



HL7 Messaging Tool – EHR Vendor

CIIS Resource Center User Guidance

The HL7 Messaging Tool, in the CIIS Resource Center, allows provider staff or an EHR vendor the ability to validate HL7 messages for a practice or for specific EHR products. This tool provides instantaneous, detailed error reporting, information necessary to correct formatting/content issues without delay.

The HL7 Messaging Tool accepts HL7 version 2.5.1. It can be used for validating VXU and QBP HL7 Message Types.

This guide describes how to produce and interpret the HL7 Messaging Tool in the CIIS Resource Center. It will focus on VXU Message Types, but the process for testing QBP Message Types follows the same process.

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Getting Started

- 1. Log into the CIIS Resource Center (<u>https://www.ciisresources.com/</u>) using your username and password.
 - a. If you cannot log into the CIIS Resource Center because you do not have an account, please contact your CIIS Clinic Administrator to create an account (they can reference the User Enrollment Guidance Document).
 - b. If you have forgotten your password, click the "Forgot Password" link and follow the instructions.
 - c. If you have forgotten your username, you will need to contact the CIIS Help Desk.

Returning Users	CIIS Help Desk
	Phone: 303-692-2437 option 2
Username:	Toll Free: 1-888-611-9918 option 1
Password:	Fax: 303-758-3640
Login Clear	
	Send us an email:
Forgot Password.	cdphe.ciis@state.co.us
Not Registered? Register Now.	~

2. If your EHR has products that the CIIS Resource Center does not have on file you will need to add these products if you want to validate them. You can do this by clicking Add Products under the Validate Products widget on the Main Screen. If you do not need to add products you can skip to the Validating HL7 Messages section.







a. All current products are listed under Your Product List. To add a new product, click on Add New Product/Version.

Yo	our P	Product List											
Sec. Sec.	Validate Products												
#	Edit	Product Name	Product Version		Ce	ertified		Number of Clients Using	VXU	Query			
	Lunc			VXU HL7	VXU	Query HL7	Query						
1.	1,	Kim's EHR			0		0	0	Validate	Validate			
			Ad	d New Proc	luct/V	ersion	C	Cancel					

- b. On the Add New Product/Version screen do the following steps:
 - Select the radio button to update an Existing Product or add a New Product
 - If updating an Existing Product, select the product from the drop down menu and add the Version in the New Version field.

Add New Product/Version		
		Pick product
Exisiting Product ONew Product*	New Version (Required for Exisitng Product)	from drop down
Kim's EHR ▼	10	menu and add
A	A	version
SAVE	CANCEL	

• If adding a New Product, type in the product in the New Product field and add the Version in the New Version field

Add New Product/Version		
Exisiting Product New Product* TestPro	New Version (Required for Exisitng Product) 9.4	Add product to text field and add version
SAVE	CANCEL	Version

Click Save







• All new products will be listed under Your Product List. To start validating products go to the *Validating EHR Projects/Versions* section under **Validating HL7 Messages**.

202	No.	Validat	e Produc	ts					(T
#	T all t	lit Product Name Product Version		ertified		Number of Clients Using	VXU	Query		
#	Edit	Product Name	Product version	VXU HL7	VXU	Query HL7	Query	Number of Clients Using	200	-
1.	1	Kim's EHR			0		0	0	Validate	Validate
2.	1	Test1	v9.4		0		0	0	Validate	Validate
3.	1,	TestPro	10		0		0	0	Validate	Validate
4.	1	TestPro	9.4		0		0	0	Validate	Validate

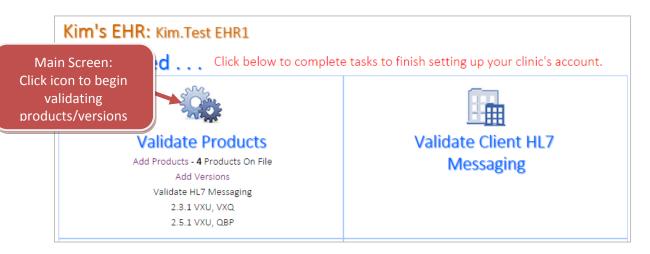
Validating HL7 Messages

This section will go into detail on how to validate each EHR Product, Group HL7 Messages, and Practice HL7 Messages. Prior to validating HL7 messages for a group or practice you should validate each EHR product and version.

