



# VistA Blood Establishment Computer Software (VBECS) – Erytra Interface Configuration and Setup Guide, Version 2.0

August 2017

Department of Veterans Affairs  
Enterprise Project Management Office

This document is version controlled via approval signature. Do not assume that a printed, copied, or downloaded document is current. Consult the Electronic Document Control System to verify use of the current version.

## Revision History

Date	Revision	Description	Author
02-09-17	1.0	Initial version (Defect 452048).	BBM team
08-03-17	2.0	Added information about requirement for Specimen Management Module being active (Defect 465496)	BBM team

This document is version controlled via approval signature. Do not assume that a printed, copied, or downloaded document is current. Consult the Electronic Document Control System to verify use of the current version.

## Table of Contents

REVISION HISTORY .....	2
TABLE OF CONTENTS .....	3
INTRODUCTION .....	6
RELATED MANUALS AND REFERENCE MATERIALS .....	7
SET UP AUTOMATED INSTRUMENT .....	9
1    Network Connectivity Setup .....	9
2    Testing Template Setup .....	9
3    User ID Setup .....	9
SET UP INSTRUMENT MANAGER .....	11
1    Instrument Manager version .....	11
2    Instrument Manager to Automated Instrument Connectivity .....	11
3    Installing Instrument Driver .....	12
4    Set Up Instrument Manager Configuration .....	12
4.1    Download instrument configuration files .....	12
4.2    Import Instrument side configuration .....	14
4.3    Verify test code mapping for instrument side configuration .....	17
4.4    Verify rules .....	18
4.5    Configure rules .....	20
4.6    Import VBECS (HL7) side configuration .....	23
4.7    Verify test code mapping for VBECS side configuration .....	26
5    Set Up HL7 Connection to VBECS TEST .....	28
6    Set Up Instrument Connection .....	31
7    Test New Connections .....	33
8    Validate Instrument connectivity to VBECS TEST .....	35
9    Set up HL7 Connection to VBECS PROD .....	35
GLOSSARY .....	40
APPENDICES .....	41
APPENDIX A: INSTRUMENT SIDE MAPPING .....	41
APPENDIX B: HL7 (VBECS) SIDE MAPPING .....	44
APPENDIX C: RULES .....	47
APPENDIX D: TESTING TEMPLATES .....	49
APPENDIX E: CA SDM SUPPORT TICKET TEMPLATE .....	51
APPENDIX F: VALIDATION PLANNING AND EXAMPLE TEST SCENARIOS .....	53
TEST GROUP ONE: AI INTERFACE DISABLED .....	54
TEST GROUP TWO: VERIFY AI INDIVIDUAL TEST(S) .....	55
TEST GROUP 2 SCENARIO 1: VERIFY AI TAS TEST .....	56
TEST GROUP 2 SCENARIO 2: VERIFY AI SEROLOGIC CROSSMATCH TEST .....	57
TEST GROUP 2 SCENARIO 3: VERIFY AI PATIENT DIAGNOSTIC TESTS .....	58

This document is version controlled via approval signature. Do not assume that a printed, copied, or downloaded document is current. Consult the Electronic Document Control System to verify use of the current version.


TEST GROUP 2 SCENARIO 4: VERIFY AI BLOOD UNIT TESTS .....	59
---	----


This page intentionally left blank.


## Introduction

VBECS is a Blood Bank application that facilitates ongoing compliance with Food and Drug Administration (FDA) standards for medical devices and enhances the VA's ability to produce high-quality blood products and services to veterans. The system follows blood bank standards, standards of national accrediting agencies, FDA regulations and VA policies.

VBECS 2.2.0 introduced a new interface for blood bank testing performed by blood bank instrumentation to VBECS. The implementation of the interface and its associated validation are described in this guide.

 *Unauthorized access or misuse of this system and/or its data is a federal crime. Use of all data must be in accordance with VA security and privacy policies.*

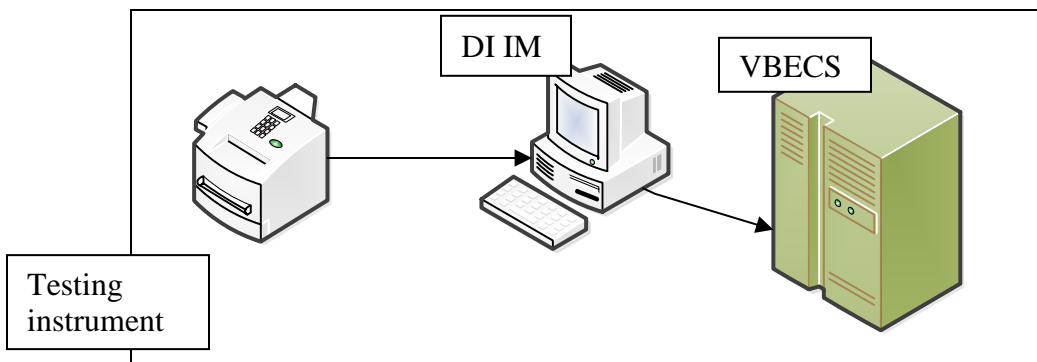
 *The U.S. FDA classifies this software as a medical device. Unauthorized modifications will render this device an adulterated medical device under Section 501 of the Medical Device Amendments to the Federal Food, Drug, and Cosmetic Act. Acquiring and implementing this software through the Freedom of Information Act requires the implementer to assume total responsibility for the software and become a registered manufacturer of a medical device, subject to FDA regulations. Adding to or updating VBECS software without permission is prohibited.*

 *Instructions in this Setup Guide must be followed for the interface to deliver information to VBECS. Local validation is required to confirm proper operation before use. Validation and verification is required to ensure connectivity to VBECS.*

This guide is provided to assist you with the multi-faceted required setup of your local blood bank testing instrument(s), Data Innovations Instrument Manager (DI IM) and VBECS to electronically transmit instrument test results to VBECS for use in the transfusion service.

There are specific setup requirements to test and transmit those testing results to VBECS for review using DI IM (Figure 1).

