



eDART XML Forum

March 6, 2023

- eDART Spring Model Build
- eDART Refresh Update
- March 2023 Enhancements
- Future Enhancements
- Question and Answer

- eDART Advance Spring 2023 Model Build occurred on February 28.
 - [GO and TO Users] Download updated equipment lists in eDART
 - [TO R/W Users] Transmission Tickets can be created or updated with future equipment
 - Equipment List/Complete Descriptions file: <https://edart.pjm.com/reports/equiplist.csv> will be updated on Model Build Date: March 14.



eDART Refresh Update

Retirement of eDART Browserless in Production

- filetransfer.jar was replaced with PJM CLI
- Retirement date ETA Q3/2023
- eDART team available to help as needed
- See [Browserless User Guide](#) for more information

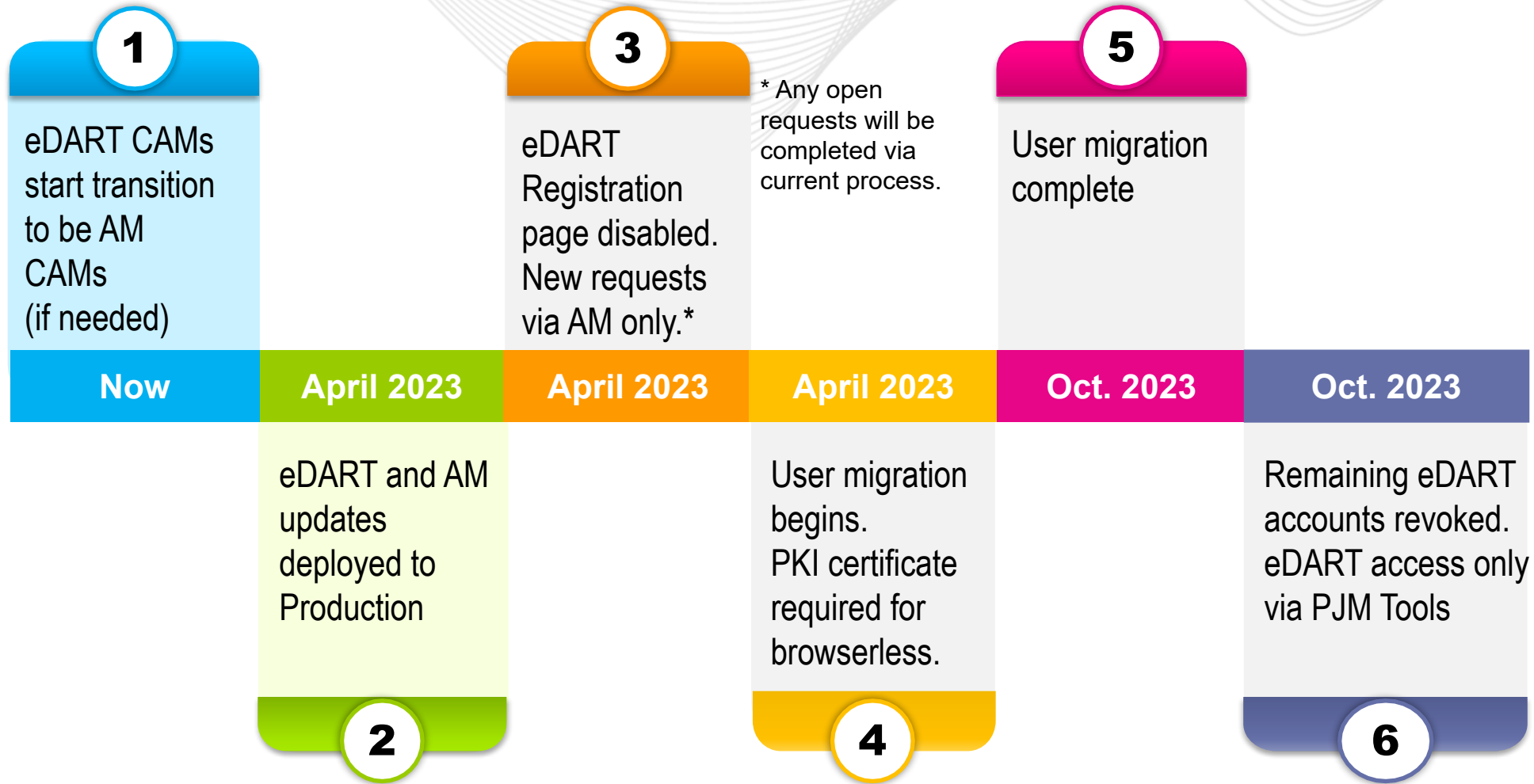
With the ongoing eDART refresh, management of eDART accounts will be handled exclusively in Account Manager (AM):

