


SKF @ptitude Observer On-line Device Configurator

User Manual Part No. 32170800-EN
Revision P - January 2019
Observer 11.0

 **WARNING!** - Read this manual before using the product. Failure to follow the instructions and safety precautions in this manual can result in serious injury, damage to the product or incorrect readings. Keep this manual in a safe location for future reference.

SKF Group

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Technical Support Group

Discuss/review issues of specific interest with maintenance and reliability specialists from around the world at the [SKF Knowledge Centre](#).

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1 Introduction

Overview

The @ptitude Observer On-line Device Configurator allows the user to perform all kinds of operations on SKF MasCon16 and IMx systems.

This tool is the only way to set the network configuration and identification for the on-line device. It can also be used to view what the on-line device is measuring right now, clear measurement data and show current measurement configuration.

CM Network Configuration File

A network configuration file is a file that needs to be loaded into the on-line device in order to make the on-line device a part of the network. It sets an identity on the on-line device so that @ptitude Observer Monitor knows with which on-line device it is communicating. This file is basically a text file with the extension **.M16** or **.IMx**.

The file has to be created through **@ptitude Observer On-line Device Configurator** and downloaded with the integrated serial interface to the on-line device.

Creating

Creating a configuration file with @ptitude Observer On-line Device Configurator is simple.

1. First start the **@ptitude Observer 11.0 On-line Device Configurator** program located in the SKF @ptitude Monitoring Suite.

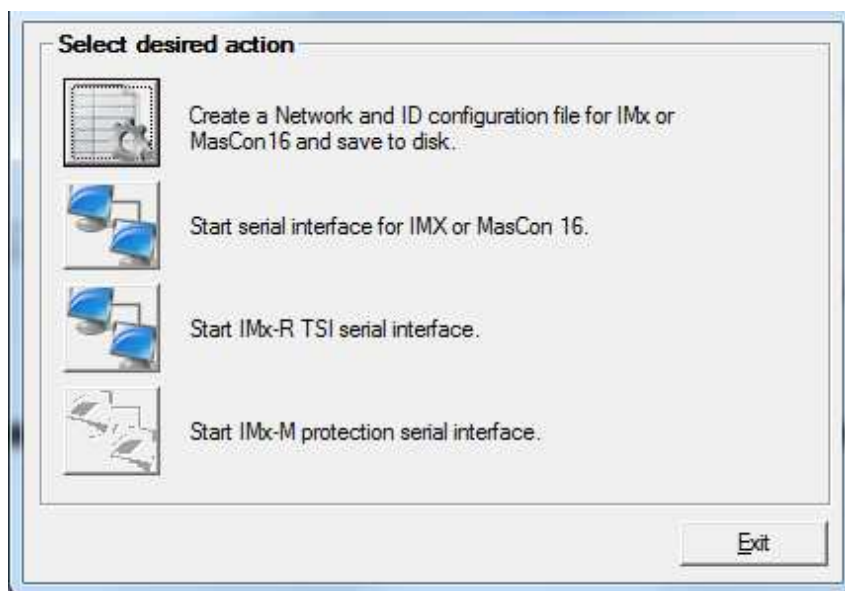


Figure 2 - 1.
Observer On-line Device Configurator Main Screen.

2. From the main menu, click on the icon for: Create a network and ID configuration file for IMx or MasCon16 and save to disk.

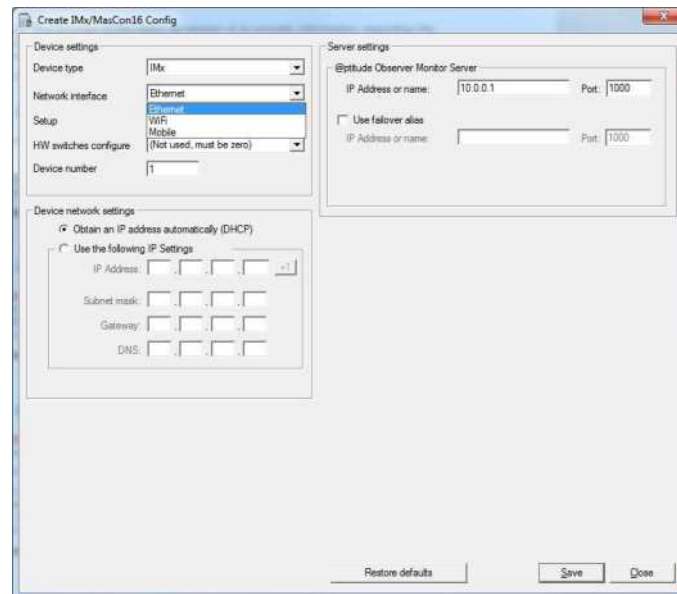


Figure 2 - 2.
Create IMx/MasCon16 Config Screen (Ethernet).

Device type is the type of device for which a network and ID configuration file is being created.

Network interface has a choice of *Ethernet*, *WiFi* and *Mobile*.

WiFi and *Mobile* options are supported by the IMx-16Plus and the IMx-Rail. Selecting either of these options causes further configuration options to be displayed:

- *WiFi*

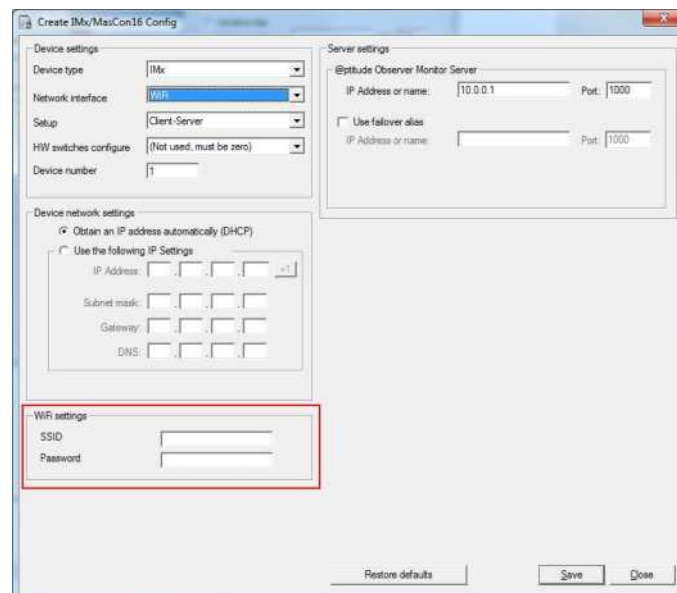


Figure 2 - 3.
Create IMx/MasCon16 Config Screen (WiFi).

The Wi-Fi network **SSID** and **Password** can be set (password field can be empty if no password is set).

- **Mobile**

The screenshot shows a configuration window titled 'Create IMx/MasCon16 Config'. It is divided into several sections: 'Device settings' (Device type: IMx, Network interface: Mobile, Setup: Client-Server, HW switches configure: (Not used, must be zero), Device number: 1), 'Device network settings' (Obtain an IP address automatically (DHCP) or Use the following IP Settings), 'Mobile' (highlighted with a red rectangle), and 'Server settings' (Eptitude Observer Monitor Server). The 'Mobile' section includes: SIM selection (Card/Embedded), SIM pin code, Access point name, Authentication type, Authentication user, Authentication pwd, and Radio access tech (2G/3G/4G). The 'Server settings' section includes IP Address or name and Port (1000) for both the main server and a fallback alias.

Figure 2 - 4.
Create IMx/MasCon16 Config Screen (Mobile).

SIM selection can be *card* or *embedded* (eSIM). Enter the associated **SIM pin code**, if no code is used, enter 0000.

Access point name (APN): a connection setting dependent on the mobile operator being used.

Authentication type can be: *None*, *PAP* or *CHAP*. As the *PAP* and *CHAP* selections require authentication, the **Authentication user** and **Authentication pwd** (password) fields will be active.

Radio access tech (Mobile network type) has the full range of 2G, 3G and 4G combinations, *2G/3G/4G* being the default.

Setup indicates whether the device should be part of a system setup in a client-server environment and be the initiator of communication or if the device should wait for incoming connections from the server. The options are: *Client-Server* or *Server initiated*.

When *Server initiated* is selected, **HW Switches configure** is automatically set to *(Not used, must be zero)* and is not editable. The **Device Number** is set to *N/A* and is not editable.

HW Switches configure defines which elements the hardware switches (jumpers or rotary switches) on the circuit board will configure.

- Note that several IMx devices do not have hardware switches.
- *(Not used, must be zero)* means that the device number will ignore the hardware switches and use the device number set in the device number text box.

- *Device number* means that the device number is set with the hardware switches.
- *Device number & IP address HW offset* means that the device number and the last part of the IP address is set with the hardware switches. For more information refer to Network configuration section of the corresponding user manual, such as IMx-W User manual, IMx-S User Manual, etc.

Device number is a unique identifier used by the system to identify the device. Valid device numbers are between 1-255 for MasCon16 devices and between 1-9999 for IMx devices. There cannot be two devices with the same device number in the same system.

Obtain an IP address automatically (DHCP) allows the system to get the IP Settings automatically from a DHCP Server.

Use the following IP Settings allows the IP Address, Subnet mask and Gateway information to be entered manually.

- **IP Address** and **Subnet mask** are the standard settings for all devices communicating with the TCP/IP protocol. Therefore, configure IP address and subnet mask according to the TCP/IP standard.

Use the **+1** button to increase IP Address and Device number by one when configuring by *Client-Server* setup.

- **Gateway** should be configured according to the TCP/IP standard. If no gateway will be used, set it to the default value of 0.0.0.0.
- **DNS** should be configured according to the TCP/IP standard. The DNS setting is required if DHCP is not used and a host name instead of an IP address is used to specify the location of the @ptitude Observer Monitor server.

@ptitude Observer Monitor Service **IP Address or name** and **Port** are the IP number and port number of the computer where @ptitude Observer Monitor has been installed. The on-line device needs to know where the server application is located in order to send and retrieve data.

Use failover alias can be enabled to automatically switch Monitor service to a redundant or standby server in case of failure or scheduled downtime of the normally active server.

With **Use failover alias** enabled, enter the **IP Address or name** and **Port** of the failover server.

Restore defaults interface sets all the values back to the default values.

Save prompts first for the location where the configuration file, and all the changes made, will be saved. Browse to a location on the local hard drive.

The configuration file has the extension of .M16 or .IMx, and is used to update the network configuration of the device via serial interface.

Downloading

Downloading is a simple one-time process which is accomplished by the serial interface. Refer to the next section, Serial Interface.

3

Serial Interface

The serial interface in @ptitude Observer On-line Device Configurator contains functions and instructions that are useful when configuring and performing a service on on-line devices. This feature is recommended to be run from a portable computer along with a standard serial cable.

Getting Started by Attaching Cable

Attaching a cable to an on-line device differs depending on the type of the device and function. Select the corresponding case and follow the instruction listed from below;

For **WindCon**, open the casing and attach the first end of the serial cable to the COM port connector. This cable has only one possible place to be attached, therefore it cannot be connected incorrectly.

For **MasCon16R**, connect the first end of the serial cable to the J5 RS 232 port. Connect the other end to a free COM port on the computer.

For **IMx-R**, connect the first end of the serial cable to the RS 232 port for TSI or to the RS 232 port for CM depending on which serial interface will be performed. Connect the other end to a free COM port on the computer.

- RS 232 port for **CM part** (J7 RS232 CM) configuration, located on the front panel of the device.
- RS 232 port for **TSI part** (J6 RS232 TSI) configuration, located on the front panel of the device.

For **other IMx**, connect the first end of the serial cable to the RS 232 port. Connect the other end to a free COM port on the computer.

Important - Before attempting a service or installation in the field, check whether the computer actually has a physical COM port. On newer portable computers, the COM port has been removed and replaced by a USB port. If this is the case, a "USB to serial converter" will be needed.

Start Serial Interface

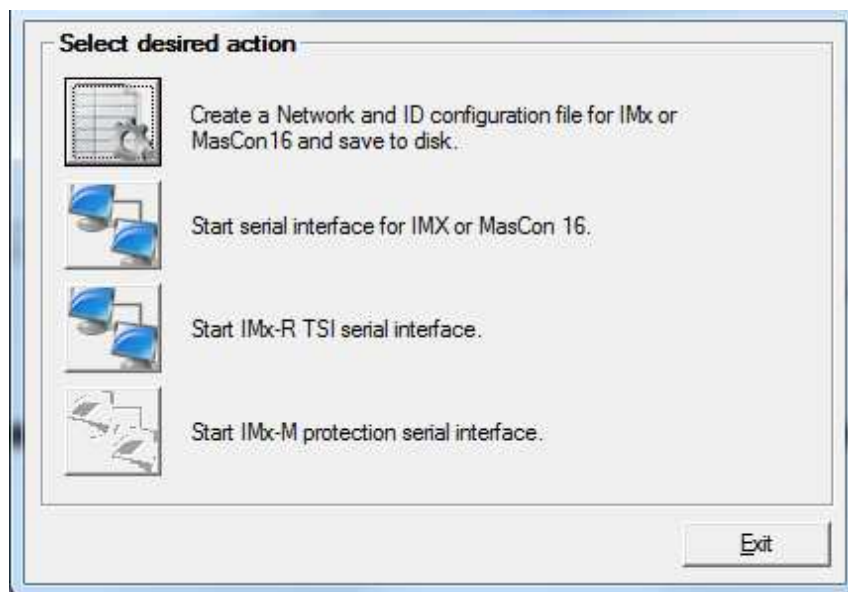


Figure 3 - 1.
Observer On-line Device Configurator Main Screen.

For **Condition Monitoring (CM)** part of **IMx**, **MasCon 16** or **IMx-R** serial interface, start @ptitude Observer On-line Device Configurator and click on the icon for: [Start serial interface for IMX or MasCon 16](#).

For **IMx-R TSI** part serial interface, start @ptitude Observer On-line Device Configurator and click on the icon for: [TSI Serial Interface for IMx-R](#).

Serial Interface for IMx or MasCon16 (CM)

This section describes the serial interface for the Condition Monitoring part of IMx and MasCon16 devices.

All the commands or instructions sent with the serial interface have equivalent text commands which can be entered manually, if desired.

