

# HITSP Scheduling Capability

---

HITSP/CAP93



Healthcare Information Technology Standards Panel

*Submitted to:*

**Healthcare Information Technology Standards Panel**

*Submitted by:*

**Administrative and Financial Domain Technical Committee**



## DOCUMENT CHANGE HISTORY

Version Number	Description of Change	Name of Author	Date Published
0.0.1	Review Copy	Administrative and Financial Domain Technical Committee	October 19, 2009
0.0.2	Review Copy	Administrative and Financial Domain Technical Committee	January 31, 2010



## TABLE OF CONTENTS

<b>1.0</b>	<b>INTRODUCTION .....</b>	<b>5</b>
1.1	Capability Overview .....	5
1.2	Scope.....	6
1.3	Copyright Permissions.....	6
1.4	Reference Documents.....	6
1.5	Guidance For Use of a Capability.....	6
<b>2.0</b>	<b>REQUIREMENTS ANALYSIS .....</b>	<b>8</b>
2.1	Introduction .....	8
2.2	Requirements .....	8
2.2.1	Information Exchanges .....	8
<b>3.0</b>	<b>EXTERNAL CAPABILITY OPTIONS .....</b>	<b>10</b>
3.1	Security and Privacy .....	10
<b>4.0</b>	<b>DESIGN SPECIFICATION .....</b>	<b>11</b>
4.1	Requirements Mapped to Constructs .....	11
4.1.1	Constructs.....	11
4.2	Constraints and Assumptions.....	11
4.3	Specified Interfaces by System Role.....	11
<b>5.0</b>	<b>STANDARDS .....</b>	<b>14</b>
5.1	Standards Used.....	14
5.1.1	Regulatory Guidance.....	14
5.1.2	Selected Standards .....	14
5.1.3	Informative Reference Standards.....	16
5.2	Standards Gaps and Overlaps .....	16
<b>6.0</b>	<b>APPENDIX .....</b>	<b>17</b>
<b>7.0</b>	<b>DOCUMENT UPDATES .....</b>	<b>24</b>
7.1	Ocotber 19, 2009.....	24
7.2	January 31, 2010.....	24



## FIGURES AND TABLES

Figure 2-1 Information Exchanges Between System Roles .....	9
Table 1-1 Reader's Guide for Capability .....	5
Table 1-2 Reference Documents .....	6
Table 2-1 Reader's Guide for Section 2.0 .....	8
Table 2-2 Capability System Roles .....	8
Table 2-3 Supported Information Exchanges .....	8
Table 3-1 Reader's Guide for Section 3.0 .....	10
Table 4-1 Reader's Guide for Section 4.0 .....	11
Table 4-2 Information Exchanges Mapped to Constructs .....	11
Table 4-3 Context .....	11
Table 4-4 Appointment Information Requestor System Role Mapped to HITSP Construct Interfaces .....	12
Table 4-5 Appointment Information Source System Role Mapped to HITSP Construct Interfaces .....	12
Table 4-6 Implementation Conditions .....	13
Table 5-1 Reader's Guide for Section 5.0 .....	14
Table 5-2 Regulatory Guidance .....	14
Table 5-3 Selected Standards .....	15
Table 5-4 Informative Reference Standards .....	16
Table 5-5 Information Exchange Requirements (IER) and Associated Standards Gaps .....	16
Table 5-6 Information Exchange Requirements (IER) and Associated Standards Overlaps .....	16
Table 6-1 Interoperability Specification Requirements Analysis Used to Derive Information Exchanges .....	17
Table 6-2 Data Element and Information Requirements (DR) .....	21
Table 6-3 Information Exchange Requirements (IER) .....	23



## 1.0 INTRODUCTION

This Healthcare Information Technology Standards Panel (HITSP) document is divided into Requirements Analysis, External Capability Options, Design Specifications and Standards sections which may be used by analysts, architects and implementers. Analysts refer to this document to determine if the Capability satisfies their requirements. Architects and system implementers refer to this document as the architectural specifications for a system design, while software developers will use a Capability as the source of the design for interoperable information exchange. The Appendix lists requirements satisfied by this Capability.

All sections may be useful to analysts and architects. However as shown in Table 1-1 Reader's Guide for Capability, different readers may find specific sections of greater interest and utility. This table is provided as an aid to readers to assist them in identifying sections to focus on. Readers are encouraged to review all sections of this document to further their understanding of HITSP's work.

**Table 1-1 Reader's Guide for Capability**

Document Section	Section Number	Intended Audience	Information Contained
Section 2.0 Requirements Analysis	2.1 Introduction	Policy Managers Policy Analysts Executive Leadership	Provides an overview of the requirements which this Capability addresses, and identifies the system roles supported by the Capability
	2.2 Requirements	Program Managers Policy Analysts Executive Leadership Architects Business Analysts	Defines the actual information exchanges supported by the Capability in terms of exchange actions and exchange content. It shows how these roles can be assigned at a higher level to real world systems, such as an Electronic Health Record
Section 3.0 External Capability Options	3.1 Security and Privacy	Policy Analysts Architects Business Analysts Developers	Describes the integrated and optional security and privacy functions supported by the Capability
Section 4.0 Design Specification	4.1 Requirements Mapped to Constructs	Program Managers Architects Business Analysts Developers	Maps the information exchanges developed in requirements to the actual HITSP construct used by the Capability to support the exchange
	4.2 Constraints and Assumptions	Business Analysts Developers	Lists the context that is necessary to use the Capability, including constraints, assumptions, pre-conditions, post-conditions and triggers
	4.3 Specified Interfaces by System Role	Business Analysts Developers	Identifies the constructs and their interfaces assigned to each system role. It also lists the implementation conditions for use
Section 5.0 Standards	5.1 Standards Used	Program Managers Policy Analysts Architects Business Analysts Developers	Lists regulatory guidance, selected standards and informative references used by the Capability and all its supporting constructs
	5.2 Standards Gaps and Overlaps	Program Managers Policy Analysts Architects Business Analysts Developers	Identifies gaps or overlaps in standards to implement the Capability including a plan to resolve issues

