**4 October 2018**

Schedulable Entity File for the

MHS Data Repository (MDR)

(Version 1.00.08)

Future Specification

**Revision History**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Version** | **Date**  | **Para/Tbl/Fig** | **Originator** | **Description of Change** |
| 1.00.00 | 06/02/2014 | * Initial
 | W.Funk | * Initial version
 |
| 1.00.01 | 07/29/2015 | * IV, VII, VIII
 | N. Bowling |  |
| 1.00.02 | 12/13/2015 | * Whole document
 | C. Kangas | * Redesigned the processing logic to add date windows allowing for retroactive reporting
 |
| 1.00.03 | 09/22/2016 | * VI, Table 3
 | C. Kangas | * Added feed de-duplication language
* Added prov\_id, meprs4\_cd, duration, and detail1 to the slot\_key
 |
| 1.00.04 | 11/02/2016 | * Table 3
 | C. Kangas | * Updated the field format for MTF Region and CHCS Provider ID
 |
| 1.00.05 | 09/15/2017 | * Section V
 | K. Hofmann | * Updated refresh frequency to include future FYs starting in June
 |
| 1.00.06 | 10/27/2017 | * Table 3
 | W. Funk | * Added MTF T3 and T17 regions from DMIS ID Table merge
 |
| 1.00.07 | 9/14/2018 | * Table 3
 | K. Hofmann | * Changed length of CALCPROVID to $15
 |
| 1.00.08 | 10/4/2018 | * Section VII
 | K. Hofmann | * Clarified rule for DMIS ID merge for future years of data
 |

# MDR Schedulable Entity File

1. Source

CHCS

1. Transmission (Format and Frequency)

Data are provided to the MDR from CHCS on a daily basis according to ICD #XX.

1. Organization and batching

Records will be accumulated into fiscal year files, updated according to the logic described in section VI. There is one MDR MTF Schedulable Entity dataset per FY, described in Table 1.

Table 1: MDR PUB Location and Naming Convention

| **MDR File** | **File Location** | **Member Name** |
| --- | --- | --- |
| Schedulable Entity | /mdr/pub/schent | fy<YY>.sas7bdat |

The processing rules and layout are described in Table 3.

1. Receiving Filters

## For FY13 – FY15FM10, each batch of data from CHCS contains records from the CHCS Schedulable Entity file, for appointment dates in a +/- 65 day window from the date the data are extracted from CHCS. Starting FY15 FM10 the window changes to 45 days previous to the harvest date and 120 days after. No other filters are applied.

1. Refresh Frequency

Data are provided daily but processed weekly.

Frequency of updates:

* Current FY: weekly
* Future FY: weekly, beginning in June of current FY
* Prior FY: weekly for two months (October and November)
1. Update Process

For the initial preparation and subsequent processing of the MDR Schedulable Entity File, records are read in and fields are derived according to the logic described in Table 3. Since the status of a past or future appointment slot must be known as of any retroactive or current reporting date, the status of the slot must be associated with begin and end dates as the slot had been, or currently is, represented in CHCS.

For new incoming raw feeds, the processor uses the slot\_key field as the record key. If there are any changes in any of the other fields on the entire record, the date window is closed for the previous record and a new record with the new begin date is started. If a new feed record comes in with no changes to any field (for a given slot\_key), then the enddate is simply extended out to the harvest date on the raw feed record. Appendix A provides examples using sample data to help illustrate the results of this update process.

On rare occasions, multiple raw feed records are sent to the MDR on the same day representing the same appointment slot. Only one slot status is to be tracked per day. To remove any duplicate/multiple records for the same slot on the same day, the processor should only keep the most recently received record based on the following tie-breaking criteria: slot\_key, harvest\_dt, harvest\_time, booked.

1. Field Transformations and Deletions for MDR Core Database

The MDR Schedulable Entity file contains minimal field transformations, described in table 3. There are two external files used in field derivations. The merge characteristics are described in table 2. The MTF SE file is merged with the NPPES and DMIS ID Index tables. When processing future years of data, if the same year of the DMIS ID Index table is not available, use the most recent year. For example, if the current year is FY18, the future year is FY19, but the FY19 DMIS ID Index table is not available, merge all FY19 data to the FY18 DMIS ID Index table.