**Figure 1: Hardware and Interface Configuration**



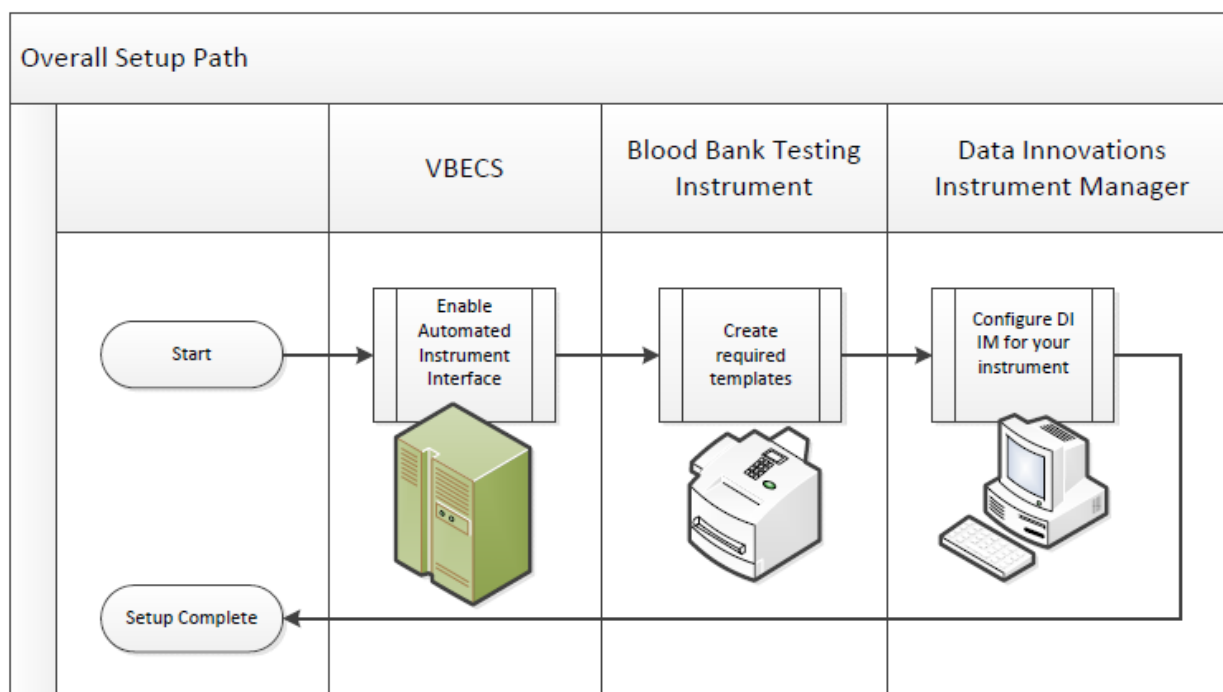
This document is version controlled via approval signature. Do not assume that a printed, copied, or downloaded document is current. Consult the Electronic Document Control System to verify use of the current version.

Your local testing instrument(s) communicates with DI IM via an instrument specific driver provided by DI that must be downloaded from DI and installed locally.

DI IM communicates directly with VBECS via a generic HL7 interface driver that must be downloaded from DI and installed, locally. This driver is customized for VBECS by downloading and installing the driver configuration file.

VBECS has an interface that must be configured in VBECS Administrator to receive messages from DI IM (**Figure 2**).

**Figure 2: Setup Path**



## Related Manuals and Reference Materials

- *VistA Blood Establishment Computer Software (VBECS) 2.2.0 Technical Manual-Security Guide*
- *Data Innovations Instrument Manager Manual*
- *Blood Bank Analyzer user's guide (Instrument Manual)*

This document is version controlled via approval signature. Do not assume that a printed, copied, or downloaded document is current. Consult the Electronic Document Control System to verify use of the current version.

This page intentionally left blank.



# Set up Automated Instrument

## 1 Network Connectivity Setup

In order to ensure a proper functioning of an interface between an Automated Instrument and Instrument Manager, the Instrument needs to be connected to the VA network. The static IP Address and Port number has to be assigned to the Instrument (further referred in this document as **<Instrument IP>** and **<Instrument Port>**). Please refer to the Instrument Manual or contact your vendor for the instructions about how to perform this setup. Check with Local IT staff to establish the connection to Instrument Manager.

## 2 Testing Template Setup



*If testing templates are not configured properly it will be impossible for instrument results to be accepted in VBECS.*

Please refer to **Appendix D: Testing Templates** for the list of instrument templates. These test templates must be set up on your Instrument before any results can be sent to VBECS. Always use them for results that are sent to VBECS. Any results sent that do not follow the above templates will be rejected. Please refer to the Instrument Manual or contact your vendor for the instructions about how to perform template setup.



*AABB Standards require a serological XM to detect ABO incompatibility (5.16.1) and a local policy must be in place if the site is not performing an IS AHG as part of their serologic crossmatch test, manual or using an instrument.*

## 3 User ID Setup



*Failure to set up proper user IDs on an instrument will prevent instrument results from being accepted in VBECS.*

In order for VBECS to properly recognize the person who performed testing on an Instrument, all users accessing the instrument must have their user IDs set up to match their network user IDs (e.g., VHAISHBURN SK).

Due to the constraints of the Erytra messaging system, only 10 characters of the user name can be transferred with test results to VBECS. To ensure the uniqueness of all user names, please strip the front characters of network user ID to ensure that it is no longer than 10 characters long. For user IDs that are already 10 characters or shorter you can use full user ID in Erytra. For example:

Length of User ID	Example of User ID	Erytra ID
12	VHASFCYOUNGS	SFCYOUNGS
11	VHASFCTRANK	HASFCTRANK
10 or less	VHASFCTSTU	VHASFCTSTU

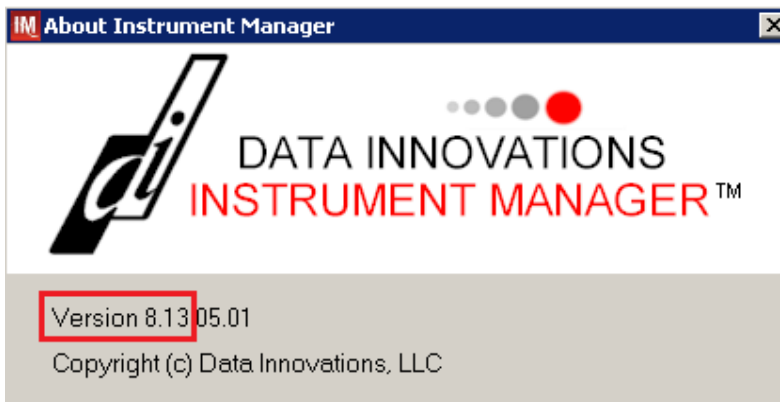
Please refer to the Instrument Manual or contact your vendor for the instructions about how to perform setup of user IDs.

