

## DICOM Correction Proposal

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Correction Number	CP-2497
Log Summary:	Clarify Normalized Support terminology
Name of Standard	PS3.4

#### Rationale for Correction:

The notation used for support requirements in the Part 4 tables for normalized operations is inconsistent and the documentation confusing. There are various uses of the character “-“ in tables that are documented as “unspecified”. These are used in a variety of cases:

#### Sequence retrieval case:

DICOM N-GET operations do not permit the SCU to specify which items or attributes within a sequence are to be returned. In this case, a “-“ means that the SCU is not permitted to explicitly request this attribute. It must request the top-level Sequence Attribute.

The entire sequence will be returned. The Service specification does need to specify whether the sequence items or attributes are optional or mandatory.

*The CP clarifies the definition of “-“ in Section 5*

#### Non-participant case:

DICOM N-EVENT-REPORT cannot be sent by an SCU. Change “Usage (SCU/SCP)” to “Usage SCP” for Event Information and change “-/n” to “n”.

See example below

#### Set not permitted case:

N-CREATE or N-SET in some other services prohibits the SCU from setting certain attributes. They might be provided by the SCP). *The CP clarifies the definition of “-“ in Section 5*

#### No Set after N-CREATE case:

Some Services do not permit changing of certain attributes after initial creation. Change “not allowed” to “-/“ when necessary.

#### Command set case:

N-CREATE, N-SET, N-GET do not permit certain Attributes in the Data Set because they are in the Command Set. Change “not allowed” to “-/“

#### Required empty sequence case:

The Service mandates that N-CREATE create an empty sequence, perhaps to be populated later by N-SET. This applies to both the SCU and the SCP. The SCP may not create default values. *The CP clarifies the definition of “-/“ in Section 5*

#### Print case:

Print has a very different pattern of definition although it does use “-“ in a few situations. This is not a current problem. Changing it will raise questions that we cannot answer easily. So do not change print (Annex H).

Question: There are many places where there are codes like “3/3” for Attributes that are in Items within a Sequence in the N-GET table. As a bulk editorial change, for Attributes that are within an Item of a

Sequence for N-GET, if they are of the form “n/n” change them to “-/n”, if they are “n/nC” change them to “-/nC” as necessary. Current tables are inconsistent, sometimes using “n/n” and sometimes using “-/n”.

**Modify Part 5, Section 5.4.2 as shown.**

## 5 Conventions

### 5.4.2 Use of Attributes in Normalized Services

Modules and their usage in Composite IODs are defined in PS3.3. Normalized IODs are also constructed from Modules but usage is specified on an Attribute basis in this Part of the DICOM Standard. The following usage specification applies to all Attributes of Normalized IODs unless superseded by a usage specification in a particular SOP Class Specification.

The term ‘receive’ means the following: the value shall be stored; under certain circumstances (e.g. coercion) the value returned may have changed.

#### 5.4.2.1 DIMSE Service N-CREATE, N-SET, N-ACTION

The following Requirements apply when specifying the use of DIMSE Services N-CREATE, N-SET, N-ACTION.

The convention used in the table below are as follows:

##### SCU ~~Behavior~~ Attribute Requirements

**Mandatory** The SCU shall provide the Attribute with the command.

**Optional** The SCU may or may not provide the Attribute with the command.

~~— **Undefined** The SCU's usage of the Attribute is undefined.~~

**Not Allowed** The SCU shall not provide the Attribute with the command.

##### SCU Attribute Contents

**Permitted** An Attribute with zero length is permitted.

**Not Permitted** An Attribute with zero length is not permitted.

##### SCP Behavior

**Mandatory** The SCP shall support receiving the Attribute with the command.

**Mandatory with Default** The SCP shall support receiving the Attribute with the command. Upon receiving zero-length values, the SCP shall assign values as defined by the specification of the Service Class.

