

Technical Implementation Guide for Supplying Medicare Advantage (MA) Provider Directory Data for Use in Medicare Plan Finder (MPF)

Centers for Medicare & Medicaid Services
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Background

On September 18, 2025, CMS published *Medicare and Medicaid Programs; Contract Year 2026 Policy and Technical Changes to the Medicare Advantage Program, Medicare Prescription Drug Benefit Program, Medicare Cost Plan Program, and Programs of All-Inclusive Care for the Elderly (PACE)--Finalization of Format Provider Directories for Medicare Plan Finder Second Final Rule (CMS-4208-F2)*.

In this final rule, CMS finalized requirements at § 422.111(m) for MA organizations to submit MA provider directory data to CMS/HHS for publication online for use in Medicare Plan Finder (MPF). Under this provision, MA organizations are required to:

- Make the information described in § 422.111(b)(3)(i) available to CMS/HHS for publication online in accordance with guidance from CMS/HHS;
- Submit, or otherwise make available, the information described in § 422.111(b)(3)(i) to CMS/HHS in a format and manner and at times determined by CMS/HHS;
- Update the information subject to § 422.111(m) within 30 days of the date an MA organization becomes aware of a change; and
- Attest, at least annually, in a format and manner and at times determined by CMS/HHS, that all information submitted or otherwise made available to CMS/HHS under paragraph (m) is accurate.

Incorporating provider directory data into MPF will enable people with Medicare and their caregivers to determine whether specific providers and facilities are in-network when shopping and comparing plans. This provision directly supports the administration's priority and focus on transparency, informed beneficiary choice, and efficiency.

This document provides MA organizations with technical guidance for supplying provider directory information for use in the MPF on www.medicare.gov.

Organizations Subject to the MPF MA Provider Directory Requirements

Provider directory data must be supplied for all individual (i.e., not employer-only) MA plans, which includes:

- Local Coordinated Care Plans (CCP) - HMO, HMO-POS, and Local Preferred Provider Organization (PPO)
- Regional PPO plans
- Medical Savings Account (MSA) network-based plans
- Private Fee-for-Service (PFFS) network-based plans

Implementation Phases

CMS is using a three-phase approach to implement this MPF initiative.

Phase One - Interim Data Solution for Contract Year 2026

CMS has elected to use an interim data solution for Contract Year (CY) 2026 to provide MA organizations with sufficient time to implement the provider directory requirements outlined in the newly published MA provider directory final rule (CMS-4208-F2). To address the immediate need, CMS has partnered with SunFire Matrix, Inc. (SunFire) to supply in-network provider and facility data for use in the CY 2026 MPF.

If an MA organization elects to not supply data to SunFire, CMS will instead display a link to the organization's provider directory using the URL entered on the "Organization Marketing Data" page in the Health Plan Management System (HPMS) Basic Contract Management module.

For more information on this interim solution, refer to the CMS memorandum entitled "[Updates to the Contract Year 2026 Medicare Plan Finder and Medicare.gov](#)" distributed via HPMS on August 25, 2025.

Phase Two - Dual Option Solution Starting with Contract Year 2027

For phase two of this effort, MA plans have two options for supplying their provider directory data to CMS for use in MPF:

- Machine-readable JSON files; or
- Fast Healthcare Interoperability Resources® (FHIR)-based JSON files

IMPORTANT NOTE: Whether submitting via machine-readable or FHIR-based JSON, MA organizations must ensure that only current in-network providers and facilities are included in the directory data supplied to MPF.

Option 1 - Machine-Readable JSON Files

Published in February 2015, the [Patient Protection and Affordable Care Act; HHS Notice of Benefit and Payment Parameters for 2016](#) final rule (CMS-9944-F) established provider directory requirements for Qualified Health Plan (QHP) issuers participating on the Federally-Facilitated Exchanges ("Marketplace"). As a result, QHP issuers are required to maintain machine-readable JSON files, using a CMS-specified format, on publicly accessible URLs.

For phase two, CMS will accept machine-readable JSON files – modeled after the Marketplace's machine-readable JSON file approach, but adapted to support the MA program – as an option for meeting the MA provider directory requirements. CMS will crawl the plan-defined URLs daily to ingest and validate these data and use this information to incorporate the provider and facility information on MPF.

Refer to the [Machine-Readable JSON Files](#) section of this document for more information.

The use of machine-readable JSON files is a temporary solution. All MA plans are expected to migrate fully to FHIR, as that will be the mechanism for populating the agency’s National Provider Directory.

Option 2 - FHIR-Based JSON Files

Published in May 2020, the [Interoperability and Patient Access](#) final rule (CMS-9115-F) requires certain payers, including MA organizations, Medicaid, CHIP, and QHP issuers, to implement application programming interfaces (API) for provider directories. Pursuant to this rule, CMS requires these payers to use the Health Level Seven International® (HL7®) FHIR standard for these APIs. MA organizations were required to implement provider directory APIs by July 1, 2021.

For phase two, CMS will also accept these data via FHIR-based JSON files to meet the MPF MA provider directory requirements. CMS will crawl the plan-defined URLs daily to ingest and validate these data and present the provider and facility information on MPF. Note that XML-based FHIR files are not supported, only JSON-based.

Refer to the [FHIR-Based JSON Files](#) section of this document for more information.

Phase Three - National Provider Directory Using FHIR-Based APIs

At the White House “Make Health Tech Great Again” event held on July 30, 2025, CMS announced that it had begun development of a National Provider Directory that will serve as connective tissue between healthcare providers, payers, data networks, and their respective interoperability frameworks. The agency plans to conduct an initial beta launch of the National Provider Directory later this year, with iterative improvements and expansions to follow. As part of this effort, a FHIR-based REST API will allow application developers to access high quality provider network information.

CMS intends for the National Provider Directory, once fully implemented, to consume MA plan FHIR APIs and feed the data to MPF.

Compliance with the Interoperability and Patient Access Final Rule

This guide is intended to **supplement** the guidance issued for implementation of the May 2020 Interoperability and Patient Access final rule. **MA organizations must still comply with all requirements outlined in CMS-9115-F for the implementation of FHIR-based provider directory APIs.** This includes conforming to the specifications defined in the [PDex Plan-Net Implementation Guide \(PDex\) version 1.2.0](#) built on the HL7® FHIR release 4 standard. As outlined in the interoperability final rule, provider directory APIs may not require user authentication and authorization or any other protocols that restrict the availability of this information.

