

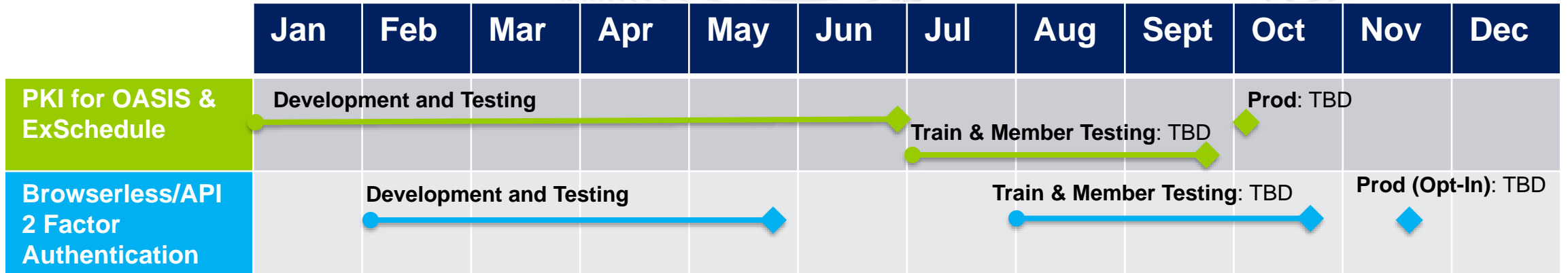


Tools Security Roadmap

January 16, 2020
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Product - Action Required	Dates	Who May Be Affected
<p>ExSchedule & OASIS</p> <ul style="list-style-type: none"> Obtain valid PKI certificates from approved Certificate Authorities Rewrite Browserless/API authentication code Use PJM provided command line interface (CLI) 	<p>Q3, 2020</p>	<ul style="list-style-type: none"> Users of ExSchedule and OASIS 3rd-party Vendors for ExSchedule and OASIS Developers of ExSchedule and OASIS Browserless/API code
<p>Account Manager</p> <ul style="list-style-type: none"> Associate valid PKI certificates with user account in Account Manager 	<p>Q3, 2020</p>	<ul style="list-style-type: none"> Users of ExSchedule and OASIS





ExSchedule &
OASIS Public
Key Infrastructure
(PKI)

Browserless/API
2 Factor
Authentication

- PKI
 - FERC Notice of Proposed Rule Making (NOPR)
 - Implement PKI to provide secure access to
 - OASIS
 - E-Tagging applications (ExSchedule)
 - PJM intends to comply
 - Existing certs that meet NAESB requirements will be accepted
 - When:
 - Train: Q3, 2020
 - Production: Q4, 2020

- Browserless/API 2 Factor Authentication
 - Leverage PKI solution
 - Scope
 - Included: All PJM Tools that are part of Single Sign On and have Browserless APIs
 - Excluded: ExSchedule and OASIS
 - When:
 - Optional in Q4, 2020
 - Mandatory in 2021

- <https://www.pjm.com/-/media/etools/security/pki-faqs.ashx?la=en>