Registration Package Refactoring API

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**Abstract**

As part of the Open Source EHR Refactoring project, we have continued working on refactoring the Registration module code. This document is to describe what we have done in term of code changes for all interested stakeholders.

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# Introduction

# Code Walkthrough

Several APIs were developed during the refactoring effort. They are described below.

## 2.1 Clinic management API

Unless otherwise noted all date formats are internal FileMan format (e.g. 3120121 = Jan 21, 2012).

## $$ADMIT^DGPMAPI1() – Admit patient

This extrinsic function creates a new admission.

##### Format

$$ADMIT^DGPMAPI1(.RETURN,.PARAM)

##### Input Parameters

.RETURN [Required,Boolean] Set to IEN of the new admission if the update succeeded, 0 otherwise

RETURN(0) – [String] Error code^Text^Level (1 for error, 2 for warning, 3 for warning)

PARAM(“PATIENT”) [Required,Numeric] Patient IEN

PARAM(“DATE”) [Required, DateTime] Admission date

PARAM(“TYPE”) [Required,Numeric] Admission type (one of the codes returned by LSTADTYP^DGPMAPI7)

PARAM(“ADMREG”) [Required,Numeric] Admitting regulation (one of the codes returned by LSTADREG^DGPMAPI7)

PARAM(“ATNDPHY”) [Required,Numeric] Attending physician (one of the active providers returned by LSTPROV^DGPMAPI7)

PARAM(“FDEXC”) [Required,Boolean] Set to 1 if patient wants to be excluded from Facility Directory for this admission

PARAM(“FTSPEC”) [Required,Numeric] Facility treating specialty (one of the codes returned by LSTFTS^DGPMAPI7)

PARAM(“SHDIAG”) [Required,String] A brief description of the diagnosis (3-30 chars)

PARAM(“WARD”) [Required,Numeric] Ward location (one of the active ward locations returned by LSTWARD^DGPMAPI7)

PARAM(“ADMSCC”) [Optional,Boolean] Set to 1 if patient is admitted for service connected condition

PARAM(“ADMSRC”) [Optional,Numeric] Source of admission (one of the codes returned by LSTADSRC^DGPMAPI7)

PARAM(“ELIGIB”) [Optional,Numeric] Admitting eligibility

PARAM(“PRYMPHY”) [Optional,Numeric] Primary physician (one of the active providers returned by LSTPROV^DGPMAPI7)

PARAM(“ROOMBED”) [Optional,Numeric] Roombed (one of the active room-bed, assigned to the selected ward location, returned by LSTWBED^DGPMAPI7)

PARAM(“SCADM”) [Optional,Boolean] Set to 1 if this admission is a result of a previously scheduled admission

PARAM(“SERILL”) [Optional,String] Set to “S” if the patient is seriouslly ill and should be displayed on the Seriouslly Ill Roster

PARAM(“DIAG”,#) [Optional,String] Array of the diagnosis

##### Output

A Boolean value signaling if the call was successful or not.

##### Error Codes Returned

FILELOCK Record in use. Try again in a few moments.

TIMEUSD There is already a movement at that date/time entered for this patient.

INVPARAM Invalid parameter value …

PATNFND Patient not found.

ADMPAHAD Patient already has an active admission.

AREGNFND Admitting regulation not found.

AREGINAC Admitting regulation is inactive.

MVTTNFND Movement type not found.

MVTTINAC Movement type is inactive.

ADMINVAT Invalid admission type.

SHDGINV Invalid diagnosis, must be 3-30 characters long.

WRDNFND Ward not found.

WRDINVGL Ward’s ‘G&L Order’ field is not valid.

WRDINACT Ward is inactive.

BEDNFND Bed not found.

WRDCNASB Ward cannot assign this bed.

BEDINACT Bed is inactive.

BEDOCC Bed is occupied.

FTSNFND Facility treating specialty not found.

FTSINAC Facility treating specialty is inactive.

PROVNFND Provider not found.

PROVINAC … is not an active provider.

ASRCNFND Source of admission not found.

## $$UPDADM^DGPMAPI1() – Update patient admission

This extrinsic function updates an existing admission.

##### Format

$$UPDADM^DGPMAPI1(.RETURN,.PARAM,AFN)

##### Input Parameters

.RETURN [Required,Boolean] Set to IEN of the new admission if the update succeeded, 0 otherwise

RETURN(0) – [String] Error code^Text^Level (1 for error, 2 for warning, 3 for warning)

PARAM(“DATE”) [Optional, DateTime] Admission date

PARAM(“TYPE”) [Optional,Numeric] Admission type (one of the codes returned by LSTADTYP^DGPMAPI7)

PARAM(“ADMREG”) [Optional,Numeric] Admitting regulation (one of the codes returned by LSTADREG^DGPMAPI7)

PARAM(“ATNDPHY”) [Optional,Numeric] Attending physician (one of the active providers returned by LSTPROV^DGPMAPI7)

PARAM(“FDEXC”) [Optional,Boolean] Set to 1 if patient wants to be excluded from Facility Directory for this admission

PARAM(“FTSPEC”) [Optional,Numeric] Facility treating specialty (one of the codes returned by LSTFTS^DGPMAPI7)

PARAM(“SHDIAG”) [Optional,String] A brief description of the diagnosis (3-30 chars)

PARAM(“WARD”) [Optional,Numeric] Ward location (one of the active ward locations returned by LSTWARD^DGPMAPI7)

PARAM(“ADMSCC”) [Optional,Boolean] Set to 1 if patient is admitted for service connected condition

PARAM(“ADMSRC”) [Optional,Numeric] Source of admission (one of the codes returned by LSTADSRC^DGPMAPI7)

PARAM(“ELIGIB”) [Optional,Numeric] Admitting eligibility

PARAM(“PRYMPHY”) [Optional,Numeric] Primary physician (one of the active providers returned by LSTPROV^DGPMAPI7)

PARAM(“ROOMBED”) [Optional,Numeric] Roombed (one of the active room-bed, assigned to the selected ward location, returned by LSTWBED^DGPMAPI7)

PARAM(“SCADM”) [Optional,Boolean] Set to 1 if this admission is a result of a previously scheduled admission

PARAM(“SERILL”) [Optional,String] Set to “S” if the patient is seriouslly ill and should be displayed on the Seriouslly Ill Roster

PARAM(“DIAG”,#) [Optional,String] Array of the diagnosis

AFN [Required,Numeric] Admission IEN

##### Output

A Boolean value signaling if the call was successful or not.