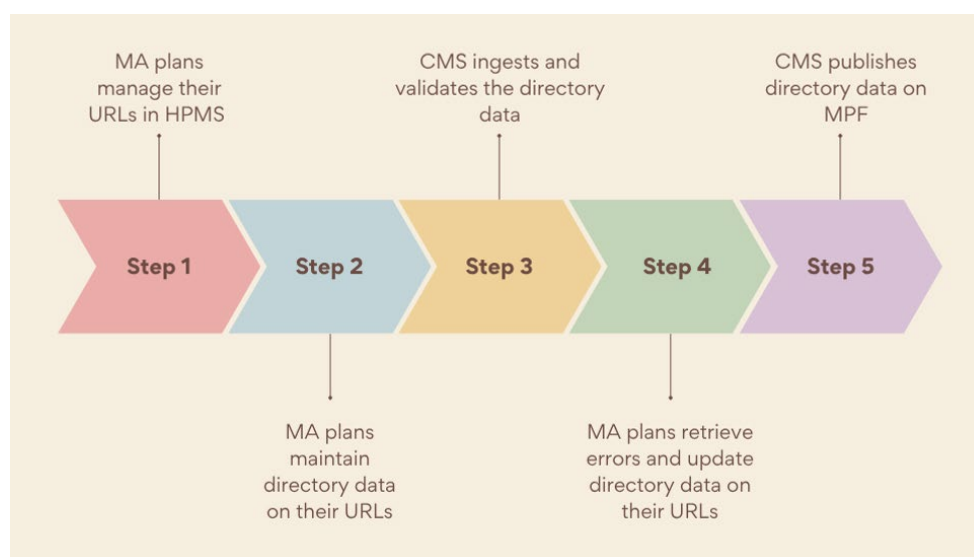
Implementing Phase Two - Dual Option Solution Starting with Contract Year 2027

The following table presents the high-level implementation schedule for phase two of the MPF MA provider directory initiative for CY 2027.

Date	Event
September 18, 2025	Publication of the MA provider directory final rule (CMS-4208-F2).
November 7, 2025	Publication of draft technical implementation guidance for MA plans.
November 7 - December 19, 2025	Review industry feedback on the draft technical implementation guidance.
February 2, 2026	URL data entry fields become available in HPMS.
February 18, 2026	Publication of updated technical implementation guidance for MA plans.
May - Mid-September 2026	Plan testing period using machine-readable JSON files and FHIR-based JSON files.
September 1, 2026	Deadline for completing the CY 2027 attestation in HPMS.
Early September 2026	Plan preview window.
September 18, 2026	“Target” deadline for 10/1 production-ready CY 2027 data to be available.
October 1, 2026	Production release of the CY 2027 MPF.

Process Overview

The image below illustrates the high-level process for integrating MA provider directory data into MPF using the phase two approach for CY 2027.



Machine-Readable JSON Files

For phase two, CMS will accept publicly accessible machine-readable JSON files – modeled after the Marketplace’s machine-readable JSON file approach, but adapted to support the MA program – to populate the CY 2027 MPF with each MA organization’s contracted providers and facilities.

To support the integration of these data into MPF, it is crucial that MA organizations clearly define the relationship between each individual provider or facility and a unique MA plan as identified by a CMS-issued contract number, plan ID, and segment ID (e.g., H9999-001-001).

[Appendix A](#) contains the technical specifications for MAPROVIDERS.JSON, which is comprised of a JSON array of providers and facilities that participate in an MA organization’s network.

A sample MA provider directory machine-readable JSON file has also been provided as a separate attachment.

Preparing Machine-Readable JSON Submissions for MPF

To implement the MA MPF provider directory requirements outlined in [CMS-4208-F2](#) successfully, MA organizations using the machine-readable JSON option must:

1. **Build machine-readable JSON provider directory files in compliance with the specifications outlined in this technical guide.** MA organizations must ensure their machine-readable JSON files include all required data points and adhere to the identified valid values as documented for MPF purposes.

MA organizations must then execute the following steps for each unique CMS contract number / contract year combination:

2. **Export the machine-readable JSON provider directory files and prepare the JSON files for CMS consumption.** MA organizations can decide how to bundle their machine-readable JSON files as long as the final package contains the complete provider directory for a single contract number and contract year. CMS will accept the exported data via a single JSON file or spread across multiple JSON files.

At this time, the CMS crawler only accepts plain JSON files in an uncompressed format. NDJSON files and compressed files will not be accepted.

3. **Create an index file that lists all constituent machine-readable JSON files that make up the complete exported provider directory.** CMS will use the index to locate and download the constituent machine-readable JSON files that comprise the complete provider directory for a single contract number and contract year.
4. **Post the index file for each unique CMS contract number/contract year combination on a dedicated, publicly accessible URL.** It is crucial that the URL reported in HPMS for a given

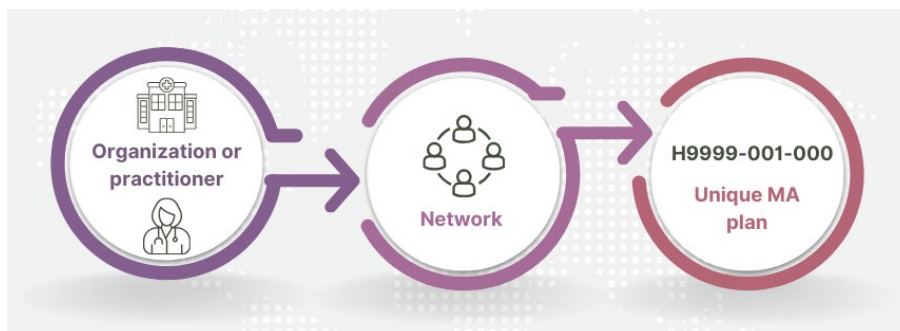
contract number / contract year point to an index file that lists only the constituent machine-readable JSON files for the same contract number / contract year combination.

FHIR-Based JSON Files

For phase two, CMS will also accept publicly accessible FHIR-based JSON files to populate the CY 2027 MPF with each MA organization's contracted providers and facilities.

When building FHIR-based provider directories, MA organizations must conform to specifications defined in the [PDex Plan-Net Implementation Guide \(PDex\) version 1.2.0](#) built on the HL7® FHIR release 4 standard.

To support the accurate integration of provider data into MPF, it is crucial that MA organizations clearly establish a relationship between every individual provider or facility and a unique MA plan. Specifically, each resource must be explicitly linked to a unique MA plan as identified by a CMS-issued contract number, plan ID, and segment ID (e.g., H9999-001-001). This ensures that MPF presents only the providers that are affiliated with a selected plan. To build these relationships in accordance with the PDex Plan-Net Implementation Guide, provider and facility records must be linked to unique MA plans through the network field.



CMS will use elements from the following FHIR resources to populate MPF:

- InsurancePlan
- Location
- Organization (Network)
- Organization (Facility)
- OrganizationAffiliation
- Practitioner
- PractitionerRole

[Appendix B](#) provides the FHIR-based JSON specifications for supplying MA provider directory data to MPF. It also details how the provider/facility to unique MA plan relationship must be represented using network within FHIR resources.

[Appendix C](#) contains UML diagrams to illustrate the relationships between the FHIR resources.

A sample MA provider directory FHIR-based JSON file has also been provided as a separate attachment.

Preparing FHIR-Based JSON Submissions for MPF

To implement the MA MPF provider directory requirements outlined in [CMS-4208-F2](#) successfully, MA organizations using the FHIR-based JSON option must:

1. **Ensure the FHIR-based provider directory complies with the additional specifications outlined by CMS in this technical guide.** These specifications are intended to supplement the PDex Plan-Net Implementation Guide for the sole purpose of populating MA provider directory data on MPF. MA organizations must ensure their FHIR-based provider directory includes all required data points and adheres to the identified valid values as documented for MPF purposes.

