MSRS Roadmap

As of November 20, 2018
<table>
<thead>
<tr>
<th>Product - Action Required</th>
<th>Deadline</th>
<th>Who May Be Affected</th>
</tr>
</thead>
<tbody>
<tr>
<td>MSRS - Update processes to use basic authentication</td>
<td>January 24</td>
<td>All MSRS Users. Change is <strong>required</strong> for continued use of browserless.</td>
</tr>
<tr>
<td>MSRS - Org parameter added for SUMA requests via browserless</td>
<td>January 24</td>
<td>MSRS Browserless SUMA Users. Change is <strong>optional</strong>.</td>
</tr>
<tr>
<td></td>
<td>2018</td>
<td>Aug</td>
</tr>
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<tr>
<td><strong>Browserless Authentication</strong></td>
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<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Train: Oct 1</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>SUMA Functionality</strong></td>
<td></td>
<td></td>
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<tr>
<td>Train: Oct 1</td>
<td></td>
<td></td>
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<tr>
<td>Production: Jan 24</td>
<td></td>
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</tbody>
</table>

**Legend**

- **Start Date**
- **End Date**

- [www.pjm.com](http://www.pjm.com)

- [Tech Change Community](http://tech-change.com)
• The MSRS browserless reporting interface requires username and password in the URL. Example:

• Current format fully encrypted via HTTPS in transport

• However -- deprecated practice due to security issues
  – Any visible passwords create a risk
Browserless Authentication Release Details

• Browserless requests must change to post credentials using basic authentication

• The filetransfer.jar interface will no longer work for MSRS

    This will no longer work: java -cp oreilly.jar;filetransfer.jar; com.pjm.FileTransfer
debug=true username="YourUsername" password="YourPassword" app=msrs
action=download format=x version=l report="Billing" start=01/01/2012 stop=01/31/2012
result="billing.csv"

• Easy replacements for filetransfer.jar include curl and wget, available on both Windows and Linux

• PJM also provides examples in Java 8 and Python 3
Browser Popup (IE, Chrome, Firefox)  

Java Code Snippet

```
String username = "MyUsername";
String password = "MyPassword";
String authString = username + ":" + password;
String basicAuth = "Basic " + javax.xml.bind.DatatypeConverter.printBase64Binary(authString.getBytes());

URL url = new URL(webURL);
HttpURLConnection urlConnection = (HttpURLConnection)url.openConnection();
urlConnection.setRequestProperty("Authorization", basicAuth);

BufferedReader responseBuffer = new BufferedReader(new InputStreamReader((urlConnection.getInputStream())));

String reportOutput;
while ((reportOutput = responseBuffer.readLine()) != null) {
    System.out.println(reportOutput);
}
System.out.println("*** END ***");
```

Command Line using curl

```
Enter host password for user 'MyUsername':
```

Full examples can be found here

PJM.com → Markets & Operations → Billing, Settlements & Credit → MSRS Reports Documentation
Browserless Authentication Release Impact

- No change to user interface logins from PJM.com and PJM Tools
- Browserless documentation is currently up to date on pjm.com
- Implemented with Single User Multi-Account (SUMA) changes to allow users to make changes for both at the same time

<table>
<thead>
<tr>
<th>Impact</th>
<th>Action Required</th>
<th>Outage</th>
</tr>
</thead>
<tbody>
<tr>
<td>User Interface</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>Browserless</td>
<td>Members will need to update their processes to use basic authentication</td>
<td>1 hour</td>
</tr>
</tbody>
</table>
MSRS - SUMA Functionality
User Interface Updates

- Customer dropdown
  - Visible only for SUMA users
  - Displays customer accounts in which the SUMA user has active MSRS access
Customers may add reports for multiple accounts to their shopping cart.
Browserless Updates

• Optional ORG parameter available for SUMA browserless
  – Can specify single org shortname (org=PJMTST)
  – Retrieve all associated accounts in one request (org=ALL)

• Currently:
&start=07/01/2018&stop=07/01/2018&username=_______&password=________

• Updated:
&version=L&format=C&start=07/01/2018&stop=07/01/2018&org=PJMTST
MSRS Report Dictionary

- MSRS Report Dictionary is updated with report specific SUMA information
  - SUMA = Y denotes ability to request report for multiple accounts
  - Max Orgs denotes the maximum number of accounts tied to a SUMA user
- PJM.com → Markets & Operations → Billing, Settlements & Credit → MSRS Reports Documentation