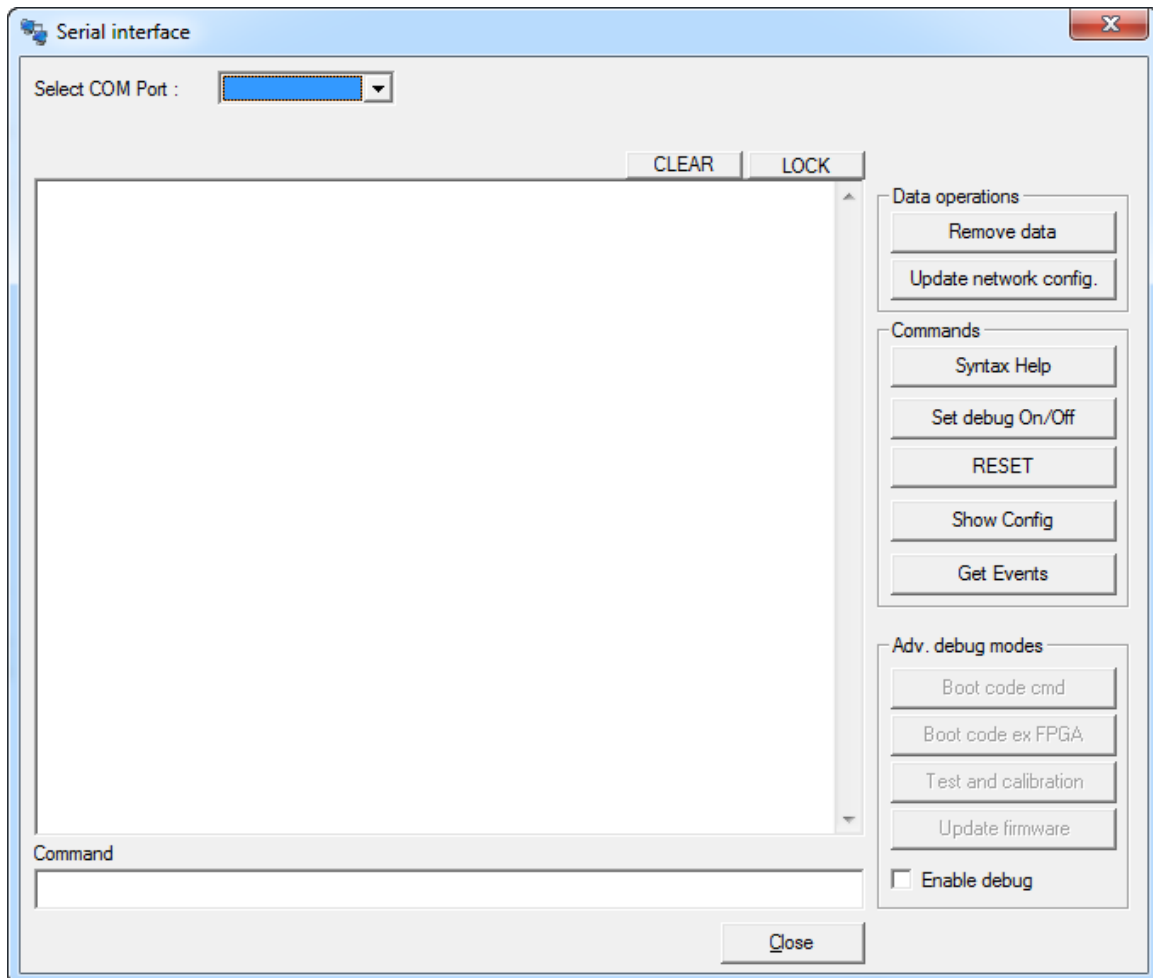


Figure 3 - 2.
Serial Interface for IMx/MasCon16 Screen.

Select COM port indicates serial port interface for communication.

Clear clears the output window.

Lock is a toggle button which locks/unlocks the contents on the output display window. This can be useful when copying and pasting information from the output window.

Remove data deletes all the measurement data and event log that the On-line Device has collected and stored in the memory.

This command is reasonable to execute just after an installation of an on-line device. During the installation, a lot of data may have been collected to the on-line device while connecting sensors or the machinery has not been running. As a general rule, always run this after finishing an installation to make sure that incorrect data or data that were taken under wrong conditions are removed.

Update network config. updates the on-line device firmware or sends any other configuration file to the on-line device. These configuration files most commonly have the extension of .M16 or .IMx. It prompts for a configuration file to download.

Syntax Help provides access to syntax help in the current prompt.

It is a good practice to use this interface before starting downloading any files to ensure that communication has been established with the on-line device.

If there is no access to syntax help, change the COM port and try it again. If it still fails, reset the on-line device with **RESET** command on the physical on-line device and repeat the procedure once more.

When the syntax help is received OK, the on-line device is ready to be updated.

Set debug On/Off prints/not prints measurement values that the on-line device is currently measuring, for example, > PROCESS 69.617386 - ANA10000004 on channel 4, DBID = 10000004.

RESET performs a software reset.

Show Config displays the current measurement configuration that the on-line device is currently using.

Get Events stores all events from the device to a file in user readable format. See corresponding IMx user manual for detailed event information.

Adv. debug modes (advanced debug modes) should only be used by experienced installation engineers under the guidance of SKF Technical Support Group (TSG).

Command is where commands or instructions can be entered manually.

TSI Serial Interface for IMx-R

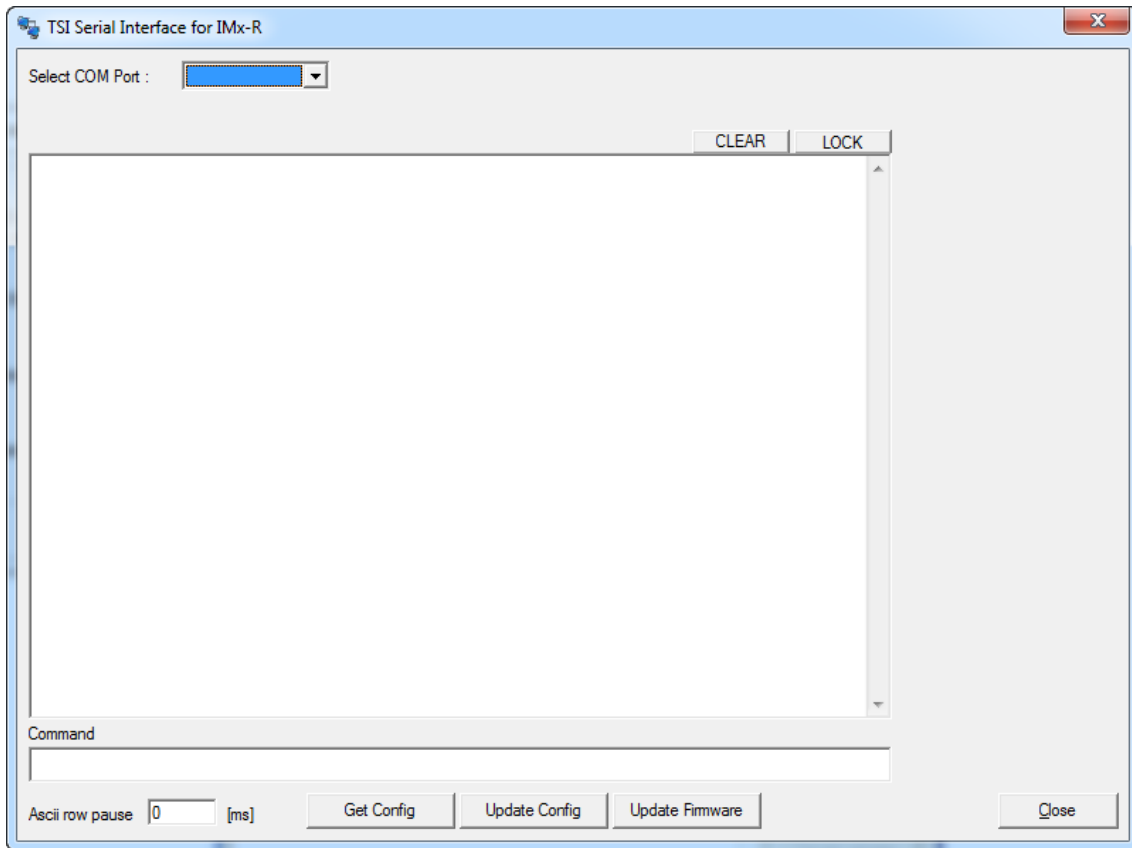


Figure 3 - 3.
TSI Serial Interface for IMx-R Screen.

Select COM port indicates serial port interface for communication. Refer to [Getting Started by Attaching Cable](#) in Serial Interface section for IMx-R device TSI RS 232 port for TSI configuration.

Clear clears the output window.

Lock is a toggle button which locks/unlocks the contents on the output display window. This can be useful when copying and pasting information from the output window.

Command is where commands or instructions can be entered manually. More information on IMx-R TSI commands can be found in the IMx-R User Manual.

ASCII row pause in milliseconds is the pause between each ASCII row. Normally there is no need to change.

Get Config reads back the configuration file currently in use by the device.

Update Config downloads a configuration file to IMx-R device. Refer to [IMx-R Device TSI Configuration](#).

Update Firmware downloads TSI firmware to IMx-R device. Refer to [IMx-R TSI Firmware Download](#).

Close closes the TSI Serial Interface for IMx-R screen.

IMx-R TSI Firmware Download

This section illustrates how to download TSI firmware to IMx-R devices. There are different instructions depending on the firmware version.

Firmware Version 1.0.0 or 1.1.0

The following steps are a guide to downloading a new firmware **version 1.0.0 or 1.1.0** to an IMx-R device.

1. Connect IMx-R to a computer by using a null modem cable. A "USB to RS 232 converter" may be required. Refer to [Getting Started by Attaching Cable](#) in Serial Interface section for IMx-R TSI part connection.
2. Start "**Observer On-line Device Configurator 8.3.0**" or **earlier** version and click on "Start IMx-R TSI serial interface". Refer to [TSI Serial Interface for IMx-R](#).
3. To download firmware, the IMx-R device needs to be powered up. If the device has not powered up already, power up the IMx-R device.

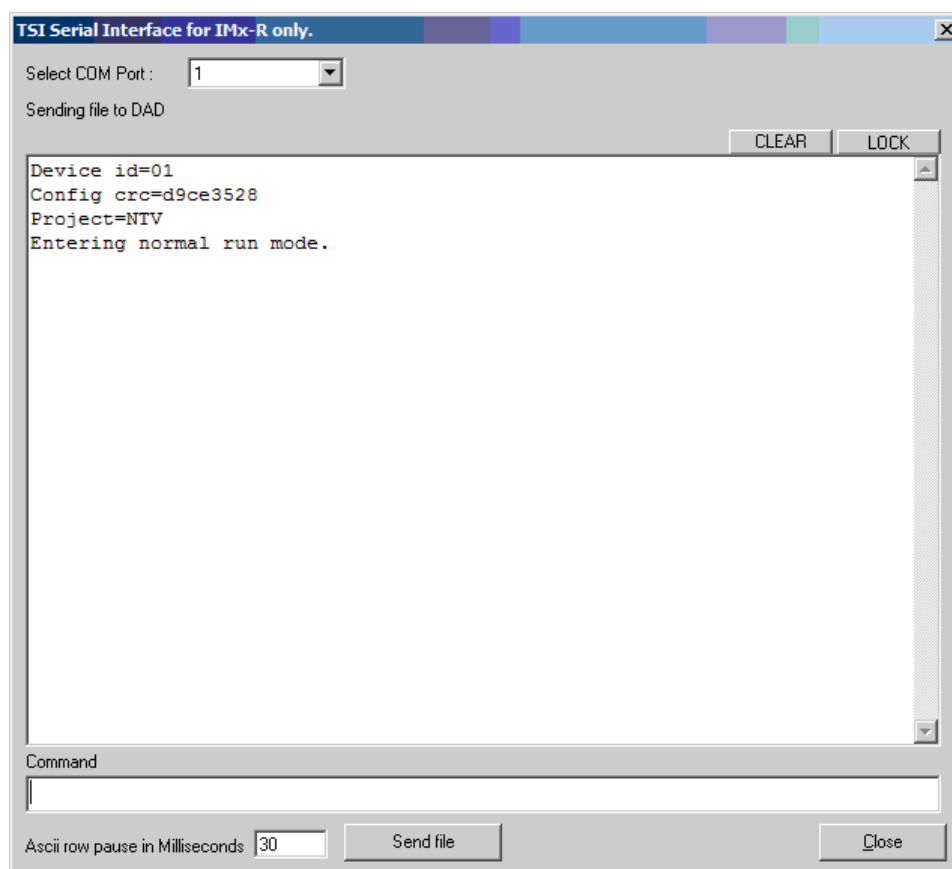


Figure 4 - 1.
Example of Boot-up Text of IMx-R with Firmware Version 1.0.0 or 1.1.0.

4. The IMx-R displays a version and other text on the RS 232 TSI serial port upon boot-up. The exact boot-up text depends on the firmware version. Continue to the next step when the IMx-R is powered up.
5. The default value 30 of "ASCII row pause in Milliseconds" does not need to be changed.

