

## **Data Miner 2 Release Notes – Release 19.06**

These Data Miner 2 release notes are meant to provide a brief description of changes to the Data Miner 2 application that impact users.

**Release Date: July 01, 2019**

### **New Features:**

**1. New feeds –**

- Solar Generation – This feed provides the hourly solar generation amounts in PJM. The "Other" area includes external units and other units where the original regional location is not known
- FTR Congestion LMPs – This feed contains the congestion locational marginal price for the FTR pnodes.

### **Enhancements:**

1. **Frequently Accessed Data** – Previously when users clicked on any feed from Frequently Accessed Data area, the data used to open in new window. With this enhancement, the data will open in a new tab keeping user experience consistent with the Explore Data Set button.

## **Data Miner 2 Release Notes – Release 19.04**

**Release Date: April 17, 2019**

### **Enhancements**

1. **Explore Data Set on Data Miner 2 User Interface** – Previously when users clicked on Explore Data Set, the data used to open in a new window. When user clicked on Explore Data Set for a different feed, the window refreshed with data for that specific feed. Based on feedback from users, enhancements have been made to exploring data sets. With these enhancements, when users click on Explore Data Set button, the data will now open in a new tab within the same browser window. When users navigate to a different feed and click Explore Data Set for that feed, the data opens in a new tab leaving the previous tab unaffected.

**Please Note: users will have to perform a one-time clear browser cache to be able to reload the interface. This can be achieved by using Ctrl+F5 keys on most browsers.**

# Data Miner 2 Release Notes – Release 19.03

**Release Date: March 14, 2019**

## **Enhancements**

- 2. Pnode selector on User Interface** – Previously the pricing node selector on “Explore Data Set” page brought up the pricing nodes in a new window. Users would then select the desired pnodes and click OK to filter the dataset by selected pnode. With this enhancement, users will be able to type in the pnode ids in the textbox to select pnodes. The explorer icon on the right corner of the text box can be clicked in to bring up the pnode selector window. Please visit the Data Miner 2 – Getting started Guide for more details. This enhancement is done based on member feedback.
- 3. Date Range restrictions** – Previously users were able to query and download data via the UI and API using an unrestricted date range. Users querying broad date ranges could create a performance impact on the system and slow response time for those querying small, recent date ranges of data. This change will enforce a maximum date range of 366 days in a single query. This change will not impact most users, who query small ranges of recent data. It will impact those users querying data over the span of years (who may be building or re-building their historical data) and enforces what had been previously recommended as a best practice. Queries beyond this date range will receive the error message to adjust the search date range. This change applies to both UI and API. The date aliases, previously defined datetime filters behaviors, data returned, and API response elements will not change.
- 4. Actual/Schedule Summary Report** – Previously the Actual, Scheduled and Inadvertent flow values were showing only two decimal places. With this enhancement, the decimal values are increased to three to account for more data precision.
- 5. New Date alias** – New date alias called “1MonthAgo” is being introduced with this release. This date alias will bring the data for the month that is one full calendar month ago. For example, in March, 1Monthago will bring data for month of January. More details and examples are available on API portal as well as API Guide.

## **Fixes**

- 1. Historical Load Forecasts** – Data was missing for EKPC and DEOK zones prior to 2017. Data gaps are now resolved. Data is posted for these zones for missing dates.
- 2. Settlements Verified Hourly LMPs**– Data was missing for dates 7/1/2017 to 7/7/2014. Data gaps are now resolved. Data is posted for these missing dates.
- 3. Frequently Accessed Data** – Previously the csv button next to the feeds that are visible under the Frequently Accessed Data were timing out due to incorrect date ranges. With this fix, the csv will download the most current data that displays upon Explore Data Set page load for each feed.

# Data Miner 2 Release Notes – Release 19.01

**Release Date: January 29, 2019**

## **New Features:**

2. **New feeds – These feeds will be available from January 30, 2019 onwards as part of FERC Order 844**
  - Real-Time Default Marginal Value Override - This feed contains the dates for constraints that use a different transmission constraint penalty factor from the default setting, for those constraints in the Real-Time Energy Market.
  - Other uplift feeds required by Order 844 are awaiting a determination from the FERC.