### 1.1 CAPABILITY OVERVIEW

This document facilitates the electronic exchange of scheduling information between a provider and a consumer by defining the interface options and the data requirements for each information exchange.



## 1.2 SCOPE

A Capability enables business and policy requirements for a business need to be implemented through information exchanges specified in HITSP constructs. The objective of a Capability is to provide the bridge between the business, policy and implementation disciplines by defining a set of information exchanges at a level relevant to policy and business decisions and specifying the use of HITSP constructs sufficiently for implementation. A Capability supports stakeholder requirements and business processes and includes information content, infrastructure, security and privacy. The design of Capabilities leverages existing HITSP constructs and communication methodologies. As new constructs become available, the scope of this Capability may be extended.

## 1.3 COPYRIGHT PERMISSIONS

### COPYRIGHT NOTICE

© 2010 ANSI. This material may be copied without permission from ANSI only if and to the extent that the text is not altered in any fashion and ANSI's copyright is clearly noted.

## 1.4 REFERENCE DOCUMENTS

A list of key reference documents and background material is provided in the table below. HITSP-maintained reference documents can be retrieved from the [HITSP Web Site](#).

**Table 1-2 Reference Documents**

Reference Document	Document Description
<a href="#">HITSP Acronyms List</a>	Lists and defines the acronyms used in this document
<a href="#">HITSP Glossary</a>	Provides definitions for relevant terms used by HITSP documents
<a href="#">TN900 - Security and Privacy</a>	TN900 is a reference document that provides the overall context for use of the HITSP Security and Privacy constructs
<a href="#">TN903 - Data Architecture</a>	TN903 is a reference document that provides the overall context for use of the HITSP Data Architecture constructs
<a href="#">TN904 - Harmonization Framework and Exchange Architecture</a>	TN904 is a reference document that provides the overall context for use of the HITSP Harmonization Framework and Exchange Architecture

## 1.5 GUIDANCE FOR USE OF A CAPABILITY

NOTE: For questions related to details on HITSP Capabilities and HITSP System Roles, please refer to HITSP/TN904 Harmonization Framework and Exchange Architecture Technical Note.

To use a HITSP Capability, a HITSP Interoperability Specification or an implementation conformance statement must assign specific systems to one or more HITSP Capability System Roles and identify how the HITSP Capability Options are to be addressed. In order to assign systems to HITSP System Roles, the reader uses Table 2-3 Supported Information Exchanges to determine what systems can support the specific information exchanges required. For an example of how HITSP System Roles and systems are mapped, readers can consult a HITSP Interoperability Specification Table 3-3 Orchestration of Capabilities by System. In the case of an Implementation Guide, systems can be assigned to HITSP System Roles using a similar methodology.

The use of a HITSP Capability implies that these specific rules will be followed:

- For each HITSP Capability System Role listed in Table 2-2 Capability System Roles, the defined responsibilities of that HITSP Capability System Role are supported. Responsibilities for the



HITSP Capability System Role are defined as support for the HITSP Construct interfaces listed in Section 4.3 Specified Interfaces by System Role. Support implies that the system assigned to the HITSP Capability System Role makes the associated HITSP construct interfaces available for use by other systems. For those HITSP construct interfaces in Section 4.3 that have associated content optionality, the HITSP Capability System Role must comply with the optionality condition listed in Table 4-6 Implementation Conditions.

- Responsibilities also include the constraints and assumptions associated with use of a Capability, as outlined in Table 4-3 Context. For those Capabilities with Section 3.2 options, the following additional rules apply:
  1. Each topology option listed in Table 3-2 Topology Related Options should be supported by the implementation
  2. Each content import option listed in Table 3-3 Content Import Options should be supported by the implementation
    1. Each document content option listed in Table 3-4 Document Content Options should be supported by the implementation



## 2.0 REQUIREMENTS ANALYSIS

The following table is provided as an aid to readers to assist them in identifying the parts of this section to focus on. Readers are encouraged to review all sections of this document to further their understanding of HITSP's work.

**Table 2-1 Reader's Guide for Section 2.0**

Document Section	Section Number	Intended Audience	Information Contained
Section 2.0 Requirements Analysis	2.1 Introduction	Policy Managers Policy Analysts Executive Leadership	Provides an overview of the requirements which this Capability addresses, and identifies the system roles supported by the Capability
	2.2 Requirements	Program Managers Policy Analysts Executive Leadership Architects Business Analysts	Defines the actual information exchanges supported by the Capability in terms of exchange actions and exchange content. It shows how these roles can be assigned at a higher level to real world systems, such as an Electronic Health Record

### 2.1 INTRODUCTION

Table 2-2 summarizes the system roles of the Capability. Section 2.2 identifies how these system roles participate in the set of information exchanges.