- New user account creation
- Granting eDART access to existing user accounts
- Password resets
- Unlocking accounts
- Terminating eDART access

In preparation for this effort, during 2022:

- New eDART account requests were also set up with a corresponding account in AM with a matching User ID
- eDART CAMs assisted with clean-up effort:
 - Reviewed and updated existing accounts
 - Identified System Accounts
 - Identified AM User ID (where available)
 - Cleaned up dormant and invalid accounts using [eDART Registration Form](#)

2023 Migration Timeline (Tentative)



Communication will be sent out for each milestone.

- System accounts in Account Manager cannot be used to access the UI.
 - Users will need a separate individual account if UI access is desired.
- eDART Production and eDART Train access will need to be requested and managed separately in Account Manager.
- Special eDART Forum for Account Migration was held on 2/22: click for [meeting presentation](#)



March 2023 Enhancements

Production release of March enhancements scheduled for Wednesday-Thursday, March 29-30, 2023

- eDART unavailability will be announced at least three business days prior
- Train release scheduled for Wednesday, March 15

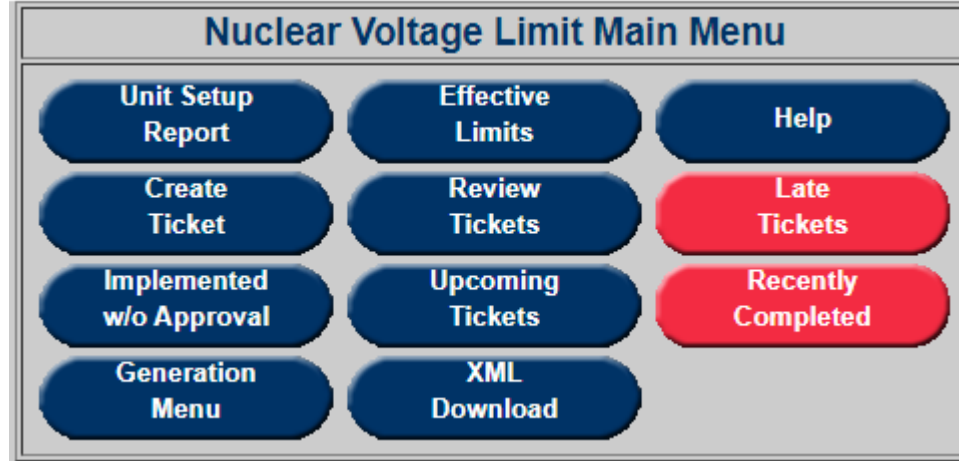
- TERM Ticket downloads
With the 2022 deployment of Dynamic Ratings in eDART, the `<dynamic_flag>` is no longer valid on TERM tickets and is being removed.
- Tag retirement from Transmission Ticket uploads
With 2021 change for PJM to handle update of equipment default status, TO users can no longer edit these fields. The impacted tags are: `<equipment_default>` and `<defaultStatusChangeOnly>`.
An error will be returned if the tags are used.

Nuclear Voltage Limits in eDART - Browserless Interface

[Nuclear Voltage Limits](#) (NVL) tool deployed in eDART (UI only) in January 2020.

Browserless Interface (CLI):

- Uploads for the forms on the UI
 - Available to NGOs only
- Downloads for the reports on the UI
 - Available to NGOs and TOs



eDART UI	Browserless Type	Download Type	Audience
Unit Setup Report	Download	nbvlunitsetup	NGO & TO
Effective Limits	Download	nbvllimits	NGO & TO
Create Ticket	Upload	N/A	NGO
Revise Ticket	Upload	N/A	NGO
Review Tickets	Download	nbvl	NGO & TO
Late Tickets Report	Download	nbvlticketreport <i>(specific reports returned based on parameters and status)</i>	NGO & TO
Implemented w/o Approval Report			
Upcoming Tickets Report			
Recently Completed Report			

Uploads

Types of voltage limit changes:

- New Default: permanent change to the default values
- Scenario: Unit specific pre-approved scenarios (e.g. LTC in manual)
- Unlisted: temporary limits not covered by pre-approved scenarios

Tickets are created on a Unit Bus level so one ticket can have a combination of the above changes including 'No Change'.