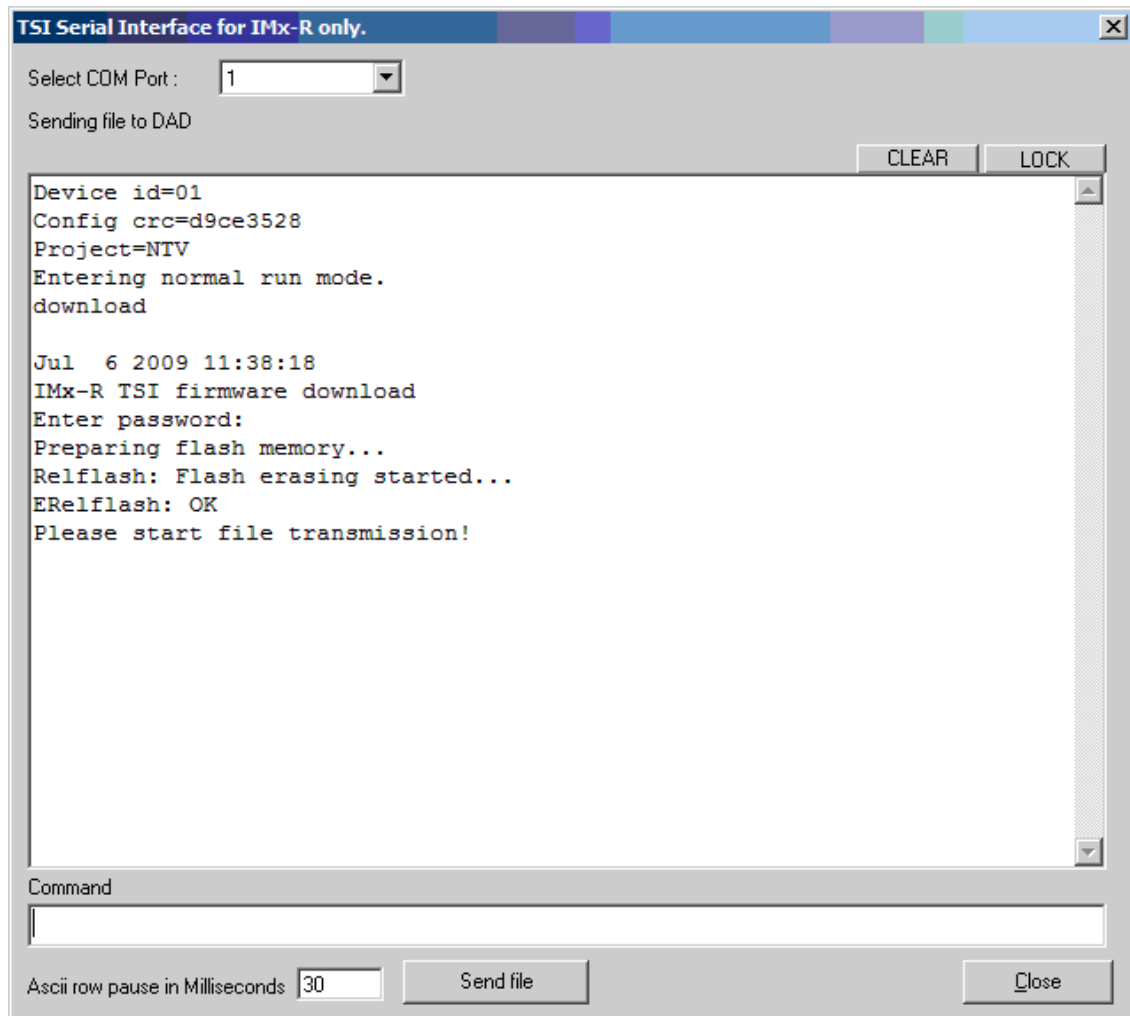


Figure 4 - 2.
Example of a Start Transmission of Firmware Version 1.0.0 or 1.1.0.

6. Enter "**download**" in lower case in the Command text box and finish with the Enter key. The device writes out its version, in this case "Jul 6 2009 11:38:18".
7. The device will ask for the start of the firmware file transmission. Click on "**Send file**" button. A dialog for opening a file will appear.
8. Find a **.mot** firmware file to be downloaded and open it.
9. The transmission of the firmware file will start immediately and will be busy for 3 minutes (with 30 ms row pause). Wait for the completion even if the program appears to be unresponsive.

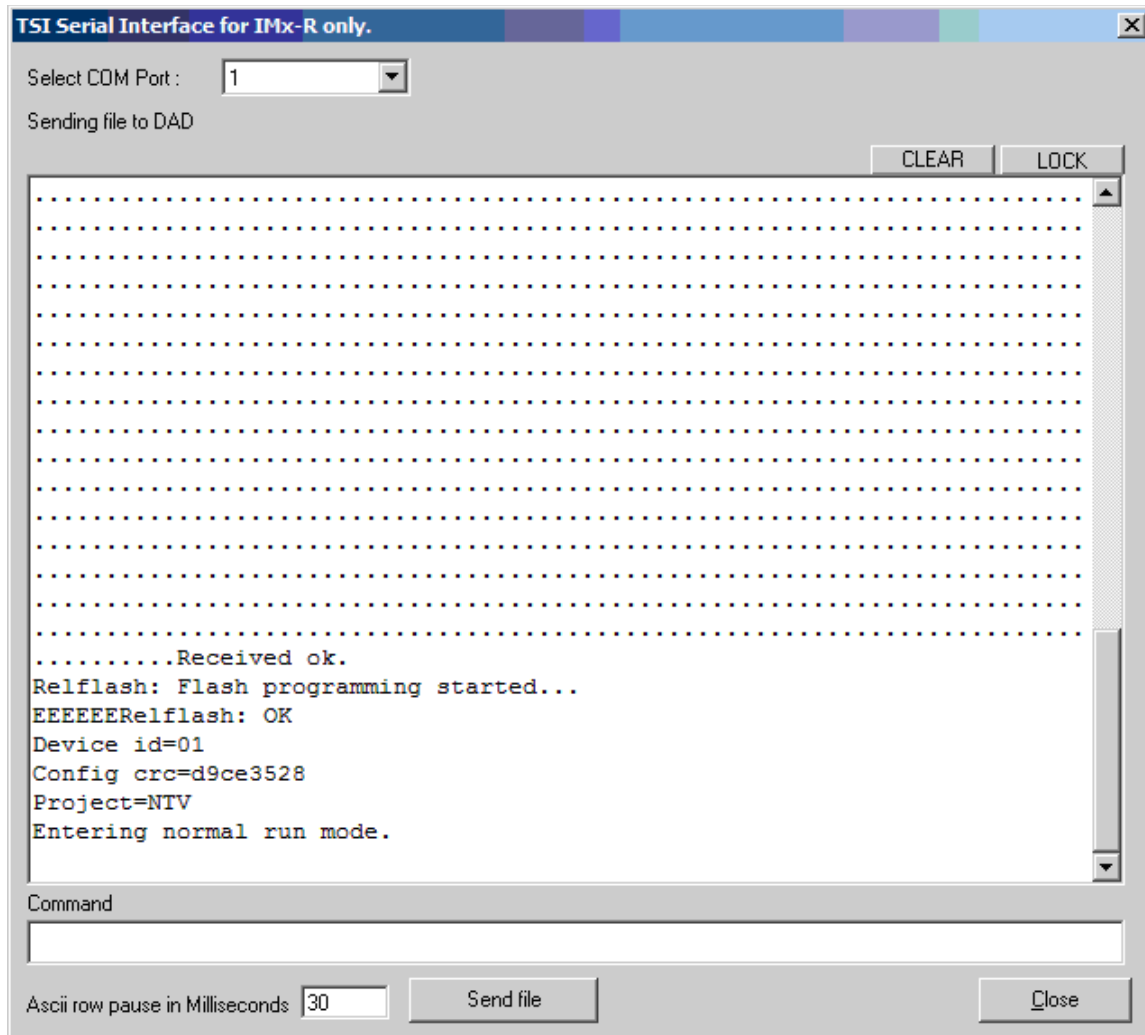


Figure 4 - 3.
Example of a Successful Download of Firmware Version 1.0.0 or 1.1.0.

10. If the download is successful, the device will reboot and run the new version of firmware.
11. If an error occurs, retry the procedure.

Firmware Version 1.2.0

The following steps are a guide to downloading a new firmware **version 1.2.0** to an IMx-R device.

1. Connect IMx-R to a computer by using a null modem cable. A "USB to RS 232 converter" may be required. Refer to [Getting Started by Attaching Cable](#) in Serial Interface section for IMx-R TSI part connection.
2. Start "**Observer on-line device configurator 8.4.0**" and click on "Start IMx-R TSI serial interface". Refer to [TSI Serial Interface for IMx-R](#).
3. To download firmware, the IMx-R device needs to be powered up. If the device has not powered up already, power up the IMx-R device.

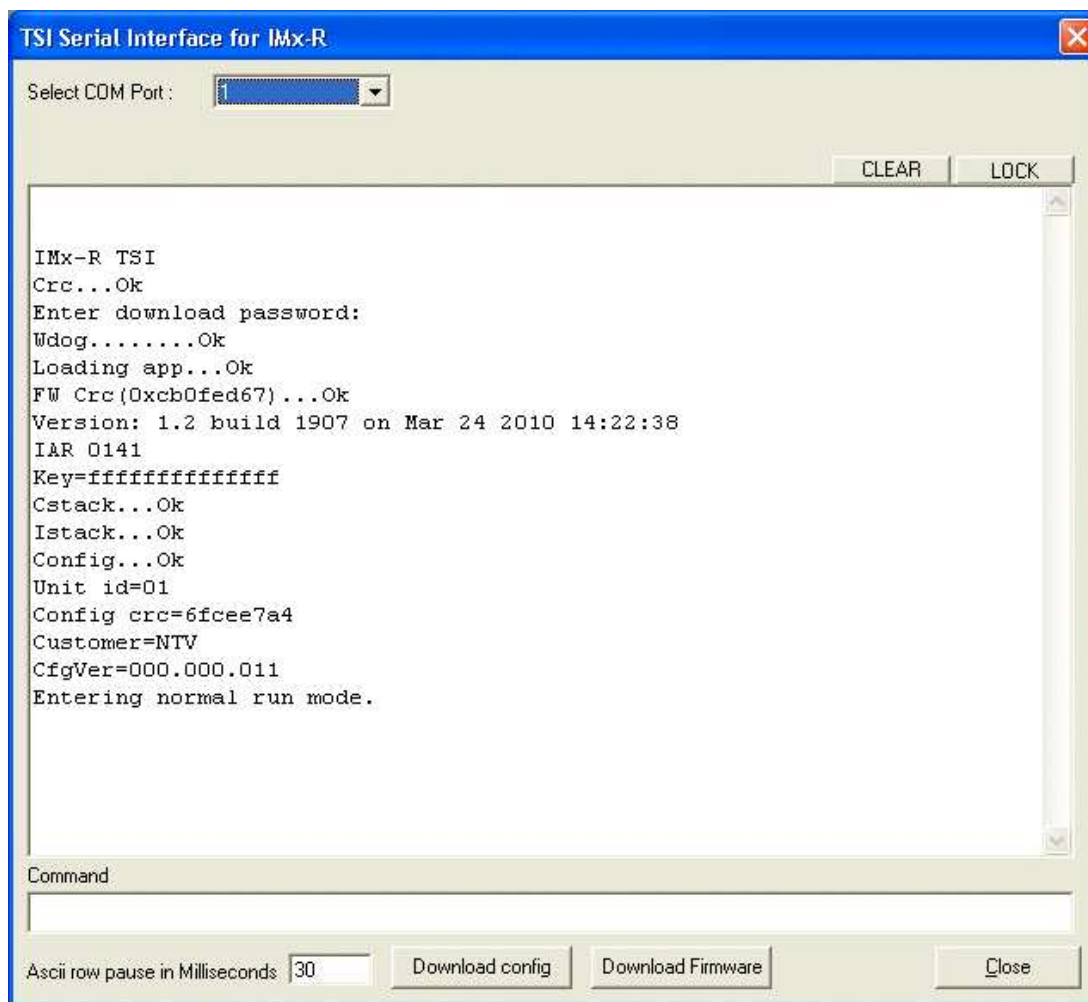


Figure 4 - 4.
Example of Boot-up Text of IMx-R with Firmware Version 1.2.0.

4. The IMx-R displays a version and other text on the RS 232 TSI serial port upon boot-up. The exact boot-up text depends on the firmware version. Continue to the next step when the IMx-R is powered up.
5. Click **Download Firmware**. A dialog for opening a file will appear.

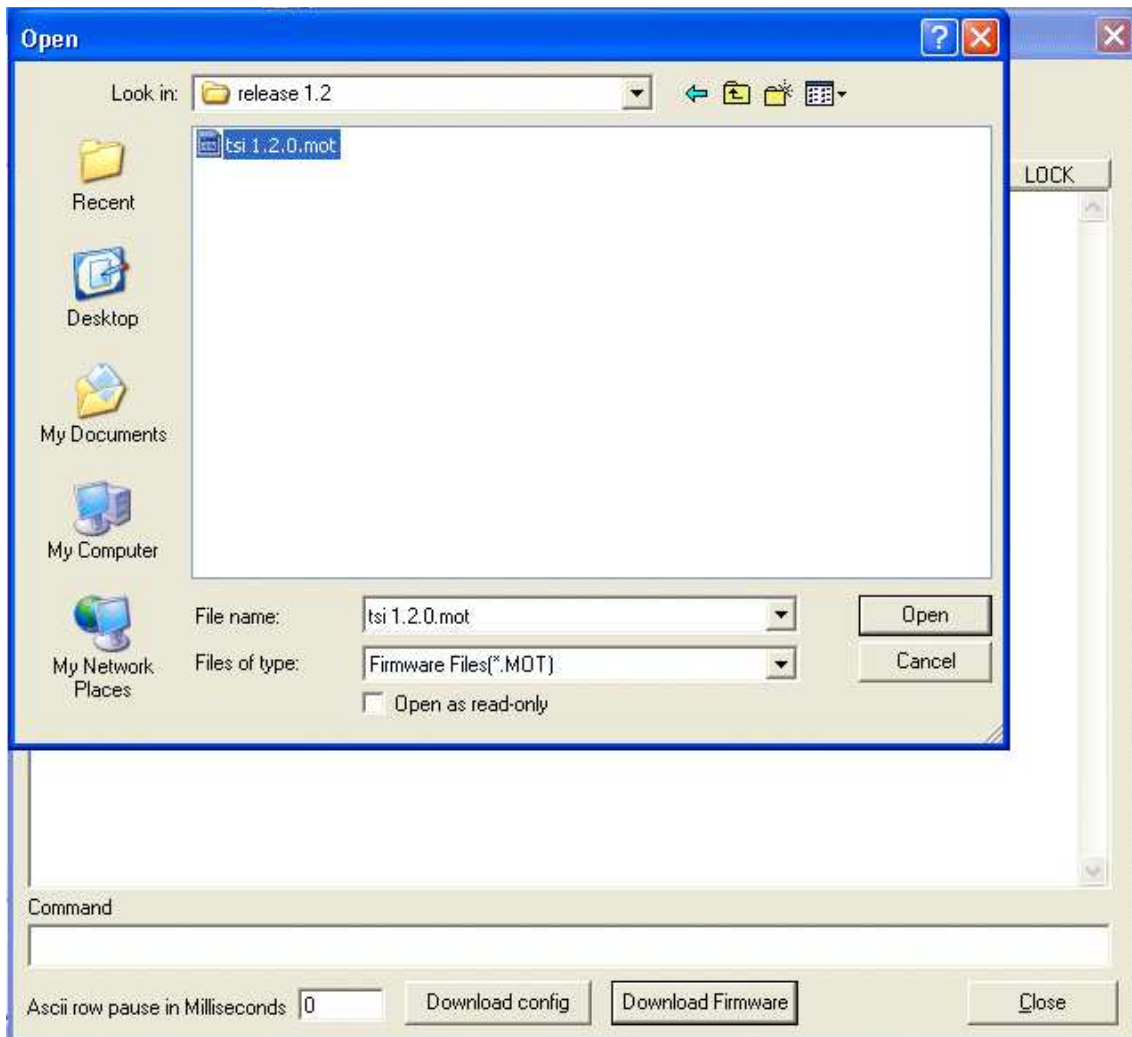


Figure 4 - 5.
Example of Open File Dialog Screen for Firmware Version 1.2.0.

