoader.exe** file that can be executed under Windows platform. To install this software to your computer, copy **FLoader.exe** to the desired folder on your hard disk. At all times there must be at least 1 megabyte of free space (required for proper performance of this program). After installation and first launch, **floader.ini** file will be created in the same folder where the “FLoader.exe” file is located. File **floader.ini** contains the current program settings. See “Installing FLoader” on page 3-2

To uninstall FLoader software, remove **FLoader.exe** and **floader.ini** files from your hard disk. Because FLoader program does not modify the Windows registry, this is the only step needed to uninstall the software. See for details “Removing FLoader” on page 3-3

Start FLoader

After successful installation, the program can be launched the same way as any Windows application. The user can manually create a Shortcut for quick program launching. After the first launch, **floader.ini** file will be created at the same folder where the **FLoader.exe** file is situated. File **floader.ini** contains the current program settings.

At the next program launch, the program settings will be taken from “INI” file and/or from command line options (if present). Launching of the several copies of FLoader program from one folder is permissible. In this case, all copies will use the same file of settings **floader.ini**.

If option **Save Settings** on **Exit** is enabled, after closing of each program copy its settings will be saved in the same “INI” file. This way, the “INI” file always will have the settings of the latest closed copy of the FLoader program. Also see “Starting FLoader” on page 3-4.

Load firmware to JNS receiver

Step-by-step instructions for firmware loading to JNS receiver are listed below.

There are two options for firmware loading: Manual and Automatic.

Manual firmware loading

1. Connect the JNS receiver with the PC port using a proper cable. Turn ON the receiver.
1. Launch the FLoader.
1. In **Connection** Tab, select desired **Connection Type**. Select desired PC port and adjust port's settings (if required).
1. In **Device** Tab, select **Device Type** as **Receiver**. To specify receiver parameters the user can press the **Get from Device** button and wait until receiver parameters appear. Receiver parameters will appear only if the receiver is operable, turned ON, has working firmware, and is capable of replying to program commands.
1. In **Program** Tab, select desired **Capture Method**. Select desired **RAM** and **Flash files** from lists, or use **Browse R** and **Browse F** buttons for files selection.
1. Press **Load** button.

Notice: Generally selection of Capture Method depends on Device state.

Power On Capture method is preferred in cases when Device has no working firmware inside, does not respond to any commands, and also when a user has easy access to turn OFF/ON the Device manually.

Soft Break Capture method is preferred in cases when Device has working firmware inside, is capable to respond to program commands, and when a user has no easy access to turn OFF/ON the Device manually.

If **Power On Capture** method is selected, after pressing of **Load** button a special menu will appear (Figure 1-1 on page 1-4) that instructs the user to turn OFF/ON the Device within fifteen seconds.



Figure 1-1. Capturing

Automatic firmware loading

When **automatic firmware loading** is used, the user can only observe the firmware loading process. If any error occurs during firmware loading, or a wrong option was specified in the command line, firmware loading will stop and a corresponding error message will appear in the program status bar. In this case, the user can solve the problem and continue firmware loading manually.

1. Connect the JNS receiver with the PC port using a proper cable. Turn ON the receiver.
2. Launch FLoader program with command line options: **-d rec -a -e**, and with any additionally required options (see “Command line options” on page 3-14).

Example 1

```
FLoader -d rec -a -e
```

This launch of program will cause automatic firmware loading and automatic program exit after successful firmware loading. Most of the settings (port, port speed, capturing method, RAM and Flash file names) will be taken from the "INI" file, if it exists, or default values will be used.

Example 2

```
Floader -p 1 -s 38400 -hs rts -d rec -r ramimage.ldr -f D:\Firmware\main.ldp -c soft -a -e
```

This launch will cause automatic firmware loading with the following settings:
APort – COM1; APort speed – 38400 bits per second (baud);

Handshaking – RTS/CTS;

Device type – JNS receiver;

RAM file – ramimage.ldr, situated in Current Folder;

Flash file – main.ldp, situated in folder: D:\Firmware;

Capture method – Soft Break Capture;

Firmware loading – automatic;

Program exit – automatic, after successful firmware loading.

Notice: If necessary, the user can stop automatic firmware loading at any time by pressing the Cancel button on Program Tab.

Load firmware to JNS receiver power board

The firmware loading to the Power Board of JNS receiver performs in a similar manner to firmware loading to JNS receiver (see “Load firmware to JNS receiver” on page 1-2). Differences for the Power Board are listed below.