# Set Up Instrument Manager

## 1 Instrument Manager version

Please verify that you are using Instrument Manager Version 8.13 or greater (Figure 3). In Instrument Manager navigate to **Help -> About Instrument Manager**.

**Figure 3: Instrument Manager Version Screen**



*If your version of Instrument Manager is older than 8.13 please **STOP** executing this guide and update the software first. **Do not proceed until the issue is resolved.***



*If your Instrument Manager is greater than 8.13 you may proceed. The user must execute the instructions and validate functionality on newer version. Discrepancies in the instructions must be reported as a CA-SDM ticket. See **Appendix E**.*



*Instrument Manager must have the **Specimen Management Module** licensed and activated. **Do not proceed until this issue is resolved.***

## 2 Instrument Manager to Automated Instrument Connectivity

Please contact your local network administrative staff and ensure that your local network allows two-way TCP/IP connectivity between **<Instrument Manager IP>** address and **<Instrument IP>** address on **<Instrument Port>**.

This document is version controlled via approval signature. Do not assume that a printed, copied, or downloaded document is current. Consult the Electronic Document Control System to verify use of the current version.

### 3 Installing Instrument Driver

Two drivers are required for the correct operation of the Automated Instrument interface to VBECS (Figure 4).

**Figure 4: Required Drivers**

Driver	Name	Version	Description
Grifols Erytra	griertri	8.00.0001	Instrument to DI IM driver
Data Innovations LLC, Configurable HL7	diihl7ml	8.00.0049	DI IM to VBECS (HL7) driver

*Please refer to the user's manual for Instrument Manager or contact Data Innovations for the instructions on how to install drivers for Instrument Manager.*

After successful installation of drivers, please go to **Report -> Available Drivers** menu option in Instrument Manager and verify that the drivers listed in Figure 4 are present.

### 4 Set Up Instrument Manager Configuration



Execute instructions in this section for each instrument that will be connecting to VBECS.



*Modifying rules or test code mappings as imported using this Instrument Manager configuration Setup Guide may lead to malfunction of the Automated Instrument to VBECS interface.*

Prerequisites for the Instrument Manager Configuration files download:

- You must be an administrator on <*Instrument Manager Server*>.
- Once the above prerequisite is met you may proceed.

#### 4.1 Download instrument configuration files

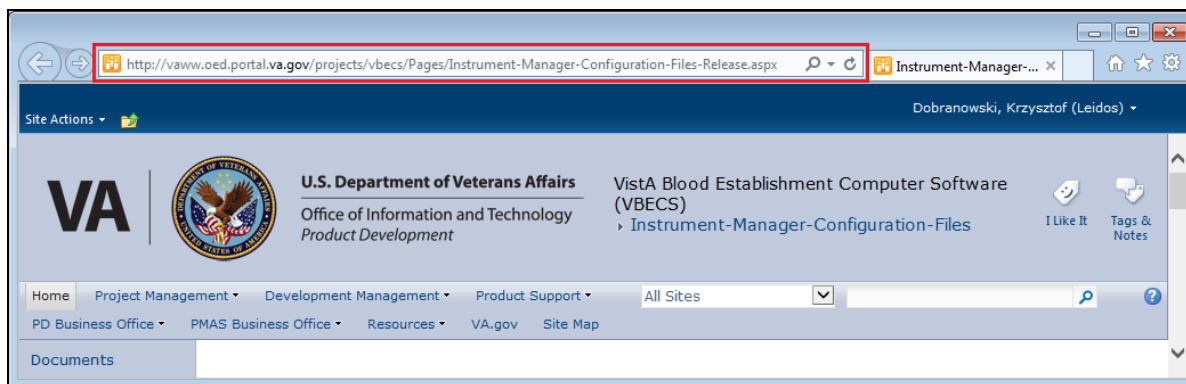


Use local procedures for copying the instrument configuration files to the Instrument Manager server.

This document is version controlled via approval signature. Do not assume that a printed, copied, or downloaded document is current. Consult the Electronic Document Control System to verify use of the current version.

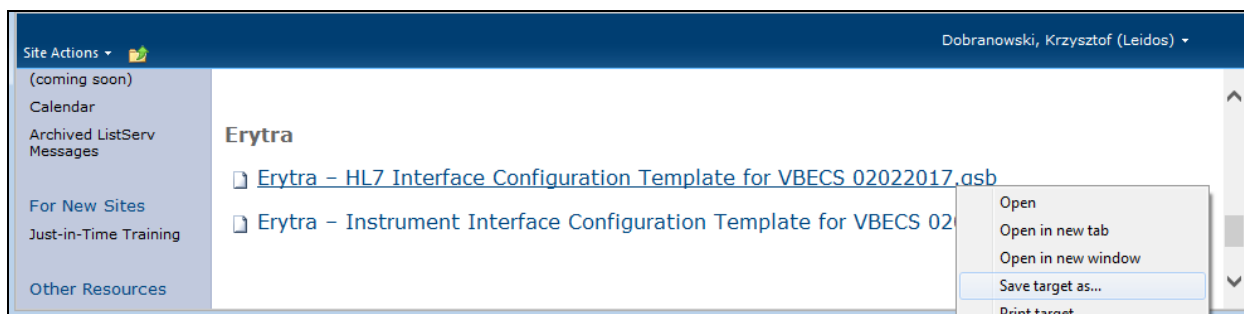
1. Navigate to **<http://vaww.oed.portal.va.gov/projects/vbecs/Pages/Instrument-Manager-Configuration-Files-Release.aspx>** (Figure 5).

