QPP Universal Data Set (UDS) User Guide

Overview

The UDS is a data warehouse that integrates data gathered by QPP component systems and presents a unified view of these diverse data sets. The UDS is a validated data set that resides in a relational database. It is also periodically published as a set of flat files for consumption by downstream stakeholders. The UDS is used to answer ad hoc data requests, generate reports, and supply data to dashboards.
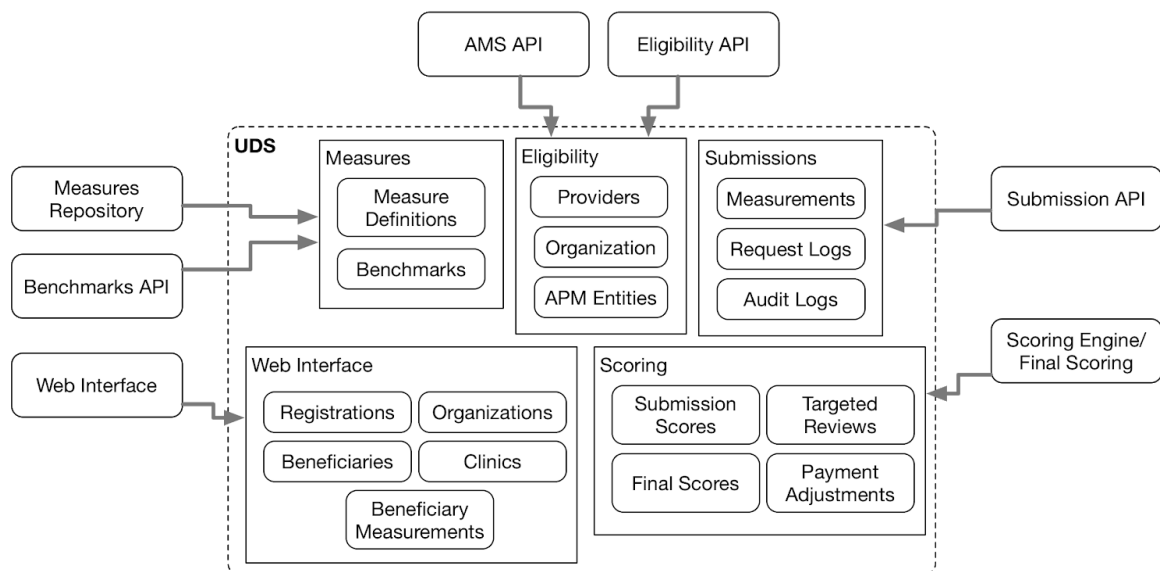
The UDS is partitioned into the five domains that are described below. Detailed documentation for the tables in each domain is provided here. Each release of the UDS includes an E-R diagram, data dictionary, and mappings to the data models of source systems (see here).
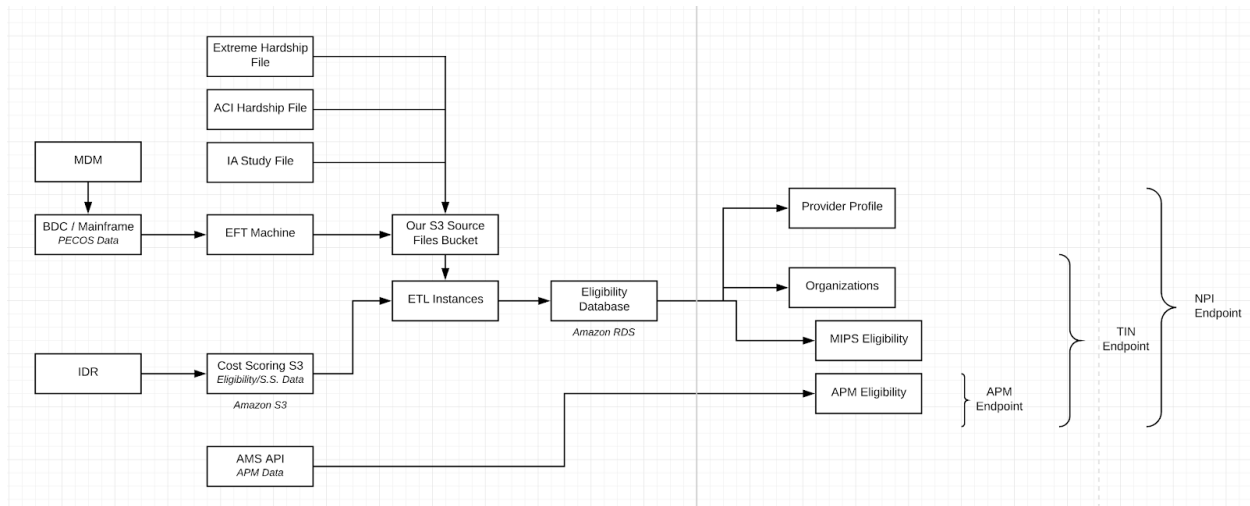
Eligibility

