

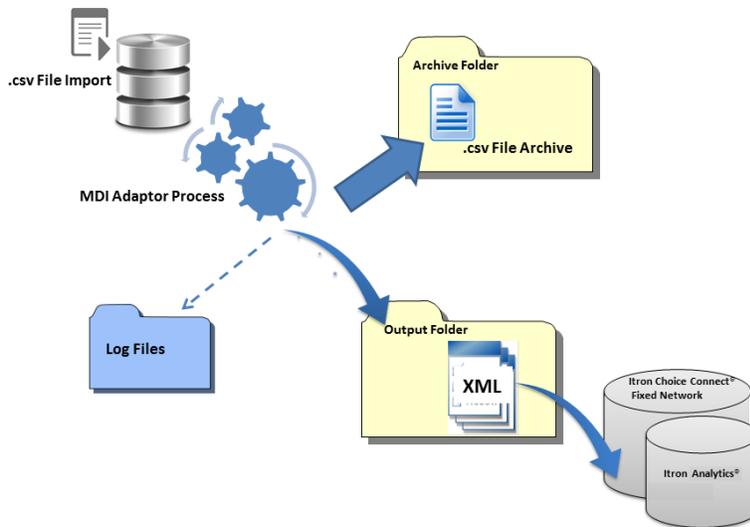
# MDI Adaptor User and Installation Guide

The MDI Adaptor tool converts a .csv data file to a series .xml files for use with ChoiceConnect® Fixed Network and Itron Analytics®. This automated process works in the background to convert database files into well formed .xml for import into these Itron upstream applications.

## MDI Adaptor Process Flow

Upon successful conversion of the .csv file, several .xml files are generated and placed in the output folder. The original .csv file is moved to the archive folder and the file extension is changed to the current date.

The following illustration shows the MDI Adaptor process flow.



## Accessing the MDI Adaptor

Create the following sub folders on your client machine:

- C:\Program Files\Itron\MDIAdaptor. Extract the contents of the MDI\_Adaptor.zip folder here.
- C:\Itron\MDIAdaptor. The installation program creates the MDI Adaptor subdirectories here, as defined in the Itron.ChoiceConnect.Adaptor.exe.config file.

## Before You Install

- Verify that you have an administrator account on the machine where you will install MDI Adaptor. You must install MDI Adaptor from an administrator account.
- Modify the configuration file, specifying the location of the MDI Adaptor sub-directories. When you specify the configuration settings before the installation, the installation program creates the sub-directories for you. For more information, see [Configuring MDI Adaptor](#) on page 2.

## Configuring MDI Adaptor

1. From C:\Program Files\Itron\MDIAdaptor , double-click the **Itron.ChoiceConnect.Adaptor.exe.config** file.
2. Find <Itron.ChoiceConnect.Adaptor.Settings> and configure the following settings:



```
<applicationSettings>
  <Itron.ChoiceConnect.Adaptor.Settings>
    <setting name="AllowableErrorPercent" serializeAs="String">
      <value>10</value>
    </setting>
    <setting name="AllowableDeletePercent" serializeAs="String">
      <value>10</value>
    </setting>
    <setting name="AllowableChangePercent" serializeAs="String">
      <value>10</value>
    </setting>
    <setting name="SystemConfiguration" serializeAs="String">
      <value>All</value>
    </setting>
    <setting name="ChoiceConnectOutputDirectory" serializeAs="String">
      <value>C:\Itron\MDIAdaptor\Output</value>
    </setting>
    <setting name="ChoiceConnectArchiveDirectory" serializeAs="String">
      <value>C:\Itron\MDIAdaptor\Archive</value>
    </setting>
    <setting name="ChoiceConnectLogDirectory" serializeAs="String">
      <value>C:\Itron\MDIAdaptor\Logs</value>
    </setting>
    <setting name="ChoiceConnectFileWatcherDirectory" serializeAs="String">
      <value>C:\Itron\MDIAdaptor\Input</value>
    </setting>
    <setting name="ChoiceConnectFileWatcherFileMask" serializeAs="String">
      <value>*.csv</value>
    </setting>
    <setting name="ChoiceConnectFileWatchIntervalInSeconds" serializeAs="String">
      <value>5</value>
    </setting>
    <setting name="BaselineConfiguration" serializeAs="String">
      <value>Auto</value>
    </setting>
    <setting name="BaselineConfigurationOption" serializeAs="String">
      <value>Diff</value>
    </setting>
  </Itron.ChoiceConnect.Adaptor.Settings>
</applicationSettings>
</configuration>
```

**AllowableErrorPercent.** Defines the percent threshold for errors in the import file.

If the percentage of errors is lower than this setting, the .xml files are created and the errors are explained in a log file, and the resulting .xml file can be corrected.

