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Contingency Tracking System (CTS) Data for the MHS Data Repository (MDR) (Version 1.02.01)

Current Specification

Revision History

Version	Date	Originator	Para/Tbl/Fig	Description of Change
1.00.00	07/08/2011	J. Macleod/W. Funk	• New specification	Initial version
1.01.00	01/06/2012	J. MacLeod	• Section V, paragraph 4 • Table 2	Eliminated the buffer records that preceded the initial deployment when the initial deployment was after 9/11/2001.
1.02.00	05/03/2012	J. MacLeod	• Section XII	• Added a table name to the table in Section XII. • Changed the length of the "LABEL" variable in the file from 642 to 962 to accommodate the increase in number of possible pairings of deployment begin & end dates from 40 to 60.
1.02.01	10/27/2017	W. Funk	• Table 2	• Added T17 and NDAA 17 related fields

Contingency Tracking System (CTS) for the MDR

I. SOURCES

The source system is Defense Manpower Data Center (DMDC) Contingency Tracking System (CTS).

II. TRANSMISSION (FORMAT AND FREQUENCY)

The CTS data feed is provided monthly via secure FTP according to ICD XX.

III. ORGANIZATION AND BATCHING

Source data: The raw feed is a complete refresh and contains all deployment segments for people participating in overseas contingency operations since 9/11/2001.

Output data: The processor shall produce three outputs. The first is a SAS data set for the MDR that contains the raw fields from the source data as well as many other fields that are appended by the processor. See Table 2 for a detailed description of this data set. The second is a SAS data set for the MDR that is to be used to produce a format to be used by other MDR processors. See Table 3 for a detailed description of this data set. The third is an extract for the M2. See Section IX. Due to the sensitive nature of data, the SAS data sets will be stored in /mdr/restricted.

IV. RECEIVING FILTERS

Only records where the event type code indicates deployment are sent from CTS to the MDR.

V. UPDATE PROCESS

The CTS file is a full file refresh. All CTS processing is done on the full dataset, with all fields re-derived during processing.

A fundamental part of the update process/monthly processing is the creation of new buffer records, to bridge the gap between deployments, to cover the time from 11 September 2001 up to the first deployment, and to cover the time from the most recent deployment to 180 days after the date the data are processed. These buffer records are required for the M2. The buffer records are denoted by record type “B”, and business rules for filling in the data elements are described in table 2.

Buffer records that go between deployment segments have a begin date that is one day later than the end date of the closest preceding deployment, and an end date that is one day earlier than the begin date of the closest following deployment record.

The processor shall create a buffer record after the most recent deployment if the most recent deployment is scheduled to end prior to 180 days after the date the data are processed for the MDR. This buffer will represent the period from the end date + 1 of the most recent deployment to the processing date +180 days.

VI. FIELD TRANSFORMATIONS AND DELETIONS FOR MDR CORE DATABASE

There are minimal fields appended to the CTS file. The CTS file benefits from the MPI merge (see DEERS VM6 specification for details), the longitudinal VM4 merge, the LENR merge, the death file merge, and the MDR Omni-CAD merge. The table below summarizes the merge rules.

Table 1: Merges in MDR Processing.

Merge	Merge to	Date Matching	Additional Matching
MDR Longitudinal VM File	All records	Append attributes from LVM4 if a match is found based on current logic in LVM4 macro.	FY04 and later only EDI_PN if available; otherwise sponsor social security number
MDR Longitudinal Enrollment Data Set	All records	Append attributes from the LENR if a match is found based on current logic in LENR macro.	FY01-FY03 only EDI_PN if available; otherwise sponsor social security number
MDR Master Person Index	All records	None; match to most recent MPI. See the MPI specification.	EDI_PN
MDR Omni CAD	All records	Fields associated with begin dates are matched based on FY and FM of begin date and the corresponding FY/FM of the Omni-CAD record. Fields associated with end dates are matched based on the FY and FM of the end date and the corresponding FY/FM of the Omni-CAD record. See Omni-CAD specification; and file layout table for more information.	Begin Zip Code & End Zip Code
Master Death File	All records	None	EDI_PN

Business rules for each of the appended fields are described in the body of the format table in Section VII, or in an Appendix, referenced in that table.

