Regulation Redesign Phase 2
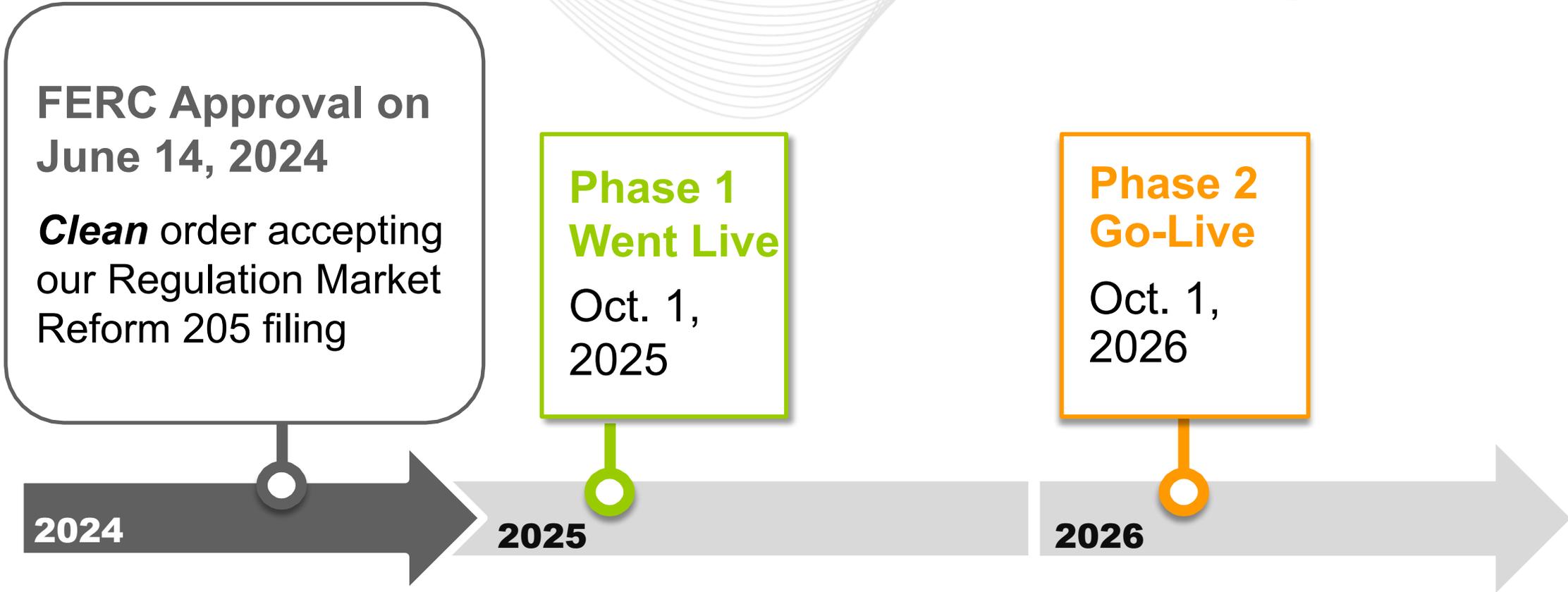# Markets Gateway, Data Miner 2, and Data Viewer Changes

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Senior Engineer 1

Tech Change Forum
March 16, 2026

FERC Approval on June 14, 2024

Clean order accepting our Regulation Market Reform 205 filing

Phase 1 Went Live

Oct. 1, 2025

Phase 2 Go-Live

Oct. 1, 2026

2024

2025

2026

#	Design Components	Summary Description
1	**Signals and Products**	Change from *two* signals (RegA and RegD) bidirectional to *one* signal bidirectional that all resources that are assigned Regulation in a given market interval will follow.
2	**Requirement MW**	Changes to better reflect operational needs, with consideration both to historic and future system conditions
3	**Performance Scoring**	Change from accuracy, delay and precision to precision only.
4	**Offer and Clearing Timing**	Eliminate "cost increase in VOM" except for Reg-only resources, change from hour clearing and commitment to 30-minute clearing and commitment.
5	**Opportunity Cost Calculation Reform**	1. Use the schedule the resource is running for energy or else the cheaper of available schedule for offline. 2. Use tracking desired MW at LMP ramp rate limited. 3. Use the area between LMP and the energy schedule the resource is running on.
6	**Settlement**	For the eligible resources, Settlement will calculate the shoulder interval opportunity cost for two five-minute ramp-in intervals before the resource Regulation operation and two five-minute ramp-out intervals following the resource Regulation operation (currently, three intervals ramp-in and three intervals ramp-out). Also, Settlement will update the calculation for the Regulation Mileage Credit (currently Performance Credit) such that the mileage ratio is equal to [Real-Time Regulation Mileage/Historic Regulation Mileage]