**Optional** The SCP may or may not support receiving the Attribute with the command.

~~**Undefined** The SCP's support of the Attribute is undefined.~~

**Not Allowed** The SCP shall not support receiving this Attribute with the command.

	SCU		SCP
Usage	Requirement	Zero Length	Requirement
1/1	Mandatory	Not Permitted	Mandatory
2/1	Mandatory	Permitted	Mandatory with Default
2/2	Mandatory	Permitted	Mandatory
3/1	Optional	Not Permitted	Mandatory
3/2	Optional	Not Permitted	Optional
3/3	Optional	Not Permitted	Optional
-/-	<del>Undefined</del> <b>Not Allowed</b>	<del>Undefined</del> <b>Not Permitted</b>	<del>Undefined</del> <b>Not Allowed</b>

If the SCU does not provide an Attribute that is Mandatory for the SCU, the SCP shall respond with a Failure Status Code of 0120H "Missing Attribute".

If the SCU provides a zero-length value for a Mandatory Attribute when zero length is not permitted, the SCP shall respond with a Failure Status Code of 0121H "Missing Attribute Value".

### 5.4.2.2 DIMSE Service N-GET, N-EVENT-REPORT

The following Requirements apply when specifying the use of DIMSE Services N-GET, N-EVENT-REPORT.

The convention used in the table below are as follows:

SCU Behavior

**Optional** The SCU may retrieve the Attribute.

~~Undefined~~ **Not Allowed** The ~~SCU's usage of the Attribute is undefined~~ **SCU shall not request retrieval of the Attribute.**

**Note:** **Not Allowed is often used for Attributes that are part of a Sequence Attribute. In those cases the entire Sequence contents can often be requested, but not individual Attributes from within the Sequence.**

SCP Behavior

**Mandatory** The SCP shall support retrieval of the Attribute.

**Optional** The SCP may or may not support retrieval of the Attribute.

~~Undefined~~ **The SCP's support of the Attribute is undefined.**

#### SCP Attribute Contents

**Permitted** **An Attribute with zero length is permitted and might be returned.**

**Not Permitted** **An Attribute with zero length is not permitted and will not be returned.**

	SCU	SCP	
Usage	Requirement	Requirement	Zero Length
3/1	Optional	Mandatory	Not Permitted
3/2	Optional	Mandatory	Permitted
3/3	Optional	Optional	Not Permitted
-/1	<del>Undefined</del> <b>Not Allowed</b>	Mandatory	Not Permitted
-/2	<del>Undefined</del> <b>Not Allowed</b>	Mandatory	Permitted
-/3	<del>Undefined</del> <b>Not Allowed</b>	Optional	Not Permitted

If support of an Attribute by the SCP is optional and the SCP does not support the Attribute and the Attribute is requested by the SCU, the SCP shall respond with a Failure Status Code of 0106H "Invalid Attribute Value" or 0116H "Attribute Value out of range".

**Create Table CC.2.5-2f Issuer of Patient ID Qualifiers Macro as shown**

**Table CC.2.5-2f. Issuer of Patient ID Qualifiers Macro**

Attribute Name	Tag	Usage N-CREATE (SCU/SCP)	Usage N-SET (SCU/SCP)	Final State	Usage N-GET (SCU/SCP)	Matching Key Type	Return Key Type	Remark/Matching Type
➤Universal Entity ID	(0040,0032)	2/2	<del>Not allowed</del> -/-	O	-/2	O	2	
➤Universal Entity ID Type	(0040,0033)	1C/1	<del>Not allowed</del> -/-	O	-/2	O	1C	Required if Universal Entity ID (0040,0032) is present in this item with a value.
➤Identifier Type Code	(0040,0035)	2/2	<del>Not allowed</del> -/-	O	-/2	O	2	
➤Assigning Facility Sequence	(0040,0036)	2/2	<del>Not allowed</del> -/-	O	-/2	O	2	The Attributes of the Assigning Facility Sequence shall only be retrieved with Sequence Matching.
➤➤Include Table CC.2.5-2d "HL7V2 Hierarchic Designator Macro"								
➤Assigning Jurisdiction Code Sequence	(0040,0039)	2/2	<del>Not allowed</del> -/-	O	-/2	O	2	The Attributes of the Assigning Jurisdiction Code Sequence shall only be retrieved with Sequence Matching.

Attribute Name	Tag	Usage N-CREATE (SCU/SCP)	Usage N-SET (SCU/SCP)	Final State	Usage N-GET (SCU/SCP)	Matching Key Type	Return Key Type	Remark/Matching Type
>>Include Table CC.2.5-2a "UPS Code Sequence Macro"								Baseline CID 5001 "Country" for country codes.
➤Assigning Agency or Department Code Sequence	(0040,003A)	2/2	<del>Not allowed</del> -/-	O	-/2	O	2	The Attributes of the Assigning Agency or Department Code Sequence shall only be retrieved with Sequence Matching.
>>Include Table CC.2.5-2a "UPS Code Sequence Macro"								No Baseline CID.

Modify Table CC.2.5-3 UPS SOP Class N-CREATE/N-SET/N-GET/C-FIND Attributes as shown

Table CC.2.5-3. UPS SOP Class N-CREATE/N-SET/N-GET/C-FIND Attributes

Attribute Name	Tag	Usage N-CREATE (SCU/SCP)	Usage N-SET (SCU/SCP)	Final State	Usage N-GET (SCU/SCP)	Matching Key Type	Return Key Type	Remark/Matching Type
...								
Patient ID	(0010,0020)	1C/2	<del>Not allowed</del> -/-	O	3/2	R	2	Required if the subject of the workitem requires identification or if the workitem is expected to result in the creation of objects that identify the subject.  See Section C.30.4.1 "Patient Identification" in PS3.3
<del>Include Table CC.2.5-2e "Issuer of Patient ID Macro"</del>								
<u>Issuer of Patient ID</u>	<u>(0010,0021)</u>	<u>2/2</u>	<u>-/-</u>	<u>O</u>	<u>3/2</u>	<u>R</u>	<u>2</u>	
<u>Issuer of Patient ID Qualifiers Sequence</u>	<u>(0010,0024)</u>	<u>2/2</u>	<u>-/-</u>	<u>O</u>	<u>3/2</u>	<u>O</u>	<u>2</u>	
>Include Table CC.2.5-2f "Issuer of Patient ID Qualifiers Macro"								
Other Patient IDs Sequence	(0010,1002)	2/2	3/3	O	3/2	O	2	

Attribute Name	Tag	Usage N-CREATE (SCU/SCP)	Usage N-SET (SCU/SCP)	Final State	Usage N-GET (SCU/SCP)	Matching Key Type	Return Key Type	Remark/Matching Type
>Patient ID	(0010,0020)	1/1	1/1	O	<del>-1</del> <u>1</u>	O	1	
<b>&gt;Include Table CC.2.5-2e "Issuer of Patient ID Macro"</b>								
<u>&gt;Issuer of Patient ID</u>	<u>(0010,0021)</u>	<u>2/2</u>	<u>-/-</u>	<u>O</u>	<u>-/2</u>	<u>R</u>	<u>2</u>	
<u>&gt;Issuer of Patient ID Qualifiers Sequence</u>	<u>(0010,0024)</u>	<u>2/2</u>	<u>-/-</u>	<u>O</u>	<u>-/2</u>	<u>O</u>	<u>2</u>	
<b>&gt;&gt;Include Table CC.2.5-2f "Issuer of Patient ID Qualifiers Macro"</b>								
>Type of Patient ID	(0010,0022)	3/3	3/3	O	3/3	O	3	

Modify all N-EVENT-REPORT change tables to remove the "Usage (SCU/SCP)" to "Usage SCP" the final column header. An example for Table DD.3.2.5-1 is given. Change all "-/n" to "n"

## Example N-EVENT-REPORT change:

Table DD.3.2.5-1. Notification Event Information

Event Type Name	Event Type ID	Attribute Name	Tag	Usage (SCU/SCP) <u>Usage SCP</u>
Pending	1	None	-	-
Done	2	Treatment Verification Status	(3008,002C)	<del>-1</del> <u>1</u>

Modify all Attribute tables for N-CREATE, N-SET, N-GET, etc. to change "Not Allowed" to "-/-". The changes to Table CC.2.5-3. UPS SOP Class N-CREATE/N-SET/N-GET/C-FIND Attributes illustrate this.

Modify all Attribute tables for N-GET to change any entries for attributes that are at the top level of the Dataset that are of the form "n/n" to "-/n" and those of the form "nC/nC" to "-/nC". The changes to Table CC.2.5-3. UPS SOP Class N-CREATE/N-SET/N-GET/C-FIND Attributes illustrate this.