

# **Department of Veterans Affairs**

## **Telehealth Management Platform (TMP) Technical Manual**

### **Technical Manual**



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**Version 1.2**

### Revision History

Date	Version	Description	Author
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November 2021	1.1	Add HL7 information for SD*5.3*780	TMP Team
June 2019	1.0	Initial version for submission	TMP Team

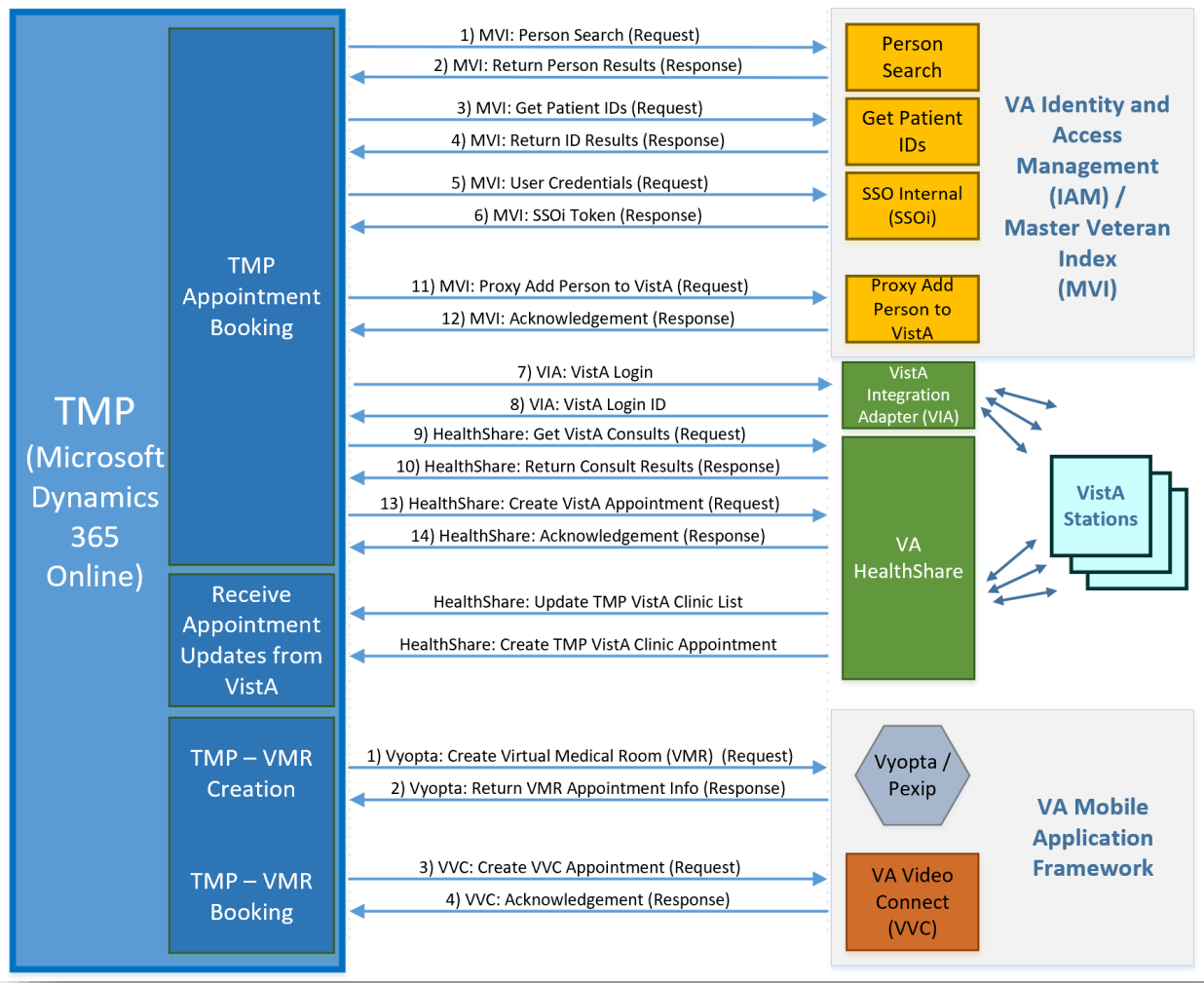
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## Introduction

The Telehealth Management Program (TMP) integrates with Veterans Health Information Systems and Technology Architecture (VistA) to schedule, cancel or update appointments in support of Telehealth services provided by the VA. When an appointment is made or canceled on TMP, a message is sent to VistA to update the VistA files with the appointment information. This information is then viewable in VistA Scheduling Options, Computerized Patient Record System (CPRS), Vista Scheduling Enhancements (VSE) and other applications. The integration with VistA is bi-directional and so Telehealth related appointments scheduled directly on VistA are also transmitted to TMP. The following is a diagram of the integration interfaces.



These interfaces use the Health Level 7 (HL7) international standard for communication of clinical and administrative health related data.

- The TMP – VistA interface uses the VistA HL7 and VistA HL7 Optimized (HLO) applications to send and receive HL7 messages on the VistA system. In addition to this guide, please refer to the VistA HL7 SITE MANAGER AND DEVELOPERS’ MANUAL and the HLO SYSTEM MANAGER MANUAL for information specific to these interfaces.
- The TMP messaging system includes the TMP application, a HealthConnect Ensemble Production and VistA. The HealthConnect Ensemble Production is maintained by the VA’s HealthShare Team. TMP doesn’t have a direct HL7 interface. TMP uses JavaScript Option Notation format (JSON) to exchange messages. However, VistA is not capable of receiving JSON messages

directly. VistA relies on the HL7 messaging to do the translation and communication with TMP.