Note: This guidance document will focus on submitting VXU messages, but testing query messages will follow the same process.

Validating EHR Products/Versions

1. If on the Main Screen, click on the Validate Products icon on the Validate Products widget. If on the Validate Products screen then skip to Step 2.







2. Click on Validate under the VXU column based on the product/version being tested.

Yc	our P	roduct List									
Validate Products											T
#	Edit	Product Name	Product Version		Ce	ertified		Number of Clients		VXU	Query
#	Ealt	Product Name	Product version	VXU HL7	VXU	Query HL7	Query	Number of Clients	Using		
1.	1,	Kim's EHR			0		0	0		Validate	Validate

3. Click Upload New VXU File.

Kim's EHR: Kim.Test EHR1												
	VXU Messaging Product Validation											
Edit Product Name Product Version Certified Number of Clients Using												
Edit	t Product Name	Product Version	VXU HI	.7 VXU	Query HL7	Query	Number of Clients Using					
1	Kim's EHR			0		0	0					
 Click the Upload button and browse for the message file on your computer. (ONLY .hl7 and .txt file types are acceptable) The uploaded file will display at the top of the list of the Validation History below. Click Run Validation. The Status column will update with for a message that passes or for a failed message. Click View to see detailed validation results for the file. 												
	 Click Run Validation The Status column 	will display at the top o on. n will update with 🗹	of the list of the	ile on your ne Validatio e that passe	on History belo	NLY .hl7 and . w.						
F	 Click Run Validation The Status column 	will display at the top o on. n will update with 🛩 detailed validation resu	of the list of the	ile on your ne Validatio e that passe	computer. (OI on History belo	NLY .hl7 and . w.						
	 Click Run Validation The Status column Click View to see 	will display at the top of on. In will update with detailed validation resu story	of the list of the	ile on your ne Validatio e that passe	computer. (OI on History belo es or ⊘ for a	NLY .hl7 and . w.	ge.					





4. On the Upload Sample VXU Message screen, do the following steps:

- a. File is for EHR Product Version* The EHR Product and Version should be pre-populated.
- b. Click Choose File to select the message to be uploaded. Once the file is found, click Upload VXU.
 Note: The HL7 Messaging Tool only accepts .txt and .hl7 file formats. All other file formats will result in an error message.

Note: The HL7 Messaging Tool has a built in anonymizer that will allow for real-patient data to be submitted. The system will change all identifying information.

Edit	Product Name	Product Version		Ce	ertified		Number of Practices U
Luit	Flouder Hame	Product version	VXU HL7	VXU	Query HL7	Query	Number of Fractices 0.
NA	Other			0		0	0
Uplo	1. Sei 2. Bro	nstructions: lect the Product and Ve pwse for your file.			o generate the S	ample VXL	message.
Uplo	Upload I 1. Sei 2. Bro	nstructions: lect the Product and Ve			o generate the S	ample VXL	i message.
Uplo	Upload I 1. Sei 2. Bro 3. Cli	nstructions: lect the Product and Ve pwse for your file.	mit the upload				
Uplo	Upload I 1. Sei 2. Bro 3. Clii File is fo	nstructions: lect the Product and Ve buse for your file. ck Upload VXU to comr	mit the upload			ample VXU	

For next steps on running the validation go to the *Running a HL7 Validation* section.
 Note: You will only need to have one message pass for each EHR product to obtain a passing status.

Selec





Validating Group HL7 Messages

1. On the Main Screen, click on the Group icon on the Validate Group HL7 Messaging widget.



2. The Group VXU Validation sub tab will be highlighted. Click on Validate under the icon for the group you want to test.

S. C.	Group	VXU Message Valid	ations				🔲 Hide 🖌	Click Validate
#	Group	Client Facility Count	Tested by	Validation Date	HL7 Version	Status		
1	Kim's Group	3				0	Validate	





3. You can validate messages for the entire group or for each individual facility. To validate all sites at once, click on the Select to Validate All box.