Manual firmware loading

The manual firmware loading to the JNS receiver’s Power Board is performed by rules specified in “Manual firmware loading” on page 1-3.

The difference is that firmware for Power Board includes only a RAM file. This way, if **Device type** is selected as Receiver's Power Board, only one file name list will be present in Program Tab for selecting the RAM file.

Automatic firmware loading

The automatic firmware loading to the JNS receiver’s Power Board is performed by rules specified in “Automatic firmware loading” on page 1-5. The difference is that instead of option **-d rec** (Receiver) the user must use the option **-d pbr** (receiver’s Power Board).

In this case option **-f** will be ignored, because firmware for Power Board includes only a RAM file.

Example 1: `FLoader -d pbr -a -e`

Example 2: `Floader -p 1 -s 38400 -hs rts -d pbr -r ramimage.ldr -c soft -a -e`

Load firmware to CDU-1 controller

The firmware loading to the CDU-1 controller performs in a similar manner to firmware loading to JNS receiver (see “Manual firmware loading” on page 1-5). Differences for the CDU-1 controller are listed below.

Manual firmware loading

The manual firmware loading to the CDU-1 controller performed by rules specified in “Manual firmware loading” on page 1-3. The difference is that firmware for the CDU-1 controller is located inside the FLoader program. This way, if **Device type** is selected as **CDU-1**, **Program Tab** has no possibility to select firmware files.

Automatic firmware loading

The automatic firmware loading to the CDU-1 controller is performed by rules specified in “Automatic firmware loading” on page 1-4.

The difference is that instead of option **-d rec** a user must use the option **-d cdu1**. In this case, options **-s**, **-hs**, **-f**, **-r**, **-c** will be ignored.

Example 1: `Floader -d cdu1 -a -e`

Example 2: `Floader -p 1 -d cdu1 -a -e`

DETAILED FLOADER REFERENCE



This chapter provides procedures for using the various software functions, as well as describes each menu, dialog, and field found in the software interface.

This information is described in the following sections:

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Introducing FLoader

FLoader software is designed to perform the following tasks:

- Firmware loading into a JNS receiver;
- Firmware loading into a JNS receiver power board;
- Firmware loading into a CDU-1 controller.

System Requirements

Before installing and using FLoader, take a moment to run through the system requirements listed below.

- PC-compatible with Intel® Pentium® 100 MHz or faster
- 1Mbyte free disk space
- 32-bit operating system such as MS Windows 95/98/Me/NT/2000/XP
- Color monitor with minimum 640x480 screen resolution

Installing FLoader

There is no special installer for the current version of FLoader. This tool is a ready-to-run executable.

Notice: Below is the procedure for downloading FLoader from the JNS website.

To install FLoader on your computer from the JNS website, take the following steps:

3. Visit the **Support** section of JNS website (<http://www.javad.com/>). Click on the **Free Software** link on the top of the window. Next, select the **Click here to download floaderexe.zip** to start program downloading.
4. The **File Download** dialog box will be opened. To continue the download process, press **Save**.
5. In the **Save As** dialog window, specify the desired destination (disk drive/folder) for the archive. Wait while the archive is being downloaded onto your system.
6. Create a folder on your local disk drive. It is recommended to use `C:\Program Files\JNS\FLoader`.

7. Unpack the archive into this folder with WinZip® or another appropriate software. You will see the following file appears in the folder:
 - `FLoader.exe`

Removing FLoader

The simplest way to remove FLoader from a system is to delete the whole directory¹ that was created when installing FLoader and in which `FLoader.exe` and all of its components reside. Also, do not forget to delete the FLoader shortcut, if available.

1. Assuming this directory is not used for storing any other (i.e., FLoader unrelated) data.

Getting Started

Starting FLoader

FLoader can be launched, as any other Windows program, for example, with the double click on the FLoader icon.

Notice: After the user first runs FLoader, he/she will see the file FLoader.ini appears in the directory from which the executable has been launched. In this .INI file FLoader will store all its settings. FLoader will automatically modify the contents of the .INI file as the user makes changes through the program's controls.

Notice: If the user wants to have more than one copy of FLoader, each one with its own unique settings, the user can keep these copies in separate directories. Running different copies of FLoader from different directories will allow the operator to maintain unique setting for each of the copies.

Closing FLoader

To quit FLoader, select **Exit** from the **File** menu.