`<scenarioType>No Change</scenarioType>`

```

<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<nuclearVoltageLimitTicket xsi:schemaLocation="http://www.pjm.com/external/schemas/nbvl/v1 nbvl.xsd"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <type>Permanent</type>
  <nuclearVoltageID>15</nuclearVoltageID>
  <estStartDateTime>02/20/2024 15:00</estStartDateTime>
  <unitBusLimits>
    <unitBusID>2</unitBusID>
    <scenario>
      <scenarioType>No Change</scenarioType>
    </scenario>
  </unitBusLimits>
  <unitBusLimits>
    <unitBusID>1</unitBusID>
    <scenario>
      <scenarioType>New Default</scenarioType>
    </scenario>
    <adjustedValues>
      <normalMinKv>210</normalMinKv>
      <normalMaxKv>210</normalMaxKv>
      <emergencyMinKv>210</emergencyMinKv>
      <emergencyMaxKv>210</emergencyMaxKv>
      <loadDump>2.0</loadDump>
      <voltageDropViolationPercent>2.5</voltageDropViolationPercent>
    </adjustedValues>
  </unitBusLimits>
  <comments>New Default test 1</comments>
</nuclearVoltageLimitTicket>

```

```
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<nuclearVoltageLimitTicket xsi:schemaLocation="http://www.pjm.com/external/schemas/nbvl/v1 nbvl.xsd"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <type>Temporary</type>
  <nuclearVoltageID>13</nuclearVoltageID>
  <estStartDateTime>06/15/2024 15:00</estStartDateTime>
  <estEndDateTime>06/24/2024 09:00</estEndDateTime>
  <unitBusLimits>
    <unitBusID>18</unitBusID>
    <scenario>
      <scenarioName scenarioId="3">SCENARIO-A</scenarioName>
    </scenario>
  </unitBusLimits>
  <comments>testing only</comments>
</nuclearVoltageLimitTicket>
```

```

<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<nuclearVoltageLimitTicket xsi:schemaLocation="http://www.pjm.com/external/schemas/nbvl/v1 nbvl.xsd"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <type>Temporary</type>
  <nuclearVoltageID>13</nuclearVoltageID>
  <estStartDateTime>03/05/2023 15:00</estStartDateTime>
  <estEndDateTime>03/06/2023 09:00</estEndDateTime>
  <unitBusLimits>
    <unitBusID>18</unitBusID>
    <scenario>
      <scenarioType>Unlisted</scenarioType>
    </scenario>
    <adjustedValues>
      <normalMinKv>3.1</normalMinKv>
      <normalMaxKv>3.1</normalMaxKv>
      <emergencyMinKv>3.1</emergencyMinKv>
      <emergencyMaxKv>3.1</emergencyMaxKv>
      <loadDump>3.1</loadDump>
      <voltageDropViolationPercent>3.1</voltageDropViolationPercent>
    </adjustedValues>
  </unitBusLimits>
  <comments>test- CLI upload</comments>
</nuclearVoltageLimitTicket>

```

```

<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<nuclearVoltageLimitTicket xsi:schemaLocation="http://www.pjm.com/external/schemas/nbvl/v1 nbvl.xsd"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <ticketID>68</ticketID>
  <type>Permanent</type>
  <ticketStatus>Submitted</ticketStatus>
  <nuclearVoltageID>15</nuclearVoltageID>
  <estStartDateTime>03/25/2023 15:00</estStartDateTime>
  <unitBusLimits>
    <unitBusID>1</unitBusID>
    <scenario>
      <scenarioType>New Default</scenarioType>
    </scenario>
    <adjustedValues>
      <normalMinKv>2.77</normalMinKv>
      <normalMaxKv>2</normalMaxKv>
      <emergencyMinKv>2</emergencyMinKv>
      <emergencyMaxKv>2</emergencyMaxKv>
      <loadDump>2</loadDump>
      <voltageDropViolationPercent>5.0</voltageDropViolationPercent>
    </adjustedValues>
  </unitBusLimits>
  <comments>Edited comments, start date and voltage drop violation</comments>
</nuclearVoltageLimitTicket>

```

- Editable fields:
 - Dates
 - Comments
 - Adjusted Values
- If using review ticket for revise upload, note that revise has <nuclearVoltageLimitTickets> one level above <nuclearVoltageLimitTicket> as it can contain a list of tickets.

Data validations

- Normal Min kV \geq Emergency Min kV
- Normal Max kV \leq Emergency Max kV
- Emergency Max kV \geq Load Dump
- Voltage Drop Warning \leq Voltage Drop Violation

The PJM dispatcher will enter the Voltage Drop Warning Percentage when reviewing the ticket.