	Facility VXU Validation Status Upload New VXU File Select to											
#	Sending ID	Fa	cility Name	Product	Version	Teste by		lation ate	HL7 Versior	Status	Select to Validate 🕑 All	
1		Test Adu	lt Only							0	•	
2		Test Aga	in Clinic							0		
3		Test Clini Down	ic Type Drop							0		Click Select to
	File Valio	dation Hi	istory									Validate All to
#	Date Te	ested by	Message Type	File Na	me Pr	oduct	Version	HL7 Ve	ersion	VXU Status		begin validating messages for the
					No Rec	ords Fou	nd.					group

4. Click Upload New VXU File.

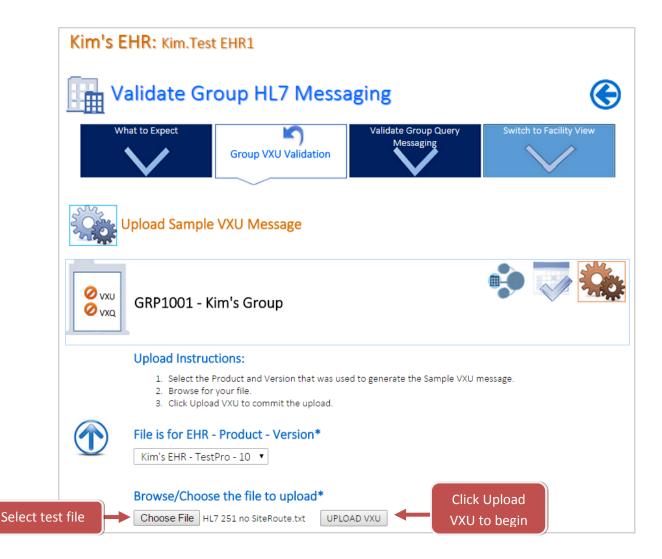
S. S.	Group VXU Message Validations											
	GRP1001 - Kim's Group											
In	struction	s:										
	2. Click tl 3. The up 4. Click R 5. The St 6. Click V	ate a sample HL7 VXU message he Upload button and browse f oloaded file will display at the t un Validation. atus column will update with 'iew to see detailed validation r XU Validation Status	for the me op of the li C for a m	ssage file (ist of the \ nessage th	on your con /alidation H	nputer. (ONLY .hl: istory below.			acceptable) I New VXU File			
#	Sending ID	Facility Name	Product	Version	Tested by	Validation Date	HL7 Version	Status	Select to Validate			
1		Test Adult Only						0				
2		Test Again Clinic						0				
3		Test Clinic Type Drop Down						0	I			





- 6. On the Upload Sample VXU Message screen, do the following steps:
 - a. File is for EHR Product Version* Select the Product and Version that was used to generate the Sample VXU message.
 - b. Click Choose File to select the message to be uploaded. Once the file is found, click Upload VXU.
 Note: The HL7 Messaging Tool only accepts .txt and .hl7 file formats. All other file formats will result in an error message.

Note: The HL7 Messaging Tool has a built in anonymizer that will allow for real-patient data to be submitted. The system will change all identifying information.



7. For next steps on running the validation go to the **Running a HL7 Validation** section.





Validating Practice HL7 Messages

1. On the Main Screen, click on the Practice icon on the Validate Practice HL7 Messaging widget.



2. Click the Validate VXU Messaging sub tab. Click on Validate under the icon for the practice you want to test.

Practice VXU Message Validations								Click Valida		
#	Sending ID	Facility Name	Product	Version	Tested by	Validation Date	HL7 Version	Status	Hide 🖌	
1.		Test Provider Site	123 EHR Site		Test.Name2	03 06 2015 14:30	2.5.1	∠	Validate ┥	
2.		Test Clinic of Colorado	123 EHR Site	10				0	Validate	