**Figure 5: Connecting to the VBECS Share**



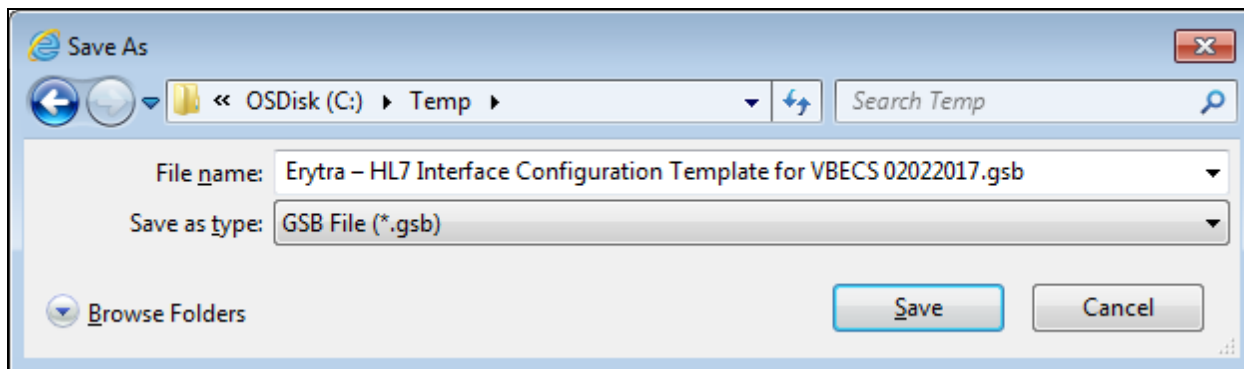
2. To download a file from the SharePoint, right-click on it and select **Save target as** (Figure 6).

**Figure 6: Example of Save target as...**



3. In the next screen, specify the directory to save (Figure 7).

**Figure 7: Example of Save As**



This document is version controlled via approval signature. Do not assume that a printed, copied, or downloaded document is current. Consult the Electronic Document Control System to verify use of the current version.

4. Save both the **Erytra – HL7 Interface Configuration Template for VBECS 02022017.gsb** and the **Erytra – Instrument Interface Configuration Template for VBECS 02022017.gsb** files to the **C:\temp** directory.
5. Per local procedures copy both files to C:\temp on the Instrument Manager server
6. On the Instrument Manager server; Click **Start**, and in the “Search programs and files” box type **Run** and hit enter. Type **Powershell** and click **OK** to launch PowerShell
7. Copy and paste or type the following commands to generate checksums for configuration files:

```
certutil -hashfile "C:\Temp\Erytra – HL7 Interface Configuration Template for VBECS 02022017.gsb" MD5 <press Enter>
```

```
certutil -hashfile "C:\Temp\Erytra – Instrument Interface Configuration Template for VBECS 02022017.gsb" MD5 <press Enter>
```



To copy, highlight the lines in grey and enter CTRL-C.

To insert the copied line into a PowerShell window, right click in the PowerShell window and select “Paste”.

8. Verify that checksums for both files match those shown in **Figure 8**.

**Figure 8: Instrument Manager Configuration File checksums**

```
Administrator: Windows PowerShell
PS C:\> certutil -hashfile "C:\Temp\Erytra - HL7 Interface Configuration Template for VBECS 02022017.gsb" MD5
MD5 hash of file C:\Temp\Erytra - HL7 Interface Configuration Template for VBECS 02022017.gsb:
2e e8 a1 fd b9 37 01 6b 92 77 cc 5a e5 70 a1 8c
Certutil: hashfile command completed successfully.
PS C:\> certutil -hashfile "C:\Temp\Erytra - Instrument Interface Configuration Template for VBECS 02022017.gsb" MD5
MD5 hash of file C:\Temp\Erytra - Instrument Interface Configuration Template for VBECS 02022017.gsb:
1d 70 b7 cb e4 2b 5a 5e 8c 35 2e e7 1d cb 99 f4
Certutil: hashfile command completed successfully.
PS C:\>
```



*If the checksums do not match, stop and file a national CA SDM ticket to coordinate assistance with installation using the template in Appendix E. Do not proceed until the issue is resolved.*

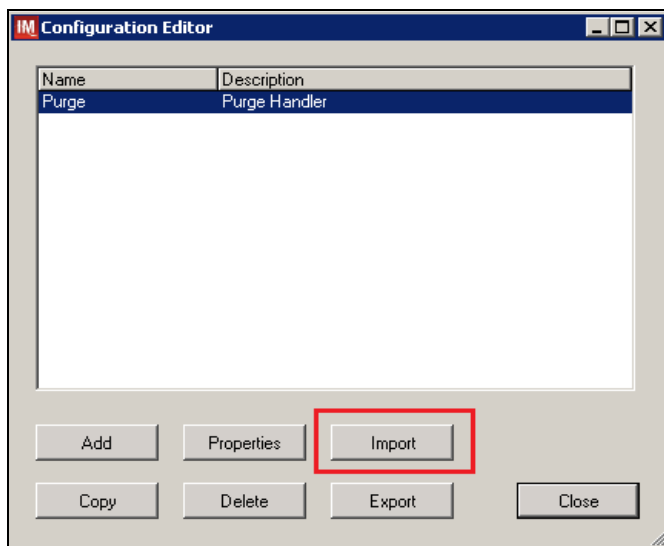
9. Close the **PowerShell** window.

## 4.2 Import Instrument side configuration

1. After downloading and verifying configuration files, open Instrument Manager and navigate to **Configuration -> Configuration Editor**.
2. Click on the **Import** button (Figure 9).

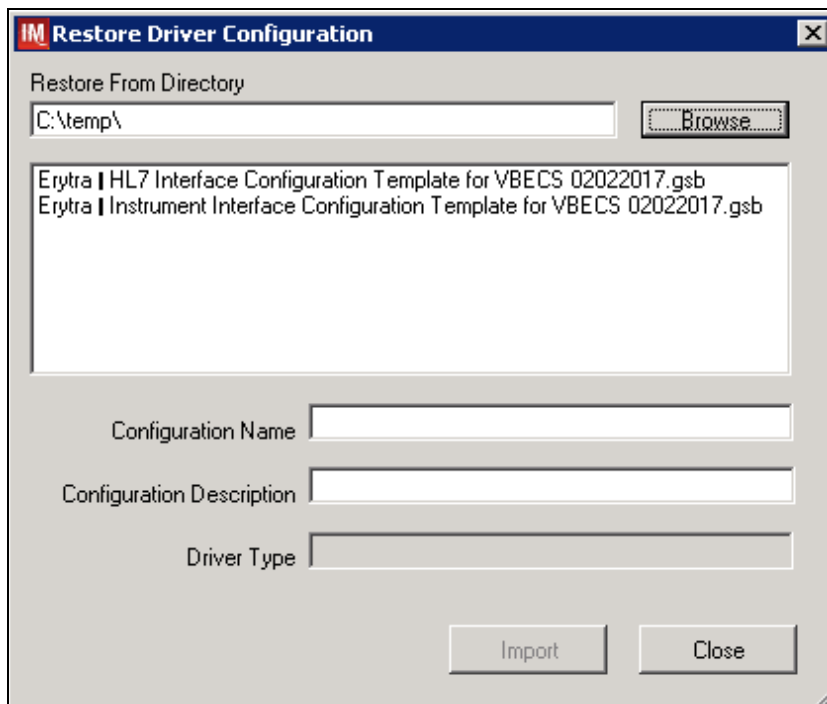
This document is version controlled via approval signature. Do not assume that a printed, copied, or downloaded document is current. Consult the Electronic Document Control System to verify use of the current version.