- TMP deploys an InterSystems HealthConnect Ensemble production (HC) that acts as a message transformation and routing system. TMP sends a JSON message to the TMP HC server. HC transforms the JSON to the appropriate HL7 message structure and routes the message to the correct VistA system. VistA responds by sending the appropriate HL7 message to HC where HC transforms the HL7 message to JSON and posts the response on the TMP Rest End Point.

## HL7 Interface

The HL7 messages formats used in the integration conform to the HL7 Version 2.4 standard, which includes use of the following:

- Message Type - Schedule Information Unsolicited (SIU)
- Message Structures - S12 for Schedule an appointment and an S15 for Cancel an appointment.

Additionally, TMP initiates an HL7 query to retrieve a patient's list of consults and Return To Clinic (RTC) orders that are housed in VistA. These two lists are used by the schedulers to schedule appointments associated with specific consults and RTC orders.

VistA will also send out real time update messages to TMP to update TMP when appointments are scheduled or canceled for a tele health clinic. Tele health clinics are identified by either the Stop Code or the Credit Stop Code fields in the VistA Hospital Location file (#44). All real time update messages for make or cancel appointments use the same S12 and S15 message structure.

VistA will also send out a real time update when a tele health clinic is created, inactivated, reactivated or if the stop code or credit stop codes are modified. This real time update keeps the clinic information in sync between VistA and TMP.

## Assumptions

- The scheduling messages contain only the data necessary to perform the scheduling action.
- The transmission of TMP HL7 appointment messages assumes all VistA systems have installed patch SD\*5.3\*704. This patch receives the HL7 messages from TMP and processes the appointment action.

## HL7/HLO Logical Link

TMP\_Send – An HLO link that is used to send the real time update messages from VistA to HealthConnect.

## HL7 Protocols

<b>PROTOCOL</b>	<b>DESCRIPTION</b>
<b>SD IFS EVENT DRIVER</b>	Event driver protocol to send inter facility scheduling messages
<b>SD IFS SUBSCRIBER</b>	Subscriber protocol to process inter facility scheduling messages
<b>SD TMP RECEIVE CANCEL INTRA</b>	Event driver protocol to send intra facility scheduling messages
<b>SD TMP RECEIVE INTRAFACILITY</b>	Subscriber protocol to receive intra facility scheduling messages
<b>SD TMP S12 CLIENT SUBSCRIBER</b>	Subscriber protocol to receive make appointment scheduling messages from TMP
<b>SD TMP S12 SERVER EVENT DRIVER</b>	Event driver protocol for make appointment scheduling messages from TMP
<b>SD TMP S15 CLIENT SUBSCRIBER</b>	Subscriber protocol to receive cancel appointment scheduling messages
<b>SD TMP S15 SERVER EVENT DRIVER</b>	Event driver protocol for cancel appointment scheduling messages
<b>SD TMP SEND CANCEL INTRA</b>	Event driver protocol for canceling intra facility appointment messages
<b>SD TMP SEND INTRAFACILITY</b>	Subscriber protocol for canceling intra facility appointment messages
<b>SD TMP SIU-12 SERVER</b>	Event driver protocol to send real time appointment messages to TMP
<b>SD TMP SIU-S12 CLIENT</b>	Subscriber protocol to send real time appointment messages to TMP
<b>TMP QBP-Q13 Event Driver</b>	Event driver for the get consults query message from TMP
<b>TMP QBP-Q13 Subscriber</b>	Subscriber protocol for get consults query message from TMP
<b>TMP RTB-K13 Event Drive</b>	Event driver protocol to return data for the get consults query from TMP



PROTOCOL	DESCRIPTION
TMP RTB-K13 Subscriber	Subscriber protocol to return data for the get consults query from TMP

## HL7 Application Parameters

PARAMETERS	DESCRIPTION
SD TMP APPT RECEIVE	Receiving application for the appointment messages from TMP
SD TMP APPT SEND	Sending application for the appointment messages from TMP
SD TMP IFS RECEIVE	Receiving application for the inter facility scheduling messages
SD TMP IFS SEND	Sending application for the inter facility scheduling messages
SD TMP RECEIVE CANCEL INTRA	Receiving application for intra facility cancel appointment messages
SD TMP RECEIVE INTRAFACILITY	Receiving application for intra facility make appointment messages
SD TMP SEND CANCEL INTRA	Sending application for intra facility cancel appointment messages
SD TMP SEND INTRAFACILITY	Sending application for intra facility make appointment messages
SD-TMP-IN	Receiving application for real time appointment and clinic update messages
SD-TMP-OUT	Sending application for real time appointment and clinic update messages
TMP GET CONSULTS	Receiving application for get consult messages from TMP
TMP SEND CONSULTS	Sending application for get consult messages from TMP

## HL7 Message Segments

The following are the HL7 messages used in the communications:

## Make and Cancel Appointment messages

### *SCH – Schedule Activity Information Segment*

All scheduling messages used by TMP and VistA use the same structures for make and cancel appointments. The difference between make and cancel appointments is the message type on the MSH segment. Make appointments will be a SIU-S12 message and cancel appointments will be a SIU-S15 message.

In addition, Notification of Blocked Schedule Timeslot(s) and Notification of Opened (“un-blocked”) schedule time slot(s) are sent as SIU-S12 records. These records are differentiated by the ID information contained in field 25. The fields are used according to the definitions for S23 and S24 records.

The SCH segment contains general information about the scheduled appointment.