**AllowableDeletePercent.** Defines the percent threshold for records that are missing from the import file compared to the previous import file.

**AllowableChangePercent.** Defines the percent threshold for records that are different in the current import file from the previous import file.

**SystemConfiguration.** Defines the system that the export file is based on. Valid values are:

**All.** The export file will include import options for both ChoiceConnect® Fixed Network and Itron Analytics®.

**FN.** Use this value if the MDI Adaptor exports only to ChoiceConnect® Fixed Network.

**IA.** Use this value if the MDI Adaptor exports only to Itron Analytics®.

**ChoiceConnectOutputDirectory.** The directory path for the resulting .xml files.

When using ChoiceConnect® Fixed Network or Itron Analytics®, specify that this output directory is the same directory as the import directory for these upstream applications.

**ChoiceConnectArchiveDirectory.** The directory path where the .csv files are stored after import.

When a file fails to convert, review the log file in the ChoiceConnectLogDirectory, correct the archive file in this directory, rename the file and resubmit the file to the ChoiceConnectFileWatcherDirectory. For more information, see [Troubleshooting MDI Adaptor](#) on page 7.

**ChoiceConnectLogDirectory.** The directory for log files.

**ChoiceConnectFileWatcherDirectory.** The Input directory.

The FileWatcher service checks this directory every 5 seconds for new import files.

**ChoiceConnectFileWatcherFileMask.** Defines the file type that the MDI Adaptor is watching for in the Input directory. This file type indicates that the MDI Adaptor process will begin. The default value is \*.csv.

It is possible to set this value to another file type. Set this value to the file type that the MDI Adaptor will be consuming.

**ChoiceConnectFileWatchIntervalInSeconds.** Defines the interval (in seconds) before the ChoiceConnectFileSystemWatcher service polls the Input directory for the presence of a .csv file.

**BaselineConfiguration.** The .csv file includes a parameter that determines if the MDI Adaptor generates a baseline or a configuration file. Setting this value to Auto generates both types of files, which ignores the differentiating parameter in the .csv file. Always set this value to **Auto**.

**BaselineConfigurationOption.** Determines the information that is included in the output (.xml) files. When the BaselineConfiguration setting is set to Auto, this setting always defaults to **Diff**, indicating that the output file includes only the differences between the two sets of readings.

The value Full is not supported at this time.

3. Find the logfile target and configure the following settings:

```
<targets>
  <target name="logfile" xsi:type="File" fileName="D:\Itron\MDIAdaptor\Logs\logfile.txt" layout="${longdate} [{level}] {message}"
    archiveFileName="D:\Itron\MDIAdaptor\Logs\logfile.#{}.txt" archiveEvery="Day" archiveNumbering="Rolling"
    maxArchiveFiles="1000" concurrentWrites="true" keepFileOpen="false" />
</targets>
```

**fileName.** Specify the name of the log file with the directory path that you specified under ChoiceConnectLogDirectory.

**archiveFileName.** Specify the name of the log archive file with the directory path that you specified under ChoiceConnectLogDirectory.

## Installing MDI Adaptor

We offer a command file that installs the MDI Adaptor tool. This is the preferred method of installation. In addition, you can install the tool manually. For more information, see:

- [To install the MDI Adaptor using a command file \(recommended\)](#) on page 4.
- [To install the MDI Adaptor and database manually](#) on page 5.

## Using the MDI Adaptor Command File

The command file `_CreateDbInstallStart.cmd` performs the following functions:

- Runs the `_CreateDatabase.sql` script to create the database.
- Runs the execution file `itron.choiceconnect.Adaptor.exe install` to install the MDI Adaptor tool.
- Creates the following MDI Adaptor directories, which are defined in the **Itron.ChoiceConnect.Adaptor.exe.config** file:
  - `C:\Itron\MDIAdaptor\Archive`
  - `C:\Itron\MDIAdaptor\Import`
  - `C:\Itron\MDIAdaptor\Logs`
  - `C:\Itron\MDIAdaptor\Output`
- Starts the Windows service **ChoiceConnectFileSystemWatcher**.