The Eligibility domain describes providers, organizations, and Advanced Payment Model (APM) entities and their MIPS eligibility, special statuses (e.g. hardship), and APM QP status. The Eligibility API component is responsible for assembling this information. A&R pulls from the Eligibility API whenever the information changes, as is described below. The Eligibility relational model in UDS closely follows the Eligibility API JSON data model (see here).

Eligibility information is derived from:

- The PECOS universal global extract (UGE) currently supplied by MDM
- Claims data aggregation performed in the IDR by way of Cost Plus
- APM membership which is stored in the APM Management System (AMS) by CMMI/CM

The following diagram depicts how the data flows into the Eligibility system (see here).

MIPS eligibility, special status, and APM QP status determinations are made periodically throughout the year (see here).

QPP Eligibility Component Timeline | 2017.05.22
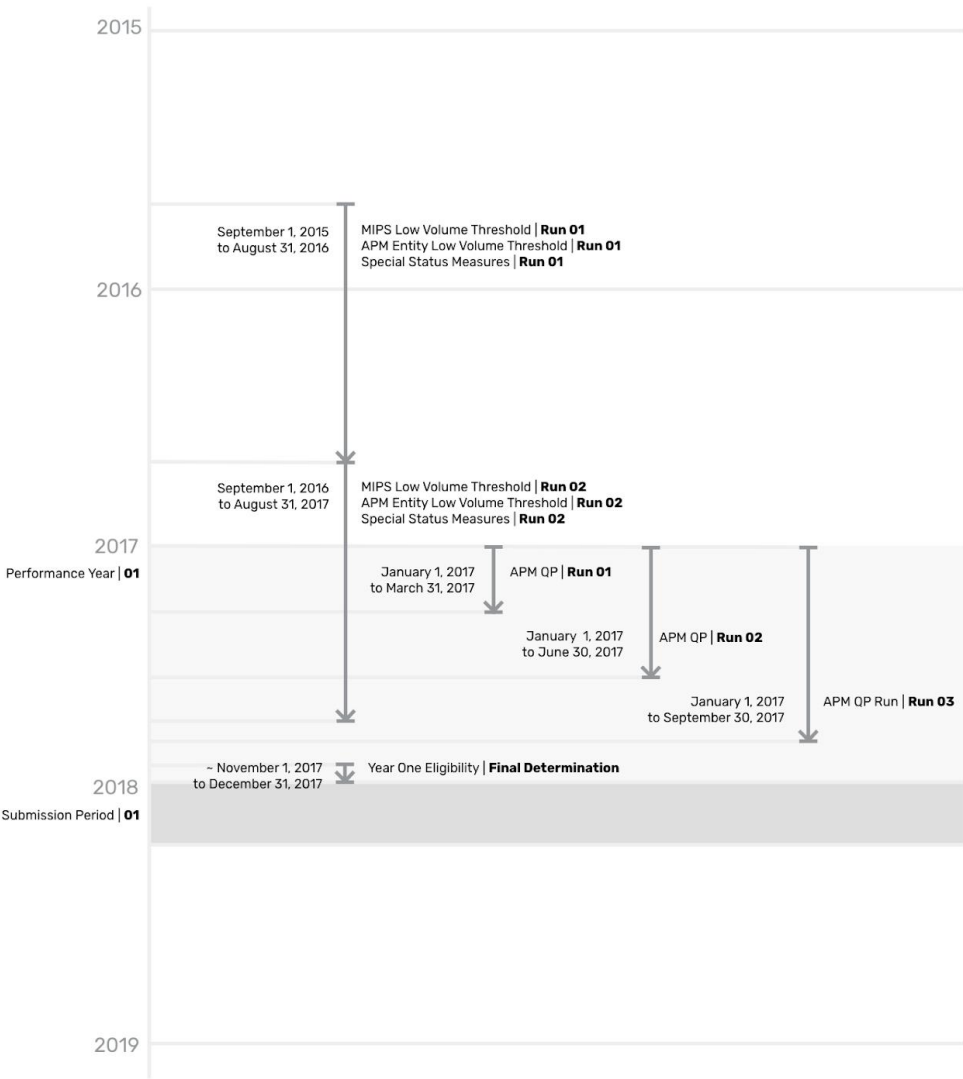
As these determinations are made, they are loaded into the Eligibility API database. Following is the scheduled for Performance Year 2 (see here).