MA organizations must then execute the following steps for each unique CMS contract number / contract year combination:

2. **Export the FHIR-based JSON provider directory resources and prepare the JSON files for CMS consumption.** MA organizations can decide how to bundle their FHIR resources as long as the final package contains the complete provider directory for a single contract number for a given contract year. CMS will accept the exported data via a single JSON file or spread across multiple JSON files. MA organizations have the option to supply either a complete export of the PDex FHIR-based directory or a smaller version that is limited to the FHIR resources and data points required by MPF. Regardless, CMS will only consume the data points matching the MPF specifications.

At this time, the CMS crawler only accepts plain JSON files in an uncompressed format. NDJSON files and compressed files will not be accepted.

3. **Create an index file that lists all constituent FHIR-based JSON files that make up your complete exported provider directory.** CMS will use the index to locate and download the constituent FHIR-based JSON files that comprise the complete provider directory for a single contract number and contract year.
4. **Post the index file for each unique CMS contract number/contract year combination on a dedicated, publicly accessible URL.** It is crucial that the URL reported in HPMS for a given contract number / contract year point to an index file that lists only the constituent FHIR-based JSON files for the same contract number / contract year combination.

Hosting Requirements for Machine-Readable and FHIR-Based JSON

To support the efficient integration of data into MPF, MA organizations must host their provider directory data at publicly accessible URLs.

For each contract number and contract year, MA organizations must host an index file at the primary URL recorded in HPMS. This index file serves as a manifest that provides all constituent file URLs.

Data files should return appropriate headers, including unique version identifiers (e.g., ETag or hash), to indicate whether the files have been updated since CMS' last web crawl. [Appendix D](#) provides guidance on standard HTTP metadata and validation mechanisms as well as requirements for hosted index files.

The index file must be a valid JSON file. While the data may be split into multiple URLs, the index file must contain a top-level "provider_urls" array consisting of the list of data file URLs. Examples for supported formats of provider data are as follows:

Machine-Readable Example

For the simplified machine-readable format, MA organizations have the option to deliver files using a simple list:

```
{
  "provider_urls": [
    "https://test.com/cms/data/data_file-1.json",
    "https://test.com/cms/data/data_file-2.json",
    "https://test.com/cms/data/data_file-3.json",
    ...
  ]
}
```

FHIR-Based Example

When using FHIR-based JSON files, the data must be packaged as FHIR resource bundles. Below is a recommended strategy for organizing FHIR resource bundles across multiple files:

```
{
  "provider_urls": [
    "https://test.com/cms/resources/Practitioners.json",
    "https://test.com/cms/resources/PractitionerRoles-1.json",
    "https://test.com/cms/resources/PractitionerRoles-2.json",
    "https://test.com/cms/resources/Organizations.json",
    "https://test.com/cms/resources/InsurancePlans.json",
    "https://test.com/cms/resources/Locations-1.json",
    "https://test.com/cms/resources/Locations-2.json",
    ...
  ]
}
```

Maintaining MPF Provider Directory URLs in HPMS

MA organizations are required to enter and maintain their MPF provider directory file URLs in the HPMS MPF Provider Directory module under Plan Bids.

MPF provider directory file URLs must be submitted by contract year/contract number and defined as using either the machine-readable JSON or FHIR-based JSON file approach.

Following the initial population, MA organizations can update these fields at any time. The URLs will be available to MPF via a real-time API.

Refer to the [Technical Support](#) section for more information on obtaining HPMS access.

Self-Validation Steps

CMS encourages MA organizations to perform the following self-validation steps:

1. Paste the index URL directly into a browser and confirm that it returns raw JSON with a provider_urls array.
2. Validate the JSON syntax of both the index file and all constituent files.
3. Confirm that all URLs listed in the provider_urls array are publicly accessible from an external network without authentication.
4. Confirm that the server response includes the required headers: Content-Type: application/json, Content-Length, Last-Modified, and Etag.
5. Confirm that the server is not serving files with compression encoding. Files must be served as uncompressed, plain JSON files.
6. Confirm that all provider records reflect the current active contract year in the year field (machine-readable) or InsurancePlan.period (FHIR-based).

Ingestion and Validation of the Provider Directory Data

Each day, CMS will crawl the provider directory URLs, as defined in HPMS, to extract and ingest the directory data.

These data will be validated to ensure that:

- The provider directory URLs defined in HPMS are functional and publicly accessible.
- The machine-readable JSON files and FHIR-based JSON files adhere to CMS' technical specifications.
- The provider directory data adheres to CMS' field-level specifications.
- There are records for all individual (not employer-only) plan/segments offered by the MA organization.
- The provider directory has been updated at least every 30 days.

The process outlined above will not validate the accuracy of the provider directory information submitted by MA organizations. Data accuracy is the responsibility of the MA plan.

Refer to [Appendix E](#) for information on the three levels of findings and the validations performed at each level.

Accessing Validation Results

MA organizations can retrieve the results of the provider directory validation process using the HPMS MPF Provider Directory module under Plan Bids or via an HPMS API.

MA organizations must review the validation results and update provider directory URLs in HPMS and/or adjust the machine-readable JSON files or FHIR-based JSON files accordingly. CMS will reapply the validation process daily to provide MA plans with the most up-to-date findings.

CMS staff will also have access to each MA organization's provider directory validation results to evaluate plan compliance with these requirements on a continuous basis.

Refer to the [Technical Support](#) section for more information on obtaining HPMS access.

Completing the Provider Directory Attestation

MA organizations are required to attest annually to the accuracy of their MA provider directory data as supplied through this process. The attestation functionality can be accessed in the HPMS MPF Provider Directory module under Plan Bids.

The attestation must be completed electronically in HPMS by an authorized official of the organization – specifically, the Chief Executive Officer (CEO), Chief Financial Officer (CFO), and/or Chief Operating Officer (COO).

Authorized signatories must attest that the provider directory information is: “Accurate, complete, and truthful at the time of the attestation to the best information, knowledge, and belief of the MA organization.”

The CY 2027 attestation must be completed in HPMS no later than September 1, 2026.

Refer to the [Technical Support](#) section for more information on obtaining signatory access to HPMS.

Plan Testing Period

CMS will host a plan testing period open to all local CCP, regional PPO, MSA, and PFFS organizations offering individual (not employer-only) plans, including consultants and third-party vendors provided they have a contractual relationship with the MA organization.

The testing period will include the following activities:

- MA organizations will enter and maintain their provider directory URLs in HPMS.
- MA organizations will build, maintain, and publish their machine-readable JSON files or FHIR-based JSON files.
- CMS will crawl the provider directory URLs, as defined in HPMS, to extract and ingest the directory data.
- CMS will validate the provider directory data and produce findings.
- MA organizations will access their validation findings in HPMS and adjust their machine-readable JSON files or FHIR-based JSON files accordingly.

CMS will run this process daily during the plan testing period to simulate the production environment. Detailed guidance on the CY 2027 plan testing period will be sent under separate cover.

The CY 2027 plan testing period will run from May 4, 2026 through mid-September 2026.