**Figure 9: Example of Configuration Editor**



3. Once the import screen opens, click the **Browse** button and select **C:\Temp** folder (Figure 10).
4. Click OK.

**Figure 10: Example of Configuration Import Screen**



This document is version controlled via approval signature. Do not assume that a printed, copied, or downloaded document is current. Consult the Electronic Document Control System to verify use of the current version.

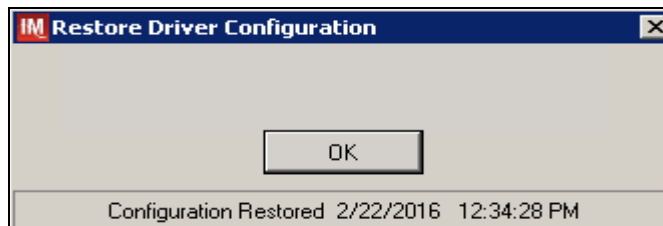
5. Select **Erytra – Instrument Interface Configuration Template for VBECS 02022017.gsb** file from the list.
6. Enter **Configuration Name** that contains 3 letter location code of the instrument (e.g., **HIN** for Hines VAMC), word **Erytra** and sequence number (**1** for the first instrument, **2** for the second etc.).  
Example Configuration Name for instrument configuration located at Hines would be:


**HIN\_Erytra\_1**

This configuration name will be further referred in this document as *<Instrument Side Configuration>*.

7. Enter **Configuration Description** and click **Import** button. Verify that the following confirmation window displays (Figure 11).

**Figure 11: Example of Successful Configuration Import**



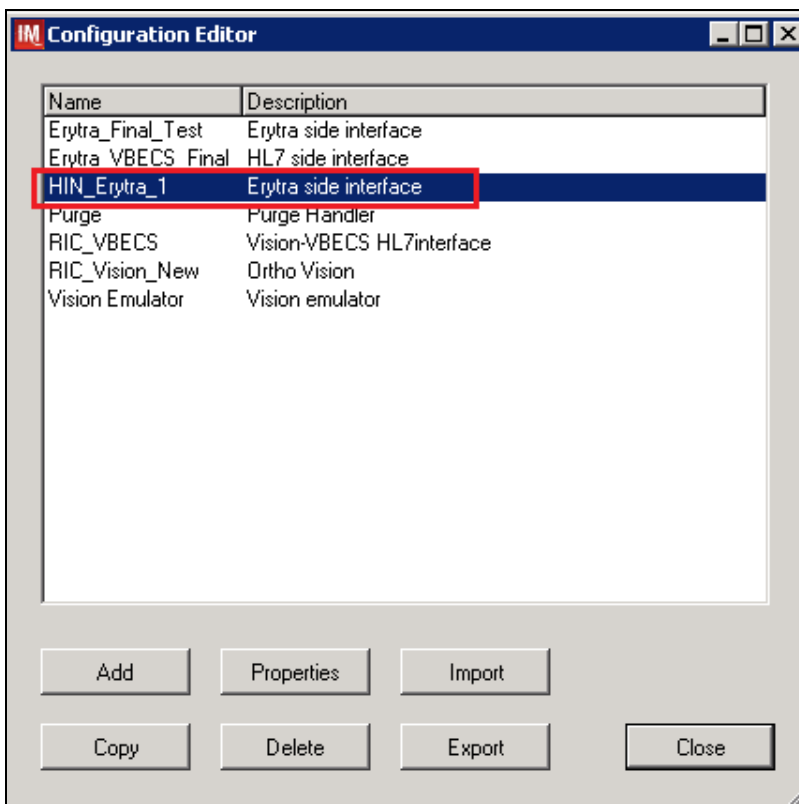
 *If you are using newer version of the driver than the one mentioned in section 3, the Instrument Manager will warn you about the discrepancy in driver versions. Please acknowledge this warning and continue.*

8. Click **OK** and close the **Restore Driver Configuration** window.
9. Verify that **Configuration Editor** shows the new configuration on the list (Figure 12).

This document is version controlled via approval signature. Do not assume that a printed, copied, or downloaded document is current. Consult the Electronic Document Control System to verify use of the current version.



**Figure 12: Example of Configuration Editor Window Showing Newly Imported Configuration**



10. **Close** the Configuration Editor Window

### 4.3 Verify test code mapping for instrument side configuration

1. Navigate to **Reports -> Configuration Options and Mappings**.
2. Select the *<Instrument Side Configuration Name>* from the pull down menu (Figure 13)
3. Select the **Results Test Code Mapping Tab** (Figure 13).
4. Verify the Results Test Code Mapping Report Tab matches the list in *Appendix A: Instrument Side Mapping*.

This document is version controlled via approval signature. Do not assume that a printed, copied, or downloaded document is current. Consult the Electronic Document Control System to verify use of the current version.