Files can be attached to the ticket after creation via the web UI.

Downloads

Nuclear Voltage Limit Main Menu

Unit Setup Report	Effective Limits	Help
Create Ticket	Review Tickets	Late Tickets
Implemented w/o Approval	Upcoming Tickets	Recently Completed
Generation Menu	XML Download	

- Pilot to have XML Downloads available via the applicable module instead of the Download UI
- Mimics CLI usage

Nuclear Voltage Limit XML Download

Unit Setup (nbvlunitsetup) <input checked="" type="checkbox"/> Save as a File? Download	
Effective Limits (nbvllimits) id: <input type="text"/> includeHistorical: <input type="checkbox"/> effectiveDate: <input type="text" value="03/06/2023 10:40"/> (mm/dd/yyyy hh:mi)	<input checked="" type="checkbox"/> Save as a File? Download
Tickets (nbvl) id: <input type="text"/> <small>Comma separated list</small> includeAttachments: <input type="checkbox"/>	<input checked="" type="checkbox"/> Save as a File? Download
Ticket Report (nbvlticketreport) id: <input type="text"/> <small>Comma separated list</small> status: <input type="text"/> <small>Comma separated list: (Approved, Cancelled by Company, Completed, Denied, Implemented, Implemented w/o Approval, PJM Admin Closure, Received, Restored, Retired, Revised, Submitted)</small> startDate: <input type="text"/> (mm/dd/yyyy) stopDate: <input type="text"/> (mm/dd/yyyy) permanent: <input checked="" type="checkbox"/> temporary: <input checked="" type="checkbox"/> includeHistorical: <input type="checkbox"/> late: <input type="checkbox"/> upcoming: <input type="checkbox"/> recent: <input type="checkbox"/> showHistory: <input type="checkbox"/>	<input checked="" type="checkbox"/> Save as a File? Download
Back	

NUCLEAR UNIT NGO										
Default/Scenario Name	Station	Voltage	Bus Name Keyword	Norm. Min kV	Norm. Max kV	Emerg. Min kV	Emerg. Max kV	Load Dump	Volt. Drop Warn. %	Volt. Drop Viol. %
Default	STATION	345 KV	TEST	341.4 (P: 344.4)	362.3 (P: 359.3)	341.4	362.3	310.5	7.0	10.0

```
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<nbvl:unitSetUpType xsi:schemaLocation="http://www.pjm.com/external/schemas/nbvl/v1 nbvl.xsd"
xmlns:nbvl="http://www.pjm.com/external/schemas/nbvl/v1" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <message>Default monitored values are displayed on a per voltage level basis.
The PJM specific values are shown in blue and indicated with the letter "P".
In XML download PJM values are shown in the "pjmValue" attribute on the element.
</message>
  <unit>
    <nuclearVoltageID>9</nuclearVoltageID>
    <unitName>NUCLEAR UNIT</unitName>
    <company>NGO</company>
    <unitBus>
      <unitBusID>20</unitBusID>
      <station>STATION</station>
      <voltage>345 KV</voltage>
      <busNameKeyword>TEST</busNameKeyword>
      <scenarios>
        <scenario>
          <scenarioName>Default</scenarioName>
          <normalMinKv pjmvValue="344.4">341.4</normalMinKv>
          <normalMaxKv pjmvValue="359.3">362.3</normalMaxKv>
          <emergencyMinKv>341.4</emergencyMinKv>
          <emergencyMaxKv>362.3</emergencyMaxKv>
          <loadDump>310.5</loadDump>
          <voltageDropWarnPercent>7</voltageDropWarnPercent>
          <voltageDropViolationPercent>10</voltageDropViolationPercent>
        </scenario>
      </scenarios>
    </unitBus>
  </unit>
```

```
<scenario>
  <scenarioName id="5">CLItest1</scenarioName>
  <normalMinKv pjmvValue="301">222.3</normalMinKv>
  <normalMaxKv pjmvValue="333">239</normalMaxKv>
  <emergencyMinKv pjmvValue="300">220</emergencyMinKv>
  <emergencyMaxKv pjmvValue="333">242</emergencyMaxKv>
  <loadDump pjmvValue="300">207</loadDump>
  <voltageDropWarnPercent>3</voltageDropWarnPercent>
  <voltageDropViolationPercent>6</voltageDropViolationPercent>
</scenario>
```

