



1.0 INTRODUCTION

The MDS Element Manager is a standalone application compatible with Microsoft® Windows® and permits the user to manage individual GE MDS radios connected through a choice of interfaces. Dependent on the capabilities of the attached device, the application supports serial, DLINK, SSH, HTTP(S), etc. This application serves as a replacement for deprecated legacy software tools supporting configuration, management, and test.

The Element Manager supports legacy MDS radios with a graphical user interface. Built on a modern platform, it is a Rich Internet Application utilizing a common framework for long term supportability.

Element Manager is designed for operation in both 32 & 64 bit versions of Windows Vista®, Windows 7, and Windows 8.

Supported Devices

The MDS Element Manager currently supports the following MDS devices:

Serial Devices	IP Devices	SCADA Devices
x710 A/C/E/D/M	SDx	WiYZR-C Remote
x790 A/C/E/S	EntraNET AP	WiYZ Remote
x810	iNET	WiYZ Gateway
TransNET	iNET II	
<i>x710 B – Upgrade to A Only</i>		

Note:

MDS devices with a built-in IP/Web based user interface are primarily supported via that interface.

Utilities

- Command Line (non-menu/VT100 mode)
- Ping Console*
- TFTP Server
- Poller Responder*
- Configuration file Save/Load/Compare*
- Authorization Key*
- Device Reprogramming
- RTU Simulator*
- DLINK Utilities – Discovery, Throughput

* Device Selection Dependent

2.0 INSTALLATION

The MDS Element Manager is supplied as a zip file. Unzip the file and run the GE_MDS_Element_Manager_x.x.x.exe installer. An “Application Install” window will open and guide you

through the required installation steps. If an older version of the application is already installed it can be replaced.

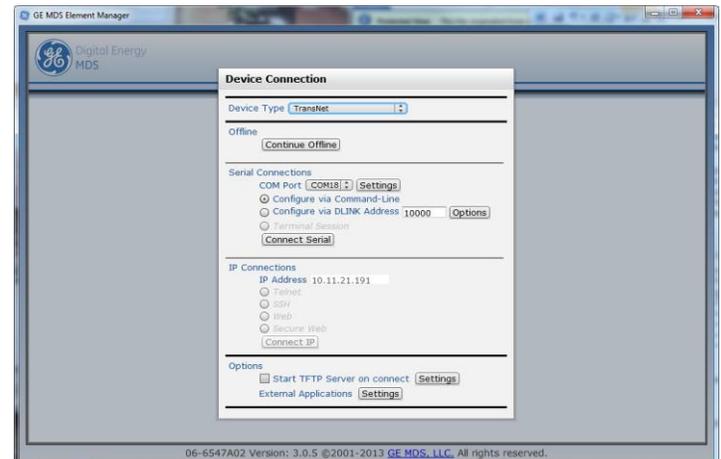


Note:

During installation additional elements including PuTTY and Adobe® AIR® will automatically be installed as needed. They are utilized by the Element Manager.

3.0 STARTUP

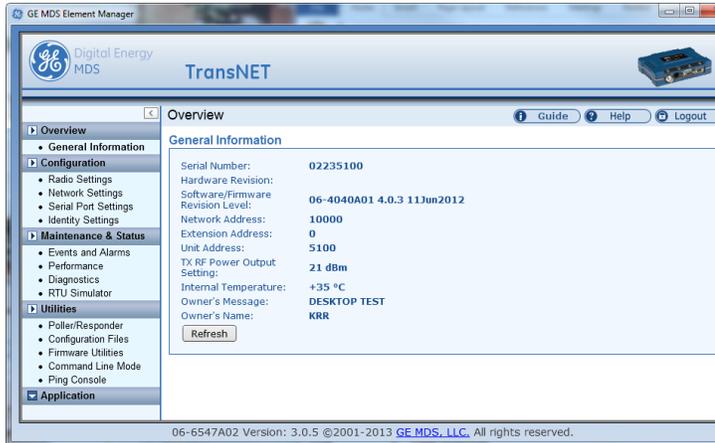
Upon launching the Element Manager, the Device Connection screen is displayed. Select the Device type and interface type to use.



Note:

If a serial port is not found, only “Offline Mode” and/or “IP Connection” may be available depending on the device type selected.

Following the device and connection selection, an Overview Screen is displayed. The following Overview Screen is an example following a successful connection to a TransNET radio.