6. Find a **.mot** firmware file to download and open it. The password for the dialog is "secret".

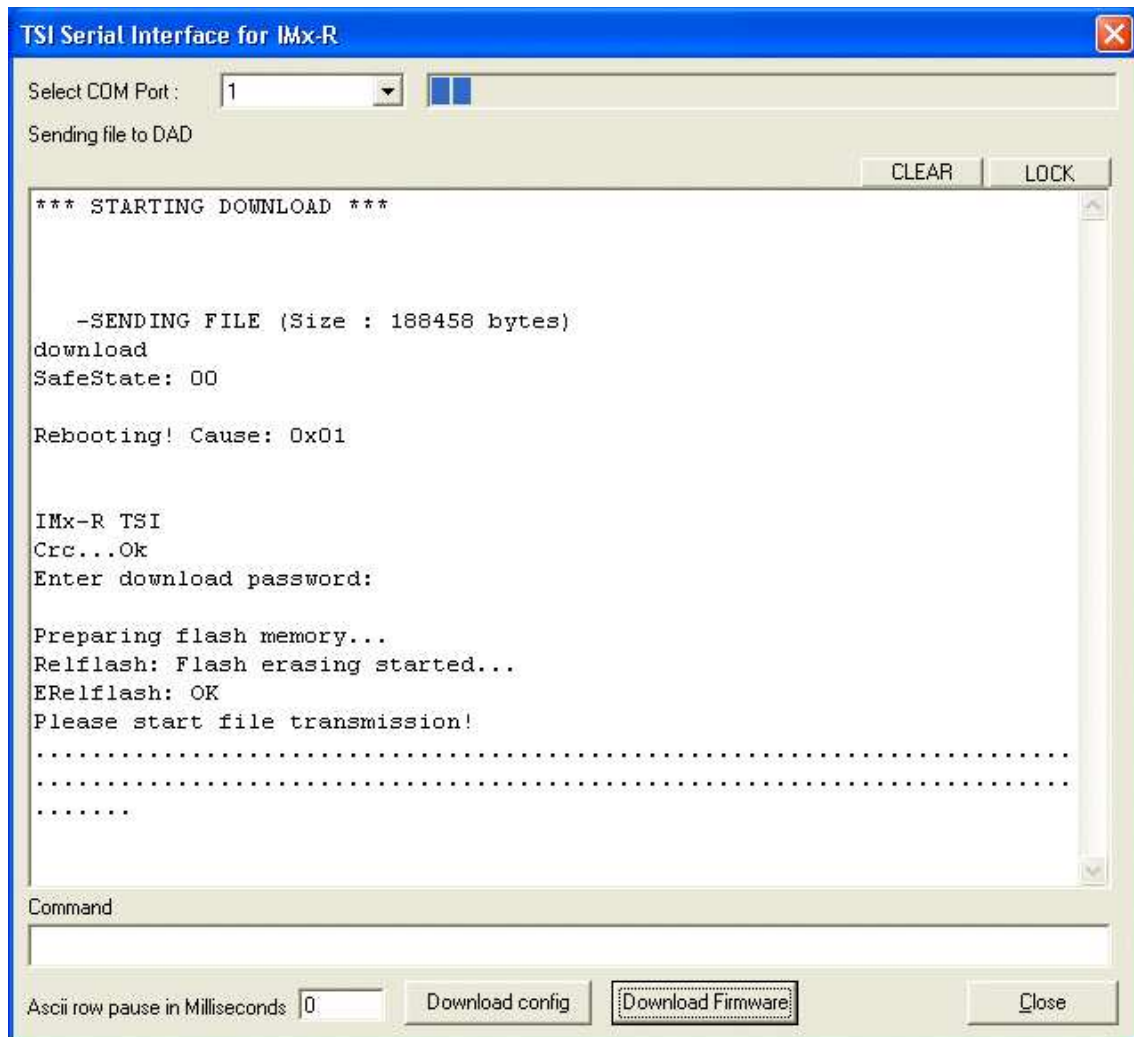


Figure 4 - 6.
Example of Download Firmware Version 1.2.0.

7. The transmission of the firmware file will start immediately. Wait for the completion.

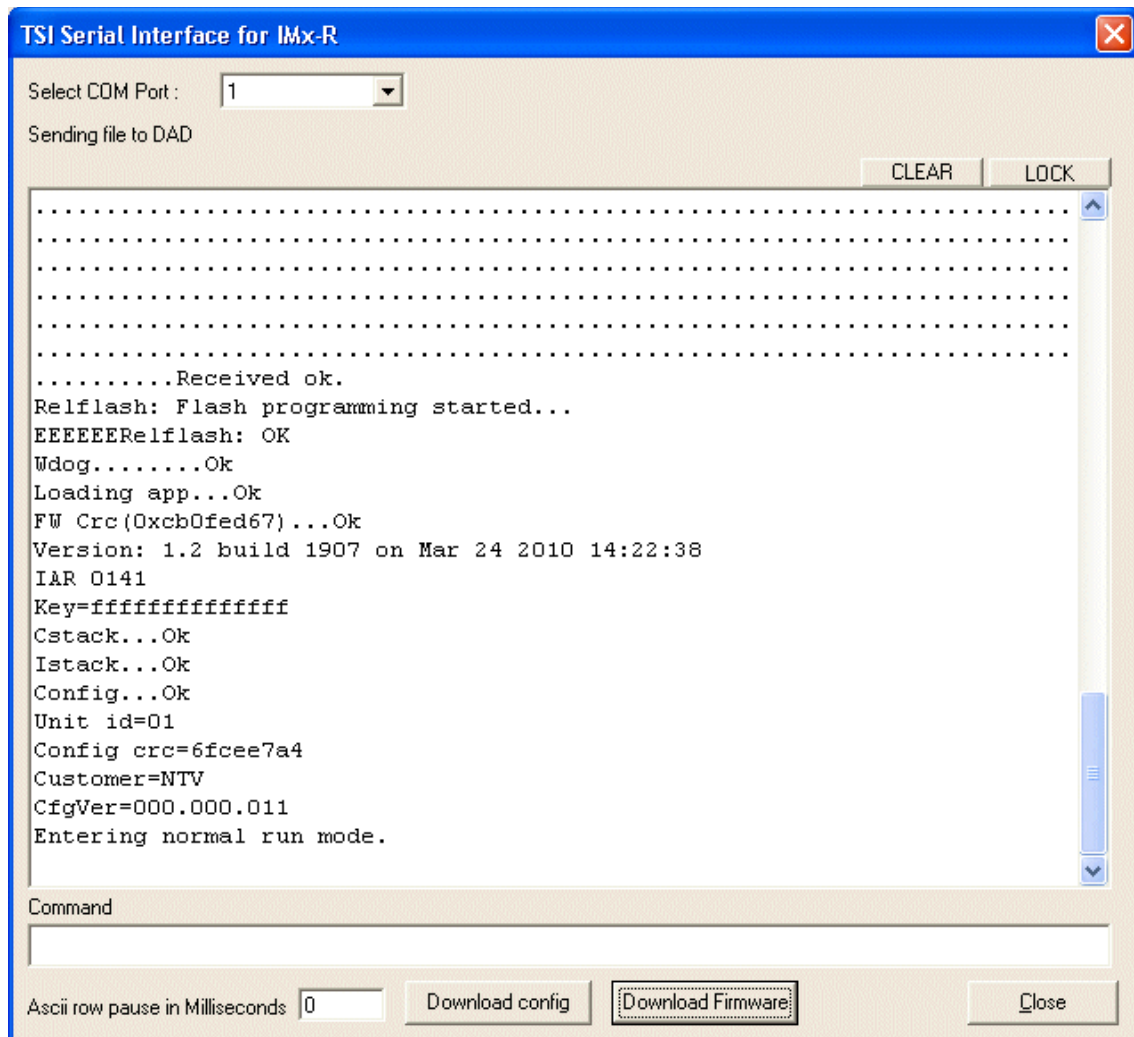


Figure 4 - 7.
Example of a Successful Download Firmware Version 1.2.0.

8. If the download is successful, the device will reboot and run the new version of firmware.

Firmware Version 1.3.0 or Later Version

The following steps are a guide to downloading a new firmware **version 1.3.0 or later version** to an IMx-R device.

1. Connect IMx-R to a computer by using a null modem cable. A "USB to RS 232 converter" may be required. Refer to [Getting Started by Attaching Cable](#) in Serial Interface section for IMx-R TSI part connection.
2. Start "**Observer on-line device configurator 8.4.0c**" or **later** version and click on "Start IMx-R TSI serial interface". Refer to [TSI Serial Interface for IMx-R](#).
3. To download firmware, the IMx-R device needs to be powered up. If the device is not powered up already, power up the IMx-R device.

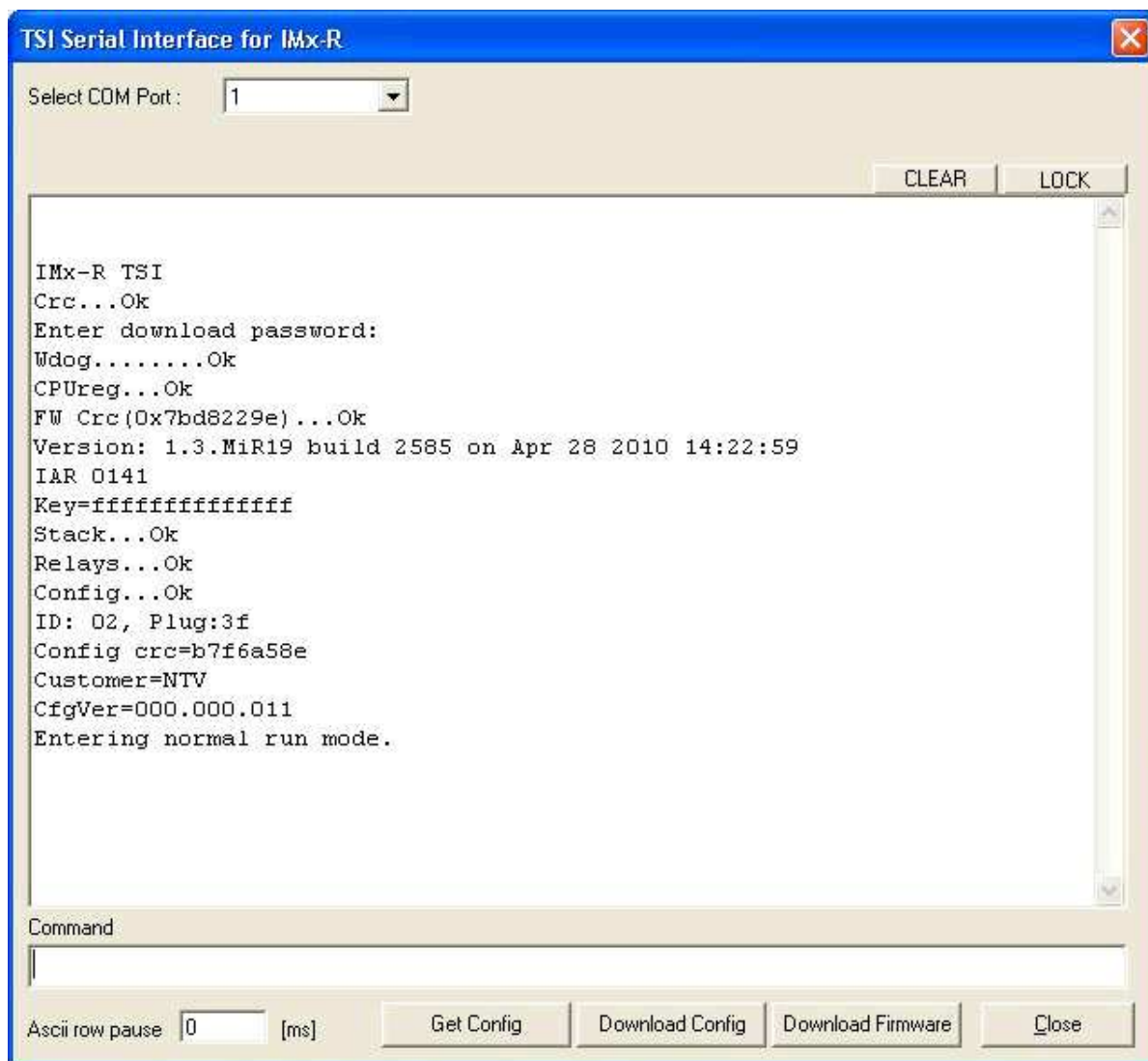


Figure 4 - 8.
Example of Boot-up Text of IMx-R with Firmware Version 1.3.0.

4. The IMx-R displays a version and other text on the RS 232 TSI serial port upon boot-up. The exact boot-up text depends on the firmware version. Continue to the next step when the IMx-R is powered up.