This endpoint will return applicable limits for a chosen date (current and past). It will provide the ticket IDs and user can download the full tickets as needed.

```
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<nbvl:effectiveLimitReportType xsi:schemaLocation="http://www.pjm.com/external/schemas/nbvl/v1 nbvl.xsd"
xmlns:nbvl="http://www.pjm.com/external/schemas/nbvl/v1" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <message>PJM specific values are shown in blue and indicated with the letter "P".
  In XML download PJM values are shown in the "pjmValue" attribute on the element.
</message>
  <effectiveDateTime>03/03/2023 12:44</effectiveDateTime>
  <effectiveLimit>
    <nuclearVoltageID>9</nuclearVoltageID>
    <ticketID>8</ticketID>
    <type>Permanent</type>
    <status>Implemented</status>
    <startDateTime>05/12/2021 11:35</startDateTime>
  </effectiveLimit>
</nbvl:effectiveLimitReportType>
```

Parameter	Type	Notes
id	num	Nuclear Voltage ID
includeHistorical	boolean	Default=no
Effective Date/Time	mm/dd/yyyyhh24:mi	Default is current date/time (use " " if adding space between date and time)



Review Tickets

```
<?xml version="1.0" encoding="UTF-8" standalone="yes" ?>
<nuclearVoltageLimitTickets xsi:schemaLocation="http://www.pjm.com/external/schemas/nbvl/v1_nbvl.xsd"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
```

```
<nuclearVoltageLimitTicket>
  <ticketID>32</ticketID>
  <type>Temporary</type>
  <ticketStatus>Approved</ticketStatus>
  <nuclearVoltageID>15</nuclearVoltageID>
  <estStartDateTime>01/14/2023 15:00</estStartDateTime>
  <estEndDateTime>01/24/2023 09:00</estEndDateTime>
  <unitBusLimits>
    <unitBusID>2</unitBusID>
    <scenario>
      <scenarioType>Unlisted</scenarioType>
    </scenario>
    <defaultValues>
      <normalMinKv>510</normalMinKv>
      <normalMaxKv>535.5</normalMaxKv>
      <emergencyMinKv>505</emergencyMinKv>
      <emergencyMaxKv>540</emergencyMaxKv>
      <loadDump>475</loadDump>
      <voltageDropWarnPercent>1</voltageDropWarnPercent>
      <voltageDropViolationPercent>3.5</voltageDropViolationPercent>
    </defaultValues>
    <currentValues>
      <normalMinKv>510</normalMinKv>
      <normalMaxKv>535.5</normalMaxKv>
      <emergencyMinKv>505</emergencyMinKv>
      <emergencyMaxKv>540</emergencyMaxKv>
      <loadDump>475</loadDump>
      <voltageDropWarnPercent>1</voltageDropWarnPercent>
      <voltageDropViolationPercent>3.5</voltageDropViolationPercent>
    </currentValues>
    <adjustedValues>
      <normalMinKv pjmvValue="10.011">16</normalMinKv>
      <normalMaxKv pjmvValue="4">14</normalMaxKv>
      <emergencyMinKv pjmvValue="8">15</emergencyMinKv>
      <emergencyMaxKv pjmvValue="6">16</emergencyMaxKv>
      <loadDump pjmvValue="7">10</loadDump>
      <voltageDropWarnPercent>12</voltageDropWarnPercent>
      <voltageDropViolationPercent>18</voltageDropViolationPercent>
    </adjustedValues>
  </unitBusLimits>
  <comments>test1</comments>
  <pjmComments>revised</pjmComments>
  <fileCount>0</fileCount>
</nuclearVoltageLimitTicket>
</nuclearVoltageLimitTickets>
```

Nuclear Voltage Limit Ticket Review

Ticket ID: 32 Company: Unit: Ticket Type: Temporary Status: Approved

Default limits represent the base limits PJM and the TO will operate to during normal station configuration.
Current limits represent the limits PJM and the TO are currently monitoring for. Adjusted limits show the limits associated with selected change.
PJM specific values are shown in blue and indicated with the letter "P".
In XML download PJM values are shown in the "pjmValue" attribute on the element.

