



COMTRADE File Collector (CFC)

Version 3.0

User Guide

SOFTSTUF INC.

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SOFTWARE STRUCTURE FOR UNLIMITED FUNCTIONALITY

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CHAPTER 1

System Requirements and Installation

This chapter lists the system requirements and installation instructions needed to download and run the COMTRADE File Collector (CFC) software.

System Requirements

- Windows 7 or 10
- 1.7 MB of available memory
- 4 MB of available RAM
- Notepad, or Notepad++

Download and Install from the Web

1. To download and install the software go to www.faultnet.com
2. Click on the link that reads, "COMTRADE File Collector (CFC)".
3. Enter the username and password provided to you by Softstuf. The username and password are case sensitive.
4. Click on the software link to download the software.
5. When you download the software click on the show in folder option, this should save a zip file to your download's directory.
6. Create a folder off the root called C:\CFC, take the contents of the zip file and unzip them to this folder.

CHAPTER 2

Application Purpose and Use

This chapter describes the purpose of the software and gives a detailed tutorial on how to use the software.

Software Purpose

The purpose of the COMTRADE File Collector (CFC) software is to extract files from digital fault recorders (DFRs), and digital relays that use the file transfer protocol (FTP and FTPS), the SSH file transfer protocol (SFTP), the IEC 61850 manufacturing message specification file service (MMS), or the XMODEM data transfer protocol. The application is designed specifically for the download and renaming of COMTRADE records although it can still be used to download and rename non-COMTRADE files. The extracted files will be saved to a folder specified by the user and renamed to be compliant with the COMNAME standard.

CFC User Interface

The CFC User Interface is a GUI which allows the user to easily specify which devices to collect files from, track the applications progress when collecting files, and check for errors in COMTRADE records. For more information on using the User Interface please see the “CFC User Interface User Guide” which comes included with any download of the CFC software.

Task File

The task file (TaskFile.INI) is how the software knows what devices to extract files from, how to rename those files, and what directory to save those files in. The task file can be created by using the CFC User Interface or through notepad. This file is created by the user and must contain the following fields in the following order.

1. Transfer protocol field. (Options: FTP, MMS, SFTP, FTPS, BE1)
2. The IP address of the device to extract from.
3. The port number of the device.
4. The time code the record was created in.
5. The name of the substation.
6. The name of the device.
7. The name of the utility that owns the substation.
8. The directory that the records will be saved to.
9. The remote directories the user would like to extract files from, separated by pipes “|”. For an FTP connection please list the name of the directory with no slashes before or after. For an MMS connection please list the name of the directory with the appropriate

- slashes.* For example, if the user wanted to extract files from multiple remote directories using FTP this field would read: directory1|directory2|directory3
10. The time tag of the oldest file the user wants extracted (no records that occurred before this time tag will be extracted) This time needs to be listed in the following format:
MM\DD\YYYY HH:MM:SS
 11. The file extensions the user wants extracted from the device, separated by pipes "|". A star "*" can be used to download all files. For example, if the user only wants COMTRADE records to be extracted this field would read: CFG|DAT|HDR|INF
 12. Naming Standard files will be renamed to comply with (options: IEEE – COMNAME, CLNS – Chilean Naming Standard)
 13. Download Date and Time Option, allows the user to choose between using a COMTRADE CFG files trigger time or determine if the file should be downloaded, or the file's save date and time provided by the relay. Using the CFG file's trigger time guarantees accuracy down to the millisecond but takes longer to poll relays. Using the file's save and date time provided by the relay may not be as accurate but will poll relays much faster. This feature has been added for all connection types. (options: TRIG – Trigger time, SAVE – file save and date time provided by the relay).
 14. (Only used for FTP, FTPS, or SFTP Connections) The device username.
 15. (Only used for FTP, FTPS, or SFTP Connections) The device password.
 16. (Only used for FTP or FTPS Connections, Optional) The port number to connect via TCP.
 17. (Only used for FTP or FTPS Connections, Optional) The username to connect via TCP.
 18. (Only used for FTP or FTPS Connections, Optional) The password to connect via TCP.