#	Design Components	Summary Description
1	**Signals and Products**	Bifurcate *one* signal bidirectional to two products, **RegUp and RegDn**, each with its own requirement, clearing price and settlement. Eligible resources will be able to offer, clear and follow either the RegUp, RegDn or both in a given market interval. Only one product is deployed at a time.
2	**Requirement MW**	Seasonal and hourly requirement MW separate for RegUp and RegDn may be asymmetric to better reflect operational needs, with consideration both to historic and future system conditions and with annual requirements MW updates.
3	**Performance Metrics**	Phase 1 changes plus performance score, mileage and bias-factor calculation separately for RegUp and RegDn.
4	**Offer and Clearing Timing**	Phase 1 changes plus offer MW, offer price and availability status separately for RegUp and RegDn. Offer MW will change from hourly granularity to 30 min. granularity.
5	**Opportunity Cost Calculation**	Separate resource's RegUp and RegDn opportunity cost for pricing. Settlements will calculate one intra-commitment opportunity cost that accounts for both RegUp and RegDn assignments on a resource. The settlements calculated intra-commitment opportunity cost will also account for the amount of energy produced while providing Regulation, referred to as "Regulation signal bias."
6	**Settlement**	Regulation billing for Reg Up and Reg Dn – Separate clearing price credits for RegUp and RegDn – Ability to submit Regulation bilateral transactions separately for RegUp and RegDn – Separate clearing price charges for RegUp and RegDn – A single lost opportunity lost credit accounting for both RegUp and RegDn assignments – A single lost opportunity cost charge

1. Consolidates two signals (RegA and RegD) bi-directional to one signal (Reg or RegA) bi-directional will eliminate RegD Offers;

2. Removes the Variable Operation and Maintenance (VOM) component from the Regulation Offers except for the Regulation only (non-energy) resources;

3. Changes the Regulation Performance Offer to Mileage Offer

4. While Regulation clearing and commitment changes to every 30-minutes, the inflexible reserve clearing and commitment remain at every 60 minutes.

Markets Gateway Summary of Changes – Phase 1

| #	Markets Gateway Screen	Summary Description
1	**Demand Response > Regulation Market > Offers / Updates** **Generator > Regulation Market > Offers / Updates**	On Offer page, removed column 'Type' for A/D On Update page, merged, deleted and rearranged columns;
2	**Demand Response > Regulation Market > Offers** **Generator > Regulation Market > Offers**	Changed Performance Offer Price to Mileage Offer Price Changed Performance Offer Cost to Mileage Offer Cost
3	**Generator > Regulation Market > Offers**	Removed VOM except for regulation-only resources
4	**Demand Response > Regulation Market > Updates** **Generator > Regulation Market > Updates**	Changed Performance Offer Price to Mileage Offer Price Changed Performance Offer Cost to Mileage Offer Cost
5	**Demand Response > Regulation Market > Availability Updates** **Generator > Regulation Market > Availability Updates**	New screen to indicate availability status and self-schedule on a 30-minute granularity
6	**Demand Response > Market Results > Regulation Award** **Generator > Market Results > Regulation Award**	Changed Regulation Award page from hourly granularity to 30-minutes, deleted RegD columns
7	**Public > Market Results Ancillary > Regulation Results**	Changed Regulation Award page from hourly granularity to 30-minutes

Markets Gateway Summary of Changes – Phase 2

#	Markets Gateway Screen	Summary Description
1	**Demand Response > Regulation Market > Offers** **Generator > Regulation Market > Offers**	Product Type Column added for RegUp and RegDn Reg Self Scheduled column moved to Unit > Detail / Demand Response > Parameters
2	**Demand Response > Regulation Market > Updates** **Generator > Regulation Market > Updates**	Tab renamed to 'Hourly Updates' Reg MW column removed – Offer MW is moved to Period Updates New column Symmetry – as a drop down with list as 'None', 'Bidirectional', 'Symmetrical' Existing Offer Price and Cost columns replaced with Offer Price and Offer Cost columns for RegUp and RegDn
3	**Demand Response > Regulation Market > Availability Updates** **Generator > Regulation Market > Availability Updates**	Tab renamed to 'Period Updates' and will have all parameters with 30-min granularity RegUp MW and RegDn MW columns added Reg Availability replaced with RegUp and RegDn Availability columns Reg Self-Schedule moved to a separate column from Reg Availability and is a single column that applies to both RegUp and RegDn
4	**Demand Response > Demand Response > Parameters** **Generator > Unit > Detail**	Regulation Self-Schedule field added and applies to both RegUp and RegDn New column Symmetry – as a drop down with list as 'None', 'Bidirectional', 'Symmetrical'
5	**Generator > Unit > Detail**	Regulation Resource checkbox replaced with RegUp Resource and RegDn Resource checkboxes