Run	Eligibility Data Element	Snapshot Period	Data Delivery Date	Need To Load By
	e.g. Year 2 Run 2, or Y3 Extreme hardship	*e.g. Sept 1, 2016 - Aug 31, 2017*	*e.g. Sept 31, 2017*	*e.g. Oct 31, 2017*
Year 2 Run 2	ESS Load	Sept 1, 2017 - Aug 31, 2018	Oct 15, 2018	Nov 15, 2018
Year 2 Run 2	Complex Patient Data	Sept 1, 2017 - Aug 31, 2018	~ Early 2019	
Year 2 Reconciled	ESS Load		Oct 15, 2018	Nov 15, 2018
Year 2 Reconciled	Virtual Groups			
Year 2 Reconciled	PI Hardship - ServiceNow	Jan 1, 2018 - Dec 31, 2018		
Year 2 Reconciled	E&U - ServiceNow	Jan 1, 2018 - Dec 31, 2018		
Year 2 Reconciled	E&U - HCQAR	Jan 1, 2018 - Dec 31, 2018		
Year 2 Reconciled	IA Study	Jan 1, 2018 - Dec 31, 2018		
Year 3 Run 1	HVBP Data *Loaded to Clinician Insights API*	Sept 1, 2017 - Aug 31, 2018		Dec 31, 2018
Year 3 Run 1	HVBP Attributed Hospital CCN	Sept 1, 2017 - Aug 31, 2018		Dec 31, 2018
Year 3 Run 1	ESS Load	Sept 1, 2017 - Aug 31, 2018	Nov 15, 2018	Dec 14, 2018

Submissions

The Submissions domain describes the measurements (IA, ACI, Quality, Cost) that are submitted for providers, and organizations, and APM entities, as well as how and when they were submitted. The source of this information is the Submission API, which is responsible for receiving submissions. The Submissions domain relational model in UDS closely follows the Submission API JSON data model (see here).

The following diagram depicts major QPP architectural components and data flows into and out of the Submission API.