### *To install MDI Adaptor using a command (recommended)*

1. Open a Command Prompt as an administrator.
2. Navigate to `C:\Program Files\Itron\MDIAdaptor`.
3. Type `_CreateDbInstallStart.cmd` and press **Enter**.
4. Wait for the installation to complete. When the installation is complete, the bottom line of the Command Prompt displays the following message:

The ChoiceConnectFileSystemWatcher was started.

```
Administrator: Command Prompt
C:\Program Files\Itron\MDIAdaptor>_CreateDbInstallStart.cmd
C:\Program Files\Itron\MDIAdaptor>SQLCMD -i SQL\CreateDatabase.sql
Changed database context to 'master'.
Creating ChoiceConnectAdaptorDb...
Changed database context to 'ChoiceConnectAdaptorDb'.
Creating [dbo].[CisRecord]...
Creating [dbo].[CisRecord].[FK_CisRecord_ServicePointId]...
Creating [dbo].[DeviceType]...
Creating [dbo].[DecodeType]...
Creating unnamed constraint on [dbo].[CisRecord]...
Creating unnamed constraint on [dbo].[CisRecord]...
Creating unnamed constraint on [dbo].[CisRecord]...
Creating unnamed constraint on [dbo].[DeviceType]...
Creating unnamed constraint on [dbo].[DecodeType]...
Creating unnamed constraint on [dbo].[DecodeType]...
Creating unnamed constraint on [dbo].[DecodeType]...
Creating [dbo].[FK_DecodeType_DeviceTypeKey]...
Creating [dbo].[Trigger_CisRecord_ForUpdate]...
Creating [dbo].[Trigger_DeviceType_ForUpdate]...
Creating [dbo].[Trigger_DecodeType_ForUpdate]...
Update complete.

(1 rows affected)

(1 rows affected)

C:\Program Files\Itron\MDIAdaptor>Itron.ChoiceConnect.Adaptor.exe install
Configuration Result:
[Success] Name ChoiceConnectFileSystemWatcher
[Success] DisplayName Choice Connect File System Watcher
[Success] Description Watches for Choice Connect CIS files and acts upon them.
[Success] ServiceName ChoiceConnectFileSystemWatcher
Topshelf v3.1.122.0, .NET Framework v4.0.30319.18444

Running a transacted installation.

Beginning the Install phase of the installation.
Installing Choice Connect File System Watcher service
Installing service ChoiceConnectFileSystemWatcher...
Service ChoiceConnectFileSystemWatcher has been successfully installed.
Creating EventLog source ChoiceConnectFileSystemWatcher in log Application...

The Install phase completed successfully, and the Commit phase is beginning.

The Commit phase completed successfully.

The transacted install has completed.

C:\Program Files\Itron\MDIAdaptor>Itron.ChoiceConnect.Adaptor.exe start
Configuration Result:
[Success] Name ChoiceConnectFileSystemWatcher
[Success] DisplayName Choice Connect File System Watcher
[Success] Description Watches for Choice Connect CIS files and acts upon them.
[Success] ServiceName ChoiceConnectFileSystemWatcher
Topshelf v3.1.122.0, .NET Framework v4.0.30319.18444
The ChoiceConnectFileSystemWatcher service was started.
```

### **To install the MDI Adaptor and database manually**

1. Open a Command Prompt.
2. Navigate to C:\Program Files\Itron\MDIAdaptor
3. Type  
itron.choiceconnect.Adaptor.exe install
4. Wait for the installation to complete. When the installation is complete, the bottom line of Command Prompt displays the following message:  
The transacted install has completed.
5. Navigate to C:\Program Files\Itron\MDIAdaptor\SQL and run the file  
\_CreateDatabase.sql.

## **Starting and Stopping the ChoiceConnect Service**

The Windows service ChoiceConnectFileSystemWatcher converts the .csv files to .xml files. Once MDI Adaptor is installed, you can find this service listed under the Windows Services directory.

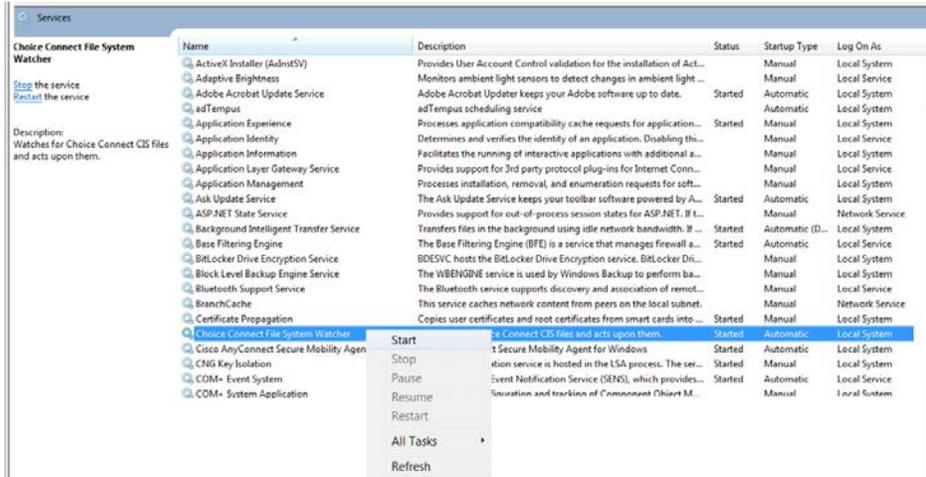
The service verifies that an Input folder, a Log folder, and eventually an Archive folder exist. If these folders do not exist, ChoiceConnectFileSystemWatcher creates the folders based on your configuration settings. For more information, see [Configuring MDI Adaptor](#) on page 2.