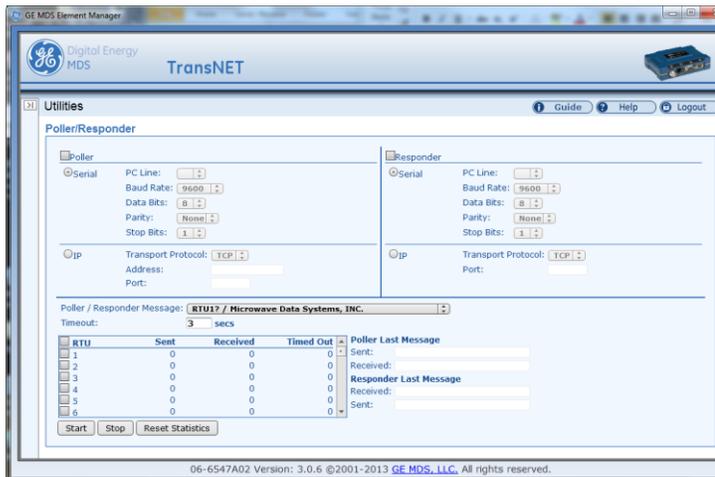


On the upper right there are three buttons which appear on all screens:

- **Logout** – Terminates device or offline session
- **Help** – Provides information regarding the displayed screen parameters
- **Guide** – Opens the PDF guide for the device – (x710, x810, x790, TransNET, SDx)

4.0 UTILITIES

Poller/Responder



With two RF connected devices, the Poller and Responder capability is used to test data transfers via **Serial** or **IP** connection, depending on the devices used.

- **Poller** – Used to poll a remote MDS radio containing a built-in RTU simulator. Also used to poll through a pair of MDS radios with the Responder connected to the remote radio. Connect the Poller to the data port of the local radio.

- **Responder** – Used to provide poll responses for remote devices without built-in RTU simulation or with it disabled. Connect the Poller to the data port of one device and the Responder to the data port of second device.

General Instructions: Connect to the radio data port(s), select polling features, configure polling settings, then click **Start**. The Poller/Responder function can be used in online mode or in offline mode if the devices are pre-configured.

While the Poller/Responder is running, the statistics are updated and can be reset at any time.

Offline Device Configuration Support

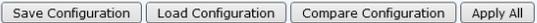
Offline configuration is supported for x710 A/C/E/D/M, x790 A/C/E/S, x810, TransNET and SDx devices.

Configuration Files



- **Save Configuration** – Creates a local file containing the current device settings.
- **Load Configuration** – Reads a local file containing the current device settings.
- **Compare Configuration** – Compares device settings to a local file that was saved. An example of this screen is shown in the following graphic:

Configuration Files

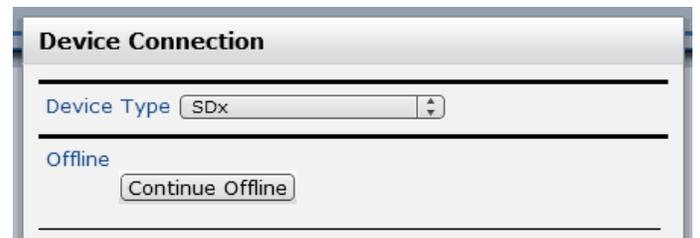


The following differences were identified:

Element	Local value	File value
Diagnostic Link	57600 (ON)	19200 (ON)
TX RF Power Output Setting	21	20
RTU Simulator	5 ON	0 OFF
Loss of RX Data Alarm Time	60	NONE
Synchronization Qualifier List	0000 0000	00000000

Select **Apply All** to commit changes of the compared file to the device.

- **Offline Configuration** - Some devices (TransNET, x710, x790, and x810) support the capability create and modify configurations without being directly connected with an actual device.



Firmware Utilities

Firmware Utilities

Authorization Key:

Software/Firmware Revision Level: 06-4040A01 4.0.3 11Jun2012

Hardware Revision:

- **Authorization Key** – Enter a new Authorization Code supplied by GE MDS and press **Apply**.
- **Program** – Updates the device’s firmware. Supply the firmware file name by typing it in or browsing using **Select File**.

Reprogramming

Click Select File button to choose an image file or manually type in the file address.

- **Reboot** – Performs a soft reboot of the device without cycling power.
- **Initialize NVMEM Defaults** – Restores the device to its factory default configuration.

Note:

Initializing the non-volatile memory to its defaults will erase all user configured information and return the device to factory configuration settings.

Command Line Mode

Command Line Mode

DIAGNOSTICS CLOSED

A simple serial terminal interface similar to the old Hyper-terminal application is included in the Element Manager. This is a pass-through interface that allows direct access to the complete command set of the device.

Notes:

- If a device is in DLINK mode the Element Manager escapes to command line mode automatically.
- This mode does NOT support VT100 emulation that is used for some devices by default – such as SDx radios. Use the “Terminal Session” button to support devices requiring terminal emulation via the PuTTY tool.
- When SDx is selected as the device type the software automatically escapes from “Menu” mode to “Command Line mode”.

DLINK Utilities

Element Manager incorporates discovery and throughput measurement tools for DLINK devices. To utilize the tool connect via serial or IP DLINK to a DLINK enabled device. Refer to the example below:

Device Connection

Device Type:

Offline:

Serial Connections

COM Port:

Configure via Command-Line
 Configure via DLINK Address
 Terminal Session

IP Connections

IP Address: Port:

Telnet
 SSH
 Web
 Secure Web
 IP DLINK Address

Options

Start TFTP Server on connect

Once connected, select “DLINK Utilities” from the left hand menu. In the mode drop down select “Discovery.”