Plan Preview

Prior to the production release on MPF, CMS will give MA organizations an opportunity to preview their MA provider and facility network data. CMS will issue detailed guidance on the CY 2027 plan preview process at a later date.

MPF Suppressions

When needed, CMS will suppress provider directory data on MPF. Reasons for suppressing provider and facility data may include, but are not limited to, the following:

- An MA organization fails to complete the provider directory attestation.
- The validation process results in fatal errors for a machine-readable or FHIR-based JSON file.
- Reports on data quality issues that exceed a threshold published by CMS.

Generally, CMS will remove a suppression from MPF on the day following resolution of the issue. Further guidance on MPF suppressions will be sent in a future communication.

Technical Support

Support Resource	Contact Information
Technical support with HPMS (e.g., provider directory URLs, online validation reports, plan attestation, and plan previews)	HPMS Help Desk 1-800-220-2028 hpms@cms.hhs.gov
Technical assistance with the machine-readable JSON and FHIR-based JSON files and validation results	support@cms-mapnet.zendesk.com
Technical support for the HPMS provider directory validation API	hpmstechsupport@triafed.com
Instructions for obtaining MA plan user access to HPMS	User ID Process CMS
Instructions for obtaining consultant user access to HPMS	User ID Process CMS
Instructions for obtaining signatory access in HPMS to complete the annual provider directory attestation	User ID Process CMS
General HPMS user access questions	hpms_access@cms.hhs.gov
HPMS consultant/signatory user access questions	HPMSConsultantAccess@cms.hhs.gov
General MPF questions	MPF@cms.hhs.gov

Appendix A: Machine-Readable JSON Specifications

If an MA provider or facility has more than one NPI number, create a single entry for each NPI number. To ensure data integrity, MA organizations must use a role-based hierarchy. For example, if a provider's specialty coverage varies by location, separate entries must be created for each unique specialty/location combination to ensure MPF accurately reflects where services are available at a particular location.

If an MA provider or facility has more than one NPI number, create separate entries for each NPI number.			
Field	Label	Definition	Required
npi	National Provider ID	The 10-digit National Provider Identifier (NPI) unique identification number assigned to the provider or facility	Yes
type	Type	Specify the provider type. Valid values: Individual, Facility	Yes
plans	Plans	Array of unique MA plans for which the provider or facility is in-network. See Plans Sub-Type below.	Yes
lastUpdatedOn	Last Updated On	Date on which this provider or facility record was last updated or refreshed. Valid format: ISO 8601 format (YYYY-MM-DD)	Yes

If the entry is defined as INDIVIDUAL , the following fields must be present.			
Field	Label	Definition	Required
name	Name	A name object, containing the name fields specified below. Example: {"prefix": "Dr.", "first": "Jane", "middle": "Gretchen", "last": "Smith"}	Yes
prefix	Prefix	Provide one of the following valid values: Mr., Mrs., Miss, Ms., Dr.	No
first	First Name	Full first name	Yes
middle	Middle Name	Full middle name	No
last	Last Name	Full last name	Yes
suffix	Suffix	Provide one of the following valid values: Jr., Sr., II, III, III, IV	No

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If the entry is defined as **INDIVIDUAL**, the following fields must be present.

Field	Label	Definition	Required
sex	Sex	Provide one of the valid values for the provider (i.e., Male, Female)	No
languages	Languages Spoken	An array of the languages spoken	Yes

If the entry is defined as **FACILITY**, the following fields must be present.

Field	Label	Definition	Required
facilityName	Facility Name	Name of the facility	Yes
facilityType	Facility Type	An array using NUCC taxonomy codes	Yes

Plans Sub-Type

Field	Label	Definition	Required
maPlanId	MA Plan ID	CMS is using this element to capture the unique MA plan for which the practitioner serves as an in-network provider. The format SHALL be: [CMS Contract Number]-[CMS Plan ID]-[CMS Segment ID] 000 must be used to denote a plan that is <u>not segmented</u>. Example: H9999-001-001	Yes
year	Contract Year	The contract year for which this data applies. While this is an array field, CMS requires that only one contract year be provided for MPF purposes.	Yes
addresses	Address	List of addresses for this provider. See Address Sub-Type below.	Yes
specialty	Specialty Type	An array using NUCC taxonomy codes	Yes

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Plans Sub-Type			
Field	Label	Definition	Required
accepting	Accepting Patients	Is the provider accepting new patients? Provide one of the following valid values: accepting, not accepting	No
networks	Network ID	The unique identifier of the network this plan belongs to.	No

Address Sub-Type			
Field	Label	Definition	Required
address	Street Address	Street address for the location specified	Yes
address2	Street Address 2	Street address 2 for the location specified	No
city	City	City for the location specified	Yes
state	State Abbreviation	Two letter state abbreviation for the location specified (e.g., MD)	Yes
zip	Zip Code	Five digit zip code for the location specified, represented as a string	Yes
phone	Phone Number	10 digit phone number for the location specified (e.g., 112223333)	Yes

Appendix B: FHIR-Based JSON Specifications

Individual Entries

Context: PractitionerRole

Data Point	FHIR Resource Path	Required by CMS for MPF	Notes
Identifier (NPI)	1a. PractitionerRole.identifier[system='http://hl7.org/fhir/sid/us-npi'].value or 1b. Practitioner.identifier[system='http://hl7.org/fhir/sid/us-npi'].value	Yes	If the practitioner has multiple NPIs, create a new PractitionerRole Resource for each instance.
Date Record Was Last Updated	4. PractitionerRole.meta.lastUpdated	Yes	CMS is using this field to define when a practitioner's record was last updated on the MA organization's FHIR server.
Location	PractitionerRole.location	Yes	If there is more than one address, each address will need to be represented in their own Location resource instance.
Practitioner Specialty	8. specialty.coding.code	Yes	Present as an array of NUCC individual codes .
Practitioner Accepts New Patients	9. PractitionerRole.extension[url='http://hl7.org/fhir/us/davinci-pdex-plan-net/StructureDefinition/newpatients'],extension[url='acceptingPatients']	No	Accepting - "newpt" Not accepting - "not" and "existptonly"

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Data Point	FHIR Resource Path	Required by CMS for MPF	Notes
Network	PractitionerRole.extension[url= https://hl7.org/fhir/us/davinci-pdex-plan-net/STU1.2/StructureDefinition-network-reference.html]	Yes	This field is requested for parity with FHIR standards and to assist with data processing. Network name and ID will not be displayed on the MPF user interface. This field is used to link PractitionerRole to InsurancePlan resources.