SEQ	LEN	DT	R/O/C	RP/#	TBL#	ITEM#	Element Name	VISTA DESCRIPTION
1	75	EI	R			860	Placer Appointment ID	Not used/
2	75	EI	C			861	Filler Appointment ID	Not used
3	5	NM	C			862	Occurrence Number	VistA consult ID
4	22	EI	O			218	Placer Group Number	Not used
5	250	CE	O			864	Schedule ID	Not used
6	250	CE	R			883	Event Reason	Scheduled or Canceled
7	250	CE	O			866	Appointment Reason	Not used
8	250	CE	O			867	Appointment Type	Not used
9	20	NM	O			868	Appointment Duration	Appointment length
10	250	CE	O			869	Appointment Duration Units	Minutes or hours
11	200	TQ	R	Y		884	Appointment Timing Quantity	^^^Appointment Start Date Time^Appointment End Date Time
12	250	XCN	O	Y		874	Placer Contact Person	^Provider Last Name^Provider First Name
13	250	XTN	O			875	Placer Contact Phone Number	^^^Scheduler's VA exchange email
14	250	XAD	O	Y		876	Placer Contact Address	Not used
15	80	PL	O			877	Placer Contact Location	Not used

SEQ	LEN	DT	R/O/C	RP/#	TBL#	ITEM#	Element Name	VISTA DESCRIPTION
16	250	XCN	R	Y		885	Filler Contact Person	Duz^name of person that scheduled the appointment
17	250	XTN	O			886	Filler Contact Phone Number	Not used
18	250	XAD	O			887	Filler Contact Address	Not used
19	80	PL	O			888	Filler Contact Location	Not used
20	250	XCN	R	Y		878	Entered by Person	Free text scheduler name
21	250	XTN	O	Y		879	Entered by Phone Number	Not Used
22	80	PL	O			880	Entered by Location	Not used
23	75	EI	O			881	Parent Placer Appointment ID	Not used
24	75	EI	O			882	Parent Filler Appointment ID	Not used
25	250	CE	R			889	Filler Status Code	Scheduled, Canceled, Non-Clinic Day or Cancel Non-Clinic Day
26	22	EI	C	Y		216	PLACER ORDER NUMBER	Not Used
27	22	EI	C	Y		217	FILLER ORDER NUMBER	Not Used

### *PID – Patient information Segment*

The PID segment has patient identification information.

SEQ	LEN	DT	RP	OPT	TBL #	ITEM #	ELEMENT NAME	Vista Description
1	4	SI	O			104	Set ID - PID	Not used
2	20	CX	B			105	Patient ID	Not used
3	250	CX	R	Y		106	Patient Identifier List	Patient ICN^^^USAVHA^NI~DF N
4	20	CX	B	Y		107	Alternate Patient ID - PID	Not used
5	250	XPN	R	Y		108	Patient Name	Last Name^First Name^MI^^^^^L
6	250	XPN	O	Y		109	Mother's Maiden Name	Not used
7	26	TS	O			110	Date/Time of Birth	Patient Date of Birth
8	1	IS	O		1	111	Administrative Sex	Patient's Gender
9	250	XPN	B	Y		112	Patient Alias	Not used
10	250	CE	O	Y	5	113	Race	Not used

SEQ	LEN	DT	OPT	RP / #	TBL #	ITEM #	ELEMENT NAME	VistA Description
11	250	XAD	O	Y		114	Patient Address	Not used
12	4	IS	B		289	115	County Code	Not used
13	250	XTN	O	Y		116	Phone Number - Home	Not used
14	250	XTN	O	Y		117	Phone Number - Business	Not used
15	250	CE	O		296	118	Primary Language	Not used
16	250	CE	O		2	119	Marital Status	Not used
17	250	CE	O		6	120	Religion	Not used
18	250	CX	O			121	Patient Account Number	Consult ID related to this appointment
19	16	ST	B			122	SSN Number - Patient	Not used
20	25	DLN	O			123	Driver's License Number - Patient	Not used
21	250	CX	O	Y		124	Mother's Identifier	Not used
22	250	CE	O	Y	189	125	Ethnic Group	Not used
23	250	ST	O			126	Birth Place	Not used
24	1	ID	O		136	127	Multiple Birth Indicator	Not used
25	2	NM	O			128	Birth Order	Not used
26	250	CE	O	Y	171	129	Citizenship	Not used
27	250	CE	O		172	130	Veterans Military Status	Not used
28	250	CE	B		212	739	Nationality	Not used
29	26	TS	O			740	Patient Death Date and Time	Not used
30	1	ID	O		136	741	Patient Death Indicator	Not used
31	1	ID	O		136	1535	Identity Unknown Indicator	Not used
32	20	IS	O	Y	445	1536	Identity Reliability Code	Not used
33	26	TS	O			1537	Last Update Date/Time	Not used
34	40	HD	O			1538	Last Update Facility	Not used
35	250	CE	C		446	1539	Species Code	Not used
36	250	CE	C		447	1540	Breed Code	Not used
37	80	ST	O			1541	Strain	Not used
38	250	CE	O	2	429	1542	Production Class Code	Not used

### *PV1 – Patient Visit Segment*

The PV1 segment has the patient visit information.