## **Enhancements:**

1. **Real-Time Marginal Value** – Two new columns ‘Transmission Constraint Penalty Factor’ and ‘Limit Control Percentage’ will be added to this feed pursuant to FERC Order 844. The data for these two columns will be populated January 30th onwards. The values prior to this date will be blank.
2. **New category for the feeds** – New category called ‘Retired’ will be added to the left navigation pane. This enhancement is to provide better recognition for users for retired feeds. The feeds that are no longer updated with new data will be moved into ‘Retired’ category.

## **Future Changes:**

1. **Daily Uplift by Zone** – This feed will be retired and will be replaced by new feed called **Uplift Credits by Zone**. The new feed will have substantively the same information but the Credit Type pivoted into one single column. The Daily Uplift by Zone feed will be moved to the new ‘Retired’ category from ‘Generation’. This change was made to be consistent with the formatting of new data that will be required by FERC Order 844. While PJM tries to avoid substantially changing the structure of existing feeds, it was felt that in the long term, improved consistency in the uplift related feeds would be of benefit to users. The implementation date for this change will depend on when the FERC rules on PJM’s compliance filing for Order 844 but users should be aware of this change.
2. **Uplift Charges by Zone** – This new feed will have zonal uplift charge data as required by FERC 844.
3. **Generator Specific Uplift Credits** – This new feed will have generator specific uplift credits on a monthly basis as required by FERC Order 844.
4. **Load Response Uplift Credits** - This new feed will have demand response specific uplift credits on a monthly basis as required by FERC Order 844.

5. **New category for the feeds** – New category called ‘Uplift’ will be added to the left navigation pane. This enhancement is to provide better grouping of uplift-related data. The above listed feeds that contain Uplift charges and credits data will be present in ‘Uplift’ category.

## **Data Miner 2 Release Notes – Release 18.12**

**Release Date: December 21, 2018**

### **Fixes:**

1. **Five-Minute Load Forecast** – Previously the western region for the Five-Minute Load Forecast did not include the load forecast for the Comed. With this release, the western region mapping has been updated to include Comed forecast data.
2. **Wind Generation** – Previously the wind generation data was showing values as 0s for DST hours. With the fix, this issue has been resolved and previous years DST data has been corrected.
3. **Real-Time scheduled Interchange** – Previously the last four hours data was not being loaded each day. With this fix, the data will be posted for full 24 hours each day

## **Data Miner 2 Release Notes – Release 18.11**

**Release Date: November 30, 2018**

### **Enhancements:**

1. **OVEC Integration** - As part of OVEC integration, the following feeds will have additional data related to OVEC transmission zone. The feed structure and format will not change.
  - Hourly load : Estimated
  - Hourly load : Metered
  - Ops Summary - Projected Area Statistics at Peak
  - Ops Summary - Projected RTO Statistics at Peak
  - Ops Summary - Projected Scheduled tie flow
  - Ops Summary - Actual Operational statistics
  - Day-Ahead Temperature Sets
  - Day-Ahead Hourly LMPs
  - Real-Time Temperature Sets
  - Real-Time Five Minute LMPs
  - Real-Time Hourly LMPs
  - Settlements Verified Five Minute LMPs
  - Settlements Verified Hourly LMPs

2. **Acceptable Terms of Use** – The acceptable terms of use for Data Miner 2 will be updated. The additional terms will be visible on the UI as well as API Portal.
3. **Settlements Verified LMPs** – Previously the following four feeds had the Update Availability as Daily. However refreshed data was being posted only on 4<sup>th</sup> business day of the month. With this enhancement, these feeds will be refreshed everyday posting data as it becomes available. While Data Miner 2 will make available any data that has been calculated by PJM Settlements, there are occasionally delays in the settlements process that may cause a delay in data availability. Please note that the final verified values for previous month will still be updated on 4<sup>th</sup> business day of the month. Data will be overwritten and not versioned.
  - a. Settlements Verified Five Minute Ancillary LMPs
  - b. Settlements Verified Five Minute LMPs
  - c. Settlements Verified Hourly Ancillary LMPs
  - d. Settlements Verified Hourly LMPs