Context: Practitioner

Data Point	FHIR Resource Path	Required by CMS for MPF	Notes
Identifier (NPI)	1a. PractitionerRole.identifier[system='http://hl7.org/fhir/sid/us-npi'].value or 1b. Practitioner.identifier[system='http://hl7.org/fhir/sid/us-npi'].value	Yes	If the practitioner has multiple NPIs, create a new PractitionerRole Resource for each instance.
Practitioner Name	5. Practitioner.name	Yes	See sub-elements in the HumanName datatype.
Practitioner Full Name	5->i. Practitioner.name.text	Yes	
Practitioner Prefix	5->ii. Practitioner.name.prefix	No	
Practitioner First Name	5->iii. Practitioner.name.given[0]	Yes	
Practitioner Middle Name	5->iv. Practitioner.name.given[1]	No	
Practitioner Last Name	5->v. Practitioner.name.family	Yes	
Practitioner Suffix	5->vi. Practitioner.name.suffix	No	

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Data Point	FHIR Resource Path	Required by CMS for MPF	Notes
Practitioner Phone Number	7a. PractitionerRole.telecom[system='phone'].value or 7b. Practitioner.telecom[system='phone'].value	Yes	
Practitioner Sex	10. Practitioner.gender	No	
Languages Spoken by the Practitioner	11. Practitioner.communication.coding.code	Yes	Present as an array of language codes.

Context: Location

Data Point	FHIR Resource Path	Required by CMS for MPF	Notes
ID	Location.id	Yes	
Location - Street Address 1	6a->i. Location.address.line[0]	Yes	
Location - Street Address 2	6a->ii. Location.address.line[1]	No	
Location - City	6a->iii. Location.address.city	Yes	
Location - State	6a->iv. Location.address.state	Yes	
Location - Zip Code	6a->v. Location.address.postalCode	Yes	

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Context: InsurancePlan

Data Point	FHIR Resource Path	Required by CMS for MPF	Notes
CMS MA Plan Identifier	2. InsurancePlan.identifier[system='http://cms.gov/medicare/ma-plan-id']	Yes	CMS is using this element to capture the unique MA plan for which the practitioner serves as an in-network provider. The format SHALL be: [CMS Contract Number]-[CMS Plan ID]-[CMS Segment ID] 000 must be used to denote a plan that is <u>not segmented</u>. Example: H9999-001-001
Contract Year	3. InsurancePlan.period	Yes	CMS is using this field to define the contract year associated with the record. While this element may be defined in FHIR as a full timestamp that includes day, month, and year, CMS will extract only the year. While this is an array field, CMS requires that only one contract year be provided for MPF purposes.
Network ID	InsurancePlan.network	Yes	This field is requested for parity with FHIR standards and to assist with data processing. Network name and ID will not be displayed on the MPF user interface. This field is used to link PractitionerRole to InsurancePlan resources.

Facility Entries

Context: Organization[type.coding.system = 'http://hl7.org/fhir/us/davinci-pdex-plan-net/CodeSystem/OrgTypeCS' and type.coding.code = 'fac']

Context: OrganizationAffiliation

Data Point	FHIR Resource Path	Required by CMS for MPF	Notes
Network	OrganizationAffiliation.Network	Yes	This field is requested for parity with FHIR standards and to assist with data processing. Network name and ID will not be displayed on the MPF user interface. This field is used to link OrganizationAffiliation to InsurancePlan resources.
Organization	OrganizationAffiliation.Organization	Yes	This field is used to link OrganizationAffiliation to Organization resources.
Location	OrganizationAffiliation.Location	Yes	This field is used to link OrganizationAffiliation to Location resources. If there is more than one address, each address will need to be represented in their own Location resource instance.
Specialty	OrganizationAffiliation.specialty.coding.code	Yes	Present as an array of NUCC non-individual codes . Each facility type code will be in an instance of OrganizationAffiliation.type.

Context: Organization

Data Point	FHIR Resource Path	Required by CMS for MPF	Notes
Identifier (NPI)	1. Organization.identifier[system='http://hl7.org/fhir/sid/us-npi'].value	Yes	If the facility has multiple NPIs, create a new Organization Resource for each instance.

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Data Point	FHIR Resource Path	Required by CMS for MPF	Notes
Date Record Was Last Updated	4. Organization.meta.lastUpdated	Yes	CMS is using this field to define when a facility's record was last updated on the MA organization's FHIR server.
Facility Name	5. Organization.name	Yes	
Facility Type	6. Organization.type.coding.code	Yes	Note: The organization must have the following elements requirements in Organization.type.coding: - system = 'http://hl7.org/fhir/us/davinci-pdex-plan-net/CodeSystem/OrgTypeCS' - value = 'fac'
Facility Location	7a. Organization.address or 7b. Location.address	Yes	Create an addresses array entry for each Organization.address. If the organization does not contain an address, CMS will access the location via OrganizationAffiliation.
Facility Location - Street Address 1	7a->i. Organization.address.line[0] or 7b->i. Location.address.line[0]	Yes	
Facility Location - Street Address 2	7a->i. Organization.address.line[1] or 7b->i. Location.address.line[1]	No	
Facility Location - City	7a->i. Organization.address.city or 7b->i. Location.address.city	Yes	

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Data Point	FHIR Resource Path	Required by CMS for MPF	Notes
Facility Location - State	7a->i. Organization.address.state or 7b->i. Location.address.state	Yes	
Facility Location - Zip Code	7a->i. Organization.address.postalCode or 7b->i. Location.address.postalCode	Yes	
Facility Location - Phone Number	8a. Organization.telecom[system='phone'].value or 8b. Location.telecom[system='phone'].value	Yes	