* - for MMS devices there is no consistency with how forward slashes are used. Some devices return the directory listing when the path is listed like this: "/remotePath". Others require paths to be listed like this: "/remotePath/", for this reason the user must enter the appropriate forward slashes in the task file.

The 14th and 15th fields only need to be filled in for a device that is using FTP. For MMS devices these fields can be left empty.

Example Task File:

```

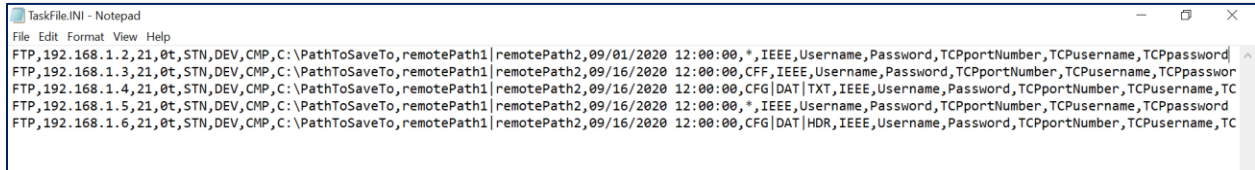
TaskFile.INI - Notepad
File Edit Format View Help
MMS,192.168.1.2,102,0t,STN,DEV,CMP,C:\PathToSaveTo,/remotePath1/|/remotePath2/,09/16/2020 12:00:00,CFG|DAT|HDR|INF,IEEE
FTP,192.168.1.3,21,0t,STN,DEV,CMP,C:\PathToSaveTo,remotePath1|remotePath2,09/16/2020 12:00:00,CFG,IEEE,Username,Password
FTP,192.168.1.4,21,0t,STN,DEV,CMP,C:\PathToSaveTo,remotePath1|remotePath2,09/16/2020 12:00:00,CFG|DAT|TXT,IEEE,Username,Password
FTP,192.168.1.5,21,0t,STN,DEV,CMP,C:\PathToSaveTo,remotePath1|remotePath2,09/16/2020 12:00:00,*,IEEE,Username,Password
SFTP,192.168.1.6,22,0t,STN,DEV,CMP,C:\PathToSaveTo,remotePath1|remotePath2,09/16/2020 12:00:00,CFG|DAT|HDR,IEEE,Username,Password

```

Optional Fields

The optional 16th, 17th, and 18th fields can be included to connect to a device via TCP prior to connecting via FTP or FTPS. This TCP connection is established to get the time the latest event

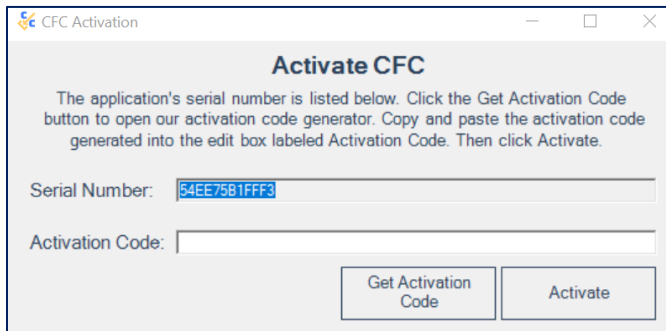
file was created. This time will then be compared to the time in the task file, if the time in the task file is not greater than the time provided by the TCP connection the application will not attempt to connect to the device via FTP. This functionality has been added to prevent excessive level two access errors when connecting to SEL devices via FTP. The optional 15th, 17th, and 18th fields will only work with SEL relays, please do not include these fields for any non SEL devices. Example Task File (with Optional Fields):