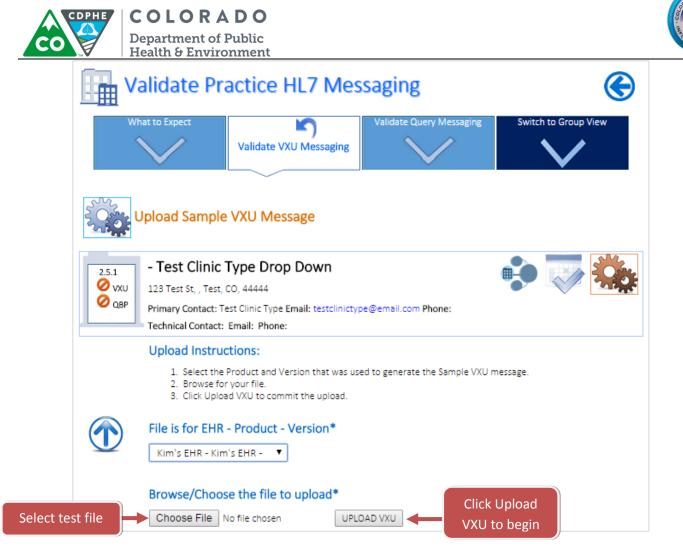


3. Click Upload New VXU File.

Prace Prace	ctice VXU M	lessage Va	lidations					
Ø VXU 12 Ø QBP Pr	Test Clinic [–] 3 Test St, , Test, (imary Contact: Te chnical Contact:	CO, 44444 est Clinic Type (mail: testclinictype@email.	com Phone	:		~	¢.
VXU - Validat	on Status							
	Description		Valid Historical Immu	unization	V	alid Curren	t Immuniz	ation
Total valid messag	ges must be recei	ved:	5				10	
Total valid messag	ges uploaded so f	ar:	0				0	
2. Click the 3. The uploa 4. Click Run 5. The Statu	Upload button an Ided file will displ Validation. s column will upd r to see detailed v	d browse for th ay at the top of late with 🗙 fi	n the Electronic Health Reco e message file on your com f the list of the Validation Hi or a message that passes or ts for the file.	puter. (ONI story below	LY .hl7 and	age.	es are acces pload New	
# Date	Tested by	Message Type	File Name	Product	Version	HL7 Version	VXU Status	
1 03 05 2015 11:48	Kim.Test EHR1	VXU	HL7 251 Test Err CVX 2.txt	Kim's EHR		2.5.1	0	View

- 4. On the Upload Sample VXU Message screen, do the following steps:
 - a. File is for EHR Product Version* Select the Product and Version that was used to generate the Sample VXU message.
 - b. Click Choose File to select the message to be uploaded. Once the file is found, click Upload VXU.
 Note: The HL7 Messaging Tool only accepts .txt and .hl7 file formats. All other file formats will result in an error message.

Note: The HL7 Messaging Tool has a built in anonymizer that will allow for real-patient data to be submitted. The system will change all identifying information.



5. For next steps on running the validation go to the **Running a HL7 Validation** section.

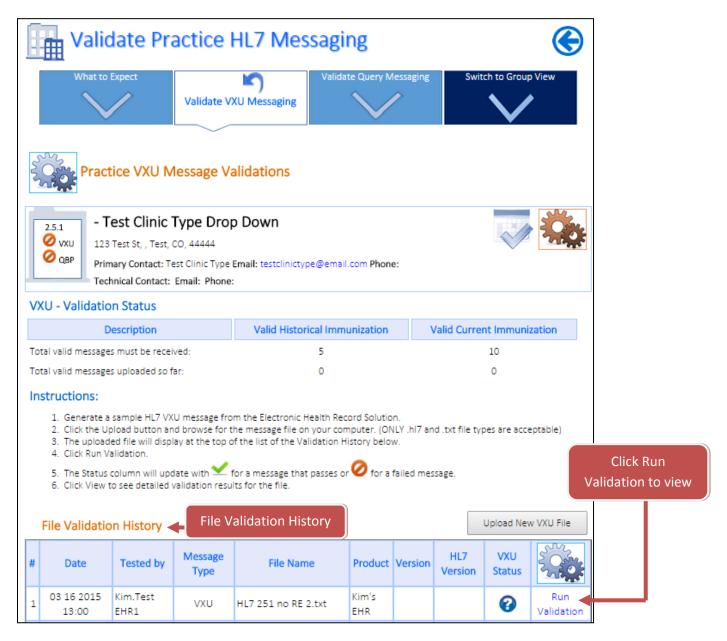




Running a HL7 Validation

This section will go into detail describing how to run a validation, the immediate results displayed, and the next steps based on the outcome.

 Once the file has been uploaded (covered in the Validating HL7 Messages section), the system returns to the VXU Messaging Product Validation screen. The new file will be listed under the "File Validation History" section (the newest submitted file will be listed at the top of the list). Click on **Run Validation** in the last column.