SEQ	LEN	DT	OPT	RP/#	TBL#	ITEM#	ELEMENT NAME	VistA Description
1	4	SI	O			131	Set ID - PV1	Not used
2	1	IS	R		4	132	Patient Class	Not used

SEQ	LEN	DT	OPT	RP/#	TBL#	ITEM#	ELEMENT NAME	VistA Description
3	80	PL	O			133	Assigned Patient Location	Not used
4	2	IS	O		7	134	Admission Type	Not used
5	250	CX	O			135	Preadmit Number	Not used
6	80	PL	O			136	Prior Patient Location	Not used
7	250	XCN	O	Y	10	137	Attending Doctor	Not used
8	250	XCN	O	Y	10	138	Referring Doctor	Not used
9	250	XCN	B	Y	10	139	Consulting Doctor	Not used
10	3	IS	O		69	140	Hospital Service	Not used
11	80	PL	O			141	Temporary Location	Not used
12	2	IS	O		87	142	Preadmit Test Indicator	Not used
13	2	IS	O		92	143	Re-admission Indicator	Not used
14	6	IS	O		23	144	Admit Source	Not used
15	2	IS	O	Y	9	145	Ambulatory Status	Not used
16	2	IS	O		99	146	VIP Indicator	Not used
17	250	XCN	O	Y	10	147	Admitting Doctor	Not used
18	2	IS	O		18	148	Patient Type	Not used
19	250	CX	O			149	Visit Number	VistA Consult Id
20	50	FC	O	Y	64	150	Financial Class	Not used
21	2	IS	O		32	151	Charge Price Indicator	Not used
22	2	IS	O		45	152	Courtesy Code	Not used
23	2	IS	O		46	153	Credit Rating	Not used
24	2	IS	O	Y	44	154	Contract Code	Not used
25	8	DT	O	Y		155	Contract Effective Date	Not used
26	12	NM	O	Y		156	Contract Amount	Not used
27	3	NM	O	Y		157	Contract Period	Not used
28	2	IS	O		73	158	Interest Code	Not used
29	1	IS	O		110	159	Transfer to Bad Debt Code	Not used
30	8	DT	O			160	Transfer to Bad Debt Date	Not used
31	10	IS	O		21	161	Bad Debt Agency Code	Not used
32	12	NM	O			162	Bad Debt Transfer Amount	Not used
33	12	NM	O			163	Bad Debt Recovery Amount	Not used
34	1	IS	O		111	164	Delete Account Indicator	Not used
35	8	DT	O			165	Delete Account Date	Not used
36	3	IS	O		112	166	Discharge Disposition	Not used
37	25	CM	O		113	167	Discharged to Location	Not used
38	250	CE	O		114	168	Diet Type	Not used
39	2	IS	O		115	169	Servicing Facility	Not used
40	1	IS	B		116	170	Bed Status	Not used
41	2	IS	O		117	171	Account Status	Not used
42	80	PL	O			172	Pending Location	Not used
43	80	PL	O			173	Prior Temporary Location	Not used

SEQ	LEN	DT	OPT	RP/#	TBL#	ITEM#	ELEMENT NAME	Vista Description
44	26	TS	O			174	Admit Date/Time	Appointment Date/Time
45	26	TS	O	Y		175	Discharge Date/Time	Not used
46	12	NM	O			176	Current Patient Balance	Not used
47	12	NM	O			177	Total Charges	Not used
48	12	NM	O			178	Total Adjustments	Not used
49	12	NM	O			179	Total Payments	Not used
50	250	CX	O		203	180	Alternate Visit ID	Not used
51	1	IS	O		326	1226	Visit Indicator	Not used
52	250	XCN	B	Y	10	1274	Other Healthcare Provider	Not used

### *RGS – Resource Group Segment*

The RGS segment is the appointment grouper segment.

SEQ	LEN	DT	OPT	RP/#	TBL#	ITEM#	ELEMENT NAME	VISTA DESCRIPTION
1	4	SI	R			1203	Set ID - RGS	1
2	3	ID	C		206	763	Segment Action Code	A = Add/Insert D = Delete U = Update
3	250	CE	O			1204	Resource Group ID	Not used

### *AIS – Appointment Information Segment*

The AIS segment contains information about the appointment.

SEQ	LEN	DT	OPT	RP/#	TBL#	ITEM#	ELEMENT NAME	VISTA DESCRIPTION
1	4	SI	R			890	Set ID - AIS	Segment Sequence Numer
2	3	ID	C		206	763	Segment Action Code	A=Add/Insert, D=Delete, U=Update, make appointment will be A, cancel appointment will be D
3	250	CE	R			238	Universal Service Identifier	ICD Code^Provisional Diagnosis
4	26	TS	C			1202	Start Date/Time	Appointment start date time in UTC

5	20	NM	C			891	Start Date/Time Offset	Not used
6	250	CE	C			892	Start Date/Time Offset Units	Not used
7	20	NM	O			893	Duration	length of appointment
8	250	CE	O			894	Duration Units	Not used
9	10	IS	C		279	895	Allow Substitution Code	Not used
10	250	CE	C		278	889	Filler Status Code	Not used
11	250	CE	O	Y	411	1474	Placer Supplemental Service Information	Not used
12	250	CE	O	Y	411	1475	Filler Supplemental Service Information	Not used

*AIG - Appointment Insurance Segment*

SEQ	LEN	DT	OPT	RP/#	TBL#	ITEM#	ELEMENT NAME	VistA DATA ELEMENT
1	4	SI	R			896	Set ID - AIG	Segment Sequence Number
2	3	ID	C		206	763	Segment Action Code	A = add, D = delete U = Update
3	250	CE	C			897	Resource ID	Provider Name
4	250	CE	R			898	Resource Type	Provider
5	250	CE	O	Y		899	Resource Group	Not used
6	5	NM	O			900	Resource Quantity	Not used
7	250	CE	O			901	Resource Quantity Units	Not used
8	26	TS	C			1202	Start Date/Time	Not used
9	20	NM	C			891	Start Date/Time Offset	Not used
10	250	CE	C			892	Start Date/Time Offset Units	Not used
11	20	NM	O			893	Duration	Not used
12	250	CE	O			894	Duration Units	Not used
13	10	IS	C		<a href="#">279</a>	895	Allow Substitution Code	Not used
14	250	CE	C		<a href="#">278</a>	889	Filler Status Code	Not used

*AIL - Appointment Location Segment*

The fields in the AIL segment are used in accordance with the S12, S23 and S24 records, depending on the ID information in the SCH segment.