##### Error Codes Returned

FILELOCK Record in use. Try again in a few moments.

INVPARAM Invalid parameter value …

ADMNFND Admission not found.

ADMMBBNM There is a … movement on file for this patient on …

AREGNFND Admitting regulation not found.

AREGINAC Admitting regulation is inactive.

MVTTNFND Movement type not found.

MVTTINAC Movement type is inactive.

ADMINVAT Invalid admission type.

SHDGINV Invalid diagnosis, must be 3-30 characters long.

WRDNFND Ward not found.

WRDINVGL Ward’s ‘G&L Order’ field is not valid.

WRDINACT Ward is inactive.

BEDNFND Bed not found.

WRDCNASB Ward cannot assign this bed.

BEDINACT Bed is inactive.

BEDOCC Bed is occupied.

FTSNFND Facility treating specialty not found.

FTSINAC Facility treating specialty is inactive.

PROVNFND Provider not found.

PROVINAC … is not an active provider.

ASRCNFND Source of admission not found.

## $$DELADM^DGPMAPI1() – Delete patient admission

This extrinsic function deletes an existing admission.

##### Format

$$DELADM^DGPMAPI1(.RETURN,AFN)

##### Input Parameters

.RETURN [Required,Boolean] Set to 1 if the update succeeded, 0 otherwise

RETURN(0) – [String] Error code^Text^Level (1 for error, 2 for warning, 3 for warning)

AFN [Required,Numeric] Admission IEN

##### Output

A Boolean value signaling if the call was successful or not.

##### Error Codes Returned

FILELOCK Record in use. Try again in a few moments.

INVPARAM Invalid parameter value …

ADMNFND Admission not found.

CANDASIH Cannot delete before ASIH transfer are removed.

CANMDDF Must delete discharge first.

CANDWPTF Cannot delete while PTF Census record … is closed.

## $$TRANSF^DGPMAPI2() – Transfer patient

This extrinsic function creates a new transfer and the corresponding movements depending on movement type.

##### Format

$$TRANSF^DGPMAPI2(.RETURN,.PARAM)

##### Input Parameters

.RETURN [Required,Boolean] Set to IEN of the new transfer if the update succeeded, 0 otherwise

RETURN(0) – [String] Error code^Text^Level (1 for error, 2 for warning, 3 for warning)

PARAM(“ADMIFN”) [Required,Numeric] Admission IEN

PARAM(“DATE”) [Required, DateTime] Transfer date

PARAM(“TYPE”) [Required,Numeric] Transfer type (one of the codes returned by LSTTRTYP^DGPMAPI7)

Depending on movement type will accept the following parameters:

If movement type is ‘INTERWARD TRANSFER’:

PARAM(“WARD”) [Required,Numeric] Ward location (one of the active ward locations returned by LSTWARD^DGPMAPI7)

PARAM(“ROOMBED”) [Optional,Numeric] Roombed (one of the active room-bed, assigned to the selected ward location, returned by LSTWBED^DGPMAPI7)

PARAM(“FTSPEC”) [Optional,Numeric] Facility treating specialty (one of the codes returned by LSTFTS^DGPMAPI7)

PARAM(“ATNDPHY”) [Optional,Numeric] Attending physician (one of the active providers returned by LSTPROV^DGPMAPI7)

PARAM(“PRYMPHY”) [Optional,Numeric] Primary physician (one of the active providers returned by LSTPROV^DGPMAPI7)

PARAM(“SERILL”) [Optional,String] Set to “S” if the patient is seriouslly ill and should be displayed on the Seriouslly Ill Roster

PARAM(“DIAG”,#) [Optional,String] Array of the diagnosis

If movement type is ‘TO ASIH’:

PARAM(“WARD”) [Required,Numeric] Ward location (one of the active ward locations returned by LSTWARD^DGPMAPI7)

PARAM(“ROOMBED”) [Optional,Numeric] Roombed (one of the active room-bed, assigned to the selected ward location, returned by LSTWBED^DGPMAPI7)

PARAM(“FDEXC”) [Required,Boolean] Set to 1 if patient wants to be excluded from Facility Directory for this admission

PARAM(“ADMREG”) [Required,Numeric] Admitting regulation (one of the codes returned by LSTADREG^DGPMAPI7)

PARAM(“SHDIAG”) [Required,String] A brief description of the diagnosis (3-30 chars)

PARAM(“FTSPEC”) [Required,Numeric] Facility treating specialty (one of the codes returned by LSTFTS^DGPMAPI7)

PARAM(“ATNDPHY”) [Required,Numeric] Attending physician (one of the active providers returned by LSTPROV^DGPMAPI7)

PARAM(“ADMSCC”) [Optional,Boolean] Set to 1 if patient is admitted for service connected condition

PARAM(“ADMSRC”) [Optional,Numeric] Source of admission (one of the codes returned by LSTADSRC^DGPMAPI7)

PARAM(“PRYMPHY”) [Optional,Numeric] Primary physician (one of the active providers returned by LSTPROV^DGPMAPI7)

PARAM(“SERILL”) [Optional,String] Set to “S” if the patient is seriouslly ill and should be displayed on the Seriouslly Ill Roster

PARAM(“DIAG”,#) [Optional,String] Array of the diagnosis

If movement type is ‘AUTHORIZED ABSENCE’, ‘UNAUTHORIZED ABSENCE’ or ‘AUTH ABSENCE 96 HOURS OR LESS’:

PARAM(“RABSDT”) [Optional,Numeric] Absence return date

PARAM(“SERILL”) [Optional,String] Set to “S” if the patient is seriouslly ill and should be displayed on the Seriouslly Ill Roster

If movement type is ‘FROM UNAUTHORIZED ABSENCE’, ‘FROM AUTHORIZED ABSENCE’ or ‘FROM AUTH. ABSENCE OF 96 HOURS OR LESS’:

PARAM(“ROOMBED”) [Optional,Numeric] Roombed (one of the active room-bed, assigned to the selected ward location, returned by LSTWBED^DGPMAPI7)

PARAM(“FTSPEC”) [Required,Numeric] Facility treating specialty (one of the codes returned by LSTFTS^DGPMAPI7)

PARAM(“ATNDPHY”) [Required,Numeric] Attending physician (one of the active providers returned by LSTPROV^DGPMAPI7)

PARAM(“PRYMPHY”) [Optional,Numeric] Primary physician (one of the active providers returned by LSTPROV^DGPMAPI7)

PARAM(“SERILL”) [Optional,String] Set to “S” if the patient is seriouslly ill and should be displayed on the Seriouslly Ill Roster

PARAM(“DIAG”,#) [Optional,String] Array of the diagnosis

If movement type is ‘FROM AUTHORIZED TO UNAUTHORIZED ABSENCE’ or ‘FROM UNAUTHORIZED TO AUTHORIZED ABSENCE’:

PARAM(“SERILL”) [Optional,String] Set to “S” if the patient is seriouslly ill and should be displayed on the Seriouslly Ill Roster

If movement type is ‘TO ASIH (OTHER FACILITY)’, ‘CHANGE ASIH LOCATION (OTHER FACILITY)’:

PARAM(“FCTY”) [Required,Numeric] Transfer facility (one of the codes returned by LSTFCTY^DGPMAPI7)

##### Output

A Boolean value signaling if the call was successful or not.

##### Error Codes Returned

FILELOCK Record in use. Try again in a few moments.

INVPARAM Invalid parameter value …

TIMEUSD There is already a movement at that date/time entered for this patient.

TRANBADM Not before admission movement.

TRANADIS Not after discharge movement.

MVTTNFND Movement type not found.

MVTTINAC Movement type is inactive.

TRAINVAT Invalid transfer type.

ADMPAHAD Patient already has an active admission.

AREGNFND Admitting regulation not found.

AREGINAC Admitting regulation is inactive.

SHDGINV Invalid diagnosis, must be 3-30 characters long.

WRDNFND Ward not found.

WRDINVGL Ward’s ‘G&L Order’ field is not valid.

WRDINACT Ward is inactive.

BEDNFND Bed not found.

BEDINACT Bed is inactive.

BEDOCC Bed is occupied.

FTSNFND Facility treating specialty not found.

FTSINAC Facility treating specialty is inactive.

PROVNFND Provider not found.

PROVINAC … is not an active provider.

ASRCNFND Source of admission not found.

ASHWINVS Invalid ward service for this type of movement

TFCNFND Transfer facility not found.

TFCINAC Transfer facility is inactive.

## $$UPDTRA^DGPMAPI2() – Update transfer

This extrinsic function updates an existing transfer.

##### Format

$$UPDTRA^DGPMAPI2(.RETURN,.PARAM,TFN)

##### Input Parameters

.RETURN [Required,Boolean] Set to 1 if the update succeeded, 0 otherwise

RETURN(0) – [String] Error code^Text^Level (1 for error, 2 for warning, 3 for warning)

PARAM(“DATE”) [Optional, DateTime] Transfer date

PARAM(“TYPE”) [Optional,Numeric] Transfer type (one of the codes returned by LSTTRTYP^DGPMAPI7)

PARAM(“WARD”) [Optional,Numeric] Ward location (one of the active ward locations returned by LSTWARD^DGPMAPI7)

PARAM(“ROOMBED”) [Optional,Numeric] Roombed (one of the active room-bed, assigned to the selected ward location, returned by LSTWBED^DGPMAPI7)

PARAM(“FTSPEC”) [Optional,Numeric] Facility treating specialty (one of the codes returned by LSTFTS^DGPMAPI7)

PARAM(“ATNDPHY”) [Optional,Numeric] Attending physician (one of the active providers returned by LSTPROV^DGPMAPI7)

PARAM(“PRYMPHY”) [Optional,Numeric] Primary physician (one of the active providers returned by LSTPROV^DGPMAPI7)

PARAM(“SERILL”) [Optional,String] Set to “S” if the patient is seriouslly ill and should be displayed on the Seriouslly Ill Roster

PARAM(“DIAG”,#) [Optional,String] Array of the diagnosis

##### Output

A Boolean value signaling if the call was successful or not.

##### Error Codes Returned

FILELOCK Record in use. Try again in a few moments.

INVPARAM Invalid parameter value …

TRANFND Transfer not found.

TRANBADM Not before admission movement.

TRANADIS Not after discharge movement.

MVTTNFND Movement type not found.

MVTTINAC Movement type is inactive.

TRAINVAT Invalid transfer type.

WRDNFND Ward not found.

WRDINVGL Ward’s ‘G&L Order’ field is not valid.

WRDINACT Ward is inactive.

BEDNFND Bed not found.

BEDINACT Bed is inactive.

BEDOCC Bed is occupied.

FTSNFND Facility treating specialty not found.

FTSINAC Facility treating specialty is inactive.

PROVNFND Provider not found.

PROVINAC … is not an active provider.

## $$DELTRA^DGPMAPI2() – Delete transfer

This extrinsic function deletes an existing transfer.

##### Format

$$DELTRA^DGPMAPI2(.RETURN,TFN)

##### Input Parameters

.RETURN [Required,Boolean] Set to 1 if the update succeeded, 0 otherwise

RETURN(0) – [String] Error code^Text^Level (1 for error, 2 for warning, 3 for warning)

TFN [Required,Numeric] Transfer IEN

##### Output

A Boolean value signaling if the call was successful or not.

##### Error Codes Returned

FILELOCK Record in use. Try again in a few moments.

TRANFND Transfer not found.

DELTMDTA Must delete through corresponding hospital admission

DELTCDWD Cannot delete while discharge exists

DELTCDPC Cannot delete when corresponding admission PTF closed out

DELTMMRF … movement must be removed first

## $$DISCH^DGPMAPI3() – Discharge patient

This extrinsic function creates a new discharge.