5. Click **Download Firmware**. A dialog for opening a file will appear.

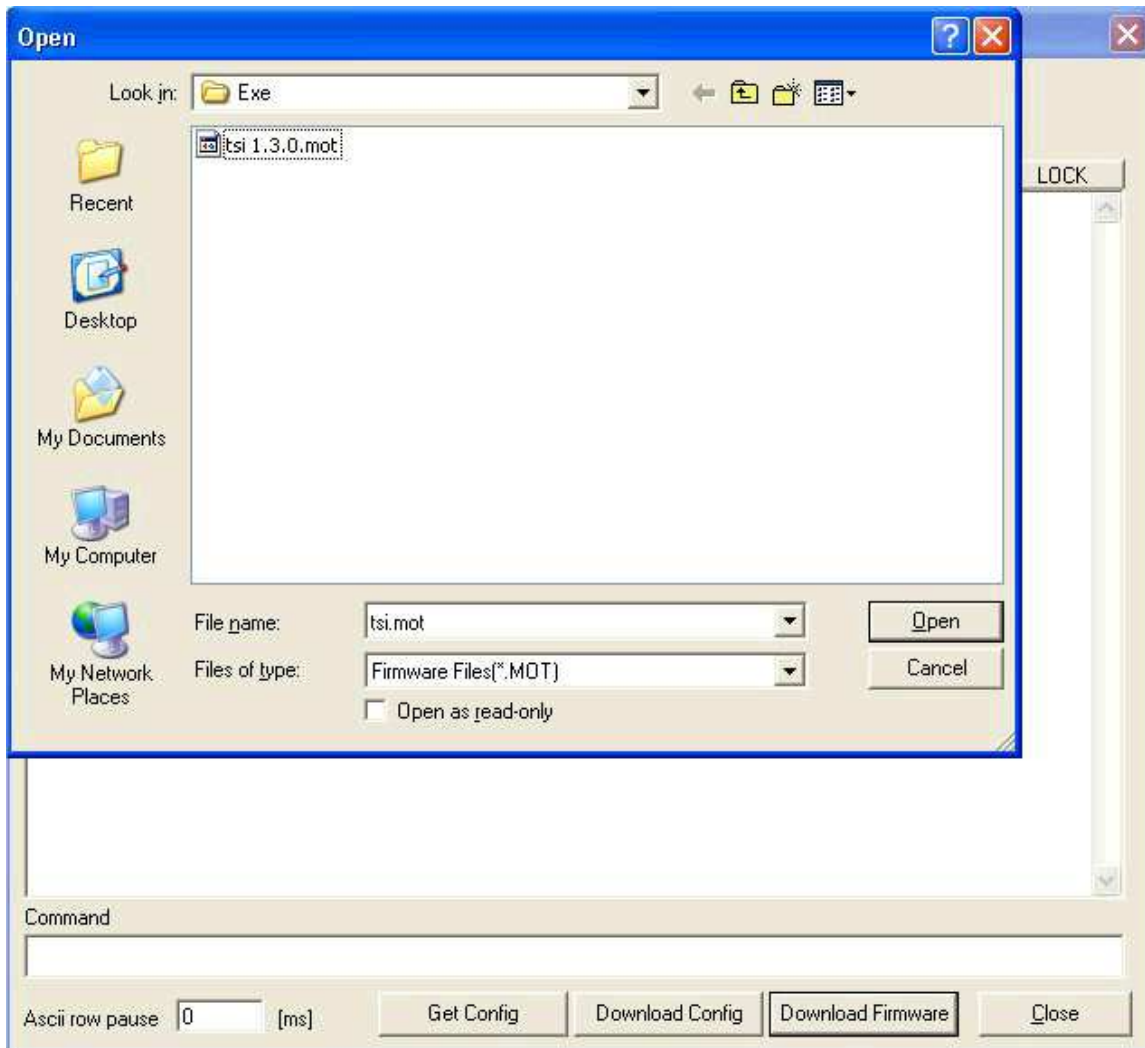


Figure 4 - 9.
Example of Open File Dialog Screen for Firmware Version 1.3.0.

6. Find a **.mot** firmware file to download and open it. The password for the dialog is "secret".

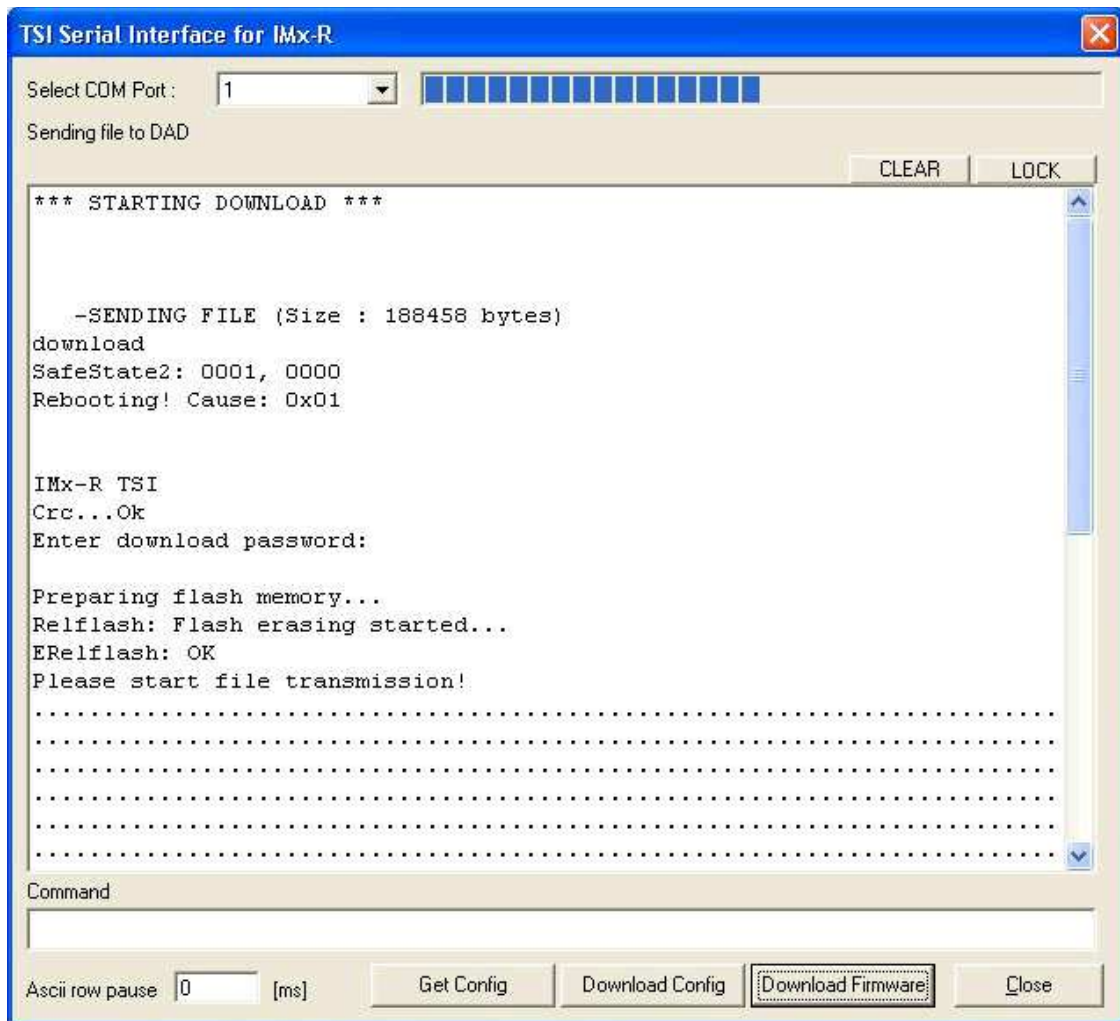


Figure 4 - 10.
Example of Download Firmware Version 1.3.0.

7. The transmission of the firmware file will start immediately. Wait for the completion.

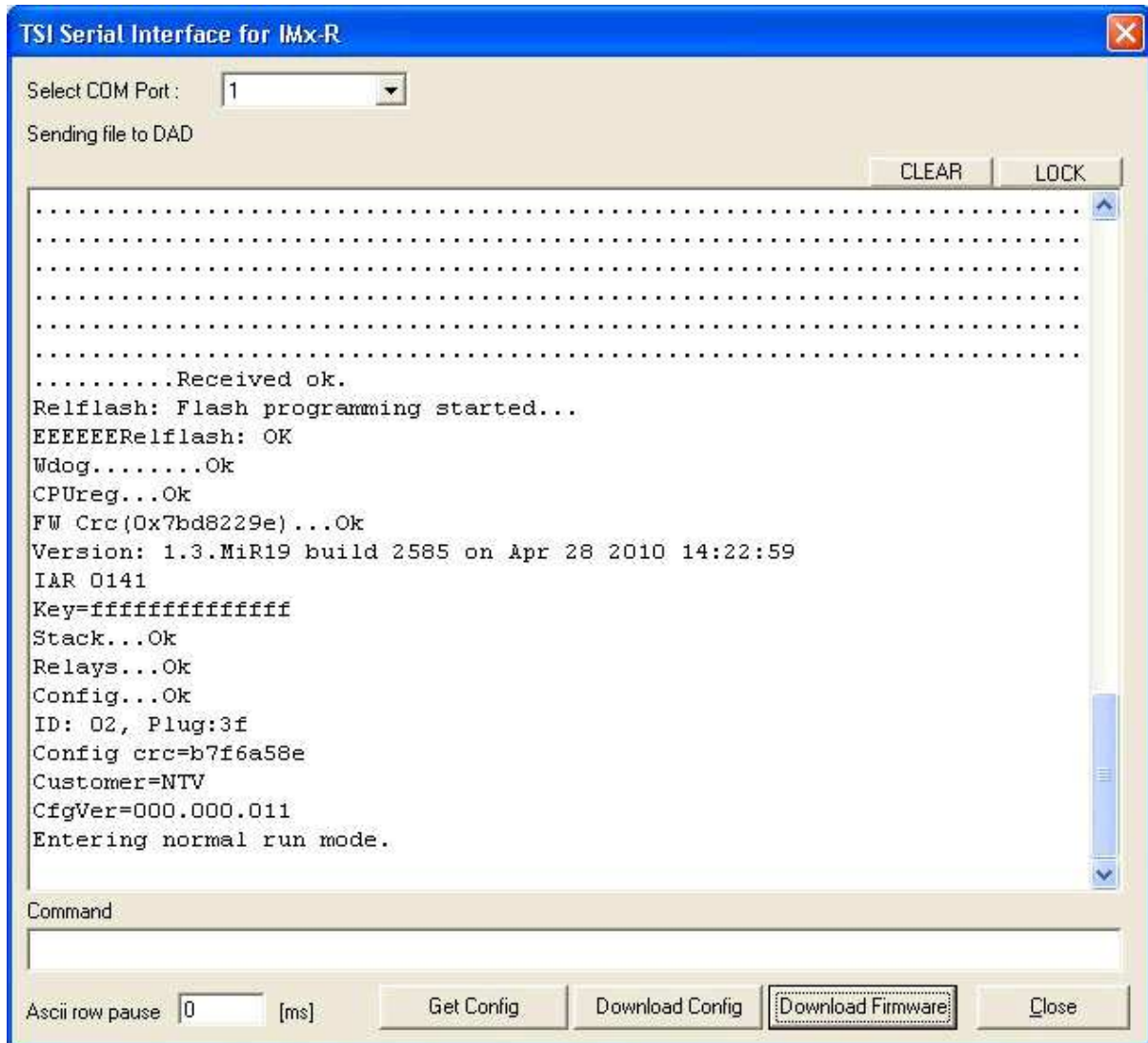


Figure 4 - 11.
Example of a Successful Download Firmware Version 1.3.0.

8. If the download is successful, the device will reboot and run the new version of firmware.

IMx-R Device TSI Configuration

The IMx-R device TSI configuration process varies depending on the firmware version.

With Firmware Version 1.0.0 or 1.1.0

The following steps are a guide to configuring TSI for IMx-R devices with the firmware version 1.0.0 or 1.1.0.

1. Connect IMx-R to a computer by using a null modem cable. A "USB to RS 232 converter" may be required. Refer to [Getting Started by Attaching Cable](#) in Serial Interface section for IMx-R TSI part connection.
2. Start **Observer on-line device Configurator 8.3.0** or **earlier** version.
3. Click on **Start IMx-R TSI serial interface**. Refer to [TSI Serial Interface for IMx-R](#).
4. It is strongly recommended to shut down all the running tasks before proceeding with the TSI configuration of an IMx-R device.
5. To configure an IMx-R device, the device needs to be powered up. If the IMx-R has not powered up already, power up the IMx-R.

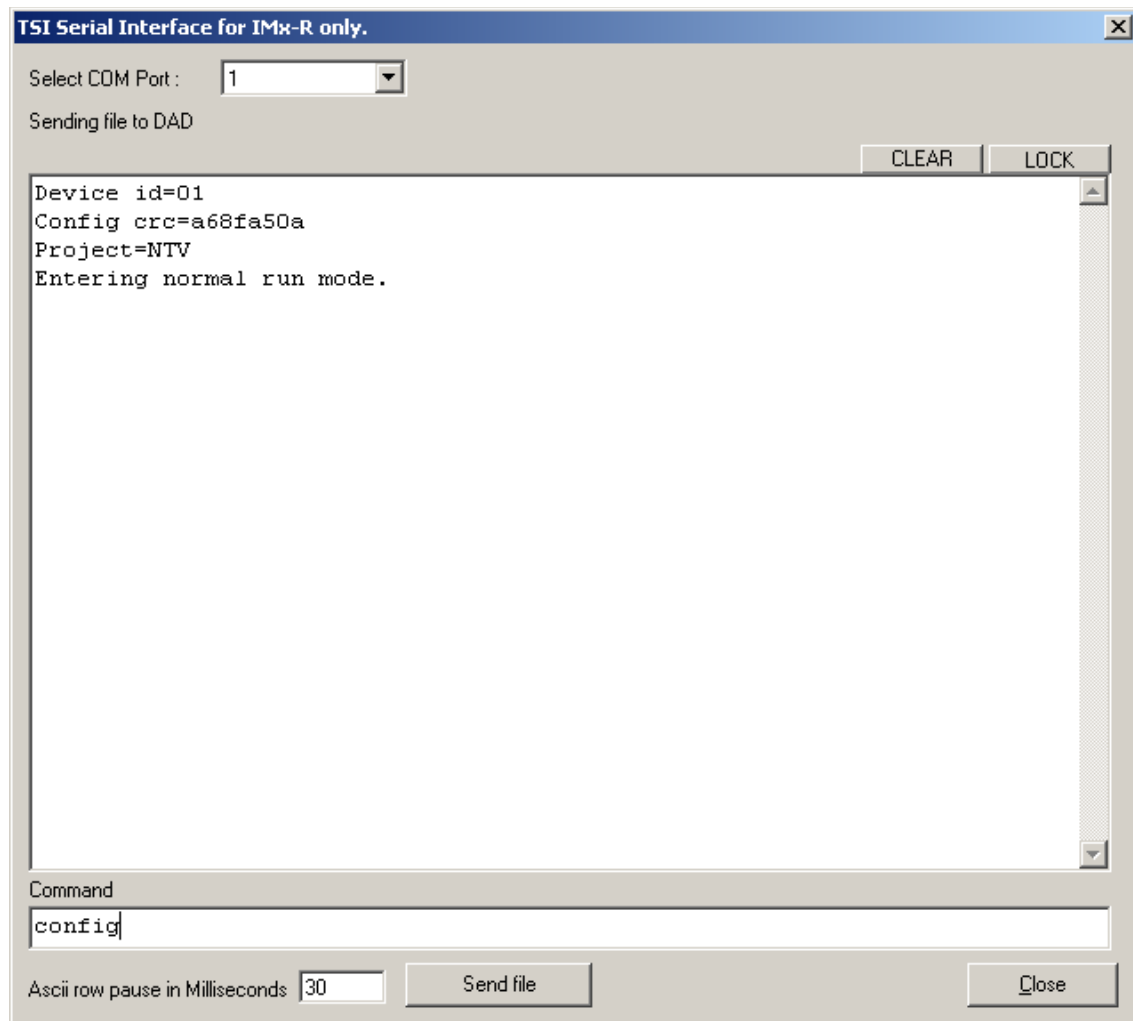


Figure 5 - 1.
Example of Boot-up Text of an IMx-R Device with Firmware 1.0.0.