SEQ	LEN	DT	OPT	RP/#	TBL#	ITEM#	ELEMENT NAME	Vista
1	4	SI	R			902	Set ID - AIL	Segment Sequence Number
2	3	ID	C		206	763	Segment Action Code	A = Add D=Cancel U=Update
3	80	PL	C			903	Location Resource ID	Consult Title
4	250	CE	R			904	Location Type-AIL	Consult Title
5	250	CE	O			905	Location Group	Not used
6	26	TS	C			1202	Start Date/Time	Not used
7	20	NM	C			891	Start Date/Time Offset	Not used
8	250	CE	C			892	Start Date/Time Offset Units	Not used
9	20	NM	O			893	Duration	Not used
10	250	CE	O			894	Duration Units	Not used
11	10	IS	C		<a href="#">279</a>	895	Allow Substitution Code	Not used
12	250	CE	C		<a href="#">278</a>	889	Filler Status Code	Not used

*AIP - Appointment Provider Segment*

SEQ	LEN	DT	OPT	RP/#	TBL#	ITEM#	ELEMENT NAME	VISTA DESCRIPTION
1	4	SI	R			906	Set ID - AIP	Segment Sequence Number
2	3	ID	C		206	763	Segment Action code	A=Add, D=Delete, U=Update
3	250	XCN	C	Y		913	Personnel Resource ID	Provider Duz^^Provider Last Name^Provider First Name
4	250	CE	R			907	Resource Role	Will be Provider
5	250	CE	O			899	Resource Group	Not used



6	26	TS	C			1202	Start Date/Time	Not used
7	20	NM	C			891	Start Date/Time Offset	Not used
8	250	CE	C			892	Start Date/Time Offset Units	Not used
9	20	NM	O			893	Duration	Not used
10	250	CE	O			894	Duration Units	Not used
11	10	IS	C		279	895	Allow Substitution Code	Not used
12	250	CE	C		278	889	Filler Status Code	Not used

### Get Consults Message

TMP uses the QBP-Q13 message structure to request a list of patient consults and return to clinic orders. VistA responds to the query message with an RTB-K13 response message.

### Get Consult Query Message from TMP to VistA

#### *QPD – Query Parameter Definition Segment*

The QPD segment defines the parameters for the query. It has the information to identify the patient and medical center to query.

SEQ	LEN	DT	OPT	RP/#	TBL#	ITEM#	ELEMENT NAME	VistA
1	250	CE	R		471	1375	Message Query Name	ControlId^TMP^HL7v2.4
2	32	ST	C			696	Query Tag	QueryName
3	30	XCN	R			1435	Patient ID	PatientDfn^PatientIcn

#### *RDF – Table Row Definition Segment*

The RDF segment contains the list of requested data elements and the structure of the response message for the query.

SEQ	LEN	DT	OPT	RP/#	TBL#	ITEM#	ELEMENT NAME	VistA
1	3	NM	R			701	Number of Columns per Row	
2	30	XCN	R			1435	Consult ID	
3	26	TS	R				Consult Date/Time	
4	30	XTN	R				Consulting Service	
5	30	XTN	R				Consult Title	
6	30	XTN	R				Clinically Indicated Date	
7	30	XTN	O				Stop Codes	
8	30	XTN	O				Provider	
9	26	XTN	R				Receiving Site Consult ID	

## Get Consults Query Response Message from VistA to TMP

### *QAK – Query Acknowledgement Segment*

The QAK segment contains information sent with the responses to the query.

SEQ	LEN	DT	OPT	RP/#	TBL#	ITEM#	ELEMENT NAME	VistA
1	32	ST	C			696	Query Tag	Control ID from JSON
2	2	ID	O		<a href="#">208</a>	708	Query Response Status	Table 208 in Chapter 5.
3	250	CE	O			1375	Message Query Name	Name of the query from the QPD segment field 1
4	10	NM	O			1434	Hit Count	number of results
5	10	NM	O			1622	This payload	number of results in this message
6	10	NM	O			1623	Hits remaining	not used

### *QPD – Query Parameters Definition Segment in the response.*

The response to the query includes the QPD parameters from the original request.

SEQ	LEN	DT	OPT	RP/#	TBL#	ITEM#	ELEMENT NAME	JSON Tag
1	250	CE	R		471	1375	Message Query Name	ControlId^TMP^HL7v2.4
2	32	ST	C			696	Query Tag	QueryName
3	30	XCN	R			1435	Patient ID	PatientDfn^PatientIcn

### *RDF – Table Row Definition Segment*

The data on the RDF segment has the data as requested in the RDF segment in the original query message. The RDF segment is a repeating segment, one segment per consult or return to clinic order.