##### Format

$$DISCH^DGPMAPI3(.RETURN,.PARAM)

##### Input Parameters

.RETURN [Required,Boolean] Set to IEN of the new discharge if the update succeeded, 0 otherwise

RETURN(0) – [String] Error code^Text^Level (1 for error, 2 for warning, 3 for warning)

PARAM(“DATE”) [Required, DateTime] Discharge date

PARAM(“TYPE”) [Required,Numeric] Discharge type (one of the codes returned by LSTDTYP^DGPMAPI7)

PARAM(“ADMIFN”) [Required,Numeric] Admission IEN

If the movement type’s field ‘ask specialty at movement’ is set to 1:

PARAM(“FCTY”) [Required,Numeric] Transfer facility (one of the codes returned by LSTFCTY^DGPMAPI7)

##### Output

A Boolean value signaling if the call was successful or not.

##### Error Codes Returned

FILELOCK Record in use. Try again in a few moments.

INVPARAM Invalid parameter value …

ADMNFND Admission not found.

TIMEUSD There is already a movement at that date/time entered for this patient.

DCHPADON Patient already discharged on...

TRANBADM Not before admission movement

DCHNBLM Not before last movement

DSCNMVTD There is no movement type define for …

MVTTNFND Movement type not found.

MVTTINAC Movement type is inactive.

DISINVAT Invalid discharge type.

## $$UPDDSCH^DGPMAPI3() – Update discharge

This extrinsic function updates an existing discharge.

##### Format

$$UPDDSCH^DGPMAPI3(.RETURN,.PARAM,DMFN)

##### Input Parameters

.RETURN [Required,Boolean] Set to 1 if the update succeeded, 0 otherwise

RETURN(0) – [String] Error code^Text^Level (1 for error, 2 for warning, 3 for warning)

PARAM(“DATE”) [Required, DateTime] Discharge date

PARAM(“TYPE”) [Required,Numeric] Discharge type (one of the codes returned by LSTDTYP^DGPMAPI7)

DMFN [Required,Numeric] Discharge IEN

##### Output

A Boolean value signaling if the call was successful or not.

##### Error Codes Returned

FILELOCK Record in use. Try again in a few moments.

TIMEUSD There is already a movement at that date/time entered for this patient.

DCHNFND Discharge not found.

DCHNBLM Not before last movement

INVPARAM Invalid parameter value …

MVTTNFND Movement type not found.

MVTTINAC Movement type is inactive.

DISINVAT Invalid discharge type.

## $$DELDSCH^DGPMAPI2() – Delete discharge

This extrinsic function deletes an existing discharge.

##### Format

$$DELDSCH^DGPMAPI2(.RETURN,DMFN)

##### Input Parameters

.RETURN [Required,Boolean] Set to 1 if the update succeeded, 0 otherwise

RETURN(0) – [String] Error code^Text^Level (1 for error, 2 for warning, 3 for warning)

DMFN [Required,Numeric] Discharge IEN

##### Output

A Boolean value signaling if the call was successful or not.

##### Error Codes Returned

FILELOCK Record in use. Try again in a few moments.

DCHNFND Discharge not found.

DCHCDWAH You can not delete a WHILE ASIH type discharge

DCHDTCNH Delete through corresponding NHCU/DOM movements

DCHCDOLA Can only delete discharge for last admission

DCHDODLM You can only remove a discharge when it is the last movement for the patient.

DCHMDHDF You must delete the hospital discharge first.

## $$LSTPROV^DGPMAPI7() - List active providers filtered by name

This extrinsic function returns a list of active providers on specified date. The list can be filtered by name.

##### Format

$$LSTPROV^DGPMAPI7(.RETURN,SEARCH,START,NUMBER,DGDT)

##### Input Parameters

.RETURN                  [Required,Array] Array passed by reference that will receive the data

                                    RETURN(0) – [String] # of entries found^maximum requested^any more?^flags

(consistent with LIST^DIC header node)

                                    RETURN(#,”ID”) – [Numeric] Provider IEN

                                    RETURN(#,”NAME”) – [String] Provider name

                                    RETURN(#,”INITIAL”) – [String] Provider initials

                                    RETURN(#,”TITLE”) – [String] Provider title

SEARCH                    [Optional,String] Partial match restriction. Default: All entries

START                       [Optional,Numeric] The entry from which to begin the list. Default: “”

NUMBER                  [Optional,Numeric] Number of entries to return. Default: All entries

DGDT [Optional, DateTime] if not set returns active providers for today otherwise for specified date

##### Output

A Boolean value signaling if the call was successful or not.

##### Error Codes Returned

None

## $$LSTADREG^DGPMAPI7() - List admitting regulations filtered by name

This extrinsic function returns a list of admitting regulations. The list can be filtered by name.

##### Format

$$LSTADREG^DGPMAPI7(.RETURN,SEARCH,START,NUMBER)

##### Input Parameters

.RETURN                  [Required,Array] Array passed by reference that will receive the data

                                    RETURN(0) – [String] # of entries found^maximum requested^any more?^flags

(consistent with LIST^DIC header node)

                                    RETURN(#,”ID”) – [Numeric] Admitting regulation IEN

                                    RETURN(#,”NAME”) – [String] Admitting regulation name

                                    RETURN(#,”CFR”) – [String] Admitting regulation code

SEARCH                    [Optional,String] Partial match restriction. Default: All entries

START                       [Optional,Numeric] The entry from which to begin the list. Default: “”

NUMBER                  [Optional,Numeric] Number of entries to return. Default: All entries

##### Output

A Boolean value signaling if the call was successful or not.

##### Error Codes Returned

None

## $$LSTFTS^DGPMAPI7() - List active facility treating specialties filtered by name

This extrinsic function returns a list of active facility treating specialties. The list can be filtered by name.

##### Format

$$LSTFTS^DGPMAPI7(.RETURN,SEARCH,START,NUMBER,DGDT)

##### Input Parameters

.RETURN                  [Required,Array] Array passed by reference that will receive the data

                                    RETURN(0) – [String] # of entries found^maximum requested^any more?^flags

(consistent with LIST^DIC header node)

                                    RETURN(#,”ID”) – [Numeric] Facility treating specialty IEN

                                    RETURN(#,”NAME”) – [String] Facility treating specialty name

                                    RETURN(#,”SPEC”) – [String] Specialty of facility treating specialty

SEARCH                    [Optional,String] Partial match restriction. Default: All entries

START                       [Optional,Numeric] The entry from which to begin the list. Default: “”

NUMBER                  [Optional,Numeric] Number of entries to return. Default: All entries

DGDT [Optional, DateTime] if not set returns active facility treating specialties for today otherwise for specified date

##### Output

A Boolean value signaling if the call was successful or not.