Table 2: External File Merges in Schedulable Entity Processing

|  **Merge** | **Date Matching** | **Additional Matching** |
| --- | --- | --- |
| MDR DMISID Index | FY | DMISID |
| MDR NPPES | N/A | NPI |

1. File Layout

Table 3: Layout and Processing Rules for Schedulable Entity File

| **Data Element** | **SAS Name** | **Format** | **Source (Field #)** | **Business Rule** |
| --- | --- | --- | --- | --- |
| Appointment Date | APPT\_DT | SAS Date | 1 | Transform the Julian date to a SAS Date. |
| Appointment Time | APPT\_TIME | $4 | 2 | No transformation |
| CHCS Host | HOST\_DMISID | $4  | 3 | First four characters of field #3 (Host|Slot IEN) |
| Schedulable Entity IEN | SE\_IEN | $5 | 4 | Positions 5-9 of field #4 (Host|Schedulable Entity IEN) |
| Appointment Slot | APPT\_SLOT | $5 | 5 | No transformation. |
| Maximum Patients | MAX\_PTS | Num | 6 | No transformation |
| Total Booked | BOOKED | Num | 7 | No transformation |
| Slot Status | STATUS | $10 | 8 | No transformation |
| Detail Code 1 - 4 | DETAILn | $8 | 9 – 12 | No transformation. 4 separate fields. |
| Provider IEN | PROV\_IEN | $5 | 13 | Positions 5-9 of field #13 (Host|Provider IEN)  |
| Provider Flag | PROV\_FLAG | $1 | 14 | No transformation |
| Duration | DURATION | Num | 15 | No transformation |
| MEPRS4 Code | MEPRS4\_CD | $4 | 16 | No transformation. Only keep the record if MEPRS4 Code begins with an A – F. |
| Treatment DMISID | DMISID | $4  | 17 | No transformation. Only keep the record if DMISID is populated. |
| CHCS Provider ID | CALCPROVID | $15~~1~~ | 18 | No transformation. |
| Appointment Type | APPT\_TYPE | $5 | 19 | No transformation. |
| CHCS Provider ID | PROV\_ID | $9 | 21 | No transformation – Populated after 9/2014 |
| Provider EDI\_PN | PROV\_EDIPN | $10 | 22 | No transformation – Populated after 9/2014 |
| Provider NPI | PROV\_NPI | $10 | 23 | No transformation – Populated after 9/2014 |
| Provider HIPAA Taxonomy (CHCS) | PROVHIPAA | $10 | 24 | No transformation – Populated after 8/2015 |
| Clinic Name | CLINIC\_NAME | $30 | 25 | No transformation – Populated after 8/2015 |
| **Fields from DMISID Index Table Merge (by FY and DMISID)** |
| MTF Service | MTF\_SVC | $1 | N/A | UBU\_SVC |
| MTF MSMA | MTF\_MSMA | $3 | N/A | MSM\_ID |
| MTF T3 Region | MTF\_T3REG | $2 | N/A | T3\_REG |
| MTF Command | MTF\_CMD | $8 | N/A | MAJCMND |
| Parent DMISID | PARENT | $4  | N/A | UBU\_PAR |
| MTF T2017 Region | MTF\_T17REG | $2 | N/A | T17\_REG |
| **Fields from the NPPES Merge** |
| Provider Last Name | LASTNAME | $35 | N/A | LNAME |
| Provider First Name | FIRSTNAME | $20 | N/A | FNAME |
| Provider Taxonomy 1 - 5 | HIPAA\_TAXn | $10 | N/A | HIPAAn (5 separate fields) |
| **Internally Derived Fields** |
| Begin Date | BEGDATE | SAS Date | N/A | Derive based on harvest date (field #20). See Appendix A. |
| End Date | ENDDATE | SAS Date | N/A | Derive based on harvest date (field #20). See Appendix A. |
| Fiscal Year | FY | $4 | N/A | Derive based on appointment date. |
| Fiscal Month | FM | $2 | N/A | Derive based on appointment date. |
| Slot Key | SLOT\_KEY | $50 | N/A | Derived by concatenating the following fields: host\_dmisid, se\_ien, appt\_dt, appt\_time, appt\_slot, prov\_id, meprs4\_cd, duration, detail1  |

1. Data Marts

N/A

**Appendix A: Processing Example**

The Schedulable Entity file contains information on appointment slots available to patients. This appendix provides an example to help describe how the raw feed records are processed into the final records seen in the MDR PUB datasets.