**Table 2-2 Capability System Roles**

System Role	System Role Definition
Appointment Information Requestor	Requests an appointment or an appointment change
Appointment Information Source	Schedules an appointment

### 2.2 REQUIREMENTS

#### 2.2.1 INFORMATION EXCHANGES

Table 2-3 defines each of the Information Exchanges supported by this Capability in terms of the Exchange Action (EA) or Exchange Content (EC) used.

**Table 2-3 Supported Information Exchanges**

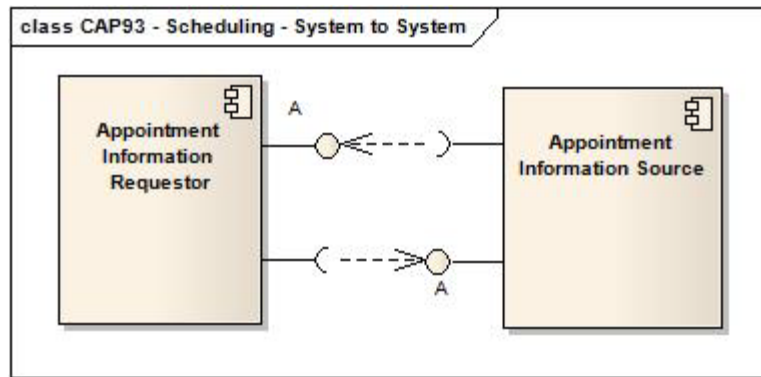
Information Exchange Identifier	Exchange Action	Exchange Content
A	Request & Response	Appointment Request and Response

Figure 2-1 identifies how this Capability supports various system roles within multiple system architectures. For example, either an Electronic Health Record (EHR) system or a Health Information Exchange (HIE) might fill a document repository system role in an information exchange. In an implementation architecture, system roles may be combined locally (e.g., Hospital EHR System) and in others, the system roles may be provided by multiple-distributed trusted third parties (e.g., pharmacies within an HIE).





**Figure 2-1 Information Exchanges Between System Roles**



## 3.0 EXTERNAL CAPABILITY OPTIONS

The following table is provided as an aid to readers to assist them in identifying the parts of this section to focus on. Readers are encouraged to review all sections of this document to further their understanding of HITSP's work.

**Table 3-1 Reader's Guide for Section 3.0**

Document Section	Section Number	Intended Audience	Information Contained
Section 3.0 External Capability Options	3.1 Security and Privacy	Policy Analysts Architects Business Analysts Developers	Describes the integrated and optional Security and Privacy functions supported by the Capability

This section is primarily for architects, engineers and analysts. It allows those who consider using this Capability to evaluate and/or constrain the options that are externally made available for the Capability implementers.

Interoperability among system roles defined by this Capability often requires the selection of consistent options.

### 3.1 SECURITY AND PRIVACY

The application of Security and Privacy is highly influenced by the security and privacy policies. The HITSP Security and Privacy Technical Note (HITSP/TN900) provides a detailed discussion of the Security and Privacy constructs, including consideration and appropriate context for needed security and privacy related policy decisions. Security and Privacy constructs are integrated comprehensively into the Service Collaborations. The actual constructs used and the way in which the constructs are used is dependent on the policies and physical setting. Conformance claims are against the Security and Privacy constructs that are chosen to enforce the policies.



## 4.0 DESIGN SPECIFICATION

The following table is provided as an aid to readers to assist them in identifying the parts of this section to focus on. Readers are encouraged to review all sections of this document to further their understanding of HITSP's work.

**Table 4-1 Reader's Guide for Section 4.0**

Document Section	Section Number	Intended Audience	Information Contained
Section 4.0 Design Specification	4.1 Requirements Mapped to Constructs	Program Managers Architects Business Analysts Developers	Maps the information exchanges developed in requirements to the actual HITSP construct used by the Capability to support the exchange
	4.2 Constraints and Assumptions	Business Analysts Developers	Lists the context that is necessary to use the Capability, including constraints, assumptions, pre-conditions, post-conditions and triggers
	4.3 Specified Interfaces by System Role	Business Analysts Developers	Identifies the constructs and their interfaces assigned to each system role. It also lists the implementation conditions for use

### 4.1 REQUIREMENTS MAPPED TO CONSTRUCTS

#### 4.1.1 CONSTRUCTS

Table 4-2 defines the mapping of the Information Exchanges supported by this Capability in terms of the Exchange Action (EA), Exchange Content (EC) and any Constraints applied to the Information Exchange with specific initiating and/or responding system interfaces. This provides the traceability of constructs to the information exchanges identified in Section 2.0 above. Content modules and terminology components are not listed here because they are referenced by other constructs, but do not provide an interface. HITSP/TN903 discusses how content modules and terminology components are referenced by other constructs.