Station	Voltage	Bus Name Keyword	Scenario	Type	Norm. Min kV	Norm. Max kV	Emerg. Min kV	Emerg. Max kV	Load Dump	Volt. Drop Warn. %	Volt. Drop Viol. %
	500 KV		Unlisted	Default	510.0	535.5	505.0	540.0	475.0	1.0	3.5
				Current	510.0	535.5	505.0	540.0	475.0	1.0	3.5
				Adjusted	16.0 (P: 10.011)	14.0 (P: 4.0)	15.0 (P: 8.0)	16.0 (P: 6.0)	10.0 (P: 7.0)	12.0	18.0

Est. Start Date: 01/14/2023 15:00
 Est. End Date: 01/24/2023 09:00

GO Comments: test1

PJM Comments: revised

Help Refresh History Log Files(0) Back Main Menu

Parameter	Type	Notes
id	num	Ticket ID
includeAttachments	boolean	Default=false

Users can download existing file attachments associated with one or more tickets.

- Set `includeAttachments=true`
- The attachments will be returned in a zip file when downloaded.
- The ticket will also be included in the zip file as 'ticket_###.xml'.
= ticket ID

Download will return list of tickets and high-level ticket information.

Parameter	Type	Notes
id (Nuclear Voltage ID)	num	
permanent (Permanent Tickets)	boolean	Default = yes
temporary (Temporary Tickets)	boolean	Default = yes
includeHistorical (Include Historical)	boolean	Default = false
status (Status)	name	Comma separated list (use "" if status has space)
late (Late Tickets - tickets that should be started but are not)	boolean	Default = no
upcoming (Upcoming Tickets - tickets active within the next 7 days)	boolean	Default = no
recent (Recent Tickets - tickets completed within the last 7 days)	boolean	Default = no
start (From Date)	mm/dd/yyyy	
stop (To Date)	mm/dd/yyyy	
showHistory (Show History Log)	boolean	Default = False (case sensitive)

```
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<nbvl:nuclearVoltageLimitReportType xsi:schemaLocation="http://www.pjm.com/external/schemas/nbvl/v1 nbvl.xsd"
xmlns:nbvl="http://www.pjm.com/external/schemas/nbvl/v1" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <nuclearVoltageLimitTicket>
    <ticketID>8</ticketID>
    <nuclearVoltageID>15</nuclearVoltageID>
    <company>NGO</company>
    <type>Permanent</type>
    <startDateTime>05/12/2021 11:35</startDateTime>
    <ticketStatus>Implemented</ticketStatus>
    <fileCount>0</fileCount>
  </nuclearVoltageLimitTicket>
  <nuclearVoltageLimitTicket>
    <ticketID>12</ticketID>
    <nuclearVoltageID>16</nuclearVoltageID>
    <company>NGO</company>
    <type>Permanent</type>
    <startDateTime>05/12/2021 11:53</startDateTime>
    <ticketStatus>Implemented</ticketStatus>
    <fileCount>0</fileCount>
  </nuclearVoltageLimitTicket>
</nbvl:nuclearVoltageLimitReportType>
```

- Submitted – new ticket status when submitted to PJM.
- Received – initial review of ticket by PJM completed.
- Denied – voltage limit change reviewed and not approved by PJM.
- Approved – voltage limit change reviewed and approved by PJM.
- Cancelled by Company – NGO cancelled the tickets.
- PJM Admin Closure – PJM cancelled the ticket.
- Revised – Received or Approved ticket has been changed by NGO

- Implemented – PJM EMS updated with new limits from approved ticket.
- Implemented w/o Approval – PJM EMS updated with new limits from un-approved ticket.
- Completed – PJM EMS updated with new limits that no longer match implemented temporary ticket or new permanent ticket created



Future Enhancements

These will be available after account migration to Account Manager:

- Browserless Interface for Company Distributed Workflow
Member-Agent functionality
 - New parameter: -q cdwcompany
 - Parameter is a number, the ID of the Member company (client)
- User Requests in eDART for CAMs
CAMs will be able to customize eDART accounts via User Requests functionality.
 - Previously done via ‘Comments’ section of eDART registration form.

Revisions to the *pro forma* Open Access Transmission Tariff (OATT) and the Commission's regulations under the Federal Power Act to improve accuracy and transparency of electric transmission line ratings.

- Impacts eDART TERM Application
- eDART Project begins January 2023
- Compliance due July 2025
- See [presentation](#) from 10/07/2022 OC Special Session for Order 881 Compliance

2023 Deliverables:

- Functionality to submit and view ratings lookup tables
- Functionality to manage AAR exceptions and TO Methodology
- AAR Seasonal rating functionality
- Ability to pull ratings for the Operations Time Horizon for all eDART users.
- Enhancements available in Train only
 - CLI to support current and new functionality
 - UI updated to reflect new functionality

Future dedicated eDART Forums to discuss enhancements in detail

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