SEQ	LEN	DT	OPT	RP/#	TBL#	ITEM#	ELEMENT NAME	VistA
1	3	NM	R			701	Number of Columns per Row	

2	30	XCN	R			1435	Consult ID	Consult ID
3	26	TS	R				Consult Date/Time	Consult date/time
4	30	XTN	R				Consulting Service	Consulting service
5	30	XTN	R				Consult Title	Consulting title
6	30	XTN	R				Clinically Indicated Date	Clinically indicated date
7	30	XTN	O				Stop Codes	Stop codes associated with the consult title
8	30	XTN	O				Provider	Requesting Provider
9	26	XTN	R				Receiving Site Consult ID	remote site station number^remote site Consult ID

### Real Time Clinic Update Message

TMP sends a Master File MFN M05 message structure when a new clinic is added in VistA or if an existing clinic is inactivated or reactivate. The real time clinic update message is also generated when the default provider is edited, when the name of the clinic is edited, when either the stop code number or credit stop code is edited, when the treating specialty or service is edited or if the overbooks/day maximum is edited in the Hospital Location File (#44).

### MFI – Master File Identification Segment

The MFI segment identifies the type of message.

SEQ	LEN	DT	OPT	RP/#	TBL#	ITEM#	ELEMENT NAME	VistA Data Element
1	250	CE	R		<a href="#">175</a>	658	Master File Identifier	IEN for the clinic in the Hospital Location File (#44)
2	180	HD	O			659	Master File Application Identifier	this will be set to 44^Hospital Location
3	3	ID	R		<a href="#">178</a>	660	File-Level Event Code	UPD
4	26	TS	O			661	Entered Date/Time	Today's date/time in UTC format
5	26	TS	O			662	Effective Date/Time	Today's date/time in UTC format
6	2	ID	R		<a href="#">179</a>	663	Response Level Code	This will be set to AL

### MFE – Master File Entry Segment

The MFE segment has information to identify whether message is an add, update or deactivation of a clinic at the medical center.

SEQ	LEN	DT	OPT	RP/#	TBL#	ITEM#	ELEMENT NAME	VistA Data Element
1	3	ID	R		<a href="#">180</a>	664	Record-Level Event Code	This will be MAD for add, MUP for Update, MDC for deactivate, and MAC for reactivate a deactivated clinic
2	20	ST	C			665	MFN Control ID	Clinic IEN from the Hospital Location file
3	26	TS	O			662	Effective Date/Time	Date/time of the change in VistA in UTC format
4	200	Varies	R	Y		667	Primary Key Value - MFE	This is the IEN from the Hospital Location file for the new clinic or the edited clinic
5	3	ID	R	Y	<a href="#">355</a>	1319	Primary Key Value Type	This will always be CE

### *LOC – Location Identification Segment*

The LOC segment has location identification information.

SEQ	LEN	DT	OPT	RP/#	TBL#	ITEM#	ELEMENT NAME	VistA Data Element
1	200	PL	R			1307	Primary Key Value - LOC	IEN from the Hospital Location file
2	48	ST	O			944	Location Description	Not Used
3	2	IS	R	Y	<a href="#">260</a>	945	Location Type - LOC	Set to C
4	250	XON	O	Y		947	Organization Name - LOC	This is the clinic name^institution number^^^visn&station number
5	250	XAD	O	Y		948	Location Address	Not Used
6	250	XTN	O	Y		949	Location Phone	Not Used
7	250	CE	O	Y	<a href="#">461</a>	951	License Number	Not Used
8	3	IS	O	Y	<a href="#">261</a>	953	Location Equipment	Not Used
9	1	IS	O		<a href="#">442</a>	1583	Location Service Code	Not Used

*LDP – Location Department Segment*

The LDP segment has information for the location of the clinic to uniquely identify it from all other clinics in the VA.

SEQ	LEN	DT	OPT	RP/#	TBL#	ITEM#	ELEMENT NAME	VistA Data Element
1	200	PL	R			963	Primary Key Value - LDP	Clinic IEN from the Hospital Location file
2	250	CE	R		<a href="#">264</a>	964	Location Department	VISN^INSTITUTION NUMBER^STATION NUMBER
3	3	IS	O	Y	<a href="#">69</a>	965	Location Service	From the Hospital Location file, Field #9
4	250	CE	O	Y	<a href="#">265</a>	966	Specialty Type	From the Hospital Location file, Field #9.5
5	1	IS	O	Y	4	967	Valid Patient Classes	
6	1	ID	O		183	675	Active/Inactive Flag	If initial activation or a reactivation use 'A', if inactivation use 'I'
7	26	TS	O			969	Activation Date LDP	Date of initial activation or reactivation in UTC format
8	26	TS	O			970	Inactivation Date - LDP	Date of inactivation in UTC format
9	80	ST	O			971	Inactivated Reason	Set to UNK since VistA doesn't store the inactivated reason.
10	80	VH	O	Y	<a href="#">267</a>	976	Visiting Hours	Clinic start time from the Hospital Location File
11	250	XTN	O			978	Contact Phone	not used
12	250	CE	O		<a href="#">462</a>	1584	Location Cost Center	Primary Stop Code^^Set to CLINIC STOP^Secondary Stop Code

*ZPU – Local Privileged User Segment*

If the clinic is a restricted access clinic, the ZPU segment(s) will be populated. Each privileged user will be on a separated segment.

SEQ	LEN	DT	OPT	RP/#	TBL#	ITEM#	ELEMENT NAME	VistA Data Element
-----	-----	----	-----	------	------	-------	--------------	--------------------

1	10	NM	R				Set ID	Incremental number. Once segment per user
2	200	XCN	R				Privileged User Name	New Person file, Field #.01
3	200	XCN	O				Privileged User eMail	New Person file, Field #.151
4	25	XCN	O				Privileged User VPID	New Person file, Field #9000

### ZDP – Local Default Provider Segment

The ZDP segment has the default provider for the clinic location.