##### Error Codes Returned

None

## $$LSTADSRC^DGPMAPI7() - List sources of admission filtered by name

This extrinsic function returns a list of sources of admission. The list can be filtered by name.

##### Format

$$LSTADSRC^DGPMAPI7(.RETURN,SEARCH,START,NUMBER)

##### Input Parameters

.RETURN                  [Required,Array] Array passed by reference that will receive the data

                                    RETURN(0) – [String] # of entries found^maximum requested^any more?^flags

(consistent with LIST^DIC header node)

                                    RETURN(#,”ID”) – [Numeric] Source of admission IEN

                                    RETURN(#,”CODE”) – [String] Source of admission PTF code

                                    RETURN(#,”NAME”) – [String] Source of admission name

                                    RETURN(#,”PLACE”) – [String] Source of admission place

SEARCH                    [Optional,String] Partial match restriction. Default: All entries

START                       [Optional,Numeric] The entry from which to begin the list. Default: “”

NUMBER                  [Optional,Numeric] Number of entries to return. Default: All entries

##### Output

A Boolean value signaling if the call was successful or not.

##### Error Codes Returned

None

## $$LSTADTYP^DGPMAPI7() - List admission types filtered by name

This extrinsic function returns a list of available admission types for a patient. The list can be filtered by name.

##### Format

$$LSTADTYP^DGPMAPI7(.RETURN,SEARCH,START,NUMBER,DFN)

##### Input Parameters

.RETURN                  [Required,Array] Array passed by reference that will receive the data

                                    RETURN(0) – [String] # of entries found^maximum requested^any more?^flags

(consistent with LIST^DIC header node)

                                    RETURN(#,”ID”) – [Numeric] Admission type IEN

                                    RETURN(#,”NAME”) – [String] Admission type name

                                    RETURN(#,”TYPE”) – [Numeric] Transaction type

                                    RETURN(#,”STATUS”) – [Boolean] Admission type status

SEARCH                    [Optional,String] Partial match restriction. Default: All entries

START                       [Optional,Numeric] The entry from which to begin the list. Default: “”

NUMBER                  [Optional,Numeric] Number of entries to return. Default: All entries

DFN                        [Required,Numeric] Patient IEN

##### Output

A Boolean value signaling if the call was successful or not.

##### Error Codes Returned

INVPARAM Invalid parameter value …

PATNFND Patient not found.

## $$LSTTRTYP^DGPMAPI7() - List transfer types filtered by name

This extrinsic function returns a list of available transfer types for a patient at a time. The list can be filtered by name.

##### Format

$$LSTTRTYP^DGPMAPI7(.RETURN,SEARCH,START,NUMBER,DFN,DGDT)

##### Input Parameters

.RETURN                  [Required,Array] Array passed by reference that will receive the data

                                    RETURN(0) – [String] # of entries found^maximum requested^any more?^flags

(consistent with LIST^DIC header node)

                                    RETURN(#,”ID”) – [Numeric] Admission type IEN

                                    RETURN(#,”NAME”) – [String] Admission type name

                                    RETURN(#,”TYPE”) – [Numeric] Transaction type

                                    RETURN(#,”STATUS”) – [Boolean] Admission type status

SEARCH                    [Optional,String] Partial match restriction. Default: All entries

START                       [Optional,Numeric] The entry from which to begin the list. Default: “”

NUMBER                  [Optional,Numeric] Number of entries to return. Default: All entries

DFN                        [Required,Numeric] Patient IEN

DGDT                        [Required,DateTime] Transfer date

##### Output

A Boolean value signaling if the call was successful or not.

##### Error Codes Returned

INVPARAM Invalid parameter value …

PATNFND Patient not found.

## $$LSTDTYP^DGPMAPI7() - List discharge types filtered by name

This extrinsic function returns a list of available discharge types for a patient at a time. The list can be filtered by name.

##### Format

$$LSTDTYP^DGPMAPI7(.RETURN,SEARCH,START,NUMBER,DFN,DGDT)

##### Input Parameters

.RETURN                  [Required,Array] Array passed by reference that will receive the data

                                    RETURN(0) – [String] # of entries found^maximum requested^any more?^flags

(consistent with LIST^DIC header node)

                                    RETURN(#,”ID”) – [Numeric] Admission type IEN

                                    RETURN(#,”NAME”) – [String] Admission type name

                                    RETURN(#,”TYPE”) – [Numeric] Transaction type

                                    RETURN(#,”STATUS”) – [Boolean] Admission type status

SEARCH                    [Optional,String] Partial match restriction. Default: All entries

START                       [Optional,Numeric] The entry from which to begin the list. Default: “”

NUMBER                  [Optional,Numeric] Number of entries to return. Default: All entries

DFN                        [Required,Numeric] Patient IEN

DGDT                        [Required,DateTime] Discharge date

##### Output

A Boolean value signaling if the call was successful or not.

##### Error Codes Returned

INVPARAM Invalid parameter value …

PATNFND Patient not found.

## $$LSTFCTY^DGPMAPI7() - List transfer facilities filtered by name

This extrinsic function returns a list of transfer facilities. The list can be filtered by name.

##### Format

$$LSTFCTY^DGPMAPI7(.RETURN,SEARCH,START,NUMBER)

##### Input Parameters

.RETURN                  [Required,Array] Array passed by reference that will receive the data

                                    RETURN(0) – [String] # of entries found^maximum requested^any more?^flags

(consistent with LIST^DIC header node)

                                    RETURN(#,”ID”) – [Numeric] Transfer facility IEN

                                    RETURN(#,”NAME”) – [String] Transfer facility name

                                    RETURN(#,”STATE”) – [String] Transfer facility state

                                    RETURN(#,”TYPE”) – [String] Transfer facility type

SEARCH                    [Optional,String] Partial match restriction. Default: All entries

START                       [Optional,Numeric] The entry from which to begin the list. Default: “”

NUMBER                  [Optional,Numeric] Number of entries to return. Default: All entries

##### Output

A Boolean value signaling if the call was successful or not.