**Table 4-2 Information Exchanges Mapped to Constructs**

Information Exchange Identifier	Exchange type	Construct Identifier	Description
A	Action	HITSP/SC108 – Access Control	Provides the mechanism for security authorizations which control the enforcement of security policies
	Action	HITSP/SC109 – Security Audit	Describes the mechanism to record security relevant events in support of policy, regulation, or risk analysis
	Action/Content	HITSP/T160 – Appointment Request and Response	Provides for the capture and storage of specific appointment information

### 4.2 CONSTRAINTS AND ASSUMPTIONS

Table 4-3 specifies the context that must be provided in order to use the Capability, identifying any assumptions, pre-conditions, post-conditions, and triggers relevant for use of the Capability.

**Table 4-3 Context**

Context Assumptions, Pre-Conditions, Post-Conditions, and Triggers	Type of Context
None	

### 4.3 SPECIFIED INTERFACES BY SYSTEM ROLE

This section specifies the HITSP Capability interfaces in terms of the System Roles identified in Capability's System Roles.



Table 4-4 below specifies interfaces for the first system role as defined in Table 2-2.

**Table 4-4 Appointment Information Requestor System Role Mapped to HITSP Construct Interfaces**

Interface	Interface Type	T/TP/SC or Content	T/SC/Content Optionality
Request New Appointment Booking	Initiating	HITSP/SC108– Access Control HITSP/SC109 – Security Audit HITSP/T160 – Appointment Request and Response <i>to be developed</i>	R R R
Request Appointment Rescheduling	Initiating	HITSP/SC108– Access Control HITSP/SC109 – Security Audit HITSP/T160 – Appointment Request and Response <i>to be developed</i>	R R R
Request Appointment Modification	Initiating	HITSP/SC108– Access Control HITSP/SC109 – Security Audit HITSP/T160 – Appointment Request and Response <i>to be developed</i>	R R R
Request Appointment Cancellation	Initiating	HITSP/SC108– Access Control HITSP/SC109 – Security Audit HITSP/T160 – Appointment Request and Response <i>to be developed</i>	R R R
Request Appointment Discontinuation	Initiating	HITSP/SC108– Access Control HITSP/SC109 – Security Audit HITSP/T160 – Appointment Request and Response <i>to be developed</i>	R R R
Request Appointment Deletion	Initiating	HITSP/SC108– Access Control HITSP/SC109 – Security Audit HITSP/T160 – Appointment Request and Response <i>to be developed</i>	R R R

Optionality Legend: “R” for Required, “O” for Optional, or “C” for Conditional

Table 4-5 specifies interfaces for responding system roles as defined in Table 2-2.

**Table 4-5 Appointment Information Source System Role Mapped to HITSP Construct Interfaces**

Interface	Interface Type	T/TP/SC or Content	T/SC/Content Optionality
Notification of New Appointment Booking	Responding	HITSP/SC108– Access Control HITSP/SC109 – Security Audit HITSP/T160 – Appointment Request and Response <i>to be developed</i>	R R R
Notification of Appointment Rescheduling	Initiating	HITSP/SC108– Access Control HITSP/SC109 – Security Audit HITSP/T160 – Appointment Request and Response <i>to be developed</i>	R R R
Notification of Appointment Modification	Responding	HITSP/SC108– Access Control HITSP/SC109 – Security Audit HITSP/T160 – Appointment Request and Response <i>to be developed</i>	R R R
Notification of Appointment Cancellation	Responding	HITSP/SC108– Access HITSP/SC109 – Security Audit HITSP/T160 – Appointment Request and Response <i>to be developed</i>	R R R
Notification of Appointment Discontinuation	Responding	HITSP/SC108– Access Control HITSP/SC109 – Security Audit HITSP/T160 – Appointment Request and Response <i>to be developed</i>	R R R



Interface	Interface Type	T/TP/SC or Content	T/SC/Content Optionality
Notification of Appointment Discontinuation	Responding	HITSP/SC108– Access Control HITSP/SC109 – Security Audit HITSP/T160 – Appointment Request and Response	R R R

Optionality Legend: “R” for Required, “O” for Optional, or “C” for Conditional

Table 4-6 specifies optionality conditions referenced in Table 4-4 through Table 4-5 above.

**Table 4-6 Implementation Conditions**

Condition Code	Condition Description
None	



## 5.0 STANDARDS

The following table is provided as an aid to readers to assist them in identifying the parts of this section to focus on. Readers are encouraged to review all sections of this document to further their understanding of HITSP's work.

**Table 5-1 Reader's Guide for Section 5.0**

Document Section	Section Number	Intended Audience	Information Contained
Section 5.0 Standards	5.1 Standards Used	Program Managers Policy Analysts Architects Business Analysts Developers	List regulatory guidance, selected standards and informative references used by the Capability and all its supporting constructs
	5.2 Standards Gaps and Overlaps	Program Managers Policy Analysts Architects Business Analysts Developers	Identifies gaps or overlaps in standards to implement the Capability including a plan to resolve issues

### 5.1 STANDARDS USED

#### 5.1.1 REGULATORY GUIDANCE

Table 5-2 lists any regulatory guidance that determines or constrains use of standards.

**Table 5-2 Regulatory Guidance**

Regulation	Description
No applicable regulatory guidance	

#### 5.1.2 SELECTED STANDARDS

Table 5-3 lists the standards selected as relevant to this Capability.