Delete any records that have an invalid EDI_PN on the raw CTS data. An EDI_PN will be considered to be invalid if it contains any characters other than 0,1,2,3,4,5,6,7,8 and 9, if it is equal to 0000000000 or 9999999999, or if it is not 10 characters long.

Delete any records that have a missing or invalid begin date.

If there are any segments that appear to represent the same deployment, they need to be pared down to one segment. To remove duplicative segments for a single deployment, first sort the data by edi_pn and begin date, keeping only the first record for each edi_pn and begin date combination, and then sort the data by edi_pn and end date, keeping only the first record for each edi_pn and end date combination.

Deployment records that have overlapping dates need to be cleaned up. First, if, for a given person, there are any deployment segments that completely overlap one another, then keep the segment that has the earliest begin date and the latest end date. Second, if, for a given person, two deployments segments partially overlap, set the begin date of the record with the later deployment end date to 1 + begin date of the earlier deployment record.

VII. FILE LAYOUT & RECORD DEFINITION

The MDR CTS file is stored as both a SAS dataset and a "proc format" file. The SAS dataset is described in the file below. The proc format file is described in an appendix to this document.

Table 2: File Layout and Transformation Rules for CTS File

Data Element Name	Format	SAS Name in MDR File	CTS Source Data Element	Transformation Rule
DEERS Person ID	$10	edi_pn	EDI_PN	No transformation if record type is "D". Use EDI_PN from most recent preceding deployment record for record type "B".
Deployment Begin Date	yyyymmdd	begdate	DEP_BGN_DT	YYYYMMDD Format . If the record type is "D", no transformation. If the record type is "B": ~~If the buffer record precedes the first deployment, set it to 20010911.~~ ~~Otherwise,~~ Set to the day after the end date from the preceding deployment record.
Deployment End Date	yyyymmdd	enddate	DEP_END_DT	YYYYMMDD Format. If the record type is "D" and end date is not blank, no transformation, else if end date is blank, set to begin date + 457 (1.25 years). If the record type is "B", set to one less than the begin date of next deployment record if there is one. If there is no subsequent deployment record, set to the processing date + 180 days.
Fields appended from MPI				
Sponsor Social Security Number	$9	sponssn		Merge to the MPI, keeping only records from the MPI data set that have a PARC='BD'.
Fields Derived from Master Death File				
Death Date	yyyymmdd	dthdate		Populate if a death file record for the person indicates death. Otherwise, leave blank.
Fields appended from LVM4/LENR (must occur after MPI merge)[1]				

[1] Buffer records that have begin dates in a future fiscal year will not be merged to a reference file and will instead be assigned the default value for the field.

Data Element Name	Format	SAS Name in MDR File	CTS Source Data Element	Transformation Rule
Gender	$1	gender		For FY01-FY03 use LENR data, for FY04+ use LVM data: Gender from LENR/LVM on begin date of care. If no match found, set to 'Z'.
Date of Birth	yyyymmdd	dob		For FY04+ only: Date of birth from LVM on begin date of care. If no match found, set to missing. For FY03 and earlier set to missing.
Zip Code	$5	zipcode		For FY04+ only: Zip code from LVM4[6] on begin date of deployment. If no match found, set to '00000'. For FY03 and earlier set to '00000'
Enrollment Site	$4	enrsite		For FY01-FY03 use LENR data, for FY04+ use LVM data: Enrollment site from LENR/LVM on begin date of deployment. If no match found, set to 'NONE'.
Aggregate Service	$1	sponsvc		For FY04+ only: Aggregate Sponsor Service from LVM on begin date of deployment. If no match found, set to 'Z'. For FY03 and earlier set to 'Z'.
Privilege Code	$1	priv		For FY04+ only: Privilege Code from LVM on begin date of deployment. If no match found, set to blank. For FY03 and earlier set to blank.
Common Beneficiary Category	$1	comben		For FY01-FY03 use LENR data, for FY04+ use LVM data: Common Beneficiary Category on begin date of deployment. If no match found, set to '3'.
Beneficiary Category	$3	bencat		For FY04+ only: Beneficiary Category from LVM on begin date of deployment. If no match found, set to 'Z'. For FY03 and earlier set to 'Z'.
Alternate Care Value	$1	acv		For FY01-FY03 use LENR data, for FY04+ use LVM data: ACV on begin date of deployment. If no match found, set to blank. Blank fill for Jan 1, 2018 and later.
Eligibility Group	$1	elg_grp		If the begin date of deployment is between the begin and end date of D_ELG_GRP_CD then fill with D_ELG_GRP_CD else leave blank; see VM=6 specification, section G18 and 19 for segment and field position.