Understanding Elements of the Main Window

The user interface is comprised of the following components (Figure 2-1):

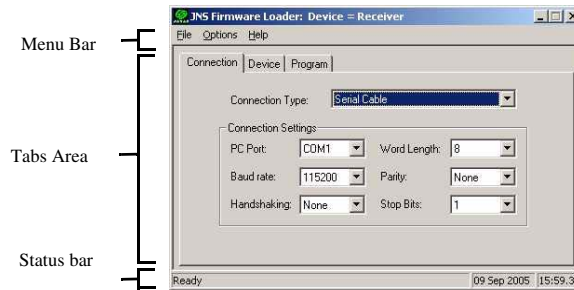


Figure 2-1. Main Window

- Menu bar
- Tabs area
- Status bar
- Command line options

Menu Bar

The Menu bar extends across the top of the *Main* window and contains three menu titles. By hovering the mouse pointer over a menu title and then clicking the left mouse button will cause the menu to drop down, displaying a list of menu items. Position your pointing device on the desired menu item, then click and release the left mouse button and that function is invoked.

Tabs Area

The **Tabs** area consists of three tabs (**Connect, Device, Program**). You can use your mouse to position the cursor over the desired control and then click a mouse button or you can use the Tab key to move around the window.

Status Bar

The Status bar provides auxiliary information while using FLoader. This information includes various types of messages (e.g., error messages) and current date and time .

Command line options

FLoader program may be launched under Windows platform with and without command line options. Command line options specify the program settings and behavior.

The Main window's menu

The user can access any one of FLoader's dialog windows by selecting the corresponding item from the main window's menu (Figure 2-2).



Figure 2-2. The Main window's menu

The following sections will describe all available menu items and the corresponding dialog windows in detail.

File

File item currently allows user to close FLoader program only.

Options

Options item allows user to change program configuration and settings.

Save program settings to "INI" file at exit.

Help

Help item allows user to read information about FLoader program and about available command line options.

Reference information about program version number and build date (Figure 2-3).



Figure 2-3. About FLoader

Reference information about available command line options (Figure 2-4).

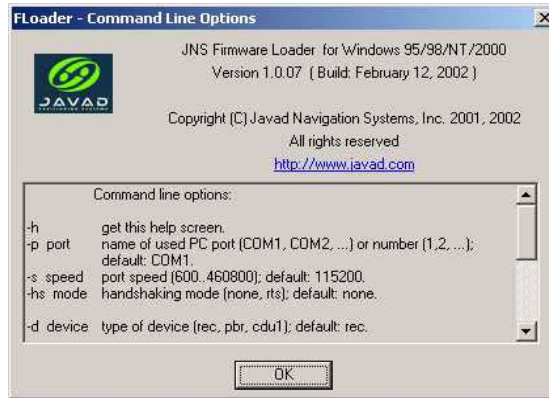


Figure 2-4. Command Line Options

For more detailed information about *Command Line Options* widow see “Command line options” on page 2-14.

Connection Tab

The **Connection** Tab allows user selecting the current connection type and the current PC port with its settings (Figure 2-5).



Figure 2-5. Connection Tab

Connection Tab items have the following meanings:

- **Connection Type** – specifies the connection type with Device. Currently only Serial Cable (RS-232) connection type is available.
- **Connection Settings** – PC port settings group.
- **PC Port** – the name of PC port.
- **Baud rate** – the baud rate of PC port (bits per second).
- **Handshaking** – the handshaking mode.
- **Word Length** – the length of one word in bits.
- **Parity** – parity checking mode.
- **Stop Bits** – the number of stop bits.

Notice: A selected PC port only opened and used by FLoader program when the program connects to the Device for retrieving parameters (Device Tab, Get from Device button) and also during the firmware loading into Device (Program Tab, Load button). Else, the PC port is closed and available for use by other Windows applications.

If the selected PC port is busy with any other Windows application, an error message will be displayed on the **Status Bar** when the program tries to use the busy port (see “Troubleshooting” on page 3-1).

Device Tab

The **Device** Tab allows user selecting the type of Device and retrieving information about Device parameters (Figure 2-6).



Figure 2-6. Device Tab

Device Tab items have the following meanings:

- **Device Type** – specifies the type of Device.
 - **Receiver** – JNS receiver
 - **Receiver's Power Board** – JNS receiver's power board. Currently this board is present in Maxor and Prego receivers.
 - **CDU-1** – CDU-1 controller.
- **Device Information** – the group of information about Device. Parameters set in this group may vary due to selected Device type.
- **Get from Device** – this button allows user to retrieve parameters of selected Device directly from this device.
- **Save to file** – this button allows user to save Device parameters to any text file.
- **Cancel** – this button stops the process of connection with Device, if it occupies too much time, or if a connection is impossible for some reason.