DLINK Utilities

Mode:

Unit Address Start:

Unit Address End:

Timeout: ms

Delay: ms

Results:

```

Response received: 9710C (0ms)
Sent = 1000, Received = 1000, Lost = 0 (0.00% loss), Avg = 0.00ms
Unit Address 7910 responded with: 9710C (3ms)
Discovery found 1 device
Unit Address 7910 responded with: 9710C (1ms)
Discovery found 1 device
Unit Address 7910 responded with: 9710C (2ms)
Discovery found 1 device
    
```

- **Mode:** Discovery or Throughput Mode Selection
- **Unit Address Start:** DLINK Unit start address for Discovery or Throughput modes
- **Unit Address End:** DLINK Unit end address for Discovery mode
- **Timeout (ms):** Timeout when no response before next new discovery scan unit address or next new throughput ping packet (default 100)
- **Delay (ms):** Text box for time delay before next discovery scan unit address or throughput ping packet
- **Results:** Results log
- **Start:** Start Discovery or Throughput processing
- **Stop:** Stop any activity of Discovery or Throughput processing
- **Save Results:** Save captured results in to a file
- **Clear Results:** Clear all captured results

5.0 SPECIAL TOPICS

DLINK Device Configuration

Configuration of a non-local device via the DLINK protocol is possible by selecting **Configure via DLINK Address** and filling in the proper DLINK address value. Commands are passed from the local radio over the air to the remote radio.



Note:

Enter the remote radio's DLINK address in decimal or use 65279 for access to the locally-connected device.

IP Connections

The Element Manager can be used to communicate directly to MDS IP devices via Telnet, SSH, HTTP, or HTTPS.



TFTP Server Support

Some devices require a TFTP server to deliver firmware upgrades or send and receive log and configuration files.



x710B Limited Support

To work with MDS x710B devices, select the x710 A/C/E/D/M device type. The Element Manager supports accessing an x710B devices via the command line or by upgrading from "B" mode to "A" mode only. Status screens containing data items read from the x710B device will show incorrect values.

6.0 KNOWN LIMITATIONS

- Use of the RTU simulator is currently limited to RTU1 - RTU9. Selection of RTU10 or above will cause an error or no response.
- The application may lose connection after the x710 reprogramming and reboot process. If this occurs, navigate back to the Device Connection menu and reconnect.
- For x710, x810, x790 devices, the Alarm Sense indication is reversed in the radio hardware vs. the description in the manuals.
- Setting the x710 DLINK Receive Audio Output Level value from -1 to -20 dBm will report an error.
- Comparing the x790 Receiver Muting Level value between saved configurations from Serial and DLINK will report a difference. Serial has a value and DLINK does not.
- The x710 radio device clears the RX Buffer Delay value when the RTU command is executed. Applying settings on any page containing the RTU command will trigger this unresolved x710 radio firmware issue.
- Some register values returned from a Serial connection vs. a DLINK connection may be different – (e.g.: Tx RF Power Output Status returns < 0 dBm via serial, but returns 0 dBm via DLINK).
- In rare cases the software service may not properly close and will require using Windows Task Manager to kill the associated javaw.exe process.

Technical Assistance

Factory technical assistance is available by contacting GE MDS during business hours (8:30 AM to 6:00 PM Eastern Time). Please use one of the following means to contact the factory:

Telephone: (585) 241-5510

E-mail: gemds.techsupport@ge.com

Web: www.gedigitalenergy.com/Communications/

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<u>Packaged Library/App</u>	<u>Lib/App Versions</u>	<u>Lib/App License</u>	<u>Details/Comments</u>
jQuery	1.3.2	MIT	jquery-1.3.2.min.js
jQuery plots plugin	0.4	MIT	jquery.flot.js
jQuery prompt plugin	2.7	MIT	jquery-impromptu.2.7.min.js - probably not used anymore!
YUI2	2.8.1	BSD	but- ton,calendar,container,datasource,datatable,element,layout,paginator,progressbar,selector,tabview,yahoo,yahoo-dom-event
Apache Commons Java components	3.2.1	ASL 2.0	commons-beanutils-1.8.3.jar, commons-collections-3.2.1.jar, commons-lang-2.6.jar, commons-logging-1.1.1.jar
Java Object Transform - JSON	1.0.6	ASL 2.0	ezmorph-1.0.6.jar
Java JSON Transform	2.4	ASL 2.0	json-lib-2.4-jdk15.jar
Java Serial COM RS232 port	2.1.7	LGPL	RXTXcomm.jar
Java TFTP Server	0.8	LGPL	modified sources and built tftp4java.jar
Putty Terminal Server	0.63	MIT	
fping App	3	Free Win App	Fast pinger app downloaded from kwakkelflap.com. Copied and Packaged "AS-IS".
jQuery	1.3.2	MIT	jquery-1.3.2.min.js