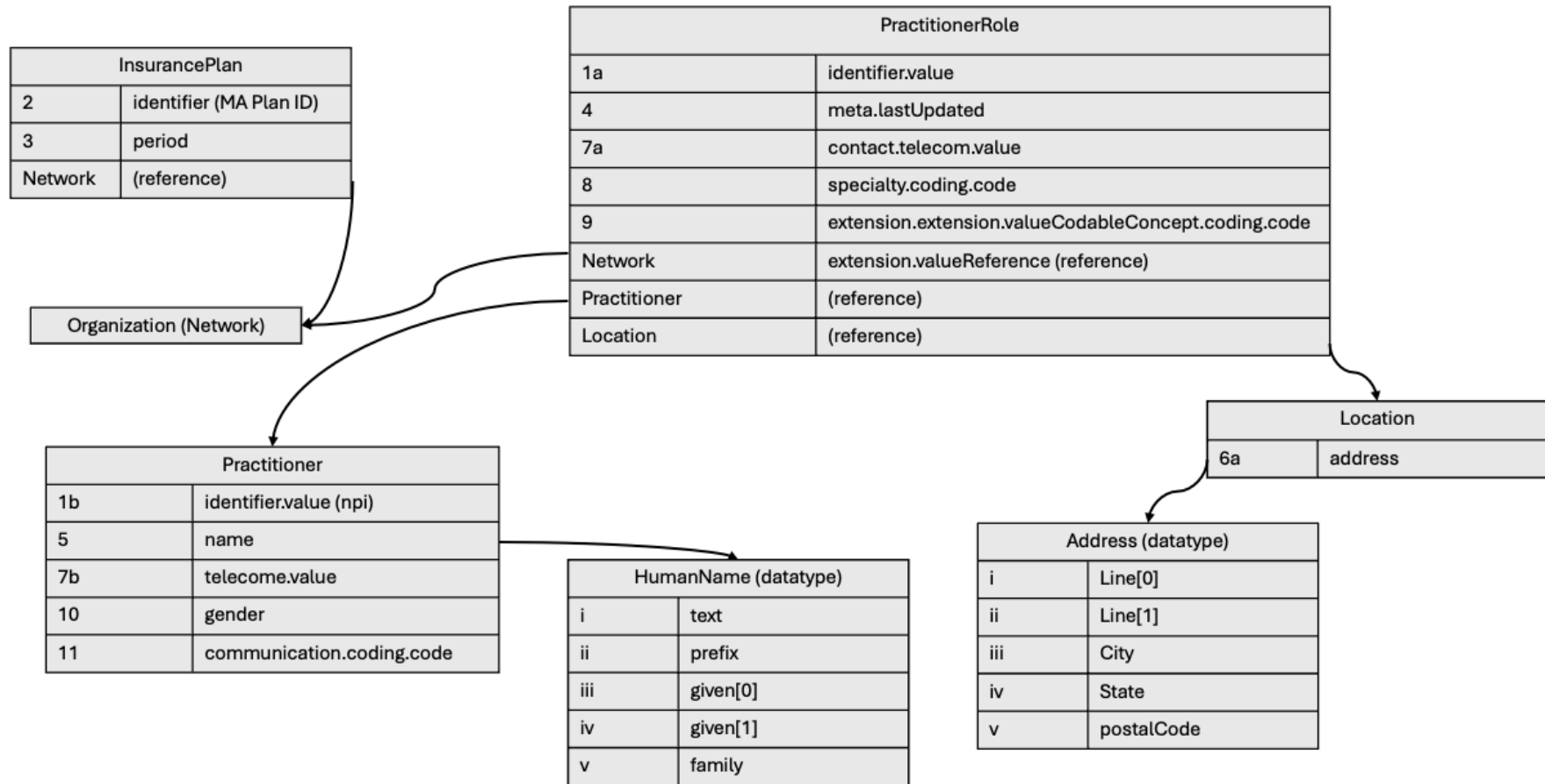
Context: InsurancePlan

Data Point	FHIR Resource Path	Required by CMS for MPF	Notes
CMS MA Plan Identifier	2. InsurancePlan.identifier[system='http://cms.gov/medicare/ma-plan-id']	Yes	CMS is using this element to capture the unique MA plan for which the facility serves as an in-network provider. The format SHALL be: [CMS Contract Number]-[CMS Plan ID]-[CMS Segment ID] 000 must be used to denote a plan that is <u>not segmented</u>. Example: H9999-001-001

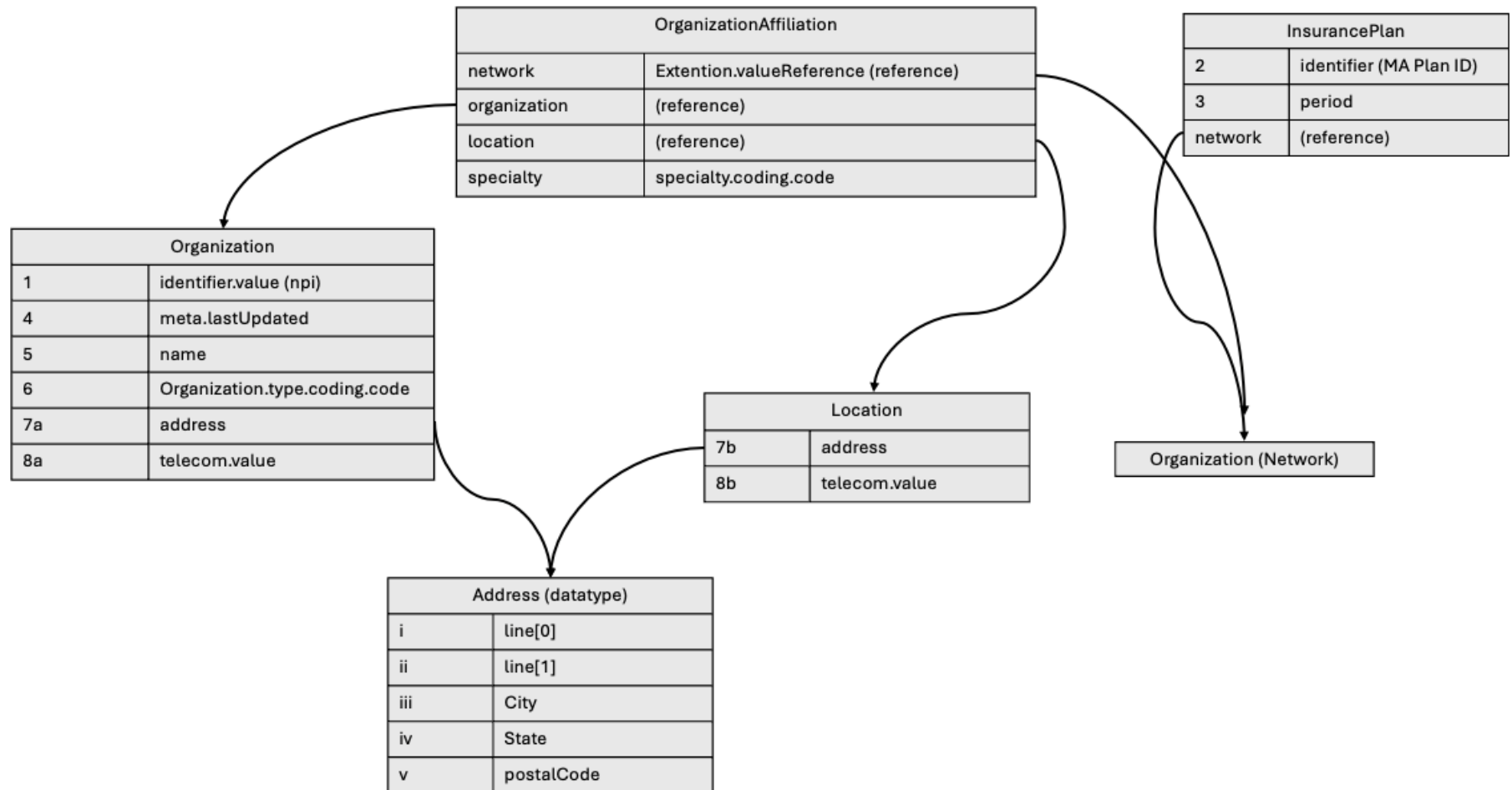
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Data Point	FHIR Resource Path	Required by CMS for MPF	Notes
Contract Year	3. InsurancePlan.period	Yes	CMS is using this field to define the contract year associated with the record. While this element may be defined in FHIR as a full timestamp that includes day, month, and year, CMS will extract only the year. The period.start value should reflect the first day of the current contract year. Example: For CY 2027, the period.start value should be 2027-01-01.
Network ID	InsurancePlan.network	Yes	This field is requested for parity with FHIR standards and to assist with data processing. Network name and ID will not be displayed on the MPF user interface. This field is used to link OrganizationAffiliation to InsurancePlan resources.

Appendix C: UML Diagrams



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Appendix D: HTTP Metadata and Validations Mechanisms

To support efficient and scalable crawling of large JSON files, MA organizations are expected to implement standard HTTP metadata and validation mechanisms.