**Figure 13: Example of Results Test Code Mapping Tab**

Instrument Test Code	IM Test Code	Fluid	Fluid Description	Test Resulting Option	Display Name	Default Test Code	LO
VBECs ABDRev.gru\VBECs ABDRev.pln"A	VBECs ABDRev.gru\VBECs ABDRev.pln"A	0		OD	AntiA	<input checked="" type="checkbox"/>	
VBECs ABDRev.gru\VBECs ABDRev.pln"B	VBECs ABDRev.gru\VBECs ABDRev.pln"B	0		OD	AntiB	<input checked="" type="checkbox"/>	
VBECs ABDRev.gru\VBECs ABDRev.pln"CTL	VBECs ABDRev.gru\VBECs ABDRev.pln"CTL	0		OD	DControl	<input checked="" type="checkbox"/>	
VBECs ABDRev.gru\VBECs ABDRev.pln"D	VBECs ABDRev.gru\VBECs ABDRev.pln"D	0		OD	AntiD	<input checked="" type="checkbox"/>	
VBECs ABDRev.gru\VBECs ABDRev.pln"Group	VBECs ABDRev.gru\VBECs ABDRev.pln"Group	0		OD	ABOInterp	<input checked="" type="checkbox"/>	
VBECs ABDRev.gru\VBECs ABDRev.pln"tA1	VBECs ABDRev.gru\VBECs ABDRev.pln"tA1	0		OD	A1Cells	<input checked="" type="checkbox"/>	
VBECs ABDRev.gru\VBECs ABDRev.pln"tB	VBECs ABDRev.gru\VBECs ABDRev.pln"tB	0		OD	BCells	<input checked="" type="checkbox"/>	
VBECs ABDRev.gru\VBECs ABDRev.pln"Remarks	VBECs ABDRev.gru\VBECs ABDRev.pln"Remarks	0		OD	Comment	<input checked="" type="checkbox"/>	
VBECs ABDRev.gru\VBECs ABDRev.pln"Rh	VBECs ABDRev.gru\VBECs ABDRev.pln"Rh	0		OD	RhInterp	<input checked="" type="checkbox"/>	
VBECs ABS 2 Cell.gru\VBECs ABS 2 Cell.pln"1+	VBECs ABS 2 Cell.gru\VBECs ABS 2 Cell.pln"1+	0		OD	SC1	<input checked="" type="checkbox"/>	
VBECs ABS 2 Cell.gru\VBECs ABS 2 Cell.pln"1I+	VBECs ABS 2 Cell.gru\VBECs ABS 2 Cell.pln"1I+	0		OD	SC2	<input checked="" type="checkbox"/>	
VBECs ABS 2 Cell.gru\VBECs ABS 2 Cell.pln"Remarks	VBECs ABS 2 Cell.gru\VBECs ABS 2 Cell.pln"Remarks	0		OD	Comment	<input checked="" type="checkbox"/>	
VBECs ABS 2 Cell.gru\VBECs ABS 2 Cell.pln"Scr 2+	VBECs ABS 2 Cell.gru\VBECs ABS 2 Cell.pln"Scr 2+	0		OD	ABSIInterp	<input checked="" type="checkbox"/>	
VBECs ABS 3 Cell.gru\VBECs ABS 3 Cell.pln"1	VBECs ABS 3 Cell.gru\VBECs ABS 3 Cell.pln"1	0		OD	SC1	<input checked="" type="checkbox"/>	
VBECs ABS 3 Cell.gru\VBECs ABS 3 Cell.pln"1I	VBECs ABS 3 Cell.gru\VBECs ABS 3 Cell.pln"1I	0		OD	SC2	<input checked="" type="checkbox"/>	
VBECs ABS 3 Cell.gru\VBECs ABS 3 Cell.pln"1II	VBECs ABS 3 Cell.gru\VBECs ABS 3 Cell.pln"1II	0		OD	SC3	<input checked="" type="checkbox"/>	
VBECs ABS 3 Cell.gru\VBECs ABS 3 Cell.pln"Remarks	VBECs ABS 3 Cell.gru\VBECs ABS 3 Cell.pln"Remarks	0		OD	Comment	<input checked="" type="checkbox"/>	
VBECs ABS 3 Cell.gru\VBECs ABS 3 Cell.pln"Scr 3	VBECs ABS 3 Cell.gru\VBECs ABS 3 Cell.pln"Scr 3	0		OD	ABSIInterp	<input checked="" type="checkbox"/>	
VBECs Crossmatch Full IAT.gru\VBECs Crossmatch Full IAT.pln"X	VBECs Crossmatch Full IAT.gru\VBECs Crossmatch Full IAT.pln"X	0		OD	AHG	<input checked="" type="checkbox"/>	
VBECs Crossmatch Full IAT.gru\VBECs Crossmatch Full IAT.pln"Xmatch	VBECs Crossmatch Full IAT.gru\VBECs Crossmatch Full IAT.pln"Xmatch	0		OD	AHGInterp	<input checked="" type="checkbox"/>	
VBECs Crossmatch Full IS.gru\VBECs Crossmatch Full IS.pln"ISX	VBECs Crossmatch Full IS.gru\VBECs Crossmatch Full IS.pln"ISX	0		OD	IS	<input checked="" type="checkbox"/>	
VBECs Crossmatch Full IS.gru\VBECs Crossmatch Full IS.pln"ISXmatch	VBECs Crossmatch Full IS.gru\VBECs Crossmatch Full IS.pln"ISXmatch	0		OD	ISInterp	<input checked="" type="checkbox"/>	
VBECs Crossmatch Full IS.gru\VBECs Crossmatch Full IS.pln"Remarks	VBECs Crossmatch Full IS.gru\VBECs Crossmatch Full IS.pln"Remarks	0		OD	Comment	<input checked="" type="checkbox"/>	
VBECs Crossmatch IAT.gru\VBECs Crossmatch IAT.pln"Remarks	VBECs Crossmatch IAT.gru\VBECs Crossmatch IAT.pln"Remarks	0		OD	Comment	<input checked="" type="checkbox"/>	
VBECs Crossmatch IAT.gru\VBECs Crossmatch IAT.pln"X	VBECs Crossmatch IAT.gru\VBECs Crossmatch IAT.pln"X	0		OD	AHG	<input checked="" type="checkbox"/>	
VBECs Crossmatch IAT.gru\VBECs Crossmatch IAT.pln"Xmatch	VBECs Crossmatch IAT.gru\VBECs Crossmatch IAT.pln"Xmatch	0		OD	XMIInterp	<input checked="" type="checkbox"/>	
VBECs DAT.gru\VBECs DAT.pln"DAT	VBECs DAT.gru\VBECs DAT.pln"DAT	0		OD	DATInterp	<input checked="" type="checkbox"/>	
VBECs DAT.gru\VBECs DAT.pln"DAT IgG	VBECs DAT.gru\VBECs DAT.pln"DAT IgG	0		OD	AHG	<input checked="" type="checkbox"/>	
VBECs DAT.gru\VBECs DAT.pln"Remarks	VBECs DAT.gru\VBECs DAT.pln"Remarks	0		OD	Comment	<input checked="" type="checkbox"/>	
VBECs NEG Retype.gru\VBECs NEG Retype.pln"A	VBECs NEG Retype.gru\VBECs NEG Retype.pln"A	0		OD	AntiA	<input checked="" type="checkbox"/>	
VBECs NEG Retype.gru\VBECs NEG Retype.pln"B	VBECs NEG Retype.gru\VBECs NEG Retype.pln"B	0		OD	AntiB	<input checked="" type="checkbox"/>	

**STOP** If mismatches in Test Codes names, missing or extra Test Codes are encountered, file a national CA SDM ticket to coordinate assistance with installation using the template in Appendix E. Do not proceed until the issue is resolved.

