



DER Common File Format & Validation Tool

Central Hudson Solar+ Summit



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Agenda

- DER settings file overview
- Discuss adoption by the industry
- Validation tool
- Working group
- Q&A



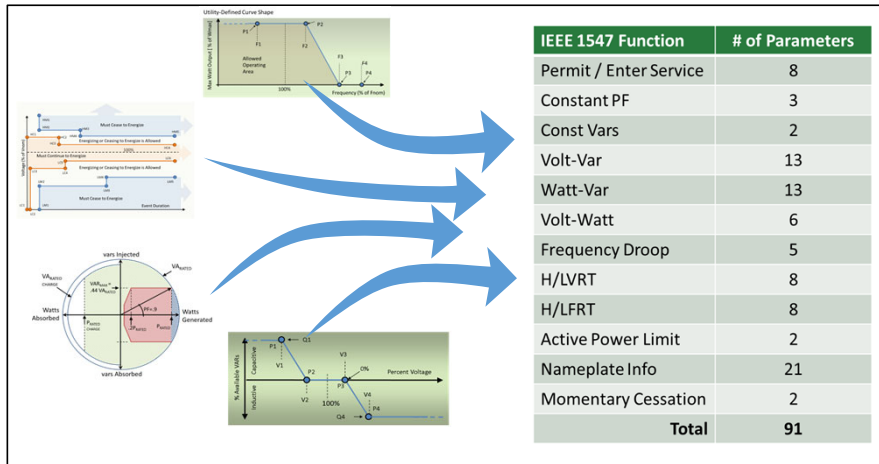
Why a Standard Exchange Format?

- Utilities are starting to specify more complex DER settings
- DER continues to grow rapidly in NY and elsewhere
- Importance of settings is growing to overall grid
- Existing practices for exchange are immature
- IEEE 1547-2018 defines a LOT of parameters!
- This screams standardization!

Goal to Simplify DER Settings Exchange

What is a Settings “File”?

Settings



Metadata

- What types of DER does this file apply to?
- What sizes does it apply to?
- What utility generated this file?
- To what geographical region does it apply?
- Which DER did this come from?
- What street address?
- When?

Settings

Things that can
be read/written
to the DER

+

“Metadata”

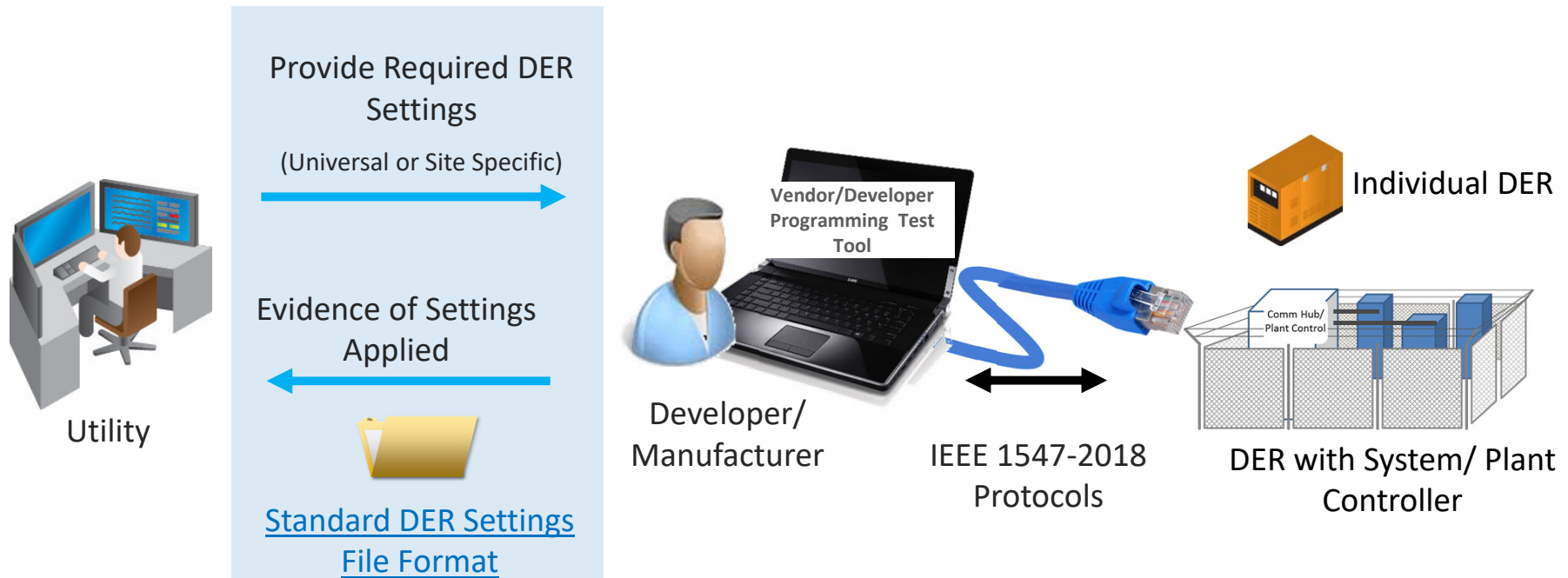
Standard Format



**DER
Developers
/Owners**



Standard DER Settings File: Primary Usage



Two use cases:

1. Utilities publish required settings, universal and/or site specific
2. Developers provide evidence back to utilities

A Consensus File Format was Developed

- Originated in IEEE 1547-2018 process
- 17 utilities, EPRI multi-member project
- Open Industry Working Group throughout 2020
- Consensus achieved in Fall 2020
- Spec (v1.0) published in December 2020
- Revised spec (v2.0) published in September 2022
- References introduced in IEEE 1547.2



***Initiated during IEEE 1547-2018,
EPRI to provide consensus spec***

Common File Format Highlights

- See the working specification for technical details:
 - [Common File Format for Distributed Energy Resources Settings Exchange and Storage](https://www.epri.com/research/products/000000003002025445)
- Simple, human readable, CSV format
 - Leveraging IEEE 1547.1
- Two columns: Parameter label and value
- Consistent labeling convention
- Clearly defined value formatting

PARAMETER	VALUE
ES_PERMIT_SERVICE-SS	DISABLED
ES_V_LOW-SS	1
ES_V_HIGH-SS	1.1
ES_F_LOW-SS	59.3

EPRI

Common File Format for DER Settings Exchange and Storage
Version 2.0

Common File Format for DER Settings Exchange and Storage: Version 2.0

Details

Product ID	Date Published	Pages	Document Type
3002025445	Sep 21, 2022	60	Technical Update

Abstract

This document defines a common file format for the exchange and storage of configuration settings for distributed energy resources (DER). This file format has several potential uses, including how utilities express required DER default settings to developers, how DER developers provide evidence of as-programmed settings back to the utility, and how utilities store and track the settings of DER throughout their systems.

To the extent possible, this common file definition utilizes the parameter attributes from the IEEE 1547.1-2020 standard, including the unique parameter labels, data types, units, and possible value options. This document dictates how these parameters and their values are expressed and formatted in a common file format so that its contents can be handled electronically or otherwise interpreted and applied without ambiguity. The file format was

No Charge

This Product is publicly available

Keywords

Configuration DER IEEE 1547 Settings Common file format

Notes

For further information about EPRI, call the EPRI Customer Assistance Center at (800) 313-3774 or email askepri@epri.com.

DOWNLOAD: PDF (867.46 KB)

<https://www.epri.com/research/products/000000003002025445>

Software Tool

DER Settings File Creator

EPRI | ELECTRIC POWER RESEARCH INSTITUTE

Optional: Open an Existing DER Settings File as a Starting Point

File Name:

Select Normal Category

☐ Category A
☐ Category B
☒ Not Specified

Select Abnormal Category

☐ Category I
☐ Category II
☐ Category III
☒ Not Specified

Select Var Function

☐ Constant Power Factor
☐ Constant Var
☐ Volt-Var
☐ Watt-Var
☒ No Var

Select a row, then press 'Enter' or double-click on the 'Value' column to edit it. Press 'Delete' to delete values

Parameter	Units	Value (Editable)	Min	Max
Nameplate information				
Maximum active power parameters				
AP_LIMIT_ENABLE				
AP_LIMIT	P p.u.		0.0	1.0
Enter service after trip parameters				
ES_PERMIT_SERVICE				
ES_V_LOW	V p.u.		0.88	0.95
ES_V_HIGH	V p.u.		1.05	1.06
ES_F_LOW	Hz		59.0	59.9
ES_F_HIGH	Hz		60.1	61.0
ES_DELAY	s		0	600
ES_RANDOMIZED_DELAY	s		0	1000
ES_RAMP_RATE	s		0	1000
Constant power factor mode parameters				
Constant reactive power mode parameters				
Voltage-reactive power mode parameters				
Active power-reactive power mode parameters				
Voltage-active power mode parameters				