Notice: *FLoader program can retrieve Device parameters only if Device Type is selected correctly; Device is operable and turned ON; Device has working firmware and capable to answer to the commands that program sends through communication port.*

Program Tab

The **Program** Tab represents information about selected capture method, firmware files, and reflects the process of firmware loading into Device (Figure 2-7).



Figure 2-7. Program Tab

Program Tab items have the following meanings:

- **Capture Method** – specifies the method of Device capturing to start firmware loading.
 - **Power On Capture** – capture at the Device startup time. This method requires power cycle (manual Device turning OFF/ON) at the special moment of time.
 - **Soft Break Capture** – capture by sending the special command to Device without any power cycles.
- **Firmware** – the group of firmware files. The number of files may vary due to selected Device type.
 - **RAM file** – firmware file that can be loaded in RAM of Device.
 - **Flash file** – firmware file that can be loaded in Flash memory of Device.
 - **Browse R, Browse F** – these buttons allow user opening firmware files using Windows standard *Open* dialog window.
- **Load** – this button allows user to start firmware loading process.
- **Cancel** – this button allows user to stop firmware loading at any moment of time. At the bottom of the **Program** Tab there is firmware loading progress indicator that reflects the percentage of loaded firmware.

Notice: The lists of the file names may contain up to the ten most recently entered records. FLoader program has a different file names list for each Device type. If option Save Settings on Exit is enabled, the contents of these lists will be stored in the "INI" file automatically by the program closing. Then, at the next FLoader start, these filenames will be taken from "INI" file and placed in the corresponding list.

Notice: If the filename has no path, FLoader program will try to find and open this file in the Current Folder.

Command line options

FLoader program may be launched under Windows platform with and without command line options. Command line options specify the program settings and behavior. User can obtain the list of all available command line options by launching FLoader program with option "-h" (FLoader -h) or using **Command Line Options** menu from the **Help** from **Main** menu, that will cause special **Help** window to appear (Figure 2-8).

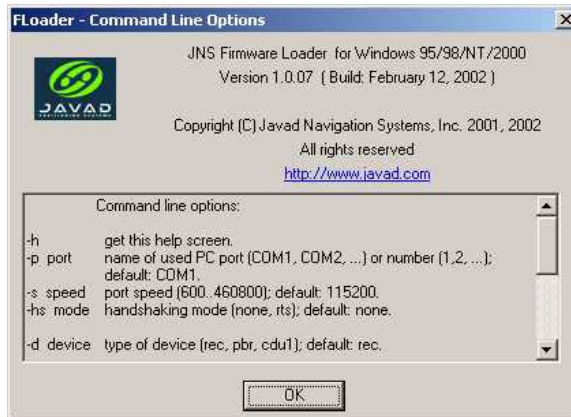


Figure 2-8. Command Line Options

The list of all available command line options is represented below.

- **-h** – causes the appearance of the **Help** window along with a list of available command line options.
- **-p port** – specifies the PC port that will be used for firmware loading. Possible values of port parameter may be: *COM1*, *COM2*, ... or *1*, *2*, ... By default, *COM1* is the port used.
- **-s speed** – specifies the port's baud rate (bits per second). By default, *115200* bits per second (baud) is used.
- **-hs mode** – specifies the handshaking mode. Possible values of mode parameter may be: *none* – handshaking is turned off, or *rts* – used RTS/CTS handshaking. By default handshaking is turned off (i.e. – *none*).
- **-d device** – specifies the type of Device for firmware loading. Possible values of device parameter may be: *rec* – JNS receiver; *pbr* – JNS receiver's power board, or *cdul* - CDU-1 controller. By default JNS receiver is used (i.e. – *rec*).

- **-r name** – specifies the firmware file, that will be loaded to RAM of Device. By default values of name parameter will be: *ramimage.ldr* – for device = *rec*; and *powbrd.ldr* – for device = *pbr*. For other types of Device this option will be ignored.
- **-f name** – specifies the firmware file, that will be loaded to Flash memory of Device. By default value of name parameter will be: *main.ldp* – for device = *rec*. For other types of Device this option will be ignored.
- **-c method** – specifies the Device capturing method for firmware loading. Possible values of method parameter may be: *pwr* - Power On Capture method used; or *soft* - Soft Break Capture method used. By default *pwr* - Power On Capture method is used.
- **-e** – causes automatic FLoader program exit after successful firmware loading.
- **-a** – provides automatic firmware loading. If this option present, FLoader will started with specified options an will try to load firmware to Device automatically until firmware is successfully loaded or an error occurs. If this option is absent in command line, program will started with specified options and will wait for instructions from user.