**Table 5-3 Selected Standards**

Standard	Description
HL7 v2.5.1 Chapter 10: Scheduling	<p>HL7 v2.5.1 was approved as an ANSI standard on February 21, 2007. Chapter 10 (Scheduling) defines abstract messages for the purpose of communicating various events related to the scheduling of appointments for services or for the use of resources.</p> <p>HL7 SRM/SRR messages are exchanged between appointment requester placers and appointment request fulfillers. The placer application initiates transactions using the SRM message, requesting that the filler application modify its schedule(s) with the given trigger event and information. The filler application responds to these requests, using the SRR message, to either grant or deny the requests from the placer application. The eleven SRM/SRR message pairs are:</p> <ul style="list-style-type: none"> <li>• SRM/SRR-S01 - Request New Appointment Booking</li> <li>• SRM/SRR-S02 - Request Appointment Rescheduling</li> <li>• SRM/SRR-S03 - Request Appointment Modification</li> <li>• SRM/SRR-S04 - Request Appointment Cancellation</li> <li>• SRM/SRR-S05 - Request Appointment Discontinuation</li> <li>• SRM/SRR-S06 - Request Appointment Deletion</li> <li>• SRM/SRR-S07 - Request Addition Of Service/Resource On Appointment</li> <li>• SRM/SRR-S08 - Request Modification Of Service/Resource On Appointment</li> <li>• SRM/SRR-S09 - Request Cancellation Of Service/Resource On Appointment</li> <li>• SRM/SRR-S10 - Request Discontinuation Of Service/Resource On Appointment</li> <li>• SRM/SRR-S11 - Request Deletion Of Service/Resource On Appointment</li> </ul> <p>The HL7 SIU message notifies an auxiliary (or other similarly configured) application of changes to some facet of the filler application's appointment schedule. There are 14 different trigger events for the SIU message, but they all use a common message format. The fourteen SIU messages include:</p> <ul style="list-style-type: none"> <li>• SIU-S12 – Notification of new appointment booking</li> <li>• SIU-S13 – Notification of appointment rescheduling</li> <li>• SIU-S14 – Notification of appointment modification</li> <li>• SIU-S15 – Notification of appointment cancellation</li> <li>• SIU-S16 – Notification of appointment discontinuation</li> <li>• SIU-S17 – Notification of appointment deletion</li> <li>• SIU-S18 – Notification of addition of service/resource on appointment</li> <li>• SIU-S19 – Notification of modification of service/resource on appointment</li> <li>• SIU-S20 – Notification of cancellation of service/resource on appointment</li> <li>• SIU-S21 – Notification of discontinuation of service/resource on appointment</li> <li>• SIU-S22 – Notification of deletion of service/resource on appointment</li> <li>• SIU-S23 – Notification of blocked schedule time slot(s)</li> <li>• SIU-S24 – Notification of opened ("un-blocked") schedule time slot(s)</li> <li>• SIU-S26 – Notification that patient did not show up for scheduled appointment</li> </ul> <p>The HL7 SQM/SQR – Schedule Query Message and Response Query interactions are the messages and trigger events used between querying applications and filler applications. Queries can return either display-oriented responses or record-oriented responses. The request can specify either immediate response or deferred response</p>



Standard	Description
HL7 Version 3 Standard: Scheduling, Release 1	<p>HL7 Version 3 Standard: Scheduling, Release 1, was approved as an ANSI standard on 12/17/2003. Release 1 supports the simple scenario of a scheduling application sending basic notifications to an auxiliary application. It supports the following interactions:</p> <ul style="list-style-type: none"> <li>• PRSC_IN010101UV01 - New Appointment Notification</li> <li>• PRSC_IN010201UV01 - Revise Appointment Notification</li> <li>• PRSC_IN020201UV01 - Reschedule Appointment Notification</li> <li>• PRSC_IN020101UV01 - Cancel Appointment Notification</li> </ul>

### 5.1.3 INFORMATIVE REFERENCE STANDARDS

Table 5-4 includes reference standards that inform the overall semantic interoperability.

**Table 5-4 Informative Reference Standards**

Standard	Description
No applicable informative reference standards	

## 5.2 STANDARDS GAPS AND OVERLAPS

Table 5-5 identifies the information exchange requirements and known standards gaps, along with the recommended resolutions to the gaps.

**Table 5-5 Information Exchange Requirements (IER) and Associated Standards Gaps**

IER Gap Description	Responsible HITSP TC	Design Approach	Required Standards Now Unavailable for Constructs	SDO Working on Unavailable Standards	Expected Availability
An Implementation Guide is needed for the HL7 v2 Scheduling standard	Administrative and Financial Domain Technical Committee (AFDTC)	Modified HITSP/CAP 93 – Scheduling, plus create new construct HITSP/T160 - Appointment Request and Response	Implementation Guide for HL7 v2 Scheduling	HL7	HL7 plans to start a project in Jan 2010 to create an Implementation Guide for HL7 v2 Scheduling. Implementation Guides in the current HL7 ballot are more than 200 pages long (!) so it is anticipated that the project will require up to 1-year to develop the Implementation Guide

Table 5-6 lists any standards overlaps and describes plans to resolve each of the overlaps.

**Table 5-6 Information Exchange Requirements (IER) and Associated Standards Overlaps**

IER Number	Summary Description	Standard Overlap	Recommended Resolution
None			





## 6.0 APPENDIX

This section may include additional materials referenced throughout this document, such as requirements analysis tables and figures. If the Capability is yet to be implemented, it may contain the candidate standards, for Tier 2 evaluation.