More... ▾

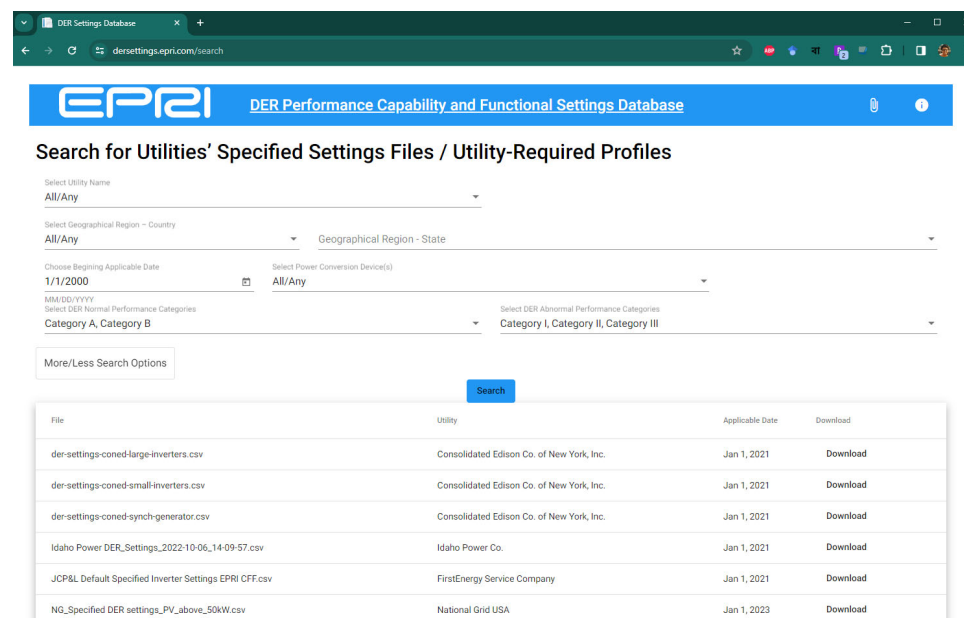
- Create DER settings files
 - Create in standard format
 - Error-free file creation
 - The tool follows the rules to create a CSV file
 - By default, it creates SS files but can also create AS files
 - Assess the format of existing files
- Compare two CSV files in the standard format

<https://www.epri.com/research/products/000000003002028567>

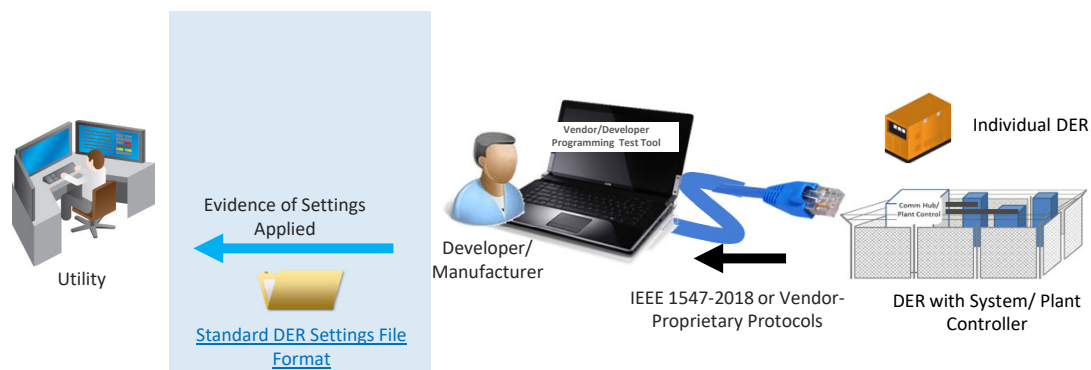
Easy Creation & Verification of DER Settings Files

Common Repository for DER Settings Files

- dersettings.epri.com
- Only authorized utility personnel can upload
- Anyone can search and download
 - One-stop-shop for DER developers and other stakeholders
- Gaining popularity
 - All major NY utilities
 - Mandate by the state of NM
 - Several other utilities have started utilizing



Recommended Developer Actions



SS is what utility specifies
AS is what installer has already applied

- Understand the common file format, both Specified Settings(SS) and Applied Settings(AS) files - <https://www.epri.com/research/products/000000003002025445>
- Understand the meaning of each parameter and approach to apply settings
 - One time investment because many utilities are publishing their required DER settings in CFF.
- If available, use software tool(s) to automatically configure a DER using (SS) file(s) <https://www.epri.com/research/products/000000003002028567>
- Generates (AS) file(s) that follows CFF
- Send AS file(s) to utilities or post them on a website, as proof of DER config

Working Group Recurring Meeting

When?

- Started in February 2024
- Monthly check-ins
- Extra meetings can be arranged if required, in between regular calls

What to Discuss?

- How things are going
 - Any questions/suggestions about the **file format**
 - Any questions/suggestions about the **tool**
 - Track all changes
- Training/demo on the tool if required
- Use as a discussion venue between utilities and developers/manufacturers

COFFEE: Common File Format Engagement & Engineering Club



Questions & Answers



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