Data Element Name	Format	SAS Name in MDR File	CTS Source Data Element	Transformation Rule
Enrollment Group	$1	enr_grp		If the begin date of deployment is between the begin and end date of D_ENR_GRP_CD then fill with D_ENR_GRP_CD else leave blank; see VM=6 specification, section G18 and 19 for segment and field position.
Enrollment PCM Type	$1	pcm_type		If the begin date of care is between the begin and end date of D_PCM_TYPE_CD then fill with D_PCM_TYPE_CD else leave blank; see VM=6 specification, section G18 and 19 for segment and field position.
Fields appended from Omni-CAD format application (must occur after LVM4 merge)[2]				
PRISM ID	$4	prism		For FY04+: Based on matching FY, FM and zip code; if beg_svc=A then set equal to APRISM, if beg_svc = F then set equal to FPRISM; if beg_svc in (M, N) then set equal to NPRISM, otherwise set equal to OPRISM. If zip code not found in MDR Omni-CAD, set equal to '0999'. For FY03 and earlier: Cannot be assigned as the zip code and branch of service are blank.
Catchment ID	$4	catch		For FY04+: Based on matching FY, FM and zip code; if beg_svc=A then set equal to ACATCH, if beg_svc = F then set equal to FCATCH; if beg_svc in (M, N) then set equal to NCATCH, otherwise set equal to OCATCH. If zip code not found in MDR Omni-CAD, set equal to '0999'. For FY03 and earlier: Cannot be assigned as the zip code and branch of service are blank.

[2] Buffer records that have begin dates in a future fiscal year will not be merged to a reference file and will instead be assigned the default value for the field.

Data Element Name	Format	SAS Name in MDR File	CTS Source Data Element	Transformation Rule
MTF Service Area	$4	mtfsvcarea		For FY04+: Based on matching FY, FM and zip code; if beg_svc=A then set equal to ABPA, if beg_svc = F then set equal to FBPA; if beg_svc in (M, N) then set equal to NBPA, otherwise set equal to OBPA. If zip code not found in MDR Omni-CAD, set equal to '0999'. For FY03 and earlier: Cannot be assigned as the zip code and branch of service are blank.
Tnex Region	$1	tnexreg		HIDE For FY04+: HSSCREG, based on matching FY, FM and zip code. For FY03 and earlier: Cannot be assigned as the zip code and branch of service are blank.
T3 Region	$2	ben_t3_reg		Fill with T3 Region based on matching zip code
T2017 Region	$2	ben_t17_reg		Fill with T17 Region based on matching zip code.
Internally Derived Fields				
Record Type	$1	rec_type		Set to "B" for buffer records, set to "D" for records that originate in the data feed from CTS.
Current Record Flag	$1	current		Set to "Y" on the record for the DEERS Person ID with the most recent begin date. Set to "N" for all other records.
Deployment Number	$2	dep_num		Sequential number assigned to each occurrence of each EDI_PN, where record type is "D". (01=Record with earliest begin date and record type "D", 02=Record with next earliest begin date and record type "D", etc). Set to "XX" if record type is "B".
Most recent deployment	$1	recent		If the record type is "D": Set to "Y" for record with highest deployment number. Else set to "N". If the record type is "B", set to "N".
End Date of most recent deployment	yyyymmdd	enddt_rec		Set to end date of deployment record preceding this one if deployment number is not 1. Else set to blank.
Cumulative GWOT deployed days	$5	dep_days		Sum of all deployed days for the member, up to (and not including) begin date of this record.