The notes below will be helpful for correct using of command line options.

Notice: If option -h is present in any command line, a special Help window will appear (Figure 2-8 on page 2-14) and all other options will be ignored.

Notice: The values of command line options are used by Floader program for initialization of correspondent parameters at startup time. If option Save Settings on Exit is enabled, all parameters will be saved in the "INI" file after exiting the program.

Notice: If one or more command line options are absent, or one or more command line options have incorrect values, the values of corresponding program parameters will be taken from "INI" file (if this file already exist), or will be equal to the default values, if program Floader is started for the first time and the "INI" file does not exist.

Notice: If two or more of the same options are present in a command line, the last one will be used (by position in command line).

TROUBLESHOOTING

3



This chapter provides information on how to identify and remedy minor software problems.

Things to Check First

Before contacting JNS Customer support about any problems with the PCView software, refer to the following list of basic suggestions that may help:

- Go through all external receiver connections carefully and make sure they are not wrong or loose.
- Double-check the cables. Cables became defective more often than the devices do.
- Check the sections below for available solutions.

Selecting of proper firmware files

For successful firmware loading to Device it is important to correctly select the firmware files set suitable for given Device type. First of all it is important for firmware loading to the JNS receiver and to the JNS receiver's Power Board.

Each receiver model has its own firmware files set. It is important to know the exact model and parameters of Device to select the proper firmware for this Device. The **Device** Tab will be helpful in this case. You can obtain the Device parameters by following steps 1- 4 of the manual firmware loading procedure (see "Manual firmware loading" on page 1-3). Comparing these parameters to the parameters listed in the official firmware page on www.javad.com, the user can determine the proper firmware for the device.

If the user still has doubts about proper firmware for the Device, take the following steps:

1. Follow steps 1- 4 of manual firmware loading procedure (see "Manual firmware loading" on page 1-3), and obtain Device parameters;
2. In **Device Tab**, press **Save to file** button and save Device parameters to any text file;
3. Send this text file with a detailed description of the problem to one of our JNS Support Service addresses: hardware@javad.com, or support@javad.com.

Error Messages

When any error appears during Floader execution, the program will automatically be stopped and the corresponding error message will appear in the program **Status bar**. The most important and frequent error messages are listed below. Characters "xxx" specify any letters or digits peculiar for each specific situation.

The following are the error messages you may encounter while working with Floader.

Table 3-1. Error Messages

Message	Error description	Corrective Action
Port "COMx" is busy	Selected PC port is busy with other Windows application.	Select another (free) PC port, or close another Windows application that currently uses this selected PC port.
Can not set Baud Rate xxx Port COMx does not support xxx rate	Selected PC port does not support specified baud rate.	Select another (lower) baud rate supported by your PC port.
Can not connect with receiver Cannot connect with CDU-1	Floader can not connect with Device.	Check your Device (it must be operable, turned ON and must have working firmware inside). Check the communication cable and then repeat the firmware loading.
Can not connect with receiver using Handshaking Handshaking error	PC port or Device port or communication cable does not support selected handshaking mode.	Check the handshaking support by your equipment, or simply turn handshaking OFF (None) in Connection Tab.
Can not change receiver speed	Used receiver's port does not support baud rate, selected in Connection Tab.	Select lower baud rate in Connection Tab, supported by your receiver's port.
Can not capture receiver	Program can not capture the receiver for firmware loading.	Check the communication cable and repeat firmware loading.

Table 3-1. Error Messages

Message	Error description	Corrective Action
Can not open RAM file Can not open Flash file	Program cannot open specified RAM or Flash file due to wrong filename or path.	Specify correct filename with correct path and repeat firmware loading.
Improper RAM file for this device Improper Flash file for this device	Selected RAM or Flash file cannot be loaded to specified Device.	Select the proper firmware files for specified Device (see “Selecting of proper firmware files” on page 4-2) and repeat firmware loading.
Error in RAM file loading Error in Flash file loading	Some error occurs during firmware loading in communication line.	Check communication cable and repeat firmware loading.
Loading procedure was changed. Update your loader	Selected Device has new firmware loading procedure that is not supported by this version of FLoader.	Obtain the latest version of Floader software, available at www.javad.com .

Updates

For updated manuals and software, or product release information you may visit the JNS web site at <http://www.javad.com> or contact JNS Customer Support by e-mail to support@javad.com.

To access the JNS website home page, use: www.javad.com