Markets Gateway Summary of Changes – Phase 2

#	Markets Gateway Screen	Summary Description
6	**Generator > Dispatch Lambda**	Reg MW column replaced with RegUp MW and RegDn MW columns
7	**Demand Response > Market Results > Regulation Award** **Generator > Market Results > Regulation Award**	Split into separate RegUp and RegDn Regulation Award tabs. It will continue to be 30-minute granularity.
8	**Public > Market Results Ancillary > Regulation Results**	Split into separate RegUp and RegDn Regulation Award tabs. It will continue to be 30-minute granularity.
9	**Bilaterals**	Reg MW column replaced with RegUp MW and RegDn MW columns.

Move to a 30-Minute Clearing Time and Commitment Duration
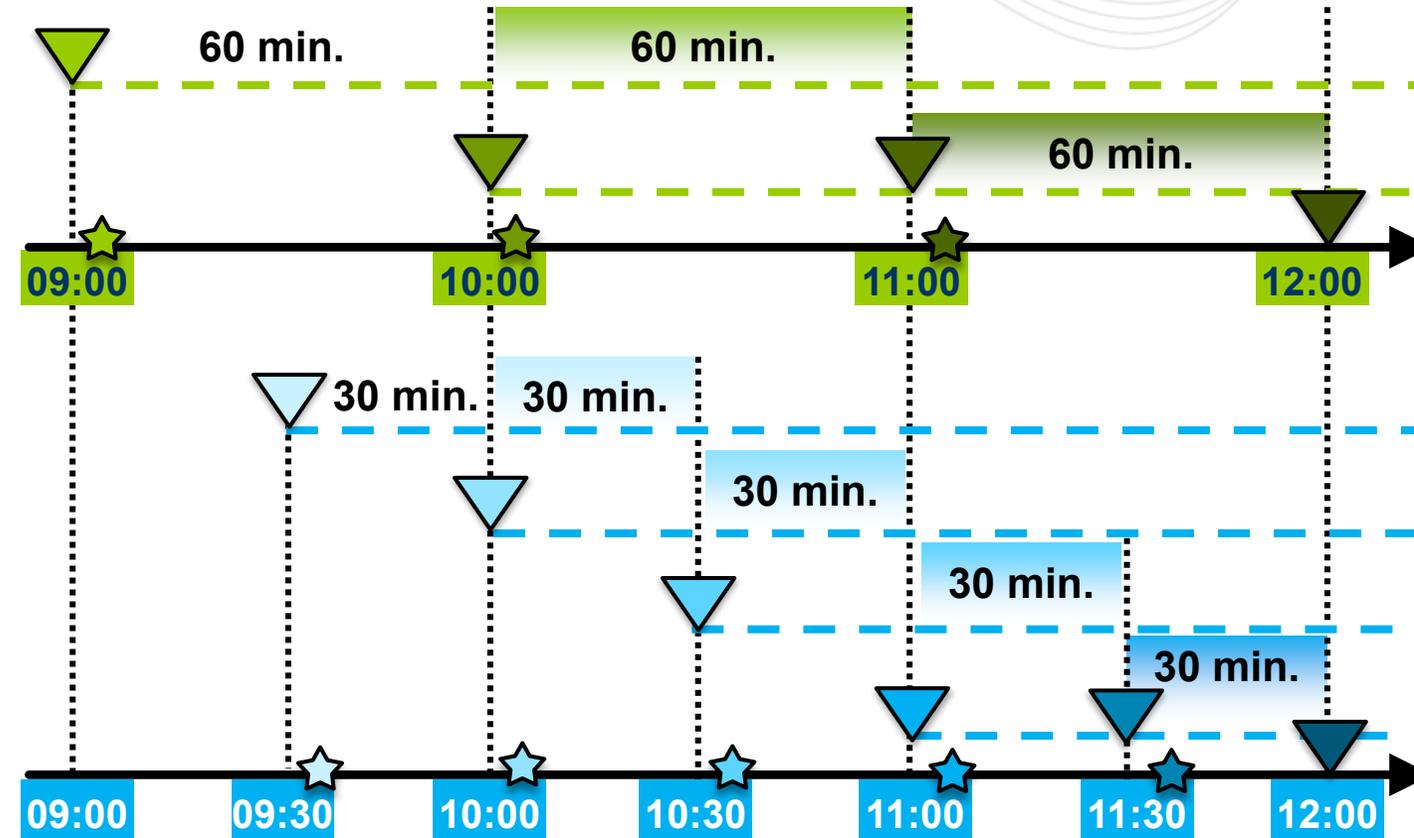
STATUS QUO