## **Data Miner 2 Release Notes – Release 18.09**

**Release Date: September 24, 2018**

### **New Features:**

1. **New feeds – These feeds will be available from September 25, 2018 onwards**
  - Real – Time Temperature Sets - This feed contains the zonal temperature sets used to determine limits on transmission facilities during the operating day.
  - Scheduled Generation - This feed contains the load and reserve megawatts as well as the megawatts of generation resources that self-schedule.
  - Five Minute Load Forecast – This data shows the load forecast in five minute intervals for two hours forward from the forecast point. This is the load forecast used by PJM’s Security Constrained Economic Dispatch. It is provided for additional transparency as a means for stakeholders to better understand possible causes of uplift. Due to the volume of data and frequency of updates, this data will be retained for 30 days.

### **Enhancements:**

1. **Monthly Financial Transmission Rights Zonal LMPs** – Previously the Update Availability for this feed was Every Tuesday and Friday at 05:00 p.m. With this enhancement, the Update Availability will be Every Business Day at 05:00 p.m.
2. **Settlements Verified LMPs** – Previously the following four feeds had the Update Availability as Monthly on the 4th business day at 10:00 a.m. With this enhancement, the Update Availability

will be Every Business Day at 11.00 a.m. Note that while Data Miner 2 will make available any data that has been calculated by PJM Settlements, there are occasionally delays in the settlements process that may cause a delay in data availability.

- a. Settlements Verified Five Minute Ancillary LMPs
  - b. Settlements Verified Five Minute LMPs
  - c. Settlements Verified Hourly Ancillary LMPs
  - d. Settlements Verified Hourly LMPs
3. **Daily Generation Capacity**– Added a top level filter on the “BID Datetime Beginning EPT” column.
  4. **Balancing Transmission Congestion Preliminary Billing Data** – Added a top level filter on the “Datetime Beginning EPT” column.
  5. **Load Reconciliation Billing Determinants – Hourly** – Added a top level filter on the “Datetime Beginning EPT” column.
  6. **Reconciliation Billing Determinants – Monthly** – Added a top level filter on the “Determinant Month” column.
  7. **Hourly Day-Ahead Demand Bids** – Added a top level filter on the “Datetime Beginning EPT” column.
  8. **Error handling on the User Interface** – Previously if the user navigation returned a valid error, the error was displayed on a different page and causing the user to close and re-navigate to the page they were working on. With this fix, the error message will be shown on the top of the page and user will simply be able to close the error notice and continue working without having to navigate back to the page they were using.

### **Fixes:**

1. **Daylight saving time** – Previously the spring daylight saving time filters for all feeds were returning an error page. For example – when a user selects datetime filters of 3/11/2018 02:00 to 3/11/2018 03:00, they would see an error page returned on the user interface and an error 404 message returned on the API. With this fix, the same datetime selection will now return the next valid hour data.
2. **Forecasted Generation Outages** – Previously data was missing for the last day of the month when two of the previous three months had 31 days. This fix will ensure the data for all days in a month are posted.

## **Data Miner 2 Release Notes – Release 18.07a**

**Release Date: August 2, 2018**

### **Fixes:**

1. **Operations Summary Feeds** – Previously the peak statistics data showed discrepancies between the csv file posted on pjm.com and Data Miner 2. The issues originate from upstream data source discrepancies. This fix will ensure the load forecast, scheduled tie flow and internal scheduled capacity will match between both data sources.
2. **Operations Summary - Projected RTO Statistics at Peak** - Enhancements are made to improve “Scheduled Tie Flow Total” field description
3. **Operations Summary - Projected Scheduled Tie Flow** – Enhancements are made to improve “Scheduled Tie Flow” field description
4. **Fixed Weighted Average Aggregate Definitions** – Previously the data showed discrepancies between the csv file posted on pjm.com and Data Miner 2. Upon further investigation, the issue was identified to be a missed posting update on pjm.com No code changes are made to Data Miner 2 at this time.

