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## HL7 Appointment/Service Specifications

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Version 1.2

### Revision History

- 1.1. Added appointment specifications
- 1.2. Updates to client mapping functionality and general edits

This document specifies how the HL7 Socket Interface imports appointment data into CAREWare. Appointments can be imported from SIU HL7 message types. CAREWare can also create service records for completed appointments and, for certain appointments specified during setup, referrals as well. The HL7 element "Message Type" is found in the MSH segment at position 9. The trigger event is a subfield of this element and is found at the first subfield, 9.1.

The following SIU event types are processed in CAREWare to import appointment, service, and referral data:

- S12 (new appointment)
- S13 (rescheduling)
- S14 (modification)

**Table 1.0: CAREWare's Appointment/Service Import Fields**

Field	Description	Note
Appointment Subservice	subservice code	
Filler Status Code	filler code	
Appointment Schedule ID	ID that is associated with the appointment	If a scheduler ID already created an appointment, the interface performs an update for that record instead
Appointment Time	appointment time	
Qty	Service Quantity	Optional field. If added, uses value to populate service quantity. Otherwise, the import uses the quantity set by the contract item.
Dgn Def	diagnosis definition code	If available, the import adds a diagnosis record
Diagnosis Type	diagnosis type code	
Dgn Date	diagnosis date	

**Table 1.1: CAREWare's Referral Import Fields**

Field	Description	Note
Appointment Subservice	subservice code	Used to complete the referral by adding a service
Filler Status Code	filler code	
Rfr Date	Referral date	
Srv Category	Contains service category required for adding a referral	
Referral ID	Identifier for each referral	
Referral Class	Contains information for referral class	
External provider	Used to map external provider for referral	
Dgn Def	diagnosis definition code	If available, CAREWare adds a diagnosis record
Diagnosis Type	diagnosis type code	
Dgn Date	diagnosis date	

## CAREWare Appointment/Service Import

CAREWare's Socket Interface breaks down the import process into distinct steps called *Indexes*, each defined by specific functionality and an option for activation by admin users. All messages are initially processed by the *Make Stubs* index. This index parses the raw HL7 message and takes only the valid messages based on the message type and trigger event. It creates message stubs, which are representations of the HL7 message that hold the status and fields necessary for processing. The appointment import process begins by activating the following indexes

- SCH\_Map\_Provider\_Map\_Provider
- SCH\_Map\_Client\_Map\_Client
- SCH\_Process\_Records\_Process\_Records
- SCH\_Process\_Referrals

Upon a successful activation of these indexes, CAREWare then starts processing appointment stubs stored in the HL7 Socket holding tank with the status of "Map Provider."

### SCH\_Map\_Provider Index

This index is used to assign the account provided in MSH 6 of the incoming HL7 message to a CAREWare provider. The MSH specifications can be found in table 1.1. CAREWare creates a mapping record if none exists, and if a mapping is complete and an activation code is entered for the provider, the message is moved to the Client Processing step. The Lab Test Mapping Tool's Map Provider form lists all provider mappings. The Map

Provider records indicate whether they are active or inactive. Activation codes are generated and sent out by jProg upon request.

### **SCH\_Map\_Client Index**

This index is used to match the HL7 message to a CAREWare patient found in the PID segment. The PID specifications can be found in table 1.2. The interface uses the Patient ID (External ID) found in the PID segment to identify patients. The provider mapping specification done in the Map Provider part of the process allows the user to specify which CAREWare field to use for matching. If the message does not contain a value for the PID element, the user can specify an alternate value using the field mapping in the *HL7\_Make\_Document\_Stubs* index.

In addition to matching the patient based on the value, CAREWare uses a secondary check called the demographic threshold, which considers additional criteria even when the ID matches as described above. This additional check compares last name, first name, and date of birth, and the threshold set in the provider mappings determines how closely those demographic elements need to match in order for the record to be considered a match. When that threshold is not met, the message and all related stubs are marked for deletion. However, CAREWare also has a feature to automatically add new clients based on a user configurable setting. It is recommended to use the "Auto-Add Clients" (screenshot below) with great caution because that could potentially increase the clients within the provider to unmanageable levels.

In cases where the patient information does not match an existing CAREWare client record, the interface can still import results into an observation provider, which stores data for Ryan White-suspected patients, depending on whether diagnosis and generic condition results meet certain criteria. For diagnosis conditions, the interface checks for whether or not the patient had a particular diagnosis. For generic conditions, the user can set the interface to compare any segment element to a user-defined value.

CAREWare also provides optional manual client matching functionality (screenshot below). Admin users can use this to review and match patient records within the provider that have been identified by the Map Provider process. Once enabled, Manual Client Matching is available across all providers importing data through the HL7 Socket Interface.