**Note** The command file installation creates the database, installs the MDI Adaptor, and starts the Windows service ChoiceConnectFileSystemWatcher. This section is for users who do not use the command file installation.

### To start the service manually

1. Go to **Control Panel > Administrative Tools > Services** and right-click **ChoiceConnectFileSystemWatcher**.
2. Select **Start**.



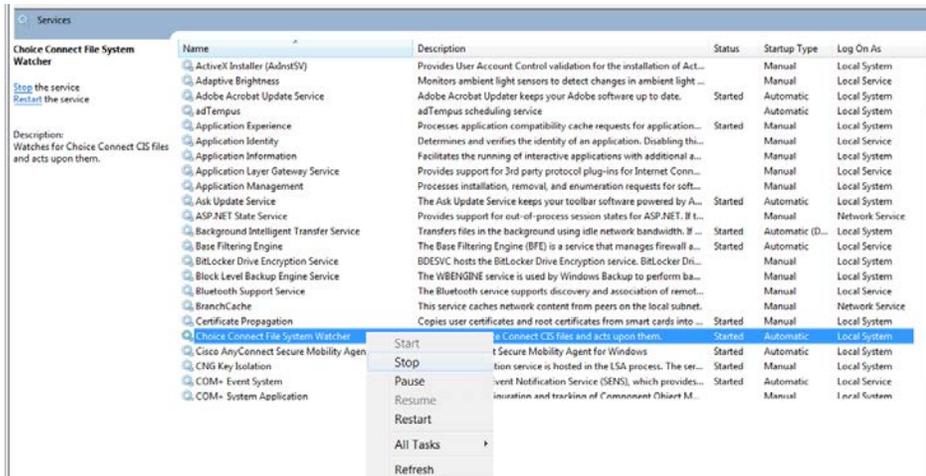
Or, at a command prompt, from within the MDIAdaptor directory, type:

```
itron.choiceconnect.Adaptor.exe start
```

```
C:\Itron\MDIAdaptor>Itron.ChoiceConnect.Adaptor.exe start
Configuration Result:
[Success] Name ChoiceConnectFileSystemWatcher
[Success] DisplayName Choice Connect File System Watcher
[Success] Description Watches for Choice Connect CIS files and acts upon them.
[Success] ServiceName ChoiceConnectFileSystemWatcher
TopsheIf v3.1.122.0, .NET Framework v4.0.30319.34209
The ChoiceConnectFileSystemWatcher service was started.
```

### To stop the service manually

1. Go to **Control Panel > Administrative Tools > Services** and right-click **ChoiceConnectFileSystemWatcher**.
2. Select **Stop**.



Or, at a command prompt, from within the MDIAdaptor directory, type:

```
itron.ChoiceConnect.Adaptor.exe stop
```

```
C:\Itron\MDIAdaptor>Itron.ChoiceConnect.Adaptor.exe stop
Configuration Result:
[Success] Name ChoiceConnectFileSystemWatcher
[Success] DisplayName Choice Connect File System Watcher
[Success] Description Matches for Choice Connect CIS files and acts upon them.
[Success] ServiceName ChoiceConnectFileSystemWatcher
Topshelf v3.1.122.0, .NET Framework v4.0.30319.34209
The ChoiceConnectFileSystemWatcher service was stopped.
```

## Troubleshooting MDI Adaptor

The success of the MDI Adaptor conversion is largely dependent on the configuration setting values defined for each Allowable Percent threshold. If the information in the input file exceeds one or more allowable thresholds, the conversion process fails.

Upon failure, the .csv file remains in the Archive folder and one or more error messages are written to the Log folder.