SEQ	LEN	DT	OPT	RP/#	TBL#	ITEM#	ELEMENT NAME	Vista Data Element
1	10	NM	R				Set ID	
2	250	XCN	R				Default Provider Name	New Person File, Field #.01
3	250	XCN	O				Default Provider eMail	New Person File, Field #.151
4	25	XCN	O				Default Provider VPID	New Person File, Field #9000

## Vista Data Dictionary Changes

TMP added two new style cross references to the Vista Patient File (#2). These two cross references, AX and AY, act as triggers to send the real time update messages to TMP when a new appointment is made, or an existing appointment is canceled and the appointment is for a tele health clinic. Tele health clinics are identified by the clinic stop code number or credit stop code.

### AX Cross Reference

Triggers the update message when a new appointment is made.

AX RECORD MUMPS IR ACTION WHOLE FILE (#2)

Short Descr: Action cross reference to send HL7 notification to TMP when a new appt is made.

Description: The Tele Health Management Platform (TMP) application allows users to schedule and cancel tele health appointments in Vista. TMP needs to be kept up to date with appointments scheduled by other applications in order to be able to accurately display open appointment slots. This index will trigger an HL7 message sent to TMP that will update the clinic's and patient's appointments in the TMP database system.

Set Logic: D EN^SDTMPHLA(DA(1),DA)

Set Cond: S X=X1(1)=""

Kill Logic: Q

X(1): CLINIC (2.98,.01)

NO RE-INDEXING ALLOWED!

## AY Cross Reference

Triggers the update message when an existing appointment is canceled.

AY (#1521) RECORD MUMPS IR ACTION WHOLE FILE (#2)

Short Descr: Action cross reference to send an HL7 notification when an appt is cancelled.

Description: The Tele Health Management Platform (TMP) application allows users to schedule and cancel tele health appointments in VistA. TMP needs to be kept up to date with appointments are cancelled by other applications in order to be able to accurately display open appointment slots. This index will trigger an HL7 message sent to TMP that will update the clinic's and patient's appointments in the TMP database system to reflect the cancellation.

Set Logic: D EN^SDTMPHLA(DA(1),DA)

Set Cond: S X=X1(1)=""

Kill Logic: Q

X(1): STATUS (2.98,3)

NO RE-INDEXING ALLOWED!

## Style Cross Reference

TMP has also added a new style cross reference to the Hospital Location File (#44) that acts as a trigger to send an update message to TMP when a tele health clinic is edited in VistA. The cross-reference definition lists the fields that are monitored for changes.

ATMP1 MUMPS IR ACTION

Short Descr: TMP HL7

Description: The Tele Health Management Platform (TMP) application allows users to schedule and cancel appointments in VistA. TMP needs to be kept up to date with specific clinic information in order to be able to accurately display clinic information.

This index will trigger an update to be sent to the TMP platform via HL7 when one of the fields below is edited for a tele health clinic or if a new tele health clinic is added. Tele health clinics are identified by either the Stop Code Number (primary stop code) or the Credit Stop Code (secondary stop code).

Name (#.01) Stop Code Number (#8) Credit Stop  
 Code (#2504) Service (#9) Treating Specialty  
 (#9.5) Overbooks/Day Maximum (#1918) Inactivate  
 Date (#2505) Reactivate Date (#2506).

Set Logic: D EN^SDTMPHLB(DA)  
 Set Cond: S X=X1(1)'=""!X1(2)'=""!X1(3)'=""!X1(4)'=""!X1(5)'=""!X1(6)'=""!X1(7)'=""!X1(8)'=""!X1(9)'=""

Kill Logic: Q  
 X(1): NAME (44,.01)  
 X(2): STOP CODE NUMBER (44,8)  
 X(3): CREDIT STOP CODE (44,2503)  
 X(4): TREATING SPECIALTY (44,9.5)  
 X(5): SERVICE (44,9)  
 X(6): DEFAULT PROVIDER (44,16)  
 X(7): OVERBOOKS/DAY MAXIMUM (44,1918)  
 X(8): INACTIVATE DATE (44,2505)  
 X(9): REACTIVATE DATE (44,2506)

NO RE-INDEXING ALLOWED!

## HOSPITAL LOCATION FILE

TMP added a field to the HOSPITAL LOCATION FILE (#44) in the APPOINTMENT Sub File (#400.03) to store the Uniform Resource Locator (URL) for the Veteran's Video Call. The capture below shows just the field description, not the full data dictionary for the APPOINTMENT Sub File.

Using FileMan:

```

SELECT DATA DICTIONARY UTILITY OPTION:    LIST FILE ATTRIBUTES
START WITH WHAT FILE: HOSPITAL LOCATION//  (424 ENTRIES)
GO TO WHAT FILE: HOSPITAL LOCATION//      (424 ENTRIES)
SELECT SUB-FILE: APPOINTMENT
SELECT SUB-FILE:
SELECT LISTING FORMAT: STANDARD//
START WITH FIELD: FIRST// .01 APPOINTMENT DATE/TIME
GO TO FIELD:
DEVICE: ;;1000 TELNET PORT    RIGHT MARGIN: 80//
STANDARD DATA DICTIONARY #44.001 -- APPOINTMENT SUB-FILE    7/24/19    PAGE 1
STORED IN ^SC(D0,"S",    SITE: VEHU MASTER    UCI: TEST,ROU
  
```

DATA ELEMENT	NAME TITLE	GLOBAL LOCATION	DATA TYPE
44.003,400	VETERAN VIDEO CALL URL	URL;1	FREE TEXT
	INPUT TRANSFORM:	K:\$L(X)>200!(\$L(X)<3)	X
	MAXIMUM LENGTH:	200	
	LAST EDITED:	OCT 30, 2018	
	HELP-PROMPT:	ANSWER MUST BE 3-200 CHARACTERS IN LENGTH.	