- **60 minutes** prior to target time
- Looks ahead 60 minutes beyond target time

PHASE 1 & 2

- **30 minutes** prior to target time
- Looks ahead 30 minutes beyond target time

Legend

▽ Case execution time

☆ Case approval

▨ Service provided

Offer Type	Markets Gateway Location	Deadline to Update
Daily Offer	Demand Response > Regulation Market > Offers Generator > Regulation Market > Offers	End of Rebid Period (14:15) the day before the Operating Day
Hourly Updates	Demand Response > Regulation Markets > Hourly Updates Generator > Regulation Market > Hourly Updates	35 Minutes Prior to the Operating Hour*
Period Updates (30-min granularity, only applies to Regulation)	Demand Response > Regulation Market > Period Updates Generator > Regulation Market > Period Updates	35 Minutes Prior to the Operating Period

*Note: Hourly Regulation Capability Offer Price/Cost and Hourly Regulation Mileage Offer Price/Cost can only be updated intraday for resources that are opted in to Intraday Offers (IDO). If opted out of IDO, they may still be submitted prior to 14:15 the day before the Operating Day

Sample ASO Case Execution, Posting and Target Intervals

Cases	Execution Time	Products Types	Markets Gateway Posting Deadline	Target Time (Begin)
ASO 00	12:30	Regulation & Reserves	12:50	13:00
ASO 30	13:00	Regulation Only	13:20	13:30
ASO 00	13:30	Regulation & Reserves	13:50	14:00
ASO 30	14:00	Regulation Only	14:20	14:30

- Regulation and Reserves results notification of at least 10 minutes before the operating time

- If ASO 30 is missed, All-Call must go out by **hh:20** to extend the last **Regulation assignment**;
- If **ASO 00** is missed, All-Call must go out by **hh:50** to extend the last **Regulation and Inflexible Reserve assignment**

The following documents have been posted on the Ancillary Services page under a new section called **Regulation Redesign Phase 2**:

PJM.com > Markets & Operations > Ancillary Services >

1. **Regulation Up & Down Effective Megawatt Requirement Definition (PDF)**

2. **Regulation Redesign Phase 2 FAQ (PDF**)

3. **Regulation Conversion Testing Checklist for Phase 2**

PJM.com > Markets & Operations > PJM Tools > Markets Gateway

PJM External Interface Specification Guide and XSD Schema for Phase 2 will be posted under the Regulation Redesign section when available

#	Data Miner 2 Feed Location	Summary Description
1	**Ancillary Services > Real-Time Ancillary Service Market Results**	Update 'Regulation Performance Clearing Price' to 'Regulation Mileage Clearing Price', Remove 'REGD MW' column
2	**Ancillary Services > Regulation Market Data**	Change from hourly granularity to 30-minute, Remove RegD related columns, Update RegA related columns to just Reg
3	**Ancillary Services > Regulation Prices**	Update 'Performance Clearing Price' to 'Mileage Clearing Price', Remove Marginal Benefits Factor column
4	**Ancillary Services > PJM Regulation Zone Preliminary Billing Data**	Update 'Regulation Market Performance Clearing Price' to 'Regulation Market Mileage Clearing Price', Update 'Total PJM Regulation Market Performance Clearing Price Credits to 'Total PJM Regulation Market Mileage Clearing Price Credits'
5	**Locational Marginal Prices > Real-Time Ancillary Service Five-Minute LMPs**	Update 'RTO Regulation Performance' in Ancillary Service column to 'RTO Regulation Mileage'
6	**Locational Marginal Prices > Real-Time Ancillary Service Hourly LMPs**	Update 'RTO Regulation Performance' in Ancillary Service column to 'RTO Regulation Mileage'