##### Error Codes Returned

None

## $$LSTWARD^DGPMAPI7() - List wards filtered by name

This extrinsic function returns a list of available wards. The list can be filtered by name.

##### Format

$$LSTWARD^DGPMAPI7(.RETURN,SEARCH,START,NUMBER)

##### Input Parameters

.RETURN                  [Required,Array] Array passed by reference that will receive the data

                                    RETURN(0) – [String] # of entries found^maximum requested^any more?^flags

(consistent with LIST^DIC header node)

                                    RETURN(#,”ID”) – [Numeric] Ward IEN

                                    RETURN(#,”NAME”) – [String] Ward name

                                    RETURN(#,”SPEC”) – [String] Specialty code^specialty name

                                    RETURN(#,”SERV”) – [String] Service code^service name

SEARCH                    [Optional,String] Partial match restriction. Default: All entries

START                       [Optional,Numeric] The entry from which to begin the list. Default: “”

NUMBER                  [Optional,Numeric] Number of entries to return. Default: All entries

##### Output

A Boolean value signaling if the call was successful or not.

##### Error Codes Returned

None

## $$LSTWBED^DGPMAPI7() - List beds filtered by name

This extrinsic function returns a list of available beds which can be assigned by a ward. The list can be filtered by name.

##### Format

$$LSTWBED^DGPMAPI7(.RETURN,SEARCH,START,NUMBER,WARD,DFN)

##### Input Parameters

.RETURN                  [Required,Array] Array passed by reference that will receive the data

                                    RETURN(0) – [String] # of entries found^maximum requested^any more?^flags

(consistent with LIST^DIC header node)

                                    RETURN(#,”ID”) – [Numeric] Ward IEN

                                    RETURN(#,”NAME”) – [String] Ward name

                                    RETURN(#,”SPEC”) – [String] Specialty code^specialty name

                                    RETURN(#,”SERV”) – [String] Service code^service name

SEARCH                    [Optional,String] Partial match restriction. Default: All entries

START                       [Optional,Numeric] The entry from which to begin the list. Default: “”

NUMBER                  [Optional,Numeric] Number of entries to return. Default: All entries

WARD [Required,Numeric] Ward location (one of the active ward locations returned by LSTWARD^DGPMAPI7)

DFN          [Optional,Numeric] if is set will return available beds inclusive the bed occupied by this

patient

##### Output

A Boolean value signaling if the call was successful or not.

##### Error Codes Returned

INVPARAM Invalid parameter value …

PATNFND Patient not found.

WARDNFND Ward not found.

## $$LSTTPATS^DGPMAPI7() - List patients with admissions filtered by name

This extrinsic function returns a list of patients which have at least one admission. The list can be filtered by name.

##### Format

$$LSTTPATS^DGPMAPI7(.RETURN,SEARCH,START,NUMBER)

##### Input Parameters

.RETURN                  [Required,Array] Array passed by reference that will receive the data

                                    RETURN(0) – [String] # of entries found^maximum requested^any more?^flags

(consistent with LIST^DIC header node)

                                    RETURN(#,”ID”) – [Numeric] Patient IEN

                                    RETURN(#,”NAME”) – [String] Patient name

                                    RETURN(#,”BIRTH”) – [String] Patient birth date

                                    RETURN(#,”SSN”) – [String] Patient SSN

                                    RETURN(#,”TYPE”) – [String] Patient type

                                    RETURN(#,”VETERAN”) – [Boolean] Patient vetran status

SEARCH                    [Optional,String] Partial match restriction. Default: All entries

START                       [Optional,Numeric] The entry from which to begin the list. Default: “”

NUMBER                  [Optional,Numeric] Number of entries to return. Default: All entries

##### Output

A Boolean value signaling if the call was successful or not.

##### Error Codes Returned

None

## $$LSTPADMS^DGPMAPI7() - List patient admissions

This extrinsic function returns a list of the patient admissions.

##### Format

$$LSTPADMS^DGPMAPI7(.RETURN,DFN)

##### Input Parameters

.RETURN                  [Required,Array] Array passed by reference that will receive the data

                                    RETURN(0) – [String] # of entries found^maximum requested^any more?^flags

(consistent with LIST^DIC header node)

                                    RETURN(#,”ID”) – [Numeric] Admission IEN

                                    RETURN(#,”DATE”) – [String] Admission date (internal format^external format)

                                    RETURN(#,”TTYPE”) – [Numeric] Transaction type

                                    RETURN(#,”PATIENT”) – [String] Patient IEN^patient name

                                    RETURN(#,”TYPE”) – [String] Admission type IEN^admission type name

                                    RETURN(#,”WARD”) – [String] Ward IEN^ward name

                                    RETURN(#,”ROOMBED”) – [String] Bed IEN^bed name

                                    RETURN(#,”PRYMPHY”) – [String] Primary physician IEN^ primary physician name

                                    RETURN(#,”FTSPEC”) – [String] Facility treating specialty IEN^name

                                    RETURN(#,”SHDIAG”) – [String] Short diagnosis

                                    RETURN(#,”DISCH”) – [Numeric] Discharge IEN

                                    RETURN(#,”MASTYPE”) – [String] MAS movement type IEN^name

DFN                   [Required,Numeric] Patient IEN

##### Output

A Boolean value signaling if the call was successful or not.

##### Error Codes Returned

INVPARAM Invalid parameter value …

PATNFND Patient not found.

## $$LSTPTRAN^DGPMAPI7() - List patient transfers

This extrinsic function returns a list of the patient transfers related to specified admission.