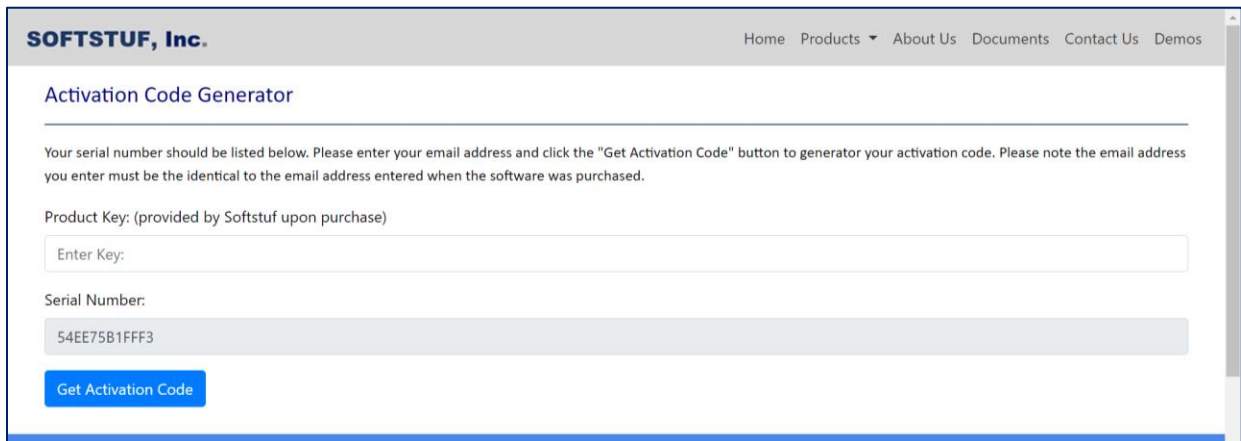
```
TaskFile.INI - Notepad
File Edit Format View Help
FTP,192.168.1.2,21,0t,STN,DEV,CMP,C:\PathToSaveTo,remotePath1|remotePath2,09/01/2020 12:00:00,*,IEEE,Username,Password,TCPortNumber,TCUsername,TCPassword
FTP,192.168.1.3,21,0t,STN,DEV,CMP,C:\PathToSaveTo,remotePath1|remotePath2,09/16/2020 12:00:00,CFF,IEEE,Username,Password,TCPortNumber,TCUsername,TCPassword
FTP,192.168.1.4,21,0t,STN,DEV,CMP,C:\PathToSaveTo,remotePath1|remotePath2,09/16/2020 12:00:00,CFG|DAT|TXT,IEEE,Username,Password,TCPortNumber,TCUsername,TC
FTP,192.168.1.5,21,0t,STN,DEV,CMP,C:\PathToSaveTo,remotePath1|remotePath2,09/16/2020 12:00:00,*,IEEE,Username,Password,TCPortNumber,TCUsername,TCPassword
FTP,192.168.1.6,21,0t,STN,DEV,CMP,C:\PathToSaveTo,remotePath1|remotePath2,09/16/2020 12:00:00,CFG|DAT|HDR,IEEE,Username,Password,TCPortNumber,TCUsername,TC
```

Activating the Software

To use CFC the application must first be activated. To activate CFC first run the application, when the application is run for the first time the following dialog box will appear:

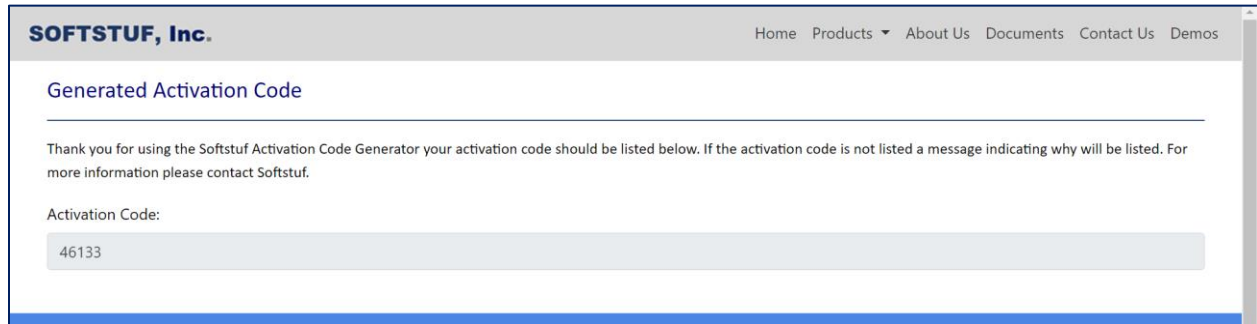


To generate the activation code, click the “Get Activation Code” button, this will take the user to our Activation Code Generator webpage.