5. Close **Configuration Options and Mappings** window.

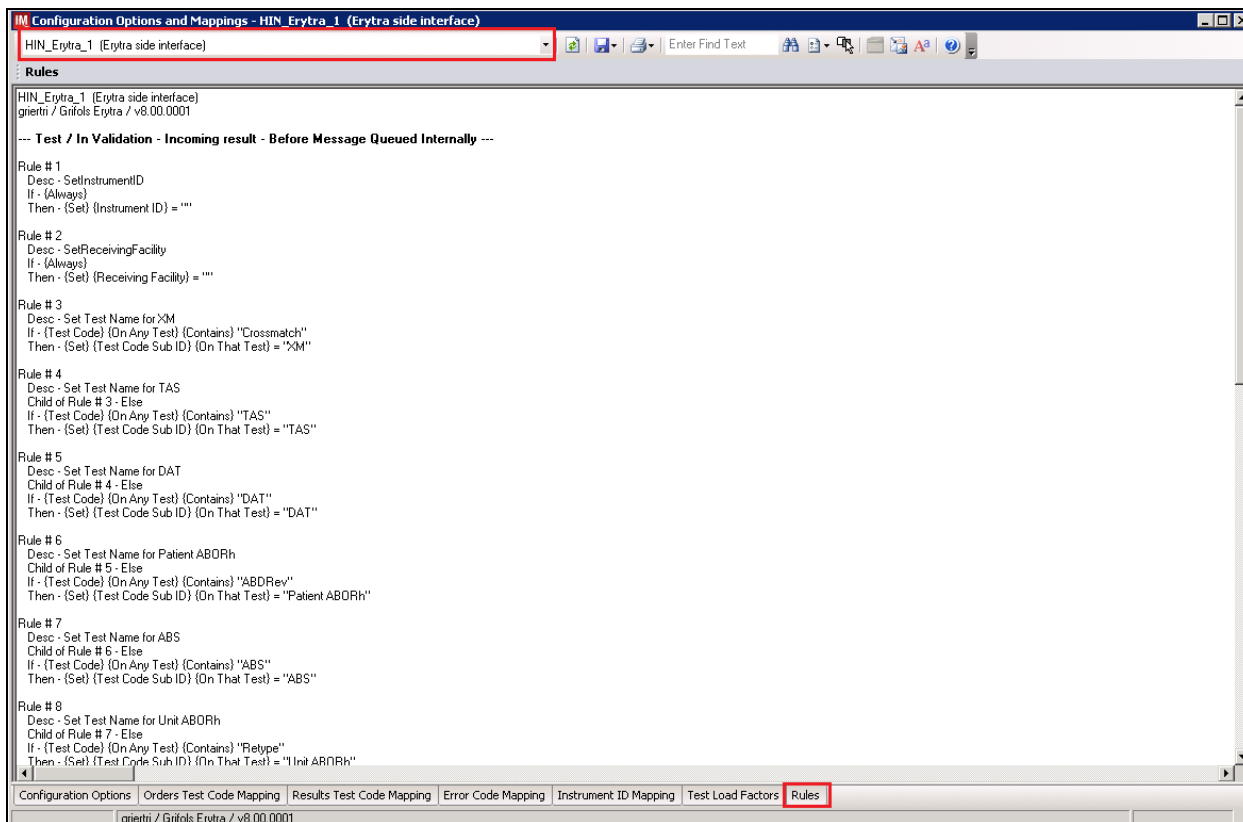
#### 4.4 Verify rules

- Next navigate to **Reports -> Configuration Options and Mappings**.
- Select the **<Instrument Side Configuration Name>** from the drop-down in the upper left corner. (Figure 14).
- Select the **Rules Tab** (Figure 14).


This document is version controlled via approval signature. Do not assume that a printed, copied, or downloaded document is current. Consult the Electronic Document Control System to verify use of the current version.

4. Verify the Rules Tab matches all rules listed in *Appendix C: Rules*.

**Figure 14: Example of Rules Tab**



5. Close the **Configuration Options and Mappings** window.

 ***If mismatches in rules are encountered, file a national CA SDM ticket to coordinate assistance with installation using the template in Appendix E. Do not proceed until the issue is resolved.***

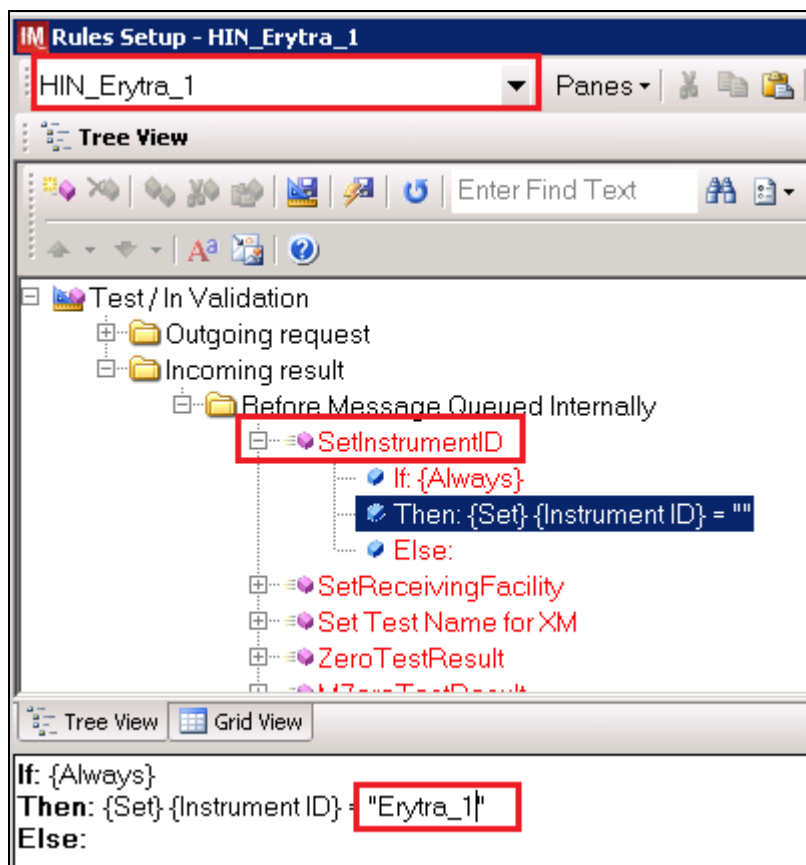
This document is version controlled via approval signature. Do not assume that a printed, copied, or downloaded document is current. Consult the Electronic Document Control System to verify use of the current version.