##### Format

$$LSTPTRAN^DGPMAPI7(.RETURN,DFN,AFN)

##### Input Parameters

.RETURN                  [Required,Array] Array passed by reference that will receive the data

                                    RETURN(0) – [String] # of entries found^maximum requested^any more?^flags

(consistent with LIST^DIC header node)

                                    RETURN(#,”ID”) – [Numeric] Transfer IEN

                                    RETURN(#,”DATE”) – [String] Transfer date (internal format^external format)

                                    RETURN(#,”TTYPE”) – [Numeric] Transaction type

                                    RETURN(#,”PATIENT”) – [String] Patient IEN^patient name

                                    RETURN(#,”TYPE”) – [String] Transfer type IEN^ transfer type name

                                    RETURN(#,”WARD”) – [String] Ward IEN^ward name

                                    RETURN(#,”ROOMBED”) – [String] Bed IEN^bed name

                                    RETURN(#,”PRYMPHY”) – [String] Primary physician IEN^ primary physician name

                                    RETURN(#,”FTSPEC”) – [String] Facility treating specialty IEN^name

                                    RETURN(#,”SHDIAG”) – [String] Short diagnosis

                                    RETURN(#,”DISCH”) – [Numeric] Discharge IEN

                                    RETURN(#,”MASTYPE”) – [String] MAS movement type IEN^name

DFN                   [Required,Numeric] Patient IEN

AFN                   [Required,Numeric] Admission IEN

##### Output

A Boolean value signaling if the call was successful or not.

##### Error Codes Returned

INVPARAM Invalid parameter value …

ADMNFND Admission not found.

PATNFND Patient not found.

## $$GETLASTM^DGPMAPI8() – Get last patient movement details

This extrinsic function returns detailed data of the last patient movement.

##### Format

$$GETLASTM^DGPMAPI8(.RETURN,DFN,DGDT)

##### Input Parameters

.RETURN                  [Required,Array] Array passed by reference that will receive the data

RETURN(0) – [String] Error code^Text^Level (1 for error, 2 for warning, 3 for warning)

                                    RETURN(”MFN”) – [Numeric] Last movement IEN

                                    RETURN(”MTYPE”) – [String] Last movement type IEN^movement type name

                                    RETURN(”TYPE”) – [Numeric] Last movement transaction type

                                    RETURN(”DATE”) – [DateTime] Last movement date

                                    RETURN(”MASTYPE”) – [Numeric] Last movement MAS type

                                    RETURN(”WARD”) – [Numeric] Ward IEN

                                    RETURN(”ROOMBED”) – [Numeric] Bed IEN

                                    RETURN(”PRYMPHY”) – [Numeric] Primary physician IEN

                                    RETURN(”FTSPEC”) – [Numeric] Facility treating specialty IEN

                                    RETURN(”ADMIFN”) – [Numeric] Admission IEN

                                    RETURN(”ADMDT”) – [DateTime] Admission date

                                    RETURN(”DISIFN”) – [Numeric] Discharge IEN

                                    RETURN(”ATNDPHY”) – [Numeric] Attending physician IEN

                                    RETURN(”FDEXC”) – [Boolean] Facility directory exclusion

                                    RETURN(”SERILL”) – [String] Seriously ill code^name

DFN                   [Required,Numeric] Patient IEN

DGDT                 [Optional,Numeric] if is set will return last movement related to specified date

##### Output

A Boolean value signaling if the call was successful or not.

##### Error Codes Returned

INVPARAM Invalid parameter value …

PATNFND Patient not found.

## $$GETADM^DGPMAPI8() – Get patient admission details

This extrinsic function returns detailed data of the admission.

##### Format

$$GETADM^DGPMAPI8(.RETURN,AFN)

##### Input Parameters

.RETURN                  [Required,Array] Array passed by reference that will receive the data

RETURN(0) – [String] Error code^Text^Level (1 for error, 2 for warning, 3 for warning)

                                   RETURN(”DATE”) – [String] Admission date (internal format^external format)

                                    RETURN(”TTYPE”) – [Numeric] Transaction type code^name

                                    RETURN(”PATIENT”) – [String] Patient IEN^name

                                    RETURN(”TYPE”) – [String] Admission type IEN^ name

                                    RETURN(”WARD”) – [String] Ward IEN^name

                                    RETURN(”ROOMBED”) – [String] Bed IEN^name

                                    RETURN(”SHDIAG”) – [String] Short diagnosis

                                    RETURN(”ADMSCC”) – [String] Admitted for service connected condition code^name

                                    RETURN(”ADMREG”) – [String] Admitting regulation IEN^name

                                    RETURN(”DISCH”) – [Numeric] Discharge IEN

                                    RETURN(”MASTYPE”) – [String] MAS movement type IEN^name

                                    RETURN(”FDEXC”) – [String] Facility directory exclusion code^name

                                    RETURN(”FTSPEC”) – [String] Facility treating specialty IEN^name

                                    RETURN(”PRYMPHY”) – [String] Primary physician IEN^name

                                    RETURN(”ATNDPHY”) – [String] Attending physician IEN^name

                                    RETURN(”ADMSRC”) – [String] Source of admission IEN^name

                                    RETURN(”ELIGIB”) – [String] Admitting eligibility IEN^name

                                    RETURN(”DIAG”,#) – [Array] Diagnosis array

AFN                   [Required,Numeric] Admission IEN

##### Output

A Boolean value signaling if the call was successful or not.

##### Error Codes Returned

ADMNFND Admission not found.

## $$GETTRA^DGPMAPI8() – Get patient transfer details

This extrinsic function returns detailed data of the transfer.

##### Format

$$GETTRA^DGPMAPI8(.RETURN,TFN)

##### Input Parameters

.RETURN                  [Required,Array] Array passed by reference that will receive the data

RETURN(0) – [String] Error code^Text^Level (1 for error, 2 for warning, 3 for warning)

                                   RETURN(”DATE”) – [String] Admission date (internal format^external format)

                                    RETURN(”TTYPE”) – [Numeric] Transaction type code^name

                                    RETURN(”PATIENT”) – [String] Patient IEN^name

                                    RETURN(”TYPE”) – [String] Admission type IEN^ name

                                    RETURN(”WARD”) – [String] Ward IEN^name

                                    RETURN(”ROOMBED”) – [String] Bed IEN^name

                                    RETURN(”RABSDT”) – [Numeric] Return absence date

                                    RETURN(”ADMIFN”) – [String] Admission IEN^name

                                    RETURN(”FTSPEC”) – [String] Facility treating specialty IEN^name

                                    RETURN(”PRYMPHY”) – [String] Primary physician IEN^name

                                    RETURN(”ATNDPHY”) – [String] Attending physician IEN^name

                                    RETURN(”DIAG”,#) – [Array] Diagnosis array

TFN                   [Required,Numeric] Transfer IEN

##### Output

A Boolean value signaling if the call was successful or not.