The serial number which ties the application to one machine will be automatically populated, to generate the activation code enter the Product Key provided by Softstuf and click the “Get

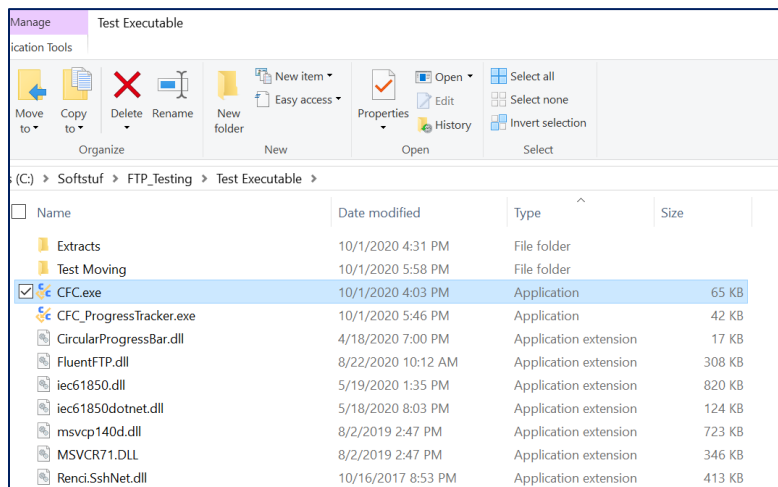
Activation Code” button. This will take you to a new page where the activation code will be listed.



Copy the activation code from here and paste it in the “Activation Code:” textbox on the “Activate CFC” dialog box, after this click the “Activate” button to activate the software.

Running the Software

This software is designed for automated use and can be ran from the Windows scheduler or third-party software such as AlwaysUp. To run the software manually please double click on the EXE file titled “CFC.exe”.



Downloading and Renaming Files

Depending on the download option selected in the task file the application handles the process of downloading and renaming files differently for COMTRADE and non-COMTRADE files.

If the TRIG option is selected, when attempting to download COMTRADE records the application will download a CFG file, check its trigger time, then determine whether the rest of the record should be downloaded and renamed. If the trigger time is older than the time listed in the task file the CFG file will be deleted. For non-COMTRADE files the time saved in the task

file will be compared to the file's last modified time received from the server. If the last modified time is older than the time listed in the task file it will not be downloaded.

If the SAVE option is selected the file's last modified time received from the server will be used to determine the download of both COMTRADE and non-COMTRADE files.

The application will also extract and rename the contents of all downloaded zip files.

FTPS Connections

When making an FTPS connection please ensure that the "TLS Session Resumption" setting is unchecked on the device CFC is attempting to connect with. This setting is not supported by the Windows .NET platform which this application is built off. This is currently an open issue with the Windows .NET development team, which hopefully will be resolved as soon as possible.

XMODEM Connections

XMODEM connections unlike FTP, MMS, SFTP, and FTPS connections cannot be used generically to download records from different types of relays. XMODEM connections need to make use of proprietary commands to access COMTRADE records, therefore the task file is filled in differently for XMODEM connections.

Currently CFC supports the use of XMODEM for Basler BE1 relays, via ethernet only. CFC cannot connect via serial. To create a XMODEM connection to a Basler BE1 use the information listed below.

