Tools Security Roadmap

As of January, 2018
Managing unused accounts
Terminate and remove unused accounts

Phase 1 (1/26/18)
- Only public (read) access
- 6200 member accounts
- 5800 non-member accounts

Phase 2 (2/23/18)
- Read/Write access
- ~25000 member accounts

Phase 3 (3/26/18)
- All previously terminated accounts
- ~44000 accounts
Upcoming Changes - Access Control

<table>
<thead>
<tr>
<th>Access Control Feature</th>
<th>Details</th>
<th>Target Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Terminate and remove unused accounts</td>
<td>Phase 1: All accounts with only public/read-only access (9 months)</td>
<td>1/25/2018</td>
</tr>
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<td></td>
<td>Phase 2: All accounts with read/write access (365 days)</td>
<td>2/23/2018</td>
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<td>Phase 3: Previously terminated accounts outside of phases 1 &amp; 2</td>
<td>3/26/2018</td>
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</tbody>
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**Overview**
- We will start terminating and removing unused accounts
- 9 months for read-only accounts
- 366 days for read/write accounts

**Customer Action**
We ask that CAMs review accounts locked for the identified periods and re-activate if needed

**Customer Impact**
- Many emails raising awareness of account removal
- Terminated accounts can no longer be used to register for meetings on PJM.com. Re-registration Required.
SSO Upgrade
Background

Single Sign On (SSO) backend for PJM Tools Upgrade
   – Does not include eDART, eGADS

Impact
   – Login URL change
      • /das changed to /access
   – Change to Multi Factor Authentication page for Account Manager
   – Change to length of authentication token

<table>
<thead>
<tr>
<th>Area</th>
<th>Impact</th>
<th>Action Required</th>
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<tbody>
<tr>
<td>UI</td>
<td>The sso login url</td>
<td>Change any bookmarks that have the old url</td>
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<tr>
<td>Browserless</td>
<td>Token length is shortened from 106 to 94 characters</td>
<td>Any code written to factor in the length of the token will need to change</td>
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</tbody>
</table>
• Phased rollout
  – URL changes will be rolled out to applications in phases
  – Bookmarks will need to change
  – No outages expected
  – Details on phases coming soon
Phases

Phase 1
- Bulletin Board
- Gas Pipeline

Phase 2
- Emergency Procedures
- Data Miner (v1 legacy)
- Billing Line Item Transfer

Phase 3
- DR Hub
- Queue Point
- Gen Model
- Resource Tracker
- FTR Center
- InSchedule
- Power Meter

Phase 4
- Account Manager
- ExSchedule
- PCLLRW
- Markets Gateway
- Data Viewer
- eCredit
- eRPM
- OASIS
<table>
<thead>
<tr>
<th>Jan</th>
<th>Feb</th>
<th>Mar</th>
<th>Apr</th>
<th>May</th>
<th>Jun</th>
<th>Jul</th>
<th>Aug</th>
<th>Sep</th>
<th>Oct</th>
<th>Nov</th>
<th>Dec</th>
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<tbody>
<tr>
<td><strong>Automated account clean up</strong></td>
<td></td>
<td></td>
<td><strong>Phase 1:</strong> January 26</td>
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<td><strong>Phase 2:</strong> February 23</td>
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<td><strong>Phase 3:</strong> March 26</td>
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<td><strong>Single Sign-on Upgrade - Training</strong></td>
<td><strong>Phase 1:</strong> February 15</td>
<td></td>
<td><strong>Phase 2:</strong> March 12</td>
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<td><strong>Phase 3:</strong> March 20</td>
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<td><strong>Phase 4:</strong> April 2</td>
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<td><strong>Upgrade:</strong> mid-July</td>
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<td><strong>Single Sign-on Upgrade – Production</strong></td>
<td><strong>Phase 1:</strong> March 15</td>
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<td><strong>Phase 2:</strong> April 12</td>
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<td><strong>Phase 3:</strong> April 24</td>
<td></td>
<td><strong>Phase 4:</strong> May 8</td>
<td></td>
<td><strong>Upgrade:</strong> late August</td>
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