**Table 6-1 Interoperability Specification Requirements Analysis Used to Derive Information Exchanges**

Functional Requirement	Information Exchange	IER	Data Requirement	Analysis
A. The ability to communicate an appointment request for one or more appointments between an appointment requestor and an appointment provider				HL7 v2.5.1 SRM/SRR – S01 - Request New Appointment Booking
i. The appointment request is communicated from a clinician, organization, consumer, or a clinician acting on a consumer's behalf, to the appointment provider	A	01	Patient Demographic Data (DR01) Diagnosis Codes (DR66) Provider Info (DR73) Appointment Data (DR102)	PID – Patient Identification DG1 – Diagnosis AIP – Appointment Information – Personnel APR – Appointment Preferences
ii. Information that may be required of the appointment requestor during scheduling activities includes reason for visit, location for the appointment, type of appointment, clinician, specialty, and prerequisites for scheduling a requested appointment	A	01	Patient Demographic Data (DR01) Diagnosis Codes (DR66) Provider Info (DR73) Appointment Data (DR102)	PID – Patient Identification DG1 – Diagnosis AIP – Appointment Information – Personnel APR – Appointment Preferences
iii. An appointment requestor may need to provide additional information such as a specific department, clinician, or facility to meet a patient's unique care needs. For example, a patient with fear of enclosed spaces may require a specific location or organization with an open style imaging device to complete requested testing	A	01	Patient Demographic Data (DR01) Diagnosis Codes (DR66) Provider Info (DR73) Appointment Data (DR102) Appointment Location (DR100) Appointment Resources (DR101)	PID – Patient Identification DG1 – Diagnosis AIP – Appointment Information – Personnel APR – Appointment Preferences AIS – Appointment Information – Service AIG – Appointment Information – General Resource Service AIL – Appointment Information – Location Resource
B. The ability to communicate appointment sequencing and intervals, appointment types, standardized units of time, and other information pertinent to the activities of scheduling sequenced appointments				HL7 v2.5.1 - SRM – Schedule Request Message ARQ – Appointment Request Segment APR – Appointment Preferences NTE – Notes and Comments for the ARQ
i. Information of this nature may come from an appointment requestor, appointment provider, or other source	A, B	01, 09	Provider Info (DR73) Appointment Data (DR102)	HL7 v2.5.1 – SRR - Schedule Request Response SCH – Schedule Activity
ii. Information about the correct sequencing of a series of appointments may be made available by an appointment provider and/or included in an appointment request	A, B	01, 02	Patient Demographic Data (DR01) Diagnosis Codes (DR66) Provider Info (DR73) Appointment Data (DR102)	



Functional Requirement	Information Exchange	IER	Data Requirement	Analysis
iii. Information related to a series of appointments for repetitive treatment or therapy may be communicated by appointment requestors and/or providers during the communication of appointment requests. Examples of this type of information exchange may include requests for a series of physical therapy treatments, or a series of laboratory tests, or administration of medications at pre-determined intervals	A, B	01, 02	Patient Demographic Data (DR01) Diagnosis Codes (DR66) Provider Info (DR73) Appointment Data (DR102)	Information TQ1 – Timing/Quantity NTE – Notes and Comments for the SCH
C. The ability to view and/or process potential/available appointment slots				
i. Information about appointment slots such as time, date, durations, locations, and types of appointments may need to be communicated to an appointment requestor	B	02	Patient Demographic Data (DR01) Diagnosis Codes (DR66) Provider Info (DR73) Appointment Data (DR102)	HL7 v2.5.1 SIU – Schedule Notification Unsolicited SIU-S23 – Notification of Blocked Schedule Time Slots SIU-S24 – Notification of Opened (*in-blocked) Time Slots
ii. The ability to process appointment information into a calendaring system or appointment tracking tool		Out of scope		
D. The ability to access availability of multiple resources among or between appointment providers to fulfill appointment requests				
i. The appointment provider may need to request and receive availability information from multiple resources before making a specific appointment slot accessible to appointment requestors. For example, an appointment for a bone marrow biopsy may require that an oncologist, or other specialty clinician, laboratory personnel, and/or other support staff are available at the time of the appointment for the biopsy		Out of scope		
E. The ability to uniquely identify and associate appointments				
i. The appointment information exchanged may include patient identification and demographic information, reason for visit, type of appointment, calendaring information such as date, time, and duration of appointment information. (See the Dataset Considerations section for additional details)	A, B	01, 02, 04, 05	Patient Demographic Data (DR01) Diagnosis Codes (DR66) Provider Info (DR73) Appointment Data (DR102) Appointment Location (DR100)	HL7 v2.5.1 - SRM – Schedule Request Message ARQ – Appointment Request Segment PID – Patient Identification DG1 – Diagnosis AIP – Appointment Information – Personnel AIL – Appointment Information – Location Resource
ii. The ability to associate appointments with related information		Out of scope		
iii. The ability to associate a selected appointment with a specific patient		Out of scope		
iv. The ability to associate a selected appointment with a specific provider		Out of scope		
F. The ability to select or decline an available appointment				