## **Data Miner 2 Release Notes – Release 18.07**

**Release Date: July 2, 2018**

### **New Features:**

1. **New feeds** – These feeds will be available from 7/2 onwards
  - Day-Ahead Temperature Sets
2. **First Available** – This is a new field that will be available for all feeds from 7/2 onwards on the feed definition page. This field will show the earliest date data is available for that specific feed.

### **Enhancements:**

1. **Real-Time Scheduled Interchange** – Enhancements made to the user interface for this feed to add a top level filter on the “Datetime Beginning EPT” column
2. **Historical Load Forecasts** – Enhancements made to the user interface for this feed to add a top level filter on the “Datetime Beginning EPT” column
3. **Operations Summary - Projected Area Statistics at Peak** – Enhancements are made to improve Data Fields descriptions
4. **Operations Summary - Projected RTO Statistics at Peak** – Enhancements are made to improve Data Fields descriptions

### **Known Issues:**

This Data Miner 2 known issues section provides information on issues that impact users and are known to Data Miner 2 team.

## 1. Operations Summary Feeds

There is a known issue with the peak statistics data discrepancies between the csv file posted on pjm.com and Data Miner 2. The issues originate from upstream data source discrepancies and are actively being investigated.

Update Posted on 7/20 – The issue with **forecast data** is identified as the sum of area forecasts are not matching the RTO forecast. This issue stems from individual area vs aggregated zones. PJM's load forecasting system creates forecasts for a number of different geographic areas. It creates forecasts for individual zones as well as for larger aggregated areas (such as RTO and Mid Atlantic). Due to the nature of the neural net forecasting, these larger areas do not precisely match the sum of the individual component zones. Both forecasts are correct in that they are what was forecasted by the software, but we recognize the confusion caused by the difference in the values.

To make the numbers more intuitive, PJM has decided to sum up the smaller areas to get the larger area forecast, rather than providing the neural net forecast for the larger territory for the Data Miner 2 posting.

**Internal scheduled capacity** - The data posted in Data Miner 2 is not matching the data posted on pjm.com.

The fixes for both of these data components will be released to prod late next week in an off-cycle release.

The known issue with **Scheduled Tie Flow** data on DM2 not matching pjm.com is being investigated at this time

## 2. Fixed Weighted Average Aggregate Definitions

There is a known issue with the termination logic for the aggregate pnodes that is causing additional aggregate nodes to appear. This issue is actively being worked on

# Data Miner 2 Release Notes – Release 18.06

**Release Date: May 31, 2018**

### Fixes:

1. **Real-Time Scheduled Interchange Posting** – Previously data for this posting was missing data for the last four hours of the day, and that data was not made available until the next day's posting. This fix will ensure the data will be posted for all 24 hours every day.
2. **Real-Time Five Minute LMPs** – Previously, using datetime filters 20:00 to 23:00 was not returning any results. This fix will ensure this datetime filters will return data for the appropriate time block.



## Enhancements:

1. **RSS Notifications** – The RSS notifications for the following feeds will now include the Market Day the LMP data is posted for in the email body.
  - a. **Day-Ahead Hourly LMPs**
  - b. **Real-Time Hourly LMPs**
  - c. **Ancillary Service LMPs**
  - d. **Real-Time Five Minute LMPs**
  - e. **Ancillary Services Five Minute LMPs**
2. **Monthly Financial Transmission Rights Zonal LMPs** – The pnode filter for this feed will be enhanced to a text box providing enhanced search capability on the user interface.
3. **Off-Cost Operations** – Enhancements made to the user interface for this feed to add a top level filter on the “Date” column

## Data Miner 2 Release Notes – Release 18.05

These Data Miner 2 release notes are meant to provide a brief description of changes to the Data Miner 2 application that impact users.