Quality Payments Program Architecture
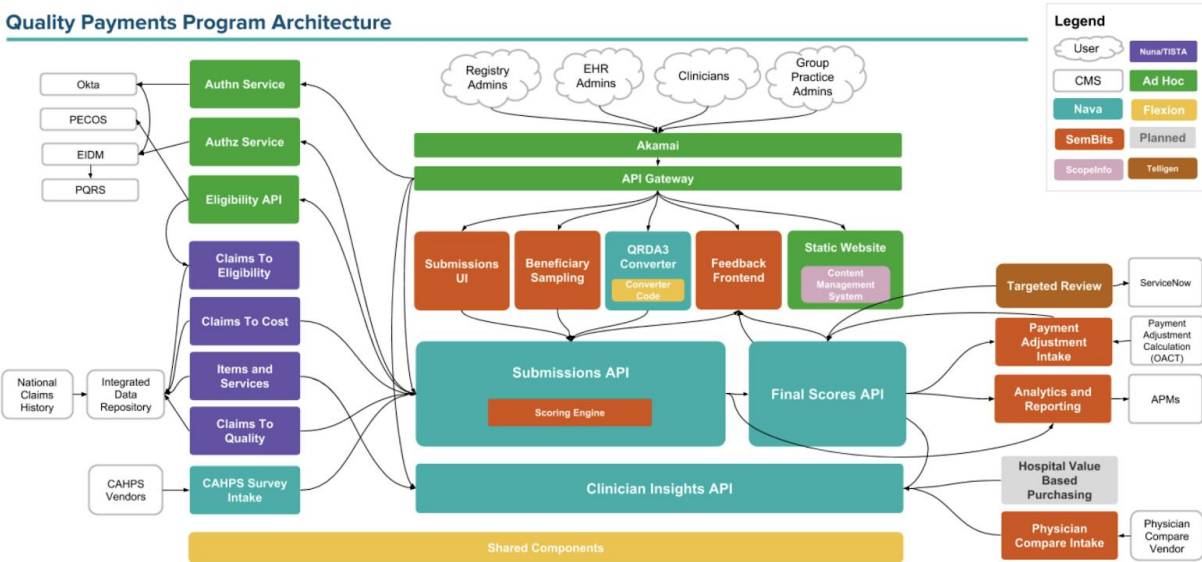
During the submission window, submissions are received through the Submission API from registries, EHRs, clinicians, and group practices via the Submission UI, the Web Interface for Beneficiary Sample (aka Web Interface), QRDA3 Converter, or directly through the API. After the submission window, additional claims are pulled from the IDR, processed, and submitted through the Submission API. This processing involves calculation of cost and quality measures, and items and services. Similarly, CAHPS survey data is submitted through the API.

During the submission window, the UDS captures Submission API interactions in real time by processing the API's request logs in streaming fashion and periodically (hourly) pulling in the API's audit logs, which capture the state of submissions after each request. This supports reporting activities such as:

- Calculating overall participation rate
- Identifying problems in the submission process so that appropriate technical assistance resources can be engaged
- Providing real-time information about individual submissions to the help desk

After the submission window is closed and before the final scoring process begins, submission data is pulled directly from the Submission API to get the latest submission and scoring information. This process is repeated whenever changes/corrections to the data are made in the source systems.
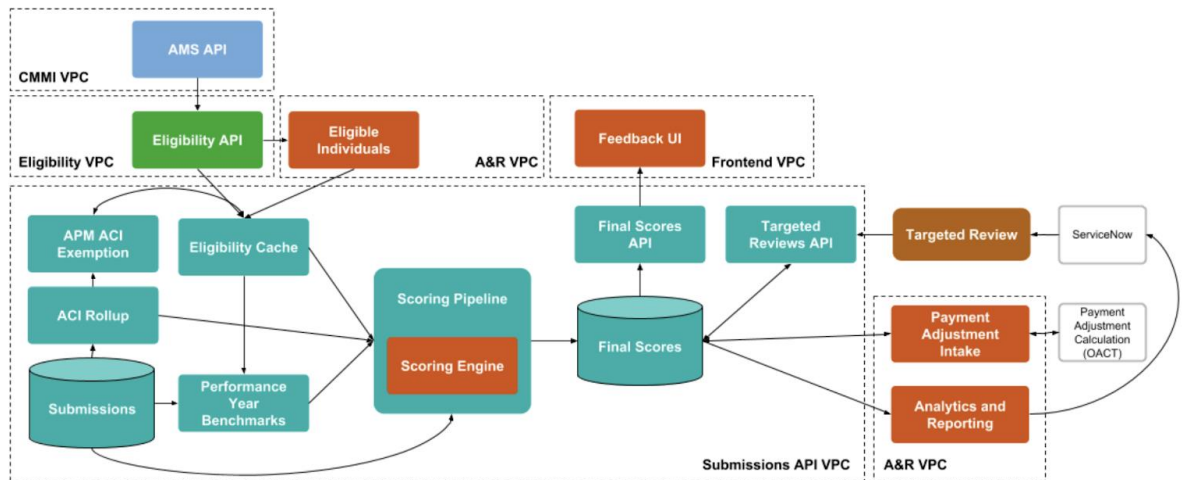
Scoring