Data Element Name	Format	SAS Name in MDR File	CTS Source Data Element	Transformation Rule
Deployed Days	5	dep_length		If record type is "D", then set to end date – begin date +1. If the record type is "B", set to missing.
Total Times Deployed	$2	times_dep		For each edi_pn, set to the total number of times a person was ever deployed. For example, if a person was deployed four times, each record for that edi_pn has a times_dep = 4.

VIII. REFRESH FREQUENCY

Monthly

IX. DATA MARTS AND OTHER OUTPUTS

M2: An extract is prepared for the M2 data mart. The layout of the extract is contained in table 3.

Table 3: Layout of CTS feed to M2

Variable Name	MDR SAS Name	Format
Person ID	edi_pn	$10
Sponsor ID	sponssn	$9
Deployment Number	dep_num	$3
Component	component	$1
Sponsor Service	service	$1
Sponsor Service, Aggregate	sponsvc	$1
Number of Times Deployed	times_dep	2
Begin Date	begdate	YYYYMMDD
End Date	enddate	YYYYMMDD
Location	loc	$3
Most Recent Deployment	recent	$1
Current Record Flag	current	$1
Deployment Record Flag	rec_type	$1

X. FILE DIRECTORY AND NAMING CONVENTIONS

The CTS file shall be located in the /mdr/restricted/cts/ directory. The main file is a SAS Dataset with one member, cts. The proc format file should also be stored in this directory.

XI. QUALITY REVIEW

It is expected that when the CTS processor is run each month, that basic quality checks are performed throughout the process. It is recommended that the EI/DS vendor develop a spreadsheet which tracks key characteristics of the data across processing cycles; making it relatively easy to understand how the data should generally look. EI/DS vendors need to review these statistics each month prior to releasing the data. BEA (the functional

proponent and the specification author) should be contacted immediately should any quality issues arise. These checks, at a minimum, should include:

- Total record counts in the data feed should go up with each month of data provided.
- The number of records 'cleaned out' each month should be similar in scope.
- The number of records that match when doing the MPI merge should be consistent.
- The number of records that match when doing the LVM4 merge should be consistent.
- The number of records that match to the Omni-CAD should be consistent.
- The distribution of service branch and component should be consistent.
- When reading in the CTS data feed, a small number of records should be printed off and manually inspected to ensure they have read in properly.
- Cross tabulations should be reviewed on derived elements to ensure the derivation logic works.
- A data flow tracker should be built to ensure that all records that are intended to make it into the final CTS file do. In other words, all deletions should be explained in the data flow tracker.
- A small number of records in the proc format output should be manually reviewed to ensure that it is written properly.

XII. PROC FORMAT FILE

The MDR CTS proc format file is an important file in other MDR processors as it is used to append deployment related information to other data files. The MDR SAS Format File is the preferred method for applying CTS attributes to other data files, in that it processes without sorting, saving considerable processing time for large data files. The format data will be stored as a SAS data set that can be converted into a SAS format using the FORMAT procedure.

The file includes only deployment records (i.e., no buffer records). The content of the format is described in the table below;

Table 4: Layout of CTS format file

Variable Name	SAS Name	Format	Derivation
EDI_PN	START	Char(10)	EDI_PN
Format Name	FMTNAME	Char(6)	Set to CTS
Format Type	TYPE	Char(1)	All Values are 'C' (character).
High, Low, Other Format Indicator	HLO	Char(1)	All are blank except the "Other" format record which contains value "O".

Variable Name	SAS Name	Format	Derivation
Format	LABEL	Char(962)	Concatenated string containing the number of deployments for the EDI_PN, and then the begin date of deployment and the end date of deployment, in that order, for each deployment. This allows for 60 pairs of begin and end dates. For the “other” format record, set the label equal to “NONE”