- BE1 is used in the transfer protocol field
- The remote path field must be left blank
- The only extensions allowed in the extension list field are CFG, DAT, and HDR
- The username field is left blank, only a password is needed to login to a Basler BE1
- The download option field must always be set to SAVE, XMODEM is too slow to use the TRIG setting

Activity Log

While the software is running an activity log will be updated informing the user of the software's activity. An example of an Activity Log is shown below.


```
*ActivityLog.txt - Notepad
File Edit Format View Help
Successfully connected to: 192.168.1.2:102
Successfully received file listing for: 192.168.1.2:102/COMTRADE/
/COMTRADE/HR_10046.CFG file is older than the time specified in the task file, this file will not be downloaded.
/COMTRADE/HR_10047.CFG file is older than the time specified in the task file, this file will not be downloaded.
/COMTRADE/HR_10048.CFG file is older than the time specified in the task file, this file will not be downloaded.
/COMTRADE/HR_10049.CFG file is older than the time specified in the task file, this file will not be downloaded.
/COMTRADE/HR_10050.CFG file is older than the time specified in the task file, this file will not be downloaded.
/COMTRADE/HR_10051.CFG file is older than the time specified in the task file, this file will not be downloaded.
/COMTRADE/HR_10052.CFG file is older than the time specified in the task file, this file will not be downloaded.
/COMTRADE/HR_10053.CFG file is older than the time specified in the task file, this file will not be downloaded.
/COMTRADE/HR_10054.CFG file is older than the time specified in the task file, this file will not be downloaded.
/COMTRADE/HR_10055.CFG file is older than the time specified in the task file, this file will not be downloaded.
Successfully downloaded: C:\Users\Zach Makki\Documents\Visual Studio 2017\Projects\FTP_FileExtractionTool\bin\Debug\Test_Moving\HR_10056.CFG
Successfully downloaded: C:\Users\Zach Makki\Documents\Visual Studio 2017\Projects\FTP_FileExtractionTool\bin\Debug\Test_Moving\HR_10056.DAT
Successfully downloaded: C:\Users\Zach Makki\Documents\Visual Studio 2017\Projects\FTP_FileExtractionTool\bin\Debug\Test_Moving\HR_10057.CFG
Successfully downloaded: C:\Users\Zach Makki\Documents\Visual Studio 2017\Projects\FTP_FileExtractionTool\bin\Debug\Test_Moving\HR_10057.DAT
Successfully downloaded: C:\Users\Zach Makki\Documents\Visual Studio 2017\Projects\FTP_FileExtractionTool\bin\Debug\Test_Moving\HR_10058.CFG
Successfully downloaded: C:\Users\Zach Makki\Documents\Visual Studio 2017\Projects\FTP_FileExtractionTool\bin\Debug\Test_Moving\HR_10058.DAT
6 total files downloaded

Successfully connected to: ftp://66.96.147.160/cff_path
01_LEFT_SIDE_REL670.CFF adding to download list.
130424,1630000,Manual,1PMUALL45TAGS_10sec,BIN.CFF adding to download list.
140820,214729354000,,MOS2 853 R,MOS1 854R,,ER TRIGGER.CFF adding to download list.
Successfully downloaded: 01_LEFT_SIDE_REL670.CFF
Successfully downloaded: 130424,1630000,Manual,1PMUALL45TAGS_10sec,BIN.CFF
Successfully downloaded: 140820,214729354000,,MOS2 853 R,MOS1 854R,,ER TRIGGER.CFF
3 total files downloaded

Successfully connected to: ftp://66.96.147.160/Comtrade-Files
030405,180831806,-5,T4MET-ACCA,,SOFTSTUF,,,.CFG adding to download list.
030405,180932223,-5,T4MET-ACCA,,SOFTSTUF,,,.CFG adding to download list.
030405,180831806,-5,T4MET-ACCA,,SOFTSTUF,,,.DAT adding to download list.
```

Task File Upon Completion

Once the software has finished extracting, renaming, and moving records the time field in the task file will be updated to reflect the latest file downloaded from that device.

CHAPTER 3

Contact Information and Technical Support

Technical Support

If you have any questions about the software please contact Zach Makki, Monday through Friday between 9 AM and 6 PM.

Phone Number: (609) - 335 - 2007

Email: zach@softstuf.com