##### Error Codes Returned

TRANFND Transfer not found.

## $$GETMVT^DGPMAPI8() – Get patient movement details

This extrinsic function returns detailed data of the movement.

##### Format

$$GETMVT^DGPMAPI8(.RETURN,MFN)

##### Input Parameters

.RETURN                  [Required,Array] Array passed by reference that will receive the data

RETURN(0) – [String] Error code^Text^Level (1 for error, 2 for warning, 3 for warning)

                                  RETURN(”DATE”) – [String] Admission date (internal format^external format)

                                  RETURN(”TTYPE”) – [Numeric] Transaction type code^name

                                  RETURN(”PATIENT”) – [String] Patient IEN^name

                                  RETURN(”TYPE”) – [String] Admission type IEN^name

                                  RETURN(”FCTY”) – [String] Transfer facility IEN^name

                                  RETURN(”WARD”) – [String] Ward IEN^name

                                  RETURN(”ROOMBED”) – [String] Bed IEN^name

                                  RETURN(”PRYMPHY”) – [String] Primary physician IEN^name

                                  RETURN(”FTSPEC”) – [String] Facility treating specialty IEN^name

                                  RETURN(”SHDIAG”) – [String] Short diagnosis

                                  RETURN(”ADMIFN”) – [String] Admission IEN^name

                                  RETURN(”DISCH”) – [Numeric] Discharge IEN

                                  RETURN(”MASTYPE”) – [String] MAS movement type IEN^name

MFN                [Required,Numeric] Movement IEN

##### Output

A Boolean value signaling if the call was successful or not.

##### Error Codes Returned

MVTNFND Movement not found.

## $$GETMVTT^DGPMAPI8() – Get movement type details

This extrinsic function returns detailed data of the movement type.

##### Format

$$GETMVTT^DGPMAPI8(.RETURN,IFN)

##### Input Parameters

.RETURN                  [Required,Array] Array passed by reference that will receive the data

RETURN(0) – [String] Error code^Text^Level (1 for error, 2 for warning, 3 for warning)

                                  RETURN(”NAME”) – [String] Movement type name

                                  RETURN(”TTYPE”) – [Numeric] Transaction type

                                  RETURN(”MAS”) – [Numeric] MAS movement type

                                  RETURN(”STAT”) – [Boolean] Movement type status

                                  RETURN(”ASKSPEC”) – [Boolean] Ask specialty at movement

IFN                   [Required,Numeric] Movement type IEN

##### Output

A Boolean value signaling if the call was successful or not.

##### Error Codes Returned

MVTTNFND Movement type not found.

## $$GETMASMT^DGPMAPI8() – Get MAS movement type details

This extrinsic function returns detailed data of the MAS movement type.

##### Format

$$GETMASMT^DGPMAPI8(.RETURN,IFN)

##### Input Parameters

.RETURN                  [Required,Array] Array passed by reference that will receive the data

RETURN(0) – [String] Error code^Text^Level (1 for error, 2 for warning, 3 for warning)

                                  RETURN(”NAME”) – [String] Movement type name

                                  RETURN(”TTYPE”) – [Numeric] Transaction type

                                  RETURN(”ASKSPEC”) – [Boolean] Ask specialty at movement?

                                  RETURN(”ASKFTY”) – [Boolean] Ask facility at movement?

                                  RETURN(”ABS”) – [Boolean] Is this movement an absence?

                                  RETURN(”CFADM”) – [Boolean] Can movement follow admission?

                                  RETURN(”ASIH”) – [Boolean] ASIH movement?

IFN                   [Required,Numeric] Movement type IEN

##### Output

A Boolean value signaling if the call was successful or not.

##### Error Codes Returned

MVTTNFND Movement type not found.

# GLOSSARY

IEN Internal Entry Number. The number used to identify an entry within a file. Every record has a unique internal entry number. Often abbreviated as IEN.

STOP CODE A three-digit number corresponding to an additional stop/service a patient received in conjunction with a clinic visit.

Stop code entries are used so that medical facilities may receive credit for the services rendered during a patient visit.

# How to use the code

## API

The APIs presented in this paper cover most of the functionality found in the Appointment Management menu option. They follow a consistent calling convention that allows for returning rich error messages from the called routines, making them suitable as an interface to be used by external applications.

## Assumed Variables

The only assumed variables used in this API are Kernel variables documented in section 2.3.1.3.2 of the SAC. In this version the following assumed variables were used: DUZ,DT,U

## Format and conventions of the calls

The conventions used in this API are very similar to those enforced by the RPC Broker. Every tag has at least one parameter, passed by reference that will hold the result of the call. Every function returns a Boolean to signal if the processing was successful or not.

If the return value is 0, the first parameter (RETURN) will be structured as an array containing the errors encountered, numbered from 0 to the error count. The errors have the following form:

ErrorId^Message

Example

INVPARAM^Invalid parameter value – SDWLDFN

# Installation

Along with this paper a KID Host File is provided. The steps required to install the distribution are outlined below:

1. From the *Systems Manager Menu* select *Programmer Options…*
2. Select *Kernel Installation & Distribution System*
3. Select *Installation*
4. Select *Load a Distribution*
5. Enter the host file path, for example C:\ SD\_5.3\_260003.KID and load the distribution.
6. Use the *Install Package(s)* option and select SD\*5.3\*260003
7. When prompted *Want KIDS to Rebuild Menu Trees Upon Completion of Install?* Respond NO
8. When prompted *Want KIDS to INHIBIT LOGONs during the install?* Respond NO
9. When prompted *Want to DISABLE Scheduled Options, Menu Options, and Protocols?* Respond NO

# Conclusions

This paper presented a set of APIs developed as part of the Open Source HER refactoring effort. They are meant to be used by both scroll & roll interface and RPC tags and to be accessible by other packages and applications. Also they should remove direct global access, uncouple the business logic from the user interface elements and minimize code duplication.