<table>
<thead>
<tr>
<th>Report Long Name</th>
<th>Query Interval</th>
<th>SUMA</th>
<th>Max Orgs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advanced Second Control Center Charge Details</td>
<td>D</td>
<td>Y</td>
<td>25</td>
</tr>
<tr>
<td>ARR Target Credits</td>
<td>D</td>
<td>Y</td>
<td>25</td>
</tr>
<tr>
<td>Auction Specific MW Transaction Charges and Credits (formerly Non-Unit Specific Capacity Transaction Charges and Credits)</td>
<td>D</td>
<td>Y</td>
<td>25</td>
</tr>
<tr>
<td>Low Voltage Network Integration Transmission Service Charge Summary</td>
<td>D</td>
<td>Y</td>
<td>25</td>
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<tr>
<td>LCF InSchedule and NSPL Activity Summary</td>
<td>M</td>
<td>N</td>
<td>1</td>
</tr>
<tr>
<td>Market-to-Market Adjustment to Transmission Congestion Credit Details</td>
<td>M</td>
<td>Y</td>
<td>25</td>
</tr>
<tr>
<td>Meter Correction Allocation Charge Summary</td>
<td>M</td>
<td>Y</td>
<td>25</td>
</tr>
<tr>
<td>Meter Correction Charge Summary</td>
<td>M</td>
<td>Y</td>
<td>25</td>
</tr>
<tr>
<td>Monthly Billing Statement - CSV and XML</td>
<td>M</td>
<td>N</td>
<td>1</td>
</tr>
<tr>
<td>Monthly Billing Statement - Online and PDF</td>
<td>M</td>
<td>Y</td>
<td>25</td>
</tr>
<tr>
<td>Monthly Billing Statement Recipients</td>
<td>BM</td>
<td>N</td>
<td>1</td>
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<tr>
<td>Monthly Congestion Credit Summary</td>
<td>M</td>
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<td>25</td>
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<tr>
<td>Monthly Load Reconciliation Billing Determinants</td>
<td>M</td>
<td>Y</td>
<td>25</td>
</tr>
<tr>
<td>Monthly-to-Date Billing Summary - CSV and XML</td>
<td>M</td>
<td>Y</td>
<td>25</td>
</tr>
<tr>
<td>Monthly-to-Date Billing Summary - Online</td>
<td>BD</td>
<td>Y</td>
<td>25</td>
</tr>
</tbody>
</table>
Report Changes

• No changes for non-SUMA users
• SUMA users will see slight changes in their report headers
  – Login account displayed
  – Requested account(s) displayed
• CSV/XML for Weekly and Monthly Invoice
  – No changes for non-SUMA
  – New reports created for SUMA with account specific data denoted in the body
• No change to non-SUMA CSV format
• Requested Customer Account will display a comma separated list of the orgs in which the SUMA user has MSRS access
• Employer (from Account Manager) is displayed in the header as Customer Account
XML Example

- No change to non-SUMA XML

- `<REQUEST_CUSTOMER_ACCOUNT>` tag added to header for SUMA requests
PDF Example

- No change to non-SUMA PDF
- SUMA accounts can retrieve multiple invoices in one PDF file
MSRS SUMA - Sorting
MSRS SUMA - Sorting

• Issue
  – MSRS requests become very resource intensive when sorting large quantities of data
    • If unchanged, SUMA reports require Maximum Orgs and Maximum Days limits
• Proposed solution
  – Eliminate sorting on all 5-min reports and large hourly reports such as ARR and FTR Target Credits
• Impacts
  – Any application that expects sorted data will be impacted
  – Increase or possibly remove the Maximum Orgs restriction on SUMA reports
• TBD. Any 5 minute interval and some hourly reports will have the sorting removed to increase system throughput
  – MSRS Report Dictionary will be updated
  • Remove Max Orgs column, add Sorting designation
• MSRS UI
  – esuitetrain.pjm.com

• Browserless
  – msrstrain.pjm.com

• Sandbox usernames and passwords are separate from production
  – Work with your Company Account Manager to establish SUMA access
  – Employer account must have MSRS access

• Sandbox currently available for testing
  – All SUMA enabled reports are available for August 2018
• Training Environment - October 1st
• Additional discussion at Tech Change Forums and Market Settlement Subcommittee meetings
• Production – January 24, 2019
• Email mss@pjm.com with questions/comments
  – FAQs are available on MSRS Reports Documentation page
Product Details
**Market Settlements Reporting System (MSRS)** is a tool used by market participants to retrieve market settlements reports and monthly billing statements.

**Key Product Features**
- 200+ settlement reports
- Provide settlement and billing details
- Viewable in the browser
- CSV and XML download capability