Below are 10 raw daily (mock) records sent to the MDR, all related to the same appointment slot at 3pm on 11/2. Only select fields are being shown for this example. You can see that the first 4 records are essentially unchanged records, harvested from 10/24 to 10/27. On 10/28, this particular slot changed status and went from ‘OPEN’ to ‘BOOKED’. The final 6 records are then unchanged from 10/28 to 11/2.

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **slot\_key** | **host** | **appt\_dt** | **appt\_time** | **harvest\_dt** | **appt\_slot** | **duration** | **status** | **max\_pts** | **prov\_ien** | **booked** | **calcprovid** | **appt\_type** |
| 004527232015110215001 | 0045 | 11/02/2015 | 1500 | 10/24/2015 | 1 | 15 | OPEN | 1 | 68382 | 0 | COLED12345 | FTR |
| 004527232015110215001 | 0045 | 11/02/2015 | 1500 | 10/25/2015 | 1 | 15 | OPEN | 1 | 68382 | 0 | COLED12345 | FTR |
| 004527232015110215001 | 0045 | 11/02/2015 | 1500 | 10/26/2015 | 1 | 15 | OPEN | 1 | 68382 | 0 | COLED12345 | FTR |
| 004527232015110215001 | 0045 | 11/02/2015 | 1500 | 10/27/2015 | 1 | 15 | OPEN | 1 | 68382 | 0 | COLED12345 | FTR |
| 004527232015110215001 | 0045 | 11/02/2015 | 1500 | 10/28/2015 | 1 | 15 | BOOKED | 1 | 68382 | 1 | COLED12345 | FTR |
| 004527232015110215001 | 0045 | 11/02/2015 | 1500 | 10/29/2015 | 1 | 15 | BOOKED | 1 | 68382 | 1 | COLED12345 | FTR |
| 004527232015110215001 | 0045 | 11/02/2015 | 1500 | 10/30/2015 | 1 | 15 | BOOKED | 1 | 68382 | 1 | COLED12345 | FTR |
| 004527232015110215001 | 0045 | 11/02/2015 | 1500 | 10/31/2015 | 1 | 15 | BOOKED | 1 | 68382 | 1 | COLED12345 | FTR |
| 004527232015110215001 | 0045 | 11/02/2015 | 1500 | 11/01/2015 | 1 | 15 | BOOKED | 1 | 68382 | 1 | COLED12345 | FTR |
| 004527232015110215001 | 0045 | 11/02/2015 | 1500 | 11/02/2015 | 1 | 15 | BOOKED | 1 | 68382 | 1 | COLED12345 | FTR |

Below are the final 2 records that the MDR processor creates by collapsing the above raw records, creating begin and end date windows based on the harvest dates from the raw records. This is one of the most common examples you will see in the data, as an appointment slot often starts as “OPEN” for a period of time, and then becomes “BOOKED” up until the date of the appointment.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **slot\_key** | **host** | **appt\_dt** | **appt\_time** | **begdate** | **enddate** | **appt\_slot** | **duration** | **status** | **max\_pts** | **prov\_ien** | **booked** | **calcprovid** | **appt\_type** |
| 004527232015110215001 | 0045 | 11/02/2015 | 1500 | 10/24/2015 | 10/27/2015 | 1 | 15 | OPEN | 1 | 68382 | 0 | COLED12345 | FTR |
| 004527232015110215001 | 0045 | 11/02/2015 | 1500 | 10/28/2015 | 11/02/2015 | 1 | 15 | BOOKED | 1 | 68382 | 1 | COLED12345 | FTR |

In this case, the only fields that changed were the “STATUS” and “BOOKED” fields, which causes a new final PUB record to be created. In the MDR processor, if any field changes on the slot record across raw feeds, such as the APPT\_TYPE or DURATION, then a new record is created with the corresponding begin and end dates. The other fields on the record change less frequently than the STATUS and BOOKED fields, but changes can and often do occur. There is one other scenario that can create a new record for an appointment slot related to the raw daily feeds being consecutive. If there is a gap in the consecutive harvest date records sent to the MDR, then a new record will be created since the status of the slot is essentially unknown on the days where a feed is missing. This forces the begin and end date windows to only reflect the data received from CHCS, and the processor does not infer any scheduling information by allowing the date windows to cover possible gaps in the raw data.