**Release Date: April 30, 2018**

### Fixes:

1. **Day Ahead Marginal Value and Constraints Posting** - Enhancements have been implemented to reduce the time required to post the Day-Ahead Marginal Value and Constraints postings
2. **Market to Market Flowgate FFE** – Enhancements have been implemented to move the posting time to 0830 EPT from 0900 EPT
3. **Settlements Verified Hourly LMPs** – Updated the “Update Availability” description to “Monthly on the 4th business day at 10:00 a.m.” on the feed definition page. Note that this is a metadata update only that better reflects the actual posting time.
4. **PJM Regulation Zone Preliminary Billing Data** – The feed description has been updated to rename two columns - “Total PJM Regulation Market Capacity Clearing Price” and “Total PJM Regulation Market Performance Clearing Price” to “Total PJM Regulation Market Capacity Clearing Price Credits” and “Total PJM Regulation Market Performance Clearing Price Credits”.

## Data Miner 2 Release Notes – Release 18.04

These Data Miner 2 release notes are meant to provide a brief description of changes to the Data Miner 2 application that impact users.

**Release Date: March 29, 2018**

## New Features:

### 1. New feeds – These feeds will be available from 4/2 onwards

- Real-Time Five Minute LMPs
- Ancillary Services Five Minute LMPs
- Settlements Verified Five Minute LMPs
- Settlements Verified Five Minute Ancillary LMPs
- Daily Energy Market Generation Offers

### 2. Update to existing feeds – These updates to the existing feeds will be available from 4/2 onwards

- Real Time Marginal Value - As part of five minute settlements initiative, the shadow prices will be posted at a five minute granular level. Historic data will remain hourly.
- Real Time Transmission Constraints – This feed will be retired as the data is now included in the Real Time Marginal Value feed. No new data will be posted to this feed. Historic data will remain available.
- PJM Regulation Zone Preliminary Billing Data – As part of five minute settlements initiative, two new columns (Total PJM Regulation Market Capacity Clearing Price and Total PJM Regulation Market Performance Clearing Price) were added to the feed. Historic data for these new columns will be BLANK
- RTO Synchronized Reserve Preliminary Billing Data – As part of five minute settlements initiative, one new column (Total Subzone Tier 2 PJM-Scheduled MWh) are added to the feed. Historic data for this new column will be BLANK

### 3. Day-Ahead LMP Posting: The posting of the Day-Ahead LMPs will now synchronize with other PJM Tools

### 4. Real-Time LMPs Posting : Enhancements are done to reduce the time required to post Real-Time LMPs

### 5. Performance enhancements to five minute LMP data downloads

As part of the five minute settlements initiative, PJM has enhanced the performance of Data Miner 2. PJM has performed load testing of Data Miner 2. When 50 users simultaneously download the full prior day of five minute LMPs for all pnodes, it takes an average of 4.5 minutes to complete. This test case represents the expected typical scenario. The same test with a more extreme case of 250 simultaneous users yields download times of approximately 12 minutes. Naturally these times will vary based on system usage, the speed of your internet connection and other factors. These times are not a guarantee, but should help users set their expectations. Data Miner 2 uses caching to more quickly provide the most recent day of data; users querying older historical data should expect it to take longer.

### 6. UI Enhancement

The left navigation area where users select the feeds was previously not sorted. With this enhancement, the feeds within each category will be alphabetically sorted.

## Fixes:

**1. Operations Summary Feed schedule**

Previously the operations summary feeds were running at 8 AM to post only the 8 AM data. This scheduler is being modified to post Operations Summary data every hour starting from 5 AM to 8 AM. The 8 AM data will only be retained. This matches the functionality for the Operations Summary on pjm.com.

**2. Date Alias “ThisMonth”**

Previously the date alias “ThisMonth” returned results that did not include the last four hours of the month. This fix will ensure “thismonth” will return results for the entire datetime within the calendar month.