2. The Validation Results will be immediately posted with a Validation Passed or Validation Failed notification. See the *Validation Passed and Validation Failed* sections for status and next steps.

Validation Passed – Status & Next Steps

- 1. If your message meets the CIIS HL7 File Specifications a Validation Passed icon will display after the validation processes. One of two messages will be displayed.
 - a. Validation Passed with Warning The message passed but has Warnings! CIIS staff would like the Warnings reviewed and corrected, if possible. Click View Validation Summary to be directed to the Message Summary Report. For more information on interpreting this report review the *Viewing Summary Report* under the **Running and Interpreting Reports section.**



b. Validation Passed – The message passed and has NO Warnings. Click Continue proceed and to receive an update on message status.





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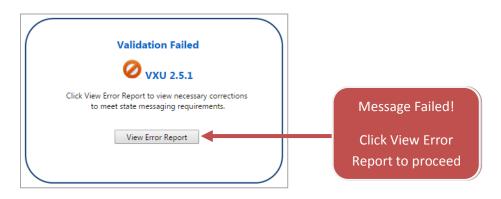
Practice VXU Message V	alidations		
- Test Site Darrin - Test Site Darrin 123 Nowehere Ct, , Nottacity, CO Primary Contact: Dtest Rosebrool Technical Contact: Email: Phone VXU - Validation Status	Email: dtestthis@this.com Phone:	VXU Validation Status s valid messages uploade criteria need to validate and 10 administered v	ed. To meet e 3 historical
Description	Valid Historical Immunization	Valid Current Immunization	
Total valid messages must be received:	3	10	
Total valid messages uploaded so far:	0	4	

- 2. The next steps include:
 - a. If this is the first message submitted, then repeat the process, under the **Uploading a HL7 Test Message** section, to submit 10 distinct administered and 3 distinct historical test vaccinations for review (if testing Group or Individual Practice messages).
 - b. Once all 13 distinct messages have passed then the process is finished and the organization will be listed in the CIIS Resource Center as having met the CIIS HL7 messaging requirements. The organization will be placed on the interface wait list and will be invited to onboard when resources are available.

Note: If there are Warnings within the message, review each segment and correct for the next round of testing.

Validation Failed – Status & Next Steps

1. If your message does not meet the CIIS HL7 File Specifications a Validation Failed icon will display after the validation processes. Click View to proceed.







- 2. The next steps include:
 - a. After clicking View Error Report a Message Summary screen displays. You will be able to see the results, broken down by number of valid, error, and warning segments.

Kim.Gulliver					View Messages
Kim's Test Clinic				Edit Mai	in Profile
123 Test Lane	Primary Contact: Linda Strem	2		th FD 62 Comis	Deless 4
Test City, CO 80108	(123) 123 1233	EHR: Alisch EHR Contac		ots ED-6.3 Servic e	e Release 4
HL7 Messa	ge Validation				
Message Su	mmary				•
Evaluation Date: 11 06	2014 11:20	File Status: ⊘	т	ested By: Kim Gu	ulliver
File Type: VXU Result: <u> 1</u> 15 Valid	🔗 3 Errors 👖 1 Warnings ┥	File Name: iSIIS 25		t.txt IL7 Version: 2.5.1	L
Messages In	nformation				
# Message			Status	View Detail	View Summary
1. MSH ^~\& Exar	npleEHR CO9876^ABC Clinic	CIIS CDPHE 2	0	View	View

✓	No Changes Needed – Segment Passed
0	Changes Required for Segment to Pass
<u> </u>	Changes May Be Required Based on CIIS Requirements

- a. Review the *Viewing Summary and Detailed Report* section, explained in the **Running and Interpreting Reports** section, to find out where the errors occurred.
- b. Resubmit a new test file, including the changes, by repeating the process under the **Uploading a HL7 Test Message** section.



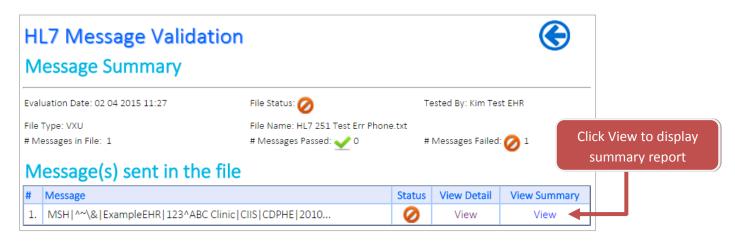


Running and Interpreting Reports

This section will go into detail describing how to view summary and detailed reports, how to interpret each of these reports, and next steps.