6. The IMx-R displays a version and other text on the RS 232 TSI serial port upon boot-up. The exact boot-up text depends on the firmware version.
7. The default value 30 of "ASCII row pause in Milliseconds" does not need to be changed.
8. Enter "**config**" in lower case, in the Command text box and finish with the Enter key.
9. The device will ask for a TSI configuration file. Click **Send file** button. A dialog for opening files will appear.

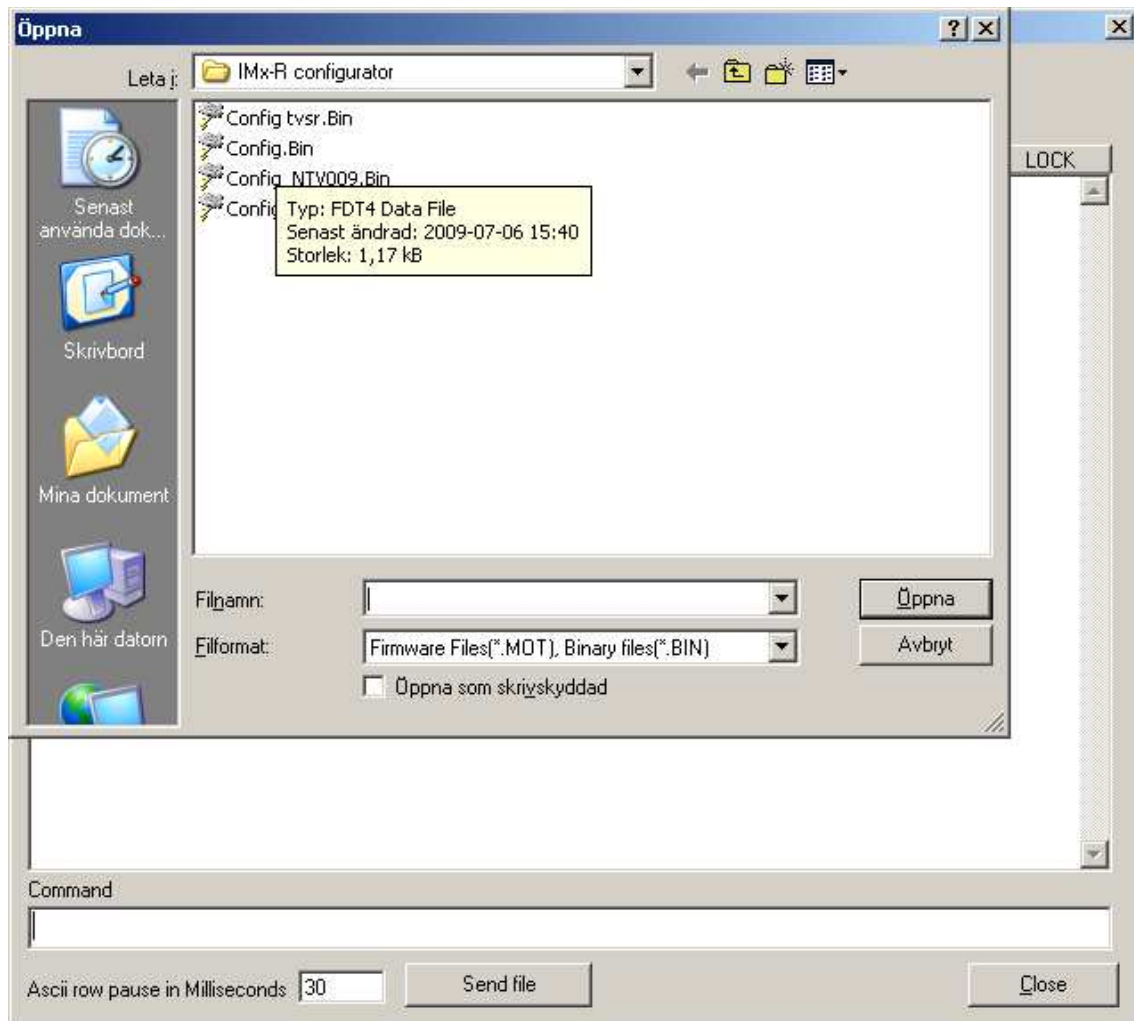


Figure 5 - 2.
Example of IMx-R TSI Configuration File Selection Screen.

10. Choose a **.Bin** file with which to configure the device.

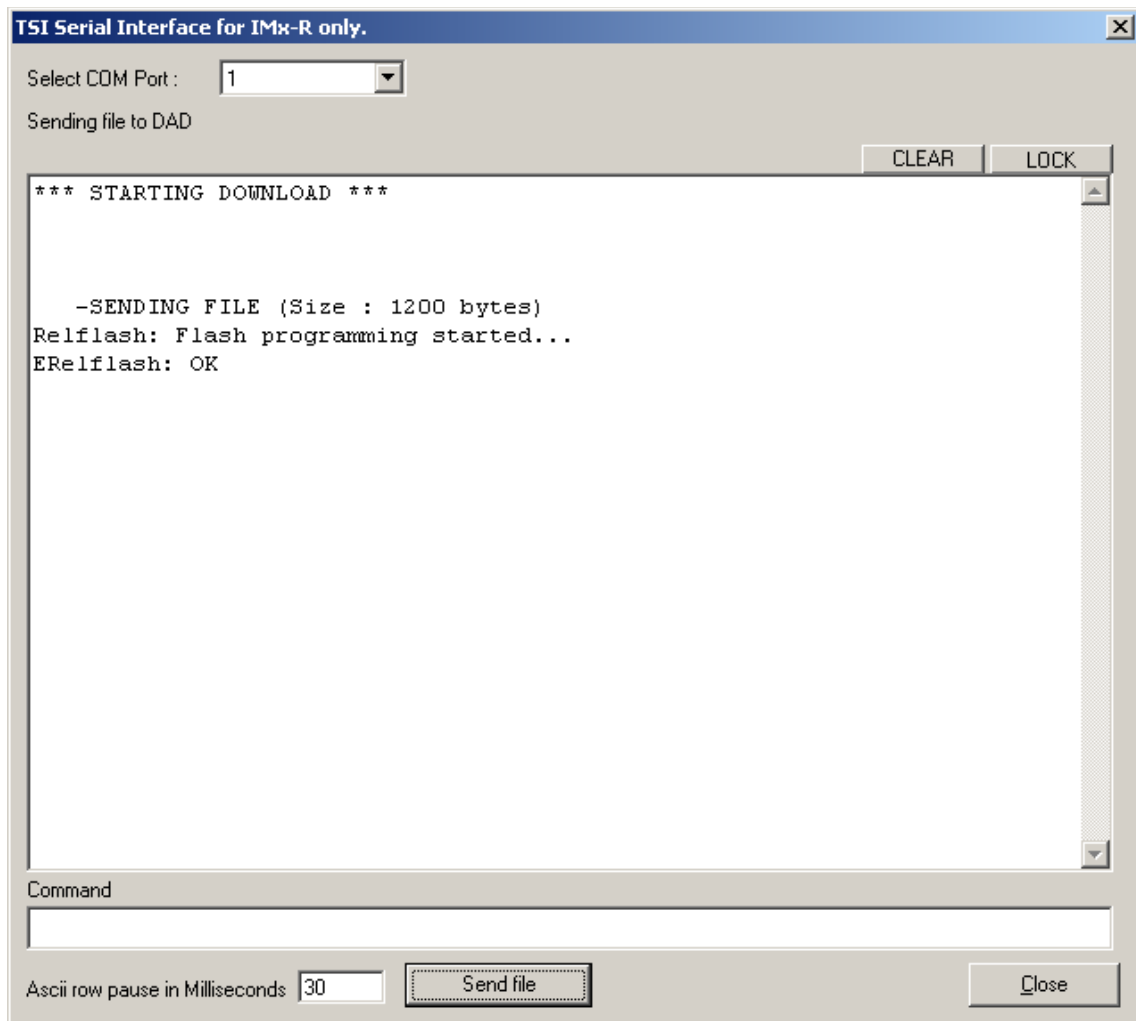


Figure 5 - 3.
Example of Configuration File Transmission with IMx-R Firmware 1.0.0.

11. The transmission of the TSI configuration file will start immediately.

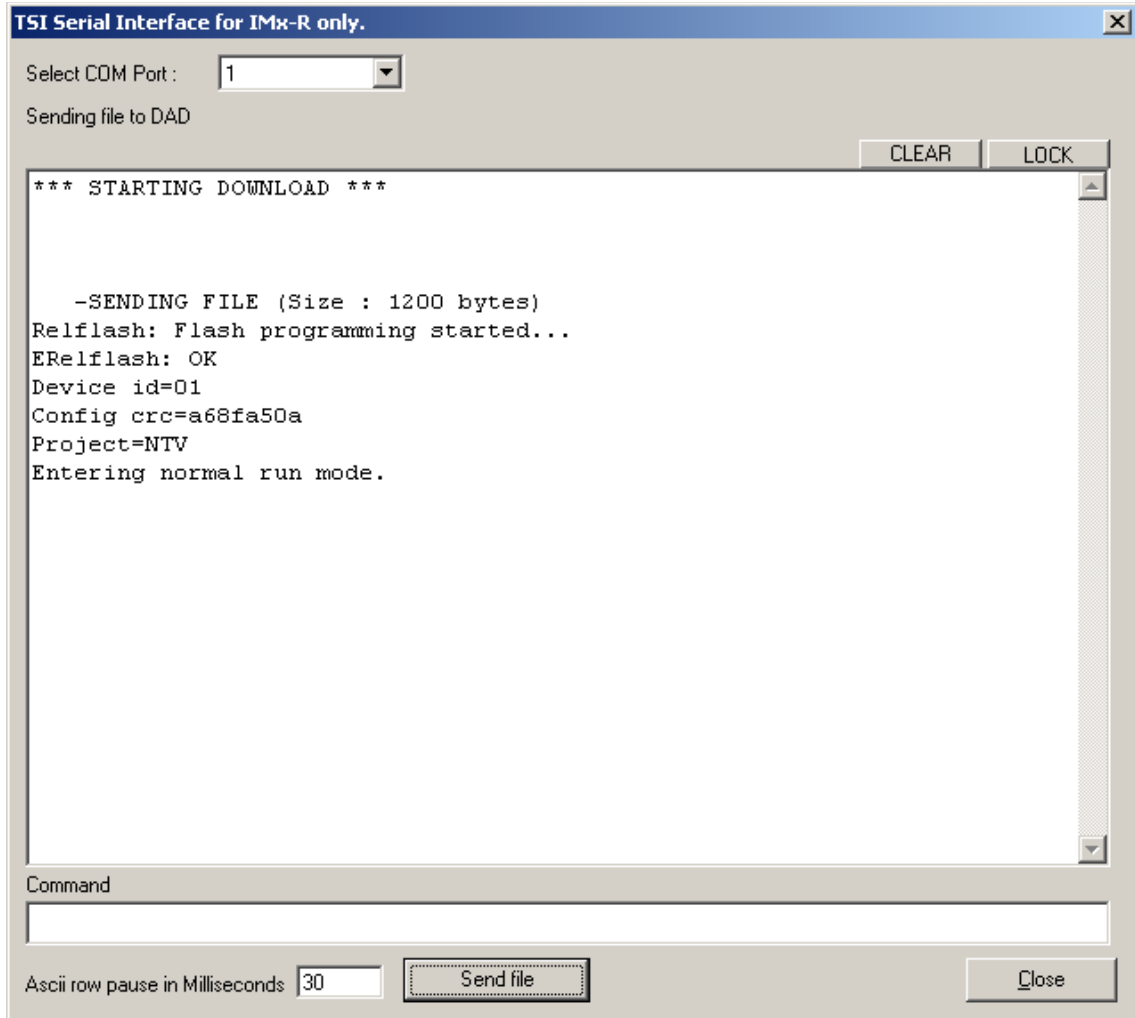


Figure 5 - 4.
Example of a Successful Configuration File Transmission with IMx-R Firmware 1.0.0.

12. If the download is successful, the device will restart with the new TSI configuration. Make sure to check the TSI configuration information.

With Firmware Version 1.2.0

The following steps are a guide to configuring TSI for IMx-R devices with the firmware version 1.2.0.

1. Connect IMx-R to a computer by using a null modem cable. A "USB to RS 232 converter" may be required. Refer to [Getting Started by Attaching Cable](#) in Serial Interface section for IMx-R TSI part connection.
2. Start **Observer on-line device Configurator 8.4.0**.
3. Click on **Start IMx-R TSI serial interface**. Refer to [TSI Serial Interface for IMx-R](#).
4. It is strongly recommended to shut down all the running tasks before proceeding with the configuration of an IMx-R.
5. To configure an IMx-R device, the device needs to be powered up. If the IMx-R is not powered up already, power up the IMx-R.