#	Data Miner 2 Feed Location	Summary Description
1	**Ancillary Services > Real-Time Ancillary Service Market Results**	A new feed will be created that includes Requirements, Procured MWs, and Clearing Prices for both RegUp/RegDn and Reserve products. This feed is posted daily on business days.
2	**Ancillary Services > Regulation Market Data**	A new feed will be created that includes RegUp/RegDn Requirements and procured MWs. It will also include RegUp/RegDn Mileage and overall performance scores. This feed is posted daily on business days.
3	**Ancillary Services > Regulation Prices**	A new feed will be created that includes the five minute RegUp/RegDn clearing prices, requirements, and procured MWs. This feed is updated every five minutes in real time.
4	**Ancillary Services > PJM Regulation Zone Preliminary Billing Data**	A new feed will be created to provide hourly preliminary billing data for both RegUp and RegDn products. The feed contains data once processed and made available by PJM Settlements.
5	**Locational Marginal Prices > Real-Time Ancillary Service Five-Minute LMPs**	Existing feed will be updated. Ancillary Service column will include RTO Regulation Up Capability, RTO Regulation Up Mileage, RTO Regulation Up Mileage Ratio, RTO Regulation Down Capability, RTO Regulation Down Mileage, and RTO Regulation Down Mileage Ratio. RTO Regulation Capability, RTO Regulation Mileage, and RTO Mileage Ratio will not be included.
6	**Locational Marginal Prices > Real-Time Ancillary Service Hourly LMPs**	Existing feed will be updated. Ancillary Service column will include RTO Regulation Up Capability, RTO Regulation Up Mileage, RTO Regulation Up Mileage Ratio, RTO Regulation Down Capability, RTO Regulation Down Mileage, and RTO Regulation Down Mileage Ratio. RTO Regulation Capability, RTO Regulation Mileage, and RTO Mileage Ratio will not be included.

#	Location	Summary Description
1	**Data Viewer > Ancillary Services > Market Clearing Prices**	Remove the following fields - RTO Regulation Capability - RTO Regulation Performance Add the following fields - RTO Regulation Up Capability - RTO Regulation Up Mileage - RTO Regulation Down Capability - RTO Regulation Down Mileage - RTO Secondary Reserve - MAD Secondary Reserve
2	**PJM.com > Markets and Operations**	In Ancillary Services section, replace Regulation Price with Regulation Up Price and Regulation Down Price.

Future versions of this presentation will include, when available:

- Markets Gateway Screenshots

- Field names and descriptions for Data Miner feeds that will replace existing ones

- Additional reference material that will be posted on PJM.com

  – PJM External Interface Specification Guide

  – XSD Schema

No.	Milestone	Timeline
1	Regulation Redesign project – information update at the TCF	March 2026
2	Open Houses 1 & 2 (virtual)	March 30 and July 2026
3	Markets Gateway Train (Sandbox) opens for testing	April 2026
4	RegUp/RegDn resources conversion testing begins	April 2026
5	All related manuals first read (Phase 1): M11, M12, M15, M28	July 2026
6	All related manuals endorsed (Phase 1): M11, M12, M15, M28	August 2026 (September if needed)
7	Special education session	August/September 2026
8	Regulation Redesign Phase 2 market opens	Sept. 25, 2026
9	Regulation Redesign Phase 2 go-live (cutover)	Oct. 1, 2026, at 00:00

Inquiry	Email Contact
To request a Regulation test	RegulationTesting@pjm.com
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Regulation redesign questions	RegulationDesign@pjm.com
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Regulation Redesign Phase 2 – Markets Gateway, Data Miner 2, and Data Viewer Changes
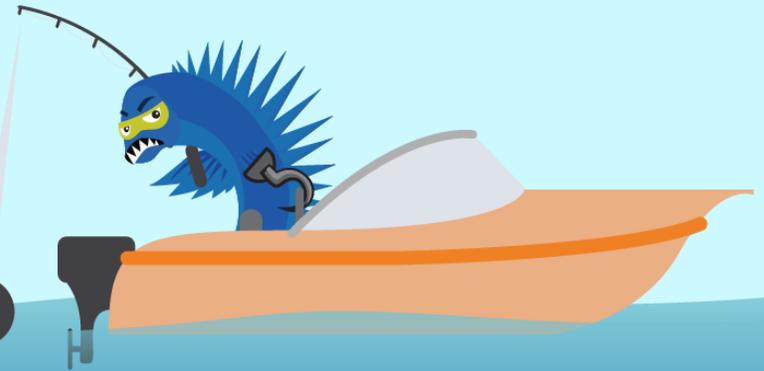
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