Administrative Options > Data Import and Export Features > HL7 Socket Interface > Interface Settings

Edit Fallback Conditions Couchbase Settings Back

## Interface Settings

**Client Matching**

Manual Matching:

Auto Add Clients:

**Auto-Purge Settings**

Settings for unmatched client data only

Higher Interval (Days):

Higher Score:

Last Higher Activity:

Lower Interval (Days):

Lower Score:

Last Lower Activity:

Setting for purging the entire interface data

Interval (months):

### HL7\_Client\_Provider\_Look\_Up\_BAR Index

CAREWare also provides an option to match providers and clients in one step using client-provider lookup indexes. When using lookup indexes, it is advised not to operate with other Map Provider/Map Client indexes activated to avoid inconsistent provider and client matching functionality. The lookup indexes search for patients across all CAREWare providers and set the provider and client values based on the setup. The following cases are possible:

- No client/provider combination is found: CAREWare automatically adds the client record to a provider according to conditions set on the Fallback Conditions screen (screenshot below).
- A single client/provider record is found: if the client threshold is met, the client is assigned to the provider; otherwise the fallback provider settings are used.
- Several clients in a provider are identified: CAREWare flags the importing client as "Duplicate" and waits for user resolution.
- A single client is found in several providers: values entered for the client custom field for import provider are used for the import; if these are not found, the Primary Provider calculation used in CAREWare's Custom Report module is used.

Administrative Options > Data Import and Export Features > HL7 Socket Interface > Interface Settings > Fallback Conditions			
<a href="#">Edit</a> <a href="#">Add</a> <a href="#">Manage Values</a> <a href="#">Delete</a> <a href="#">Back</a> <a href="#">Print or Export</a>			
Fallback Conditions			
Search: <input type="text"/>			
Segment	Position	FeedPK	Values
MSH	5	ADT	CAREWare, CWare

### SCH\_Process\_Records Index

This Index is used to import appointments and services into CAREWare. There are checks to make sure that all required data elements needed for particular imports are mapped prior to allowing the import to proceed. Tables 1.3 and 1.4 outline the AIG and SCH segments used for mapping key data elements for appointments/services. Appointment codes intended to import referrals instead are specified by admin users during setup. Otherwise, the appointment import is based on scheduler ID and filler status code. For a specified scheduler ID, only one appointment record can exist in CAREWare. The import logic is outlined below:

- If the appointment does not exist for the scheduler ID, the import either creates a new record or assigns a data-entered appointment for the same date and subservice as are indicated by the scheduler ID.
- If an appointment already exists for the ID and the filler status value is "Delete" then the import deletes the appointment record.
- If an appointment already exists for the ID and the filler status value is "Canceled" then the import assigns a status of "Missed."
- If the filler status value is "Complete," then the import could either complete the existing appointment by adding a service or add a new appointment if it does not exist and then complete it.

CAREWare gets the different values required for the appointment from the mappings setup at the time of entry. This process can also import diagnoses for the scheduler stubs if DGN segments are included.

### SCH\_Process\_Referrals Index

The SCH feed could also be configured to import referrals in CAREWare. Table 1.1 outlines the various fields required for the CAREWare referral import. Tables 1.3 and 1.4 outline the AIG and SCH segments used for mapping key data elements for the referral

records. Only external referrals are created and updated by this import. Also, for any given scheduler ID, only one referral record can exist in CAREWare. The referral import logic is similar to the appointment import logic:

- If a referral does not exist for the scheduler ID and the filler code specifies anything other than "Completed," the import creates a new record with a "Pending" status.
- If the referral does not exist and the filler code specifies "Complete," the import creates a completed referral; if the subservice is also set to add a service for the referral, CAREWare creates a service record for the referral.
- If it exists for the scheduler ID and filler code specifies a "Delete," the import deletes the referral.
- Otherwise the import creates a new referral or updates a previously created one for the scheduler ID with a status "Lost to Follow-up."

**Table 1.2: MSH Specifications**

SEQ	LEN	OPT	ELEMENT NAME	CAREWare Field	Required For Import	Comments
1	1	R	Field Separator		Yes	Indicates what delimiter to use to separate components when parsing.
2	4	R	Encoding Characters		Yes	
3	180	O	Sending Application		Yes	Used in conjunction with MSH 6 to ensure a unique provider mapping record. CAREWare uses this value to determine where the data originated from.
4	180	O	Sending Facility		No	Available as an alternative to MSH 3.
5	180	O	Receiving Application	Alternate Provider ID	Yes	Available as an alternative to MSH 6. If user sets this as the default provider identifier, this value will override the value MSH 6. If this is set as the alternate value, it will override MSH 6 if MSH 6 is empty.
6	180	O	Receiving Facility	Primary Provider ID	No	Used in conjunction with MSH 3 to create a unique provider mapping record. CAREWare uses this value to link to a CAREWare provider. jProg needs this value to create an activation code.
7	26	O	Date/Time Of Message		No	
8	40	O	Security		No	
9	7	R	Message Type		Yes	CAREWare uses this field to determine the message type and trigger event. Message type is in