These recommendations follow the terminology of [RFC 9110 \(HTTP Semantics\)](#) and use the keywords defined in [RFC 2119](#) and [RFC 8174](#):

- **SHOULD** indicates a recommendation that is expected in most cases.
- **SHOULD NOT** indicates a discouraged practice, but one that may be acceptable in some cases.

Support for the HEAD Method

1. MA organizations **SHOULD** support the HEAD method for any JSON resource intended for download.

The HEAD response **SHOULD** include the following headers, which are consistent with what a GET would return:

- [ETag](#) (at least a weak validator)
- [Last-Modified](#)
- [Content-Length](#)
- [Content-Type](#)

2. Conditional Request Support

MA organizations **SHOULD** support conditional requests using at least one of the following standard HTTP headers:

- [If-None-Match](#)
- [If-Modified-Since](#)

When the resource has not changed, the server **SHOULD** return a 304 Not Modified response without a body, rather than returning 200 OK.

3. Response Headers for GET Requests

MA organizations **SHOULD** include the following headers in responses to GET requests:

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- [ETag](#) (a weak validator is sufficient)
- [Last-Modified](#)
- [Content-Length](#)
- [Content-Type](#)

The ETag **SHOULD** remain consistent for semantically equivalent content, even if there are minor, non-significant byte-level differences (e.g., formatting or whitespace). Weak ETags (e.g., W/"abc123") are acceptable and preferred in this context.

The Last-Modified header **SHOULD** reflect the most recent meaningful update to the resource.

The Content-Length header **SHOULD** accurately represent the size of the response body in bytes.

4. Fallback Behavior if HEAD is Unsupported

If the MA organization does not support the HEAD method, it **SHOULD** support conditional GET requests using either If-None-Match or If-Modified-Since.

Example Client Workflow

1. Initial Download
 - GET /data.json
 - Store ETag, Last-Modified, Content-Length and Content-Type
2. Subsequent Validation (Preferred)
 - HEAD /data.json
 - If ETag or Last-Modified is unchanged, skip download
 - Otherwise, perform GET /data.json
3. Alternative Validation (If HEAD Unsupported)
 - GET /data.json with headers:
 - If-None-Match: W/"abc123"
 - If-Modified-Since: Tue, 01 Oct 2025 15:30:00 GMT
 - If resource is unchanged, server responds with 304 Not Modified

Appendix E: Validation Inventory

CMS crawls all MPF provider directory URLs reported in HPMS daily. Following each crawl, CMS generates a validation error report (.csv file) for each contract number. MA organizations can retrieve their validation reports using the HPMS MPF Provider Directory module or via an HPMS API. Reports are typically available by mid-morning Eastern Time.

CMS has defined three levels of findings:

Level	Description
1 - Fatal Errors	A fatal error represents a structural failure in the submission that prevents CMS from reading the file. This usually occurs due to malformed file syntax or hosting issues. The system cannot parse the data, and the entire dataset will be rejected. Data included in a fatal submission will not be shown on MPF until the issue has been resolved.
2 - Record-Level Errors	A record-level error occurs when a specific record contains invalid or incomplete data that prevents information from being displayed accurately. This error could apply to the entire provider record or only a part of the associated data (e.g., an address or specialty). After flagging a record-level error, CMS will continue processing the remainder of the dataset. Records flagged with this finding will not be shown on MPF until the issue has been resolved.
3 - Informational Warnings	An informational warning identifies a potential issue. These items will be reported as findings, but CMS will continue processing the dataset. Issues flagged with this finding will be shown on MPF, though MA organizations should review and remediate the issue as quickly as possible.

Fatal Errors

Level	Error Code	Validation Name	Description	Fields Provided on Error Report	Suggested Plan Action
1	C4001	HTTPCommunicationsError	Networking issue occurred while talking to remote host.	ContractID, URL	Verify that the source URL is public and accessible.
1	C4002	X509CertError	The HTTPS certification is invalid or has a broken signature chain,	ContractID, URL	Verify that the source URL is public and accessible.
1	C4003	FileRetrievalError	System was unable to retrieve the file from the source.	ContractID, URL	Verify that the source URL is public and accessible.
1	C4004	InvalidJSONSyntax	Encountered a syntax error. It contains an invalid character at the provided location during crawl.	ContractID, URL	Validate the JSON file against standard syntax rules and re-upload.
1	C4011	MissingURL	URL for hosted files is missing.	ContractID	Provide a URL that hosts the prepared index JSON file.
1	P1017	NoProvidersFound	File is valid, but contains zero provider records.	ContractID, URL	Verify file contains the expected provider data records.
1	N3006	OmittedContractID	Contract ID was expected in the data set, but was not found.	OmittedContractID	Provide all expected contract IDs and associated data.
1	N3015	InvalidJSONSyntax	Encountered a syntax error. It contains an invalid character at the provided location inside the data file.	ContractID, URL	Validate the JSON file against standard syntax rules and re-upload.
1	C4012	MissingFileDownloadURL	No downloadable files found.	ContractID, URL	Populate index file with prepared file URLs.
1	C4013	InvalidIndexFileFormat	Incorrect JSON syntax at the index URL.	ContractID, URL	Follow the CMS technical guide for instructions on hosting index files.

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Level	Error Code	Validation Name	Description	Fields Provided on Error Report	Suggested Plan Action
1	C4014	ImproperURL	Improper URL format was detected	ContractID, URL	Provide a single https:// URL with no whitespace, commas, or line breaks
1	C4015	InvalidPlanDataFile	Invalid plan data file	ContractID, URL	Validate the plan data file against the schema
1	C4016	InvalidDataFileMR	Invalid MR JSON data file	ContractID, URL	Validate the machine-readable data file against the schema for MR
1	C4017	InvalidPlanDataFileFHIRResource	Invalid FHIR data file resource	ContractID, URL	Validate the FHIR Resource data file against the FHIR Schema
1	C4018	InvalidPlanDataFileFHIRBundle	Invalid FHIR data file bundle	ContractID, URL	Validate the FHIR Bundle data file against the FHIR Schema