**3. Pnode Selector not working in Internet Explorer Browser**

Previously pnode selector was not returning any results when users tried to select pnodes on LMP feeds using Internet Explorer. This fix will ensure the pnode selector will work as desired.

**4. Inconsistency in the zone assigned to Pnodes in Data Miner 2's LMP output**

Previously some pnodes in the LMP historic data were showing zones as AES instead of AEP. This fix will correct the zones for the relevant pnodes

## **Data Miner 2 Release Notes – Release 18.03**

These Data Miner 2 release notes are meant to provide a brief description of changes to the Data Miner 2 application that impact users.

**Release Date: February 15, 2018**

**Fixes:**

**1. API Portal Documentation Update**

Previously the attribute descriptions on the API management portal had generic descriptions. Based on user feedback, in this release, these descriptions have been enhanced and will be published on the API portal. This same information will also be published in the API Guide available on pjm.com

## **Data Miner 2 Release Notes – Release 18.02**

These Data Miner 2 release notes are meant to provide a brief description of changes to the Data Miner 2 application that impact users.

**Release Date: February 1, 2018**

**Fixes:**

**1. Pnode termination date logic**

Previously the pnodes that should have one long, continuous active period instead have several contiguous periods. This issue was being caused by how the pnode feed was being updated based on LMP data for that pnode. This fix will ensure that all active pnodes will have a continuous active period. Existing data will remain unchanged however this fix will take effect for all data going forward.

**2. Daily Generation Capacity missing data**

A small number of missing intervals for the months of December 2017 and January 2018 were identified for the Daily Generation Capacity Feed. These data gaps were corrected.

**3. Date Alias “Last Week” is incorrect [API Only]**

Previously the Date Alias “Last Week” was not bringing back a full 7 days’ worth of data. This fix ensures that this date alias works as intended. The date alias “Last Week” will now return data where the date falls within the prior calendar week. This fix is implemented for all date aliases

# **Data Miner 2 Release Notes – Release 18.01**

These Data Miner 2 release notes are meant to provide a brief description of changes to the Data Miner 2 application that impact users.

**Release Date: January 11, 2018**

## **New Features:**

- 1. Feed Update Notifications:** This enhancement provides users with a RSS Notification they may subscribe to. Once subscribed, the RSS feed will provide notifications whenever a feed is updated. Users will need to subscribe to each feed separately. This feature has been added based on member feedback.
- 2. Metadata for Real-Time and Day-Ahead LMP Reposts:** This enhancement provides users with details on LMP reposts, similar to what is available on [pjm.com](http://pjm.com) today. The details will contain the specific dates and the pnode ids LMPs were reposted for. Notices will be posted every time there is a LMP repost by PJM. On the UI, this information will be displayed on the feed definition page. On the API, it will be available via the `feed_metadata` API response.

## **Fixes:**

- 1. Datetime Filters on UI and API**

Previously, the hour 00:00 was being considered as hour 23:00 for the Datetime Start and End filters on EPT and UTC dates. When users entered the hour 00:00 as the End date, 24 hours of data is being returned instead of just the hour 00:00. The EPT hour 19:00 was also being read as EPT hour 23:00 because of a defect in EPT to UTC conversion. This fix will resolve these issues and few other usability issues with the datetime filters. Please refer to the following discussion topic posted on Tech Change Community page for specifics on the datetime filters behavior after the release: <https://pjm.force.com/techchangeforum/s/question/0D50V00003ghJkrSAE/>
- 2. Reset Button on the UI**

Previously, clicking on Reset Button on the UI completely erases the datetime filters. This fix will ensure that the reset button will now bring back the default filters that appear upon page load.
- 3. Duplicate records in some feeds appear sporadically**

There is a processing bug that is causing duplicate records to appear in specific feeds. Enhanced logging has been added to provide further diagnostic information to investigate this issue so that it may be addressed in the future.