						MSH 9.0 and trigger event is in MSH 9.1.
10	20	R	Message Control ID		No	
11	3	R	Processing ID		No	
12	8	R	Version ID		No	
13	15	O	Sequence Number		No	
14	180	O	Continuation Pointer		No	
15	2	O	Accept Acknowledgment Type		No	
16	2	O	Application Acknowledgment Type		No	
17	2	O	Country Code		No	
18	6	O	Character Set		No	
19	60	O	Principal Language Of Message		No	

**Table 1.3: PID Specifications**

SEQ	LEN	OPT	ELEMENT NAME	CAREWare Field	Required For Import	Comments
1	4	O	Set ID - Patient ID		No	
2	20	O	Patient ID (External ID)	Primary Client ID	Yes	Default field where CAREWare looks for matching patient value.
3	20	R	Patient ID (Internal ID)	Primary/Alternate Client ID	No	Can be used as matching patient identifier. If user sets this as the default patient identifier, this value will override the value PID 2. If this is set as the alternate value, it will override PID 2 if PID 2 is empty.
4	20	O	Alternate Patient ID - PID	Primary/Alternate Client ID	No	Can be used as matching patient identifier. If user sets this as the default patient identifier, this value will override the value in PID 2. If this is set as the alternate value, it will override PID 2 if PID 2 is empty.
5	48	R	Patient Name	Last Name, First Name, Middle Name	No	If patient name is not set, CAREWare will match patients by matching patient value only. Users must set CAREWare's threshold (secondary check) to 0.
6	48	O	Mother's Maiden Name		No	

7	26	O	Date/Time of Birth		No	If date of birth is not set, make sure CAREWare's threshold (secondary check) is low enough to account for this. YYYY.
8	1	O	Sex	Gender	No	Only mandatory if new patient is added.
9	48	O	Patient Alias		No	
10	1	O	Race	Patient Race, Race Subgroup	No	Single patient race
11	106	O	Patient Address	Address, Address Continued, City, State, Zip	No	Address^Address Continued^City^State^Zip
12	4	B	County Code	County	No	
13	40	O	Phone Number - Home	Phone	No	
14	40	O	Phone Number - Business		No	
15	60	O	Primary Language		No	
16	1	O	Marital Status		No	
17	3	O	Religion		No	
18	20	O	Patient Account Number	acct	No	
19	16	O	SSN Number - Patient		No	
20	25	O	Driver's License Number - Patient		No	
21	20	O	Mother's Identifier		No	
22	3	O	Ethnic Group	Hispanic	No	
23	60	O	Birth Place		No	
24	2	O	Multiple Birth Indicator		No	
25	2	O	Birth Order		No	
26	4	O	Citizenship		No	
27	60	O	Veterans Military Status		No	
28	80	O	Nationality		No	
29	26	O	Patient Death Date and Time	deathDate	No	
30	1	O	Patient Death Indicator	Vtl Status	No	

**Table 1.3: AIG Specifications**

SEQ	LEN	OPT	ELEMENT NAME	CAREWare Field	Required For Import	Comments
1	4	R	Set ID - AIG			
2	3	C	Segment Action Code			



3	250	C	Resource ID	Appointment/ Service Name	Yes	Can be set to another field
4	250	R	Resource Type			
5	250	O	Resource Group			
6	5	O	Resource Quantity			
7	250	O	Resource Quantity Units			
8	26	C	Start Date/Time	Appointment/ Service Date	Yes	Can be used for another date field
9	20	C	Start Date/Time Offset			
10	250	C	Start Date/Time Offset Units			
11	20	O	Duration			
12	250	O	Duration Units			
13	10	C	Allow Substitution Code			
14	250	C	Filler Status Code			

**Table 1.4: SCH Specifications**

SEQ	LEN	OPT	ELEMENT NAME	CAREWare Field	Required For Import	Comments
1	75	C	Placer Appointment ID		Yes	Used to identify the scheduler transaction to determine Add, Edit or even Delete
2	75	C	Filler Appointment ID			
3	5	C	Occurrence Number			
4	22	O	Placer Group Number			
5	250	O	Schedule ID			
6	250	R	Event Reason			
7	250	O	Appointment Reason			
8	250	O	Appointment Type			
9	20	B	Appointment Duration	Service Qty	No	Used to import as service quantity for completed appointments
10	250	B	Appointment Duration Units			
11	200	B	Appointment Timing Quantity			
12	250	O	Placer Contact Person			
13	250	O	Placer Contact Phone Number			
14	250	O	Placer Contact Address			

15	80	O	Placer Contact Location			
16	250	R	Filler Contact Person			
17	250	O	Filler Contact Phone Number			
18	250	O	Filler Contact Address			
19	80	O	Filler Contact Location			
20	250	R	Entered by Person			
21	250	O	Entered by Phone Number			
22	80	O	Entered by Location			
23	75	O	Parent Placer Appointment ID			
24	75	C	Parent Filler Appointment ID			
25	250	O	Filler Status Code		Yes	Filler Status code
26	22	C	Placer Order Number			
27	22	C	Filler Order Number			