## 4.5 Configure rules

In this section you will establish the name of the instrument associated with test results for VBECS reports. *If you are setting up multiple instruments, make sure that each has a unique name.*


1. Navigate to Configuration -> Specimen Management Configuration -> Rules Processing.
2. Select **<Instrument Side Configuration Name>** from the pull down menu (Figure 15).
3. Locate rule **SetInstrumentID**.
4. Click on the **Then** line in the rule.
5. Modify the rule by typing **<Instrument Name>** between the quotation marks as shown in the lower box (Figure 15).

**Figure 15: Example of Instrument Name Setup**

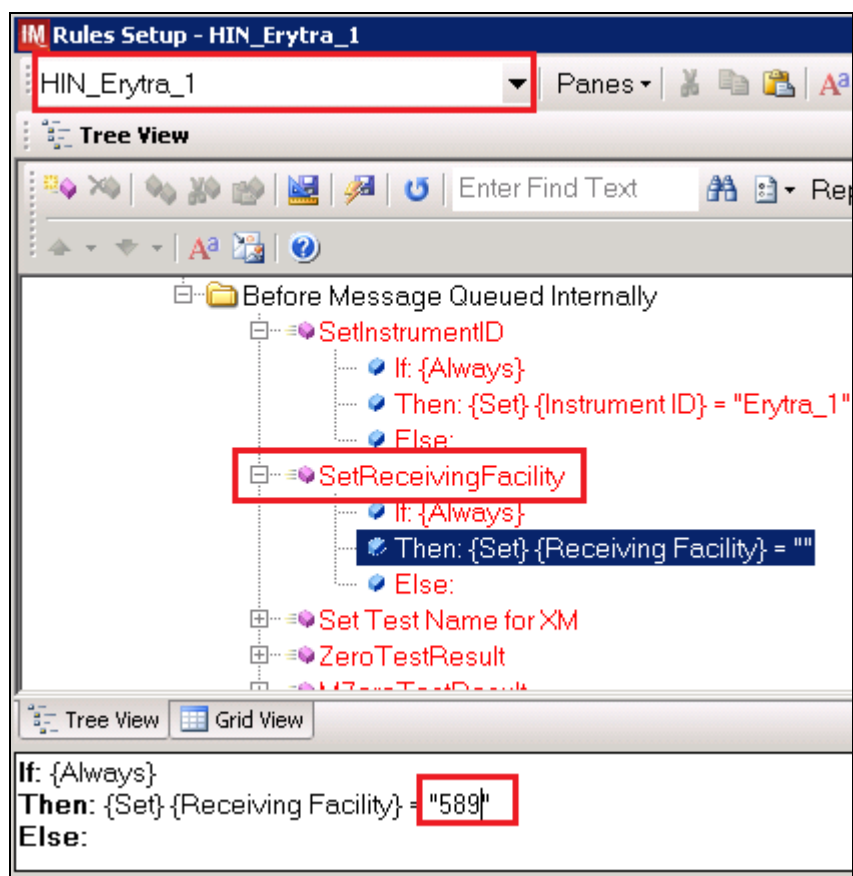


This document is version controlled via approval signature. Do not assume that a printed, copied, or downloaded document is current. Consult the Electronic Document Control System to verify use of the current version.

6. Locate rule **SetReceivingFacility**. Click on **Then** line in the rule. Modify the rule by typing the **<Division Code>** between the quotation marks as shown (Figure 16).

 **<Division Code>** also known as Station Number in Vista is a unique alphanumeric code that is associated with each hospital (e.g. **589** for VA Heartland West VAMC). This code must match the division code configured in **VBECS Administrator** application for a given site.

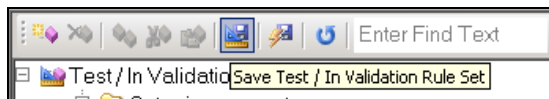
**Figure 16: Example of Division Code Setup**



7. After the change was made, both rules' text should be displayed in red color on the screen.
8. Click on **Save Test / In Validation Rule Set** button located in the toolbar above the rules (Figure 17).

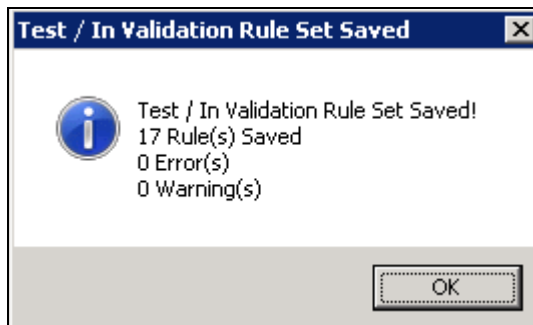
This document is version controlled via approval signature. Do not assume that a printed, copied, or downloaded document is current. Consult the Electronic Document Control System to verify use of the current version.


**Figure 17: Example of Save Rules Button**



9. Verify that the message is received (Figure 18).

**Figure 18: Example of Successful Rule Save**



 *If errors while saving rules are encountered, file a national CA SDM ticket to coordinate assistance with installation using the template in Appendix E. Do not proceed until the issue is resolved.*

10. Click on the **Save Live Rule Set** button (Figure 19) located in the toolbar and click **Yes** to confirm.