Functional Requirement	Information Exchange	IER	Data Requirement	Analysis
i. The appointment requestor may have the ability to select from a listing of available appointments	A	03	Appointment Data (DR102)	HL7 v2.5.1 SQM - Schedule Query SQR - Schedule Query Response
ii. The appointment requestor may select one or more appointment slot(s)	A	03	Appointment Data (DR102)	HL7 v2.5.1 - SRM - Schedule Request Message
iii. Appointment slots may be temporarily held while waiting for the appointment requestor's selection, to ensure that it is not also simultaneously offered to another appointment requestor		Out of scope		SRR-ARQ.FillerStatusCode includes: pending, waitlist, booked
G. The ability to receive and/or acknowledge the appointment selection and the ability to exchange appointment confirmation information	B	04	Appointment Data (DR102) Appointment Location (DR100)	HL7 v2.5.1 - SRR - Schedule Request Response SCH - Schedule Activity AIL - Appointment Information - Location Resource
H. The ability to communicate and/or exchange a request for an appointment change				HL7 v2.5.1 SRM - Schedule Request Message
i. The appointment requestor and/or provider may communicate a change for an appointment such as the time, date, or location of a previously scheduled appointment	A, B	06	Patient Demographic Data (DR01) Diagnosis Codes (DR66) Provider Info (DR73) Appointment Data (DR102)	S02 - Request Appointment Rescheduling S03 - Request Appointment Modification
ii. Appointment changes are not limited to elements of time or location. An appointment change may also include modification to any information in the confirmed/scheduled appointment	A, B	04, 06	Appointment Data (DR102)	HL7 v2.5.1 SRM - Schedule Request Message S03 - Request Appointment Modification S07 - Request Addition of Service/Resource on Appointment S08 - Request Modification of Service/Resource on Appointment S09 - Request Addition of Service/Resource on Appointment HL7 v2.5.1
iii. An appointment requestor and/or an appointment provider may make changes to a confirmed/scheduled appointment request	A, B	06	Patient Demographic Data (DR01) Diagnosis Codes (DR66) Provider Info (DR73) Appointment Data (DR102)	HL7 v2.5.1 SRM - Schedule Request Message S03 - Request Appointment Modification



Functional Requirement	Information Exchange	IER	Data Requirement	Analysis
I. The ability to manage cancellations or reschedules	A, B	07	Patient Demographic Data (DR01) Provider Info (DR73) Appointment Data (DR102)	HL7 v2.5.1 SRM – Schedule Request Message/SRR – Schedule Request Response S04 – Request Appointment Cancellation S02 – Request Appointment Rescheduling
J. The ability to schedule or request an appointment for more than one patient to an appointment slot, such as, for health education classes, a family psychotherapy appointment, or concurrent physical therapy treatments	A	01	Patient Demographic Data (DR01) Diagnosis Codes (DR66) Provider Info (DR73) Appointment Data (DR102)	HL7 v2.5.1 S01 – Request New Appointment Booking SRM – Schedule Request Message PID Patient Identification can repeat
K. The ability to communicate appointment reminders and notifications from appointment providers to appointment requestors				HL7 v2.5.1 QRY^Q02 – Query for Deferred Response – Display Oriented
i. Reminders may be initiated by a provider, clinician, organization, consumer, and/or their systems. Therefore a reminder may be generated by an EHR, PHR, scheduling system, or other system with scheduling Capabilities and be communicated through health information exchange activities, secure messaging and/or web portal	B	05	Provider Info (DR73) Appointment Data (DR102) Appointment Location (DR100)	HL7 v2.5.1 SQM - Schedule Query
a. An appointment reminder may be needed to alert a patient of an upcoming scheduled appointment	B	05	Provider Info (DR73) Appointment Data (DR102) Appointment Location (DR100)	HL7 v2.5.1 SQR – Schedule Query Response



Functional Requirement	Information Exchange	IER	Data Requirement	Analysis
b. An appointment reminder may include instructions for the patient to follow before or upon arriving for their appointment	B	06	Provider Info (DR73) Appointment Data (DR102) Appointment Location (DR100)	HL7 v2.5.1 SQR – Schedule Query Response SCH – Schedule Activity Information TQ1 – Timing/Quantity NTE – Notes and Comments for the SCH AIS – Appointment Information – Service NTE – Notes and Comments for the AIS AIG – Appointment Information – General Resource NTE – Notes and Comments for the AIG AIP – Appointment Information – Personnel Resource NTE – Notes and Comments for the AIP AIL – Appointment Information – Location Resource NTE – Notes and Comments for the AIL
c. Clinical reminders often contain sensitive information and should be communicated using exchanges outlined in the 2008 Patient-Provider Secure Messaging Use Case	B	06	Provider Info (DR73) Appointment Data (DR102) Appointment Location (DR100)	HITSP/SC108– Access Control

**Table 6-2 Data Element and Information Requirements (DR)**

Data Requirement Number (DR)	Description	
DR01	DR Title: Patient Demographic Information Definition: Including (but not limited to) <ul style="list-style-type: none"> <li>• Name</li> <li>• Unique Identifier</li> <li>• Race</li> <li>• Ethnicity</li> <li>• Occupation</li> </ul>	
	Name Date of Birth Gender Address	Phone Email Health Plan Provider Member Number Group Number
DR06	Health plan eligibility information Definition: Including (but not limited to): <ul style="list-style-type: none"> <li>• Health Plan related patient demographics (First name, last name, date of birth, health plan member ID)</li> <li>• Co-pay</li> <li>• Deductibles</li> <li>• Limits, and exclusions</li> <li>• Procedure or services coded values</li> <li>• Effective date of health insurance coverage actually in operation and in force</li> </ul>	