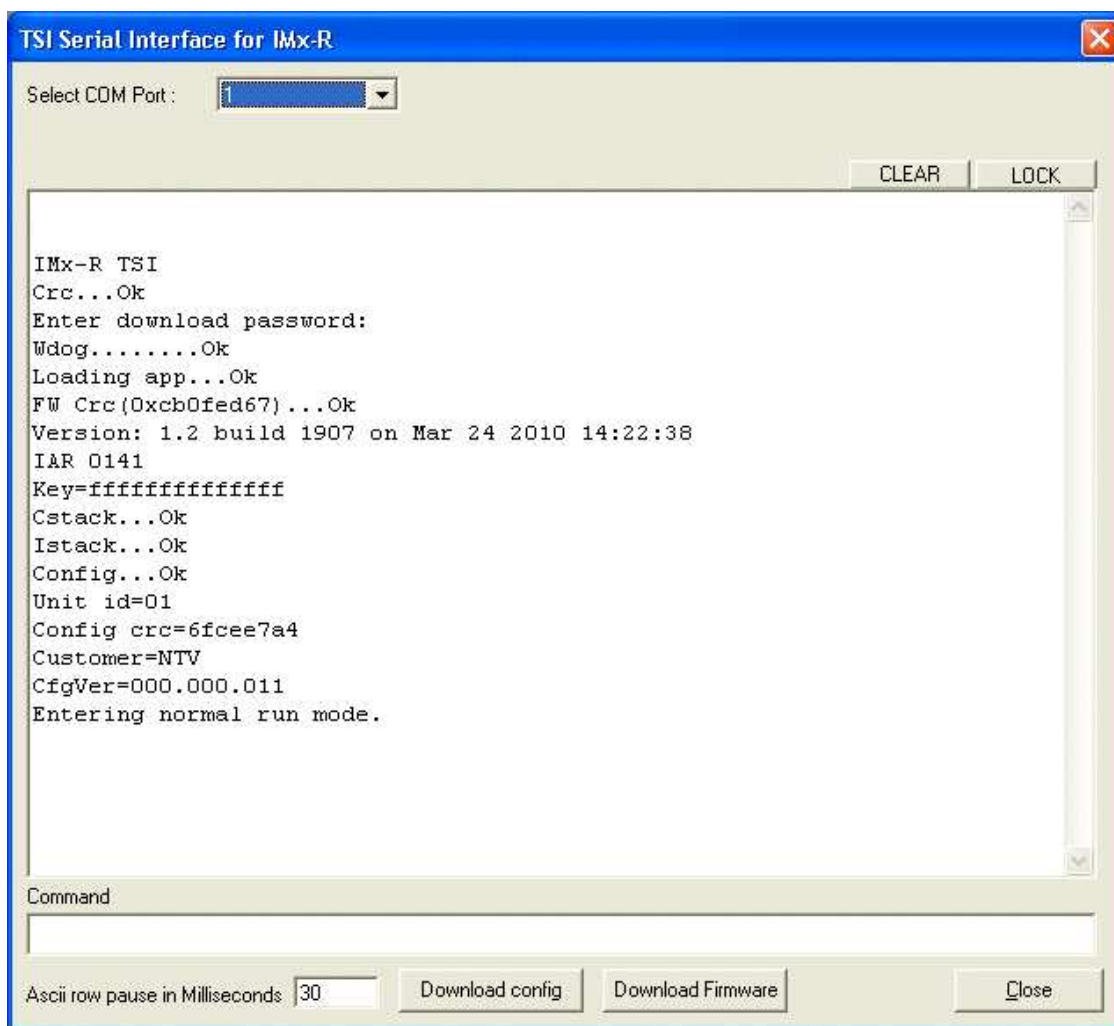


Figure 5 - 5.
Example of Boot-up Text of an IMx-R Device with Firmware 1.2.0.

6. The IMx-R displays a version and other text on the RS 232 TSI serial port upon boot-up. The exact boot-up text depends on the firmware version.

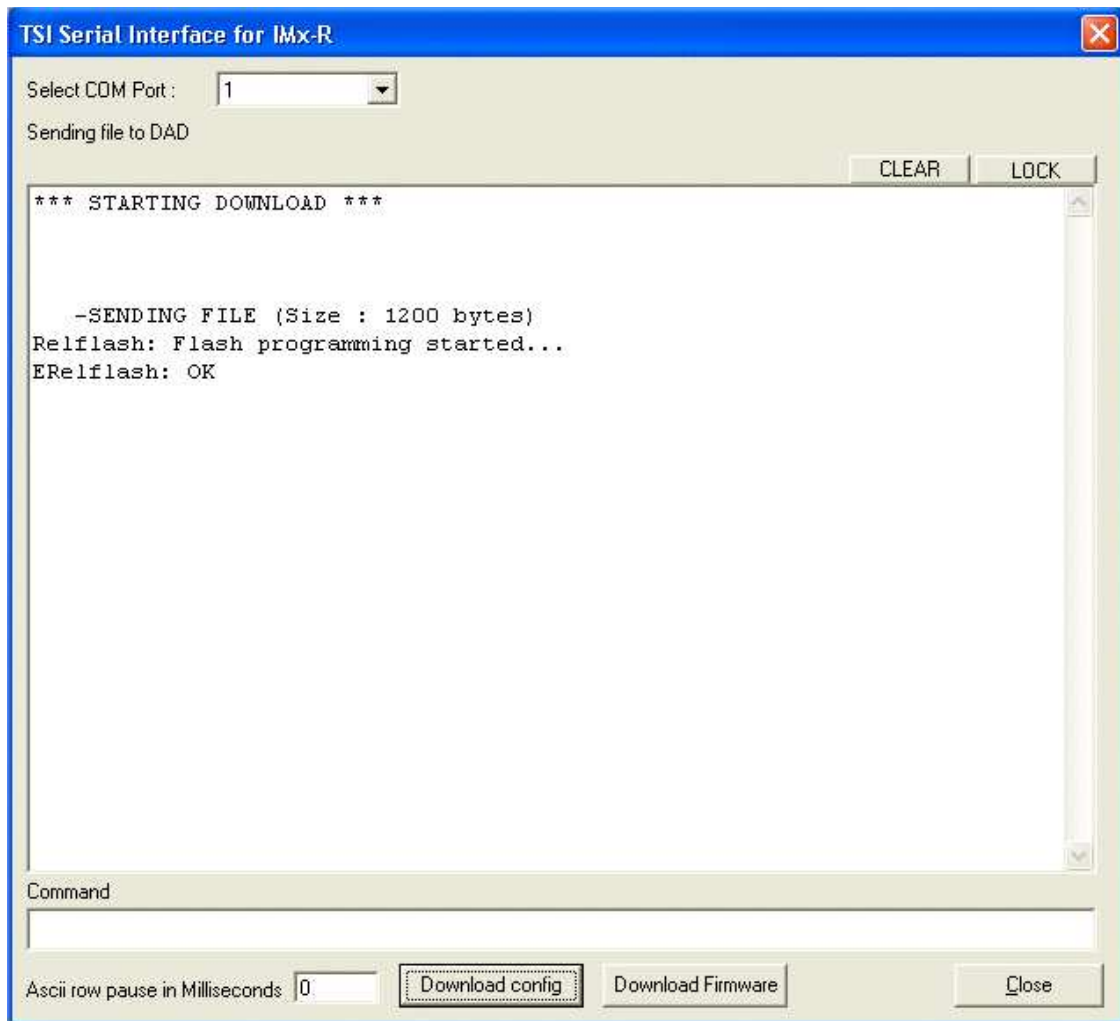


Figure 5 - 7.
Example of Configuration File Transmission with Firmware 1.2.0.

10. The transmission of the TSI configuration file will start immediately.

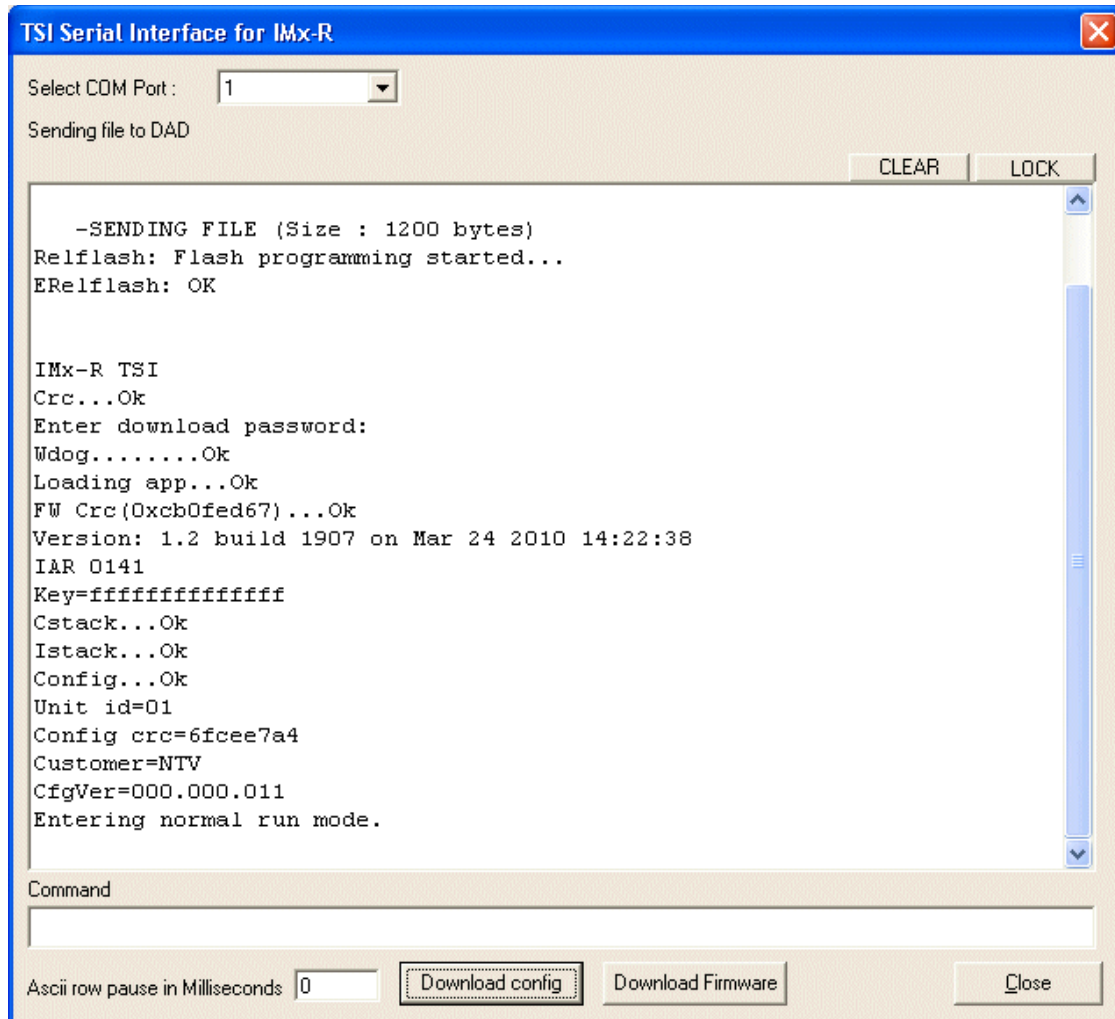


Figure 5 - 8.
Example of a Successful Configuration File Transmission with IMx-R Firmware 1.2.0.

11. If the download is successful, the device will restart with the new TSI configuration. Make sure to check the TIS configuration information.

With Firmware Version 1.3.0 or Later Version

The following steps are a guide to configuring TSI for IMx-R device with the firmware version 1.3.0.

1. Connect IMx-R to a computer by using a null modem cable. A "USB to RS 232 converter" may be required. Refer to [Getting Started by Attaching Cable](#) in Serial Interface section for IMx-R TSI part connection.
2. Start **Observer on-line device Configurator 8.4.0c** or **later** version.
3. Click on **Start IMx-R TSI serial interface**. Refer to [TSI Serial Interface for IMx-R](#).
4. It is strongly recommended to shut down all the running tasks before proceeding with the configuration of an IMx-R device.
5. To configure an IMx-R device, the device needs to be powered up. If the IMx-R is not powered up already, power up the IMx-R device.