### *To troubleshoot a file conversion failure*

1. From the Log directory, open the log file to determine the cause of the failure.

```
Filename: C:\Itron\MDIAdaptor\Input\6_RemoveErt_UseCase.csv
File Configuration: All
Total Records: 33
Deleted Records: 0
=====
[Error]|2015-01-30T16:53:22|Row 29: Required value was not supplied for DeviceId.
Reason: Required if not Baseline|
```

2. From the Archive directory, copy the archive file, moving the copy out of the Archive directory.

---

**Note** The file extension of the archive file is the archive date.

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3. Make the necessary corrections to the copied archive file.
4. Rename the copied archive file, changing the file extension to .csv.
5. Resubmit the file to the Input directory.

---

**Note** The date of archive is appended to the .csv archive file. To resubmit this file, you must change the file extension back to .csv.

---

### *To troubleshoot a database communication error*

1. From Windows Explorer, navigate to C:\Program Files\Itron\MDIAdaptor
2. Open the **Connections.config** file.  
This file defines the location of the database server.

---

**Note** If you are using your local database server, the default values will be accurate.

---

3. Verify that the correct server name is defined.

The following illustration is an example of the Connections.config file.

```
1 <?xml version="1.0" encoding="utf-8"?>
2 <configuration>
3   <configSections>
4     <section name="nlog" type="NLog.Config.ConfigSectionHandler, NLog" />
5     <!-- For more information on Entity Framework configuration, visit http://go.microsoft.com/fwlink/?LinkID=23746
6     <section name="entityFramework" type="System.Data.Entity.Internal.ConfigFile.EntityFrameworkSection, EntityFram
7     <!-- For more information on Entity Framework configuration, visit http://go.microsoft.com/fwlink/?LinkID=23746
8     <sectionGroup name="applicationSettings" type="System.Configuration.ApplicationSettingsGroup, System, Version=4
9     <section name="Itron.ChoiceConnect.Adaptor.Settings" type="System.Configuration.ClientSettingsSection, System
10    </sectionGroup>
11  </configSections>
12  <startup>
13    <supportedRuntime version="v4.0" sku=".NETFramework,Version=v4.5" />
14  </startup>
15  <entityFramework>
16    <defaultConnectionFactory type="System.Data.Entity.Infrastructure.LocalDbConnectionFactory, EntityFramework">
17      <parameters>
18        <parameter value="mssqllocaldb" />
19      </parameters>
20    </defaultConnectionFactory>
21    <providers>
22      <provider invariantName="System.Data.SqlClient" type="System.Data.Entity.SqlServer.SqlProviderServices, Entit
23    </providers>
24  </entityFramework>
25  <connectionStrings configSource="connections.config"/>
26  <nlog xmlns="http://www.nlog-project.org/schemas/NLog.xsd" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance
27    <targets>
28      <target name="logfile" xsi:type="File" fileName="C:\Itron\MDIAdaptor\Logs\logfile.txt" layout="{longdate}
29    </targets>
```

## Uninstalling MDI Adaptor

1. Open a Command Prompt as an administrator.
2. Navigate to C:\Program Files\Itron\MDIAdaptor.
3. Type

`_StopUninstall.cmd`

Upon completion, the MDI Adaptor indicates a successful uninstall.

The MDI Adaptor tool and the ChoiceConnectFileSystemWatcher service have been removed.

```
C:\Program Files\Itron\MDIAdaptor>Itron.ChoiceConnect.Adaptor.exe stop
Configuration Result:
[Success] Name ChoiceConnectFileSystemWatcher
[Success] DisplayName Choice Connect File System Watcher
[Success] Description Watches for Choice Connect CIS files and acts upon them.
[Success] ServiceName ChoiceConnectFileSystemWatcher
Topshelf v3.1.122.0, .NET Framework v4.0.30319.18444
The ChoiceConnectFileSystemWatcher service was stopped.

C:\Program Files\Itron\MDIAdaptor>Itron.ChoiceConnect.Adaptor.exe uninstall
Configuration Result:
[Success] Name ChoiceConnectFileSystemWatcher
[Success] DisplayName Choice Connect File System Watcher
[Success] Description Watches for Choice Connect CIS files and acts upon them.
[Success] ServiceName ChoiceConnectFileSystemWatcher
Topshelf v3.1.122.0, .NET Framework v4.0.30319.18444

The uninstall is beginning.
Uninstalling ChoiceConnectFileSystemWatcher service
Removing EventLog source ChoiceConnectFileSystemWatcher.
Service ChoiceConnectFileSystemWatcher is being removed from the system...
Service ChoiceConnectFileSystemWatcher was successfully removed from the system.

The uninstall has completed.
```

**Note** You will need to delete the database manually.

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