Data Requirement Number (DR)	Description	
	Coinsurance Co-pay Deductible Must also include DR01	Limits, and exclusions DR66 Effective date of health insurance coverage actually in operation and in force
DR38	Health plan authorization Definition: Including (but not limited to): <ul style="list-style-type: none"> <li>• Healthcare Provider – to provide the service</li> <li>• Procedure or service or medication coded values</li> <li>• Authorization scope, such as timing, quantity, limits, effective dates</li> <li>• Diagnosis</li> <li>• Health Plan related patient demographics</li> <li>• Authorization/certification number – not always required for pharmacy transactions</li> </ul>	
DR66	DR73 Authorization scope, such as timing, quantity, limits, effective dates	DR 66 DR01 Authorization/certification number – not always required for pharmacy transactions
DR73	Diagnosis codes Definition: Including (but not limited to): Patient Class (outpatient, inpatient, and ER)(UHDDS) <ul style="list-style-type: none"> <li>• Diagnosis/Injury Code (ICD 9/10)</li> <li>• Diagnosis Type (UHDDS)</li> <li>• Diagnosis Date and Time (UHDDS)</li> <li>• Date/time of first symptoms</li> <li>• Discharge Disposition (UHDDS)</li> <li>• Chief Complaint (ICD9/10)</li> <li>• Date/time of first symptoms of illness (UHDDS)</li> <li>• Identity of diagnosing provider or institution</li> <li>• Diagnostic procedure(s)</li> <li>• HITSP/C32 – Summary Documents Using HL7 Continuity of Care Document (CCD) Section 4.2.3.1.7</li> </ul>	
DR100	Diagnosis/injury code Primary Complaint	Symptoms Onset Date
DR101	Provider Information Definition: Including (but not limited to): <ul style="list-style-type: none"> <li>• Provider demographic data (Name, Location, Specialty, Location, Contact Information)</li> <li>• Superset of HITSP/C32 – Summary Documents Using HL7 Continuity of Care Document (CCD) &amp; C37 - Lab Report Document Using IHE XD* Lab provider identification, and additional elements as needed for entity resolution</li> </ul>	
DR102	Provider demographic data (Name, Location, Contact Information)	Role Specialty
DR100	Appointment Location Definition: A place where a medical appointment will occur	
DR101	Facility Name Contact information (Phone Number, fax, email)	Facility Address Place of Service
DR102	Appointment Resources Definition: People, equipment, or materials, required to support a medical appointment	
	Staff Time	Equipment Environment (operating room, procedure room, radiology services, laboratory)



Data Requirement Number (DR)	Description	
	Appointment identifier Appointment status code(confirmed, pending, cancelled, rescheduled) Appointment slot Date/time	Appointment Instructions (initially text field) Appointment Type Appointment Sequence Appointment Frequency Appointment Cancellation/Change Identifier

**Table 6-3 Information Exchange Requirements (IER)**

Information Exchange Number	Exchange Action	Exchange Content	What System Initiates This Exchange	What System(s) Consumes This Exchange
IER01 Send/Receive Appt Request	Send/Receive	DR numbers 01, 102, 66, 73	Appointment Requestor	Scheduling System
IER02 Send/Receive Appt Response – Avail Types/Slots	Send/Receive	DR numbers 73, 102	Scheduling System	EHR, PHR, Appointment Requestor
IER03 Send/Receive Appt Selection	Send/Receive	DR number 102	Appointment Requestor	Scheduling System
IER04 Send/Receive Appt Response – Confirmation	Send/Receive	DR numbers 100, 102	Scheduling System	EHR, PHR Appointment Requestor
IER05 Send/Receive Appt Reminder	Send/Receive	DR numbers 73,100, 102	Scheduling System	EHR, PHR Appointment Requestor
IER06 Send/Receive Appt Change Request	Send/Receive	DR numbers 01, 66, 73, 102	Appointment Requestor	Scheduling System
IER07 Send/Receive Appt Cancellation	Send/Receive	DR numbers 01, 73, 102	Appointment Requestor Scheduling System	Scheduling System EHR, PHR Appointment Requestor
IER08 Send/Receive Pre-registration Information	Send/Receive	DR numbers 01, 06, 38, 66	EHR, PHR	Scheduling System Appointment Provider
IER09 Send/Receive Appointment Setup Information	Send/Receive	DR numbers 38, 73, 100, 101, 102	Appointment Provider	Scheduling System



## 7.0 DOCUMENT UPDATES

This section provides the history of changes made to this document.

### 7.1 OCTOBER 19, 2009

No changes. This is the first published version of the document.

### 7.2 JANUARY 31, 2010

- Changed the document to reflect the new HITSP Capabilities template
- Renamed the Appointment Information Receiver system role to be Appointment Information Requestor
- Updated Section 5.1.2 to reflect the Administrative and Financial Domain Technical Committee standards selection decisions
- Updated the interface names in Table 4-4 and Table 4-5
- Updated Table 5-5 to identify a gap—the lack of an Implementation Guide for the HL7 V2.5.1 Scheduling standard
- Updated Table 6-1 to reflect the HITSP Scheduling Workgroup's analysis of the functional requirements