The Scoring domain includes:

- Submission Scores: The Submission API invokes the Scoring Engine to generates category scores (IA, ACI, Quality, Cost) for each submission received through the submission API. This score depends on benchmarks and eligibility data, which change throughout the submission window. The UDS supports reporting on changes in these scores over the submission window period. The submission scores relational model in UDS closely follows the scoring JSON data model (see [here](#)).
- Final Scores: After the submission window is complete and all additional submission data have been received, the Final Scoring component is responsible for calculating final scores, applying business logic from the Final Rule. This involves comparing individual and groups submissions, and calculating ACI roll-up scores for APM entity participants. This data is pulled into the UDS after each run of the final scoring process. In Year 1 and Year 2, this was done on an as-needed basis (i.e. after making corrections). In Year 3, we will be implementing a weekly calculation process.
- Payment Adjustments: Once final scores have been calculated, A&R generates a final scores file for the CMS Office of the Actuary (OACT), who is responsible for calculating payment adjustments and keeping the program budget neutral. OACT returns a payment adjustment file to A&R. This data is loaded into the UDS and pushed to the Submission API, which exposes this data to clinicians through the Feedback UI. The interaction with OACT should happen only once per performance year. However, in cases where significant scoring errors are discovered (e.g. due to bugs or invalid data), it can be repeated multiple times on an as-needed basis.
- Targeted Reviews: During the targeted review period, scores and payment adjustments may be updated if a reviewer determines that a clinician's score should increase. Adjustments are pulled from Service Now, into the Final Sore component, and from there into the UDS on a weekly basis.
- After the targeted review period is complete and final scores / payment adjustments are finalized, A&R sends a file listing payment adjustments for each clinician to the Medicare Administrative Contractors (MACs).

The following diagram depicts the components involved in final scoring, payment adjustment, and targeted review (see [here](#)).

Quality Payments Program Scoring Architecture

Measures

Measures represent activities that clinicians perform in order to improve the care of their patients. The Measures domain includes measure reference data that is used in the Submission and Scoring domains. Specifically, it includes measure metadata (i.e. the definition of each measure) and benchmarks for each measure. Measure data is pulled into UDS once per performance year, or whenever a change has been made. Historical benchmarks are pulled into UDS once per performance year. For new measures (which don't have a historical benchmark), benchmarks are pulled at the end of the submission window and after all submission data has been received. These may be updated if submission data is corrected.

The source for measures metadata is the measures Git repository (see here). The UDS relational model closely follows the JSON data model (see here). The source for benchmark data is the Benchmark API. The UDS relational model follows the JSON data structure (see here).

Web Interface

The Web Interface (WI) domain includes data that is pulled from the Web Interface for Beneficiary Sampling. This is our source for clinics, organizations, registrations, beneficiaries, and beneficiary level measurement data that is not available from other QPP component sources. Beneficiary level measurement data is aggregated by the WI before sending it to the Submission API. In Year 1, this data was pulled into the UDS once after the submission window close, and then again as corrections were made. In Year 2, we did not extract WI data.