Record-Level Skip Errors

Level	Error Code	Validation Name	Description	Fields Provided on Error Report	Suggested Plan Action
2	A2001	MissingProviderAddresses	No addresses were provided for an NPI.	ContractID, NPI	Provide valid address.
2	A2008	InvalidAddress	Address cannot be geolocated.	ContractID, NPI, Address	Provide valid address.
2	F5001	MissingNetworkReference	Network Reference ID is missing from resource.	ContractID, ResourceID, NPI	Update the FHIR JSON file to include the required reference ID.
2	F5002	MissingOrganizationReference	Organization Reference ID is missing from resource.	ContractID, ResourceID	Update the FHIR JSON file to include the required reference ID.
2	F5003	MissingPractitionerReference	Practitioner Reference ID is missing from resource.	ContractID, ResourceID	Update the FHIR JSON file to include the required reference ID.
2	F5004	MissingLocationReference	Location Reference ID is missing from resource.	ContractID, ResourceID, NPI	Update the FHIR JSON file to include the required reference ID.
2	F5005	BrokenNetworkReference	Network Resource not found within dataset.	ContractID, ResourceID, NPI	Verify the reference Resource ID exists and is active in the files.
2	F5006	BrokenOrganizationReference	Organization Resource not found within dataset.	ContractID, ResourceID, NPI	Verify that the reference Resource ID exists and is active in the files.
2	F5007	BrokenPractitionerReference	Practitioner Resource not found within dataset.	ContractID, ResourceID, NPI	Verify that the reference Resource ID exists and is active in the files.
2	F5008	BrokenLocationReference	Location Resource not found within dataset.	ContractID, ResourceID, NPI	Verify that the reference Resource ID exists and is active in the files.
2	F5009	MultipleNPIonResource	Resources must only list a single NPI	ContractID, ResourceID, NPI	Create a new Resource per NPI instance
2	N3001	MissingPlanID	Plan ID is missing or blank.	ContractID, NPI, maPlanID	Provide valid contract/plan/segment ID.
2	N3002	InvalidMAPlanID	Plan ID format is invalid (must be [CMS Contract Number]-[CMS Plan ID]-[CMS Segment ID])	ContractID, NPI, maPlanID	Provide valid contract/plan/segment ID.

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Level	Error Code	Validation Name	Description	Fields Provided on Error Report	Suggested Plan Action
2	N3003	PlanNotAssociated	Plan not associated with any providers.	ContractID, NPI, PlanID	Verify file contains the expected provider data records.
2	N3004	MissingContractYear	Each plan must have a contract year listed.	ContractID, NPI, PlanID, SegmentID	Provide valid Contract Year.
2	N3005	InvalidContractYear	Contract year is not in a 4-digit year format.	ContractID, NPI, PlanID, SegmentID, InvalidYear	Provide valid Contract Year.
2	N3011	UnknownContractID	From the MAPlanID combination, the contract ID is unknown to the HPMS registry dataset.	ContractID, maPlanID	Provide a valid contract ID.
2	N3012	UnknownPlanID	From the MAPlanID combination, the plan ID is unknown to the HPMS registry dataset.	ContractID, maPlanID, PlanID	Provide a valid plan ID.
2	N3013	UnknownSegmentID	From the MAPlanID combination, the segment ID is unknown to the HPMS registry dataset.	ContractID, maPlanID, SegmentID	Provide a valid segment ID.
2	N3014	MismatchContractID	MAPlanID does not match the contract ID in HPMS.	ContractID, maPlanID, URL	Match contract ID to the MAPlanID.
2	P1001	MissingProviderNPI	NPI is missing or blank.	ContractID, name	Provide valid NPI.
2	P1002	UnknownProviderNPI	NPI not found in the registry dataset.	ContractID, NPI	Provide valid NPI.
2	P1003	DeactivatedProviderNPI	NPI is listed as deactivated in registry dataset.	ContractID, NPI	System rejects the record; data cannot be validated without a valid NPI.
2	P1016	ProviderNotAssociated	Provider must be associated with at least one plan ID.	ContractID, NPI	Associate the provider with at least one valid plan ID.

Advisory Warnings

Level	Error Code	Validation Name	Description	Fields Provided on Error Report	Suggested Plan Action
3	P1004	InvalidProviderType	Must be individual or facility.	ContractID, NPI, ProviderType	Provide valid provider type.
3	P1005	MismatchProviderType	Type does not match NPI Registry record.	ContractID, NPI, GivenProviderType, RegistryProviderType	Provide valid provider type.
3	P1006	MissingProviderFirstName	Missing first name.	ContractID, NPI	Supply the missing first name for the NPI record.
3	P1007	MissingProviderLastName	Missing last name.	ContractID, NPI	Supply the missing last name for the NPI record.
3	P1008	MissingFacilityName	Missing facility.	ContractID, NPI	Supply missing facility name for the NPI record.
3	P1009	MissingSpecialty	Provider requires at least one specialty.	ContractID, NPI	Update the record with the missing specialty.
3	P1010	MissingSex	Provider sex is not listed.	ContractID, NPI	Update the record with the missing sex.
3	P1011	MissingLanguage	Provider language is not listed.	ContractID, NPI	Update the record with the missing language.
3	P1012	MissingAcceptingPatients	Provider accepting patients status not listed.	ContractID, NPI	Update the record with the missing accepting patients status.
3	P1013	InvalidDateFormat	Date does not follow the required YYYY-MM-DD format.	ContractID, NPI, LastUpdated	Reformat date to YYYY-MM-DD.
3	P1014	FutureDate	LastUpdated date is in the future relative to crawl date.	ContractID, NPI, LastUpdated	Update last updated date to current or prior date from today's date.

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Level	Error Code	Validation Name	Description	Fields Provided on Error Report	Suggested Plan Action
3	P1018	InvalidAcceptingPatientsType	AcceptingPatients format is invalid.	ContractID, NPI, AcceptingPatients	Update field to the required format.
3	A2002	MissingProviderCity	City entry is missing or blank.	ContractID, NPI	Provide valid city.
3	A2003	MissingProviderState	State entry is missing or blank.	ContractID, NPI	Provide valid state.
3	A2004	InvalidProviderState	State format is invalid.	ContractID, NPI, State	Provide valid state.
3	A2005	MissingProviderZip	Zip code is missing or blank.	ContractID, NPI	Provide valid zip code.
3	A2006	InvalidProviderZip	Zip code format is invalid.	ContractID, NPI, Zip	Provide valid zip code.
3	A2007	MissingProviderStreetAddresses	Address line 1 is missing or blank.	ContractID, NPI	Provide valid address.
3	A2009	MissingProviderPhoneNumber	10 digit phone number is missing.	ContractID, NPI	Provide valid phone number.
3	A2010	InvalidProviderPhoneNumber	Phone number contains non-numeric characters or is the wrong length.	ContractID, NPI, Phone	Provide valid phone number.
3	N3007	OmittedSegmentID	Segment ID was expected in dataset, but not found.	OmittedSegmentID	Provide all expected segment IDs and associated data.
3	N3008	OmittedPlanID	Plan ID was expected in dataset, but not found.	OmittedPlanID	Provide all expected plan IDs and associated data.
3	C4005	HeadRequestFailed	File is missing header information.	ContractID, URL	Configure the server to return standard HTTP headers.

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Level	Error Code	Validation Name	Description	Fields Provided on Error Report	Suggested Plan Action
3	C4006	MissingLastModifiedHeader	Header is missing the last modified date.	ContractID, URL	Configure the server to return standard HTTP headers.
3	C4007	MissingContentLengthHeader	Header is missing the content length.	ContractID, URL	Configure the server to return standard HTTP headers.
3	C4008	MissingContentTypeHeader	Header is missing the content type.	ContractID, URL	Configure the server to return standard HTTP headers.
3	C4009	MissingETagHeader	Header is missing the ETag.	ContractID, URL	Configure the server to return standard HTTP headers.
3	C4010	StaleDataWarning	Last updated date is older than 30 days from crawl date.	ContractID, NPI, LastUpdated	Confirm provider directory data updates are not needed.