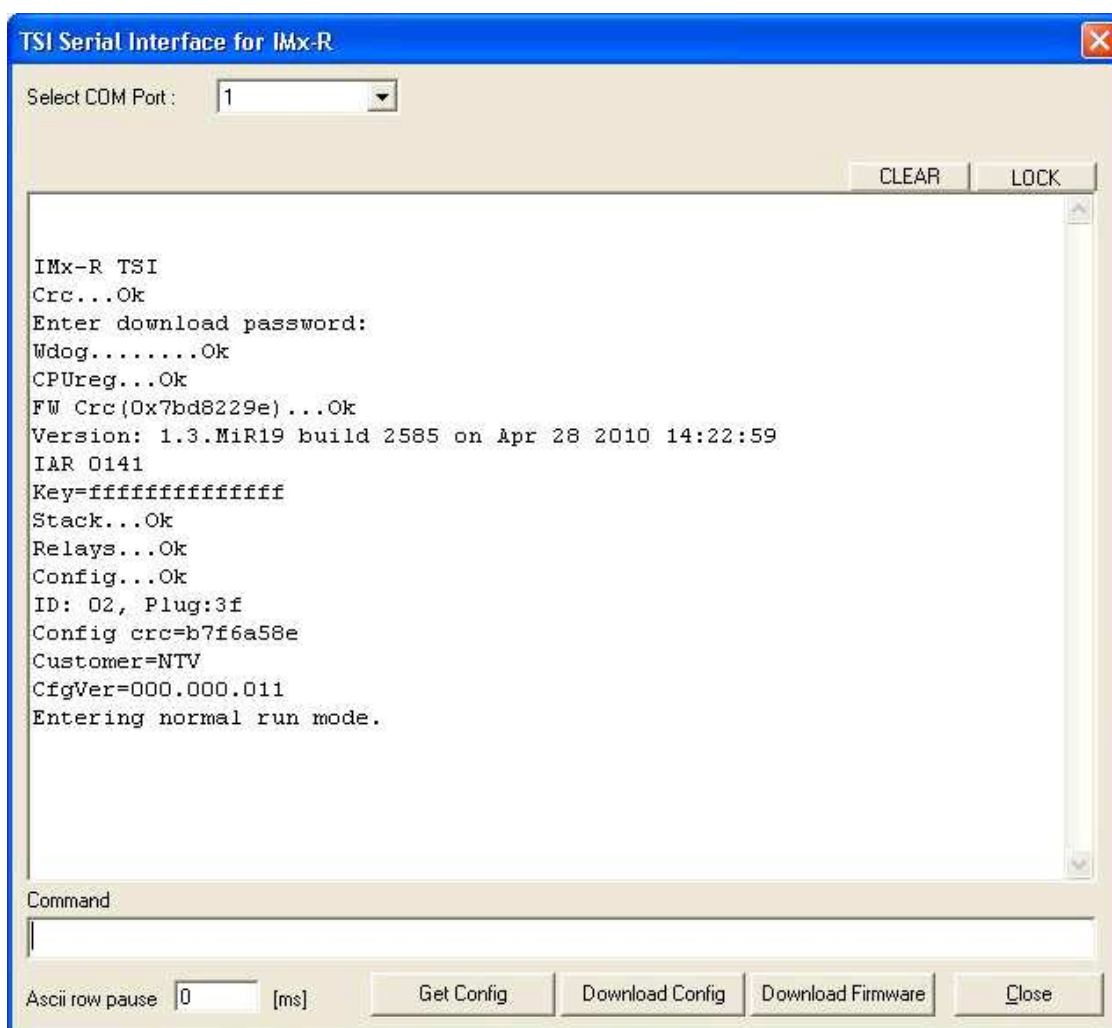


Figure 5 - 9.
Example of Boot-up Text of an IMx-R Device with Firmware 1.3.0.

6. The IMx-R displays a version and other text on the RS 232 TSI serial port upon boot-up. The exact boot-up text depends on the firmware version.

7. Click on **Download config** button.
8. The password for the dialog is "secret". A dialog for opening files will appear.

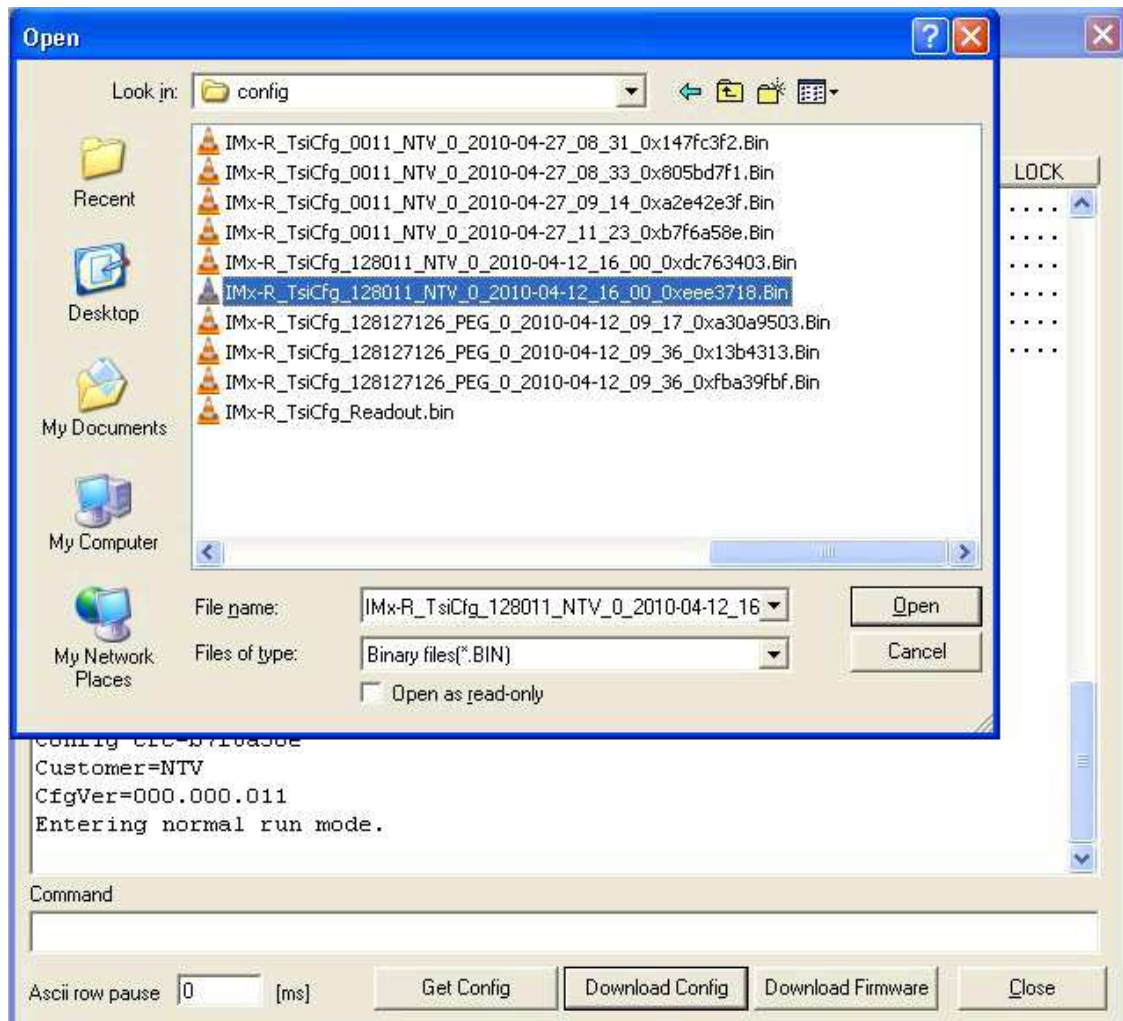


Figure 5 - 10.
Example of Configuration File Selection Screen with IMx-R Firmware 1.3.0.

9. Choose a **.Bin** file with which to configure the device.

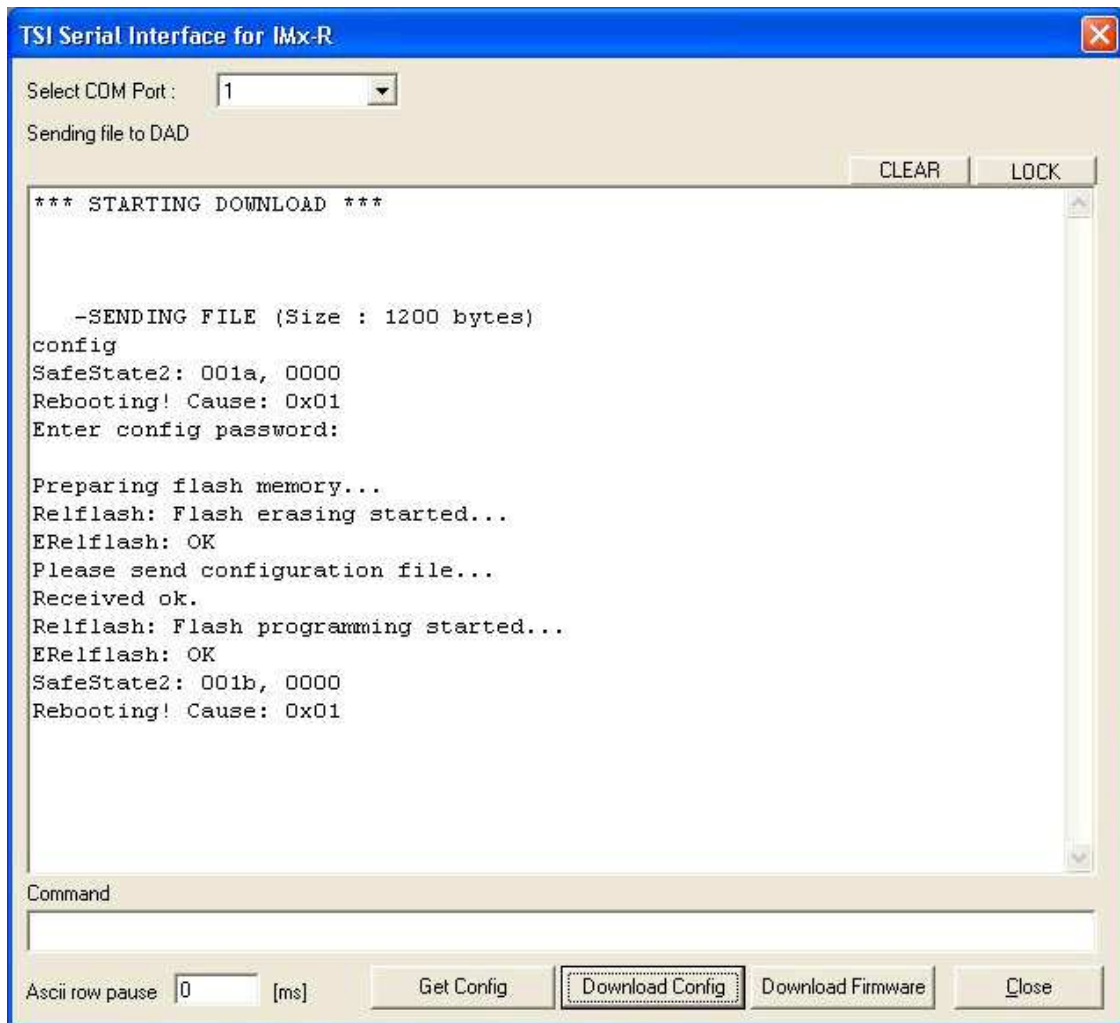


Figure 5 - 11.
Example of Configuration File Transmission with IMx-R Firmware 1.3.0.

10. The transmission of the TSI configuration file will start immediately.

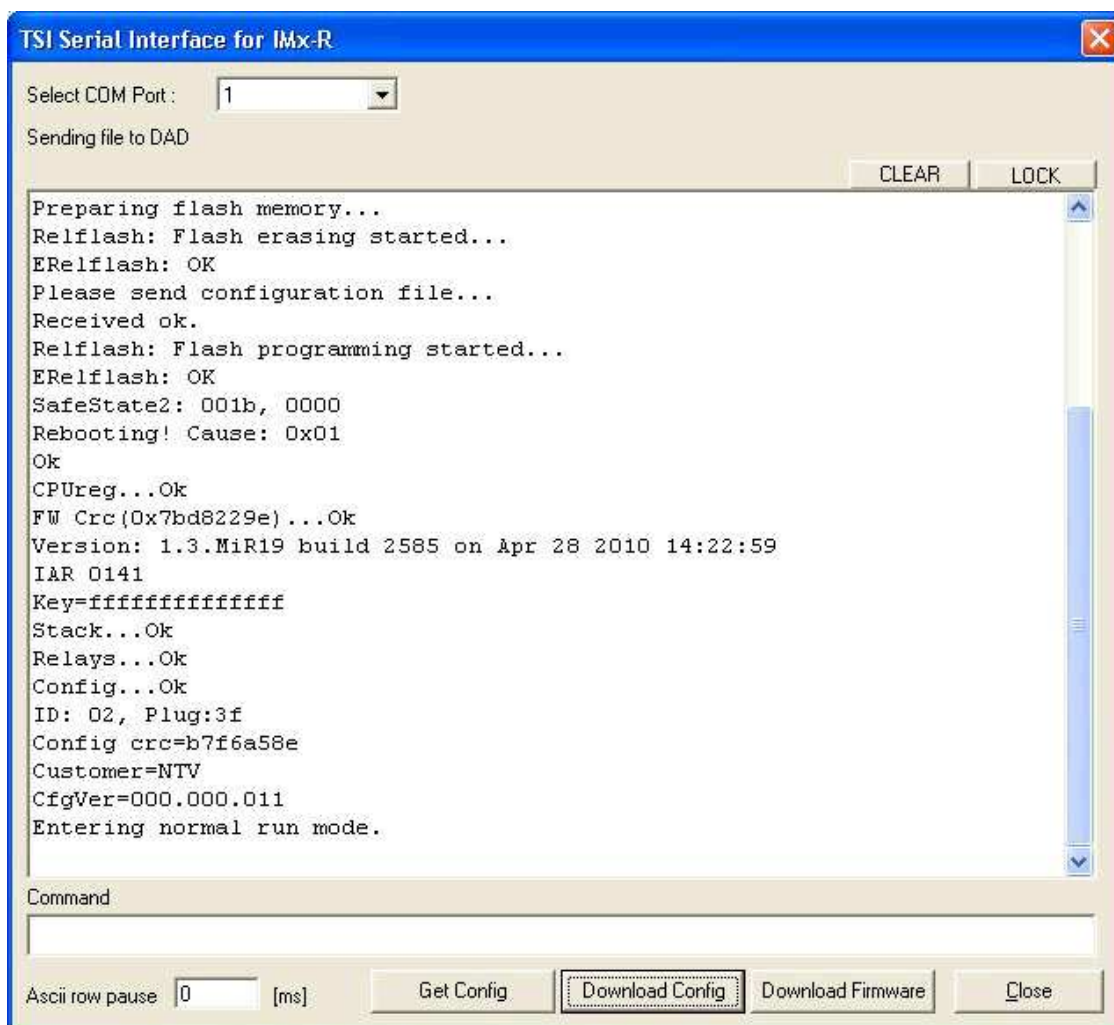


Figure 5 - 12.
Example of a Successful Configuration File Transmission with IMx-R Firmware 1.3.0.

11. If the download is successful, the device will restart with the new TSI configuration. Make sure to check the TSI configuration information.

Appendix A

End User License Agreement

THIS END-USER LICENSE AGREEMENT

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Neither party shall be in default or otherwise liable for any delay in or failure of its performance under this Agreement if such delay or failure arises by any reason beyond its reasonable control, including any act of God, any acts of the common enemy, the elements, earthquakes, floods, fires, epidemics, riots, failures or delay in transportation or communications; provided, however, that lack of funds shall not be deemed to be a reason beyond a party's reasonable control. The Parties will promptly inform and consult with each other as to any of the above causes that in their judgment may or could be the cause of a delay in the performance of this Agreement.

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CM-F0176 (Revision F, January 2011)