## SD TELE HEALTH STOP CODE FILE

TMP also created a new VistA file, SD TELE HEALTH STOP CODE FILE (#40.6). This file stores the list of valid tele health stop codes. The file is used to determine if the clinic is a tele health clinic when the real times are triggered by one of the new style cross references described above. This file is installed pre-populated with the current list of tele health stop codes at the time the patch was released.

STANDARD DATA DICTIONARY #40.6 -- SD TELE HEALTH STOP CODE FILE FILE  
7/24/19

PAGE 1

STORED IN ^SD(40.6, (34 ENTRIES) SITE: VEHU MASTER UCI: TEST,ROU  
(VERSION 5  
.3)

DATA ELEMENT	NAME TITLE	GLOBAL LOCATION	DATA TYPE
-----------------	---------------	--------------------	--------------

-----

--  
THIS FILE STORES THE LIST OF CURRENT TELE HEALTH STOP CODES. THE TELE HEALTH MANAGEMENT PLATFORM (TMP) USES THIS FILE TO IDENTIFY TELE HEALTH CLINICS AS PART OF THE TMP REAL TIME UPDATES. TMP IS MONITORING THE HOSPITAL LOCATION FILE

(#44) FOR EDITS TO TELE HEALTH CLINICS. THESE EDITS ARE SENT TO TMP IN REAL TIME IN ORDER TO KEEP TMP IN SYNC WITH EACH VISTA SYSTEM.

DD ACCESS: @  
RD ACCESS: @  
WR ACCESS: @  
DEL ACCESS: @  
LAYGO ACCESS: @  
AUDIT ACCESS: @

CROSS

REFERENCED BY: STOP CODE NUMBER(B)

LAST MODIFIED: JUL 19,2019@02:30:01

40.6,.01 STOP CODE NUMBER 0;1 FREE TEXT (REQUIRED)

INPUT TRANSFORM: K:\$L(X)>9!(\$L(X)<3)!'(X'?1P.E) X  
MAXIMUM LENGTH: 9

LAST EDITED: JAN 07, 2019

HELP-PROMPT: ENTER THE 3 TO 9 DIGIT STOP CODE NUMBER.

DESCRIPTION: THIS IS THE STOP CODE NUMBER FROM THE CLINIC STOP FILE (#40.7).

CROSS-REFERENCE: 40.6^B

1)= S ^SD(40.6,"B", \$E(X,1,30),DA)=" "

2)= K ^SD(40.6,"B", \$E(X,1,30),DA)

23

INPUT TEMPLATE(S) :

PRINT TEMPLATE(S) :

SORT TEMPLATE(S) :

FORM(S) /BLOCK(S) :

As stop codes change over time, it may be necessary to edit this file to add new tele health stop codes. This patch installs a new Option, SD EDIT TELE HEALTH STOP CODES to be used to edit this file.

Select OPTION NAME: SD EDIT TELE HEALTH STOP

Enter Stop Code: 680 <- Enter a valid stop code. The stop code must be in the CLINIC STOP FILE (#40.7)

Do you want to edit another stop code? NO//

To delete an existing stop code from the file:

Select OPTION NAME: SD EDIT TELE HEALTH STOP CODES

Enter Stop Code: 680

This stop code is already in the file, do you want to delete it? NO// YES

Do you want to edit another stop code? NO//

## Troubleshooting

When VistA initiates the message, VistA sends the HL7 message to HC, HC transforms the HL7 message to the appropriate JSON message and posts the JSON on the TMP Rest End Point.

Issue	Action	Resolve By
Messages are not flowing at all	Check that both the VistA HL7 and HLO listeners are started and the TMP_Send HL7 Logical Link is started.	Start the listeners

<b>Messages are not flowing from VistA to TMP for the real time updates</b>	Check the VistA HL7 and HLO listeners and the TMP_Send HL7 Logical Link is started.	Start the listeners
<b>If the listeners are started but VistA is still not receiving messages from TMP</b>	Contact the VA HealthShare support team.	Asking the VA HealthShare to troubleshoot the TMP HC Production.

## VistA Clinic Schedule Edit Queuing

When editing VistA clinic schedules, two transactions typically occur. The old schedule is deleted, which results in a BLOCK CLINIC DAY transaction being sent to TMP. When the new schedule is written to the clinic, an UNBLOCK CLINIC DAY transaction is sent. This results in the clinic being blocked momentarily until the second transaction arrives. This method has created a good deal of network traffic and occasionally causes problems if the transactions arrive out-of-order causing an inadvertent blocked day.

To resolve these problems, a queue is being created to hold all of the clinic schedule edit transactions briefly so that they can be evaluated. All of the BLOCK CLINIC DAY and UNBLOCK CLINIC DAY transaction pairs will be canceled, as they have no net effect on the system, but potentially cause a great deal of network congestion. Those that need to be sent on to TMP will be sent in the correct order.

The transactions will only be delayed while the clinic editor is working on a single clinic. Once they move on to the next clinic, the transactions are processed.

These transactions are held in a temporary global, XTMP. The lay out is as follows:

```
^XTMP("SDTMPX",JOB,SEQUENCE)=Clinic^time stamp ($H)^Clinic Date^User DUZ^Transaction^Result
```

The transaction can be C – BLOCK CLINIC DAY or UC – UNBLOCK CLINIC DAY  
Result can be P – Processed (sent) or O–Offset (not sent)