Viewing Summary Report

 On the HL7 Message Validation Message Summary screen, click on View under the View Summary column to view a Message Validation Summary Report. This will present a screen that highlights only the fields with issues. This is the quickest way to discover and address any issues with the test message.



- 2. After clicking View under View Summary, a Message Validation Summary report is displayed with the following information:
 - a. Message Summary displays the number of segments in the following categories: passed, errors, and warnings.

✓	No Changes Needed – Message Passed
0	Changes Required for Message to Pass
	Changes May Be Required Based on CIIS Requirements

- b. Messages Information displays information about the message and the status.
- c. Errors displays detailed information showing the segment, field name, and validation/information for each error. It is required for these to be corrected before the segment will pass and meet CIIS HL7 Messaging Specifications.
- Warnings displays detailed information showing segment, field name, and validation/information for each warning. Changes may be required, based on CIIS requirements, before this segment will pass and meet CIIS HL7 Messaging Specifications. These issues are usually caused because CIIS desired data elements are left





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blank. If the data for these fields is entered into the EHR and available, CIIS requires it be populated in the message.

	Message Vali	auton summary			-	
Messa	ge Summary					
Evaluation Da	te: 02 04 2015 13:09	File Status: 💋	Tested By: Kim Test EHR			
File Type: VXU Result: 🛫 94) 4 Valid ⊘ 1 Errors <u> 1</u> Wa	File Name: HL7 251 Ni rnings	<1 Test.txt HL7 Version: 2.5.1		-	Message Summary
Messa	ges Information					
# Messa	ge			Status		Messages Information
1. MSHI	Arx\ & Example EURI CO0976					Micosuges miormation
	. /&lexampleenvlc0aavo	^ABC Clinic CIIS CDPHE 2		0		
Errors						
Errors # Segment	Field Name	Validation	ist 4 dizit should be sent.	Status	-	Error Section
Errors # Segment 1. PID19			st 4 digit should be sent.		← 	Error Section
Errors # Segment 1. PID19	SSN number - patient	Validation	ist 4 digit should be sent.	Status	←	Error Section
Errors # Segment 1. PID19 Value Sent:	Field Name SSN number - patient 523-74-9378	Validation	ist 4 digit should be sent.	Status	← (
Errors # Segment 1. PID19 Value Sent: Warnir	Field Name SSN number - patient 523-74-9378	Validation Do not send complete SSN, only la		Status Ø	← 	Error Section Warning Section

3. Click Close to be taken back to the Message Summary screen.

IDx HL7 Message Validatio	on Summary		Close
Message Summary			Click Close to return to Message Summary
Evaluation Date: 02 04 2015 13:09	File Status: 🧭	Tested By: Kim Test EHR	Screen
File Type: VXU	File Name: HL7 251 N	IK1 Test.txt	
Result: 🛫 94 Valid 🧭 1 Errors 🛕 1 Warnings		HL7 Version: 2.5.1	





Viewing Detailed Report

1. On the HL7 Message Validation Message Summary screen, click on View under the View Detail column to view a Message Validation Detailed Report.

	17 Message Validatio essage Summary	n			۲	
Eval	uation Date: 02 04 2015 11:27	File Status: 💋		Tested By: Kim Tes	at EHR	
	Type: VXU essages in File: 1	File Name: HL7 251 Test Err Phone # Messages Passed: <u> </u> 0		# Messages Failed		v to display port
Μ	essage(s) sent in the file	2				
#	Message		Statu	s View Detail	View Summary	
1.	MSH ^~\& ExampleEHR 123^ABC Clinic	CIIS CDPHE 2010	0	View	View	

- 2. After clicking View under View Detail, a Message Validation Summary report is displayed and includes the following sections.
 - a. Message Summary displays the number of segments in the following categories: passed, errors, and warnings.

∠	No Changes Needed – Segment Passed
0	Changes Required for Segment to Pass
<u> </u>	Changes May Be Required Based on CIIS Requirements

- b. Messages Information displays information about the message, the status, and links to view detailed and summary reports.
- c. Message Detail Validations detailed listing of each segment, field name, validation, value, and status.
 - Segment displays the HL7 segment.
 - Field Name displays the HL7 field name.
 - Validation displays a message explaining how segment/field is validated based on standard HL7 messaging rules and CIIS local implementation guide.
 - Value this field allows you to see what information was submitted in the HL7 test message.
 - Status displays the passed, error, and warning explaining the status of that segment

#

Message

C

View Summary

Tested By: Kim Gulliver

HL7 Version:

View Detail

Status

Health & Environment **HL7 Message Validation** Message Summary Evaluation Date: 12 26 2014 12:51 File Status: ⊘ File Type: VXU File Name: Questions HL7 Validations.txt Result: 🗸 67 Valid ⊘ 84 Errors 🛕 65 Warnings **Messages Information**

M	essage	Detail Validation	S View Summary	Export [)ata
#	Segment	Field Name	Validation	Value	Statu
1.	MSH	MSH Segment	New line seperator is present.	See Value	<
2.	ORC	Order Request Segment	Each RXA segment must be associated with one ORC segment.	See Value	0
3.	RXA1	Give sub-ID counter	Is Required. Default value is 0	See Value	0
4.	RXA2	Administration sub-ID counter	Is Required. Default value is 999	See Value	0
5.	RXA3	Date/time start of administration	Is Required.	See Value	0
6.	RXA3	Date/time start of administration	Validated for correct date format.	See Value	~
7.	RXA3	Date/time start of administration	Is not before patient DOB	See Value	0
8.	RXA5	Administered code	Either CVX or CPT Code is Required.	See Value	0
9.	RXA5	Administered code	CPT Code is not blank.	See Value	
10.	RXA5	Administered code	Content validation for correctness of CPT HL7 Code set. Click to View Acceptable Codes	See Value	1
11.	RXA5	Administered code	CVX Code is not blank.	See Value	1
12.	RXA5	Administered code	Content validation for correctness of CVX HL7 Code set. Click to View Acceptable Codes	See Value	





- 3. Review the status column and fix any segments with an error and warning (may not be required for all warnings) messages.
 - a. For any segments with an error or warning status click See Value under the Value column to view what value was submitted in the original message. After complete, click Close.

#	Segment	Field Name	Validation	Value	Status
1.	MSH	MSH Segment	New line seperator is present.	See Value	\checkmark
2.	MSH1	Field separator	Is Required.	See Value	~
3.	MSH1	Field separator	Content of this field is valid. Should contain ^~\&	See Value	~
4.	MSH	MSH Segment	Is not repeating	See Value	~
5.	MSH2	Encoding characters	Is Required.	See Value	⊻
6.	MSH2	Encoding characters	Content of this field is valid.	See Value	0





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b. If there is a HL7 Code Set available for the segment data, with an error or warning status, click on View Acceptable Codes under the Validation Column to display the appropriate HL7 Code Set. After complete, click Close.

116.	RXR1	Administration Route should be populated if relevant data exists in the EHR.		See Value	⊻
117.	RXR1	Route	Content validation for correctness of HL7 Code set. Click to View		⊻

HL7	2.5.1 - Route		Click Acceptable Codes to view HL7 Code Set		
		Close			
#	HL7 Version	CodeValue	Description		
1	2.5.1	C28161	Intramuscular		
2	2.5.1	C38238	Intradermal		
3	2.5.1	C38276	Intravenous		
4	2.5.1	C38284	Nasal		
5	2.5.1	C38288	Oral		
6	2.5.1	C38299	Subcutaneous		
7	2.5.1	C38305	Transdermal		
8	2.5.1	C38676	Percutaneous made done or effected through the skin.		
9	2.5.1	ID	Intradermal		
10	2.5.1	IM	Intramuscular		
11	2.5.1	IV	Intravenous		
12	2.5.1	NS	Nasal		
13	2.5.1	OTH	Other/Miscellaneous		
14	2.5.1	PO	Oral		
15	2.5.1	SC	Subcutaneous		
16	2.5.1	TD	Transdermal		

c. Once changes have been made resubmit a new test message, including the changes, by repeating the process described under the **Uploading a HL7 Test Message** section.