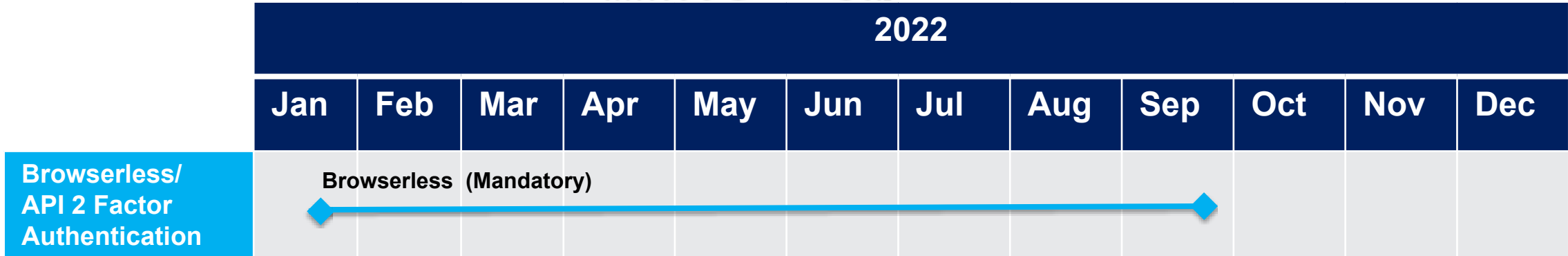# Browserless/API Two Factor Authentication (Public Key Infrastructure – PKI)

As of Aug 16, 2022

- Updated timeline to implement mandatory Public Key Infrastructure (PKI) for MSRS, and Markets Gateway

Product - Action Required	Dates	Who May Be Affected
Browserless/API Two Factor Authentication (Mandatory) • Obtain valid PKI certificates from approved Certificate Authorities • Rewrite Browserless/API authentication code OR use PJM provided command line interface(CLI) • Make sure 2-Way SSL Connections, Client Certificates & Connection Renegotiation are enabled at Firewall & Security devices for outgoing PJM SSO traffic • **Opt in now**	• **Train: Completed** • **Production: June-September**	**Browserless users of** • Markets Gateway • InSchedule • Power Meter • FTR Center • Capacity Exchange • DR Hub • MSRS

2022 Tools Security Roadmap

	2022											
	Jan	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**
Browserless/ API 2 Factor Authentication	Browserless (Mandatory)											

Legend

● Start Date

◆ End Date

Change impacts only Browserless transfers

Web Browser

- **Source:** Web browsers
- **Authentication Mechanism:** Password + Soft Token(One Time Password)

Browserless

- **Source:** Machine to Machine
  - Interactions with PJM web service Application Programming Interfaces (APIs) via custom code or PJM Command Line Interface (CLI)
- **Authentication Mechanism:** Password + Certificate using Public Key Infrastructure (PKI)

InSchedule

DR Hub

MSRS

Power Meter

FTR Center

Market Gateway

Capacity Exchange

Product	Train	Production
InSchedule	January 6 at 4 p.m. (complete)	July 13 at 4 p.m.
Power Meter	January 6 at 4 p.m. (complete)	July 13 at 4 p.m.
FTR Center	January 13 at 4 p.m. (complete)	June 28 at 4 p.m. (complete)
DR Hub	February 2 at 4 p.m. (complete)	September 21 at 4 p.m.
Capacity Exchange	January 13 at 4 p.m. (complete)	June 28 at 4 p.m. (complete)
MSRS	January 20 at 4 p.m. (complete)	August 24 at 4 p.m.
Markets Gateway	January 18 at 4 p.m. (complete)	August 28 at 4 p.m.

- PKI Certificates and PKI/Two-Factor Browserless/API [FAQs](#)

- PKI Authentication [Guide](#)

- Exporting public [keys](#)

Facilitator:

Todd Keech, Todd.Keech@pjm.com

Secretary:

Risa Holland, Risa.Holland@pjm.com

SME/Presenter:
Sunil Kumar Rachakonda

SunilKumar.Rachakonda@pjm.com

Tool Security Changes

Member Hotline

(610) 666 – 8980

(866) 400 – 8980

custsvc@pjm.com

- If a user accesses the tools only through the User Interface (UI), is a PKI certificate needed? No.

- If a user accesses the tools using both the UI and browsersless interfaces, is a PKI certificate needed? Yes.

- Do system accounts (used to access browserless interfaces) need a PKI certificate? Yes

- If a user access browserless interfaces using multiple usernames, is a separate PKI certificate needed for each username? Yes.

  – If that user creates a SUMA account for those multiple usernames, how many PKI certificates are needed? One (1) for the SUMA username

- Can PKI certificates be shared between different usernames? No. It is username specific.

- If a user access multiple PJM tools with the same username, how many PKI certificates are needed? One (1). It is username specific, not tool specific.

- Do all usernames under an account need to use a PKI certificate at the same time? No. PKI certificate is username specific, each username can start independently.

- The username in Train is different from the username in Production, can I use the same PKI certificate? Yes.

- Once a PKI certificate is added to a username, does it work for all PJM Tools under that user or only certain ones? Impacts all PJM Tools.

- What happens if a user attempts to access a browserless interface without a certificate? The user will get authentication errors.

- Do the all PKI certificates have to be from the same vendor? No.

- Do users need to go through the 'opt-in' period? No. However, it will allow for a sense of certainty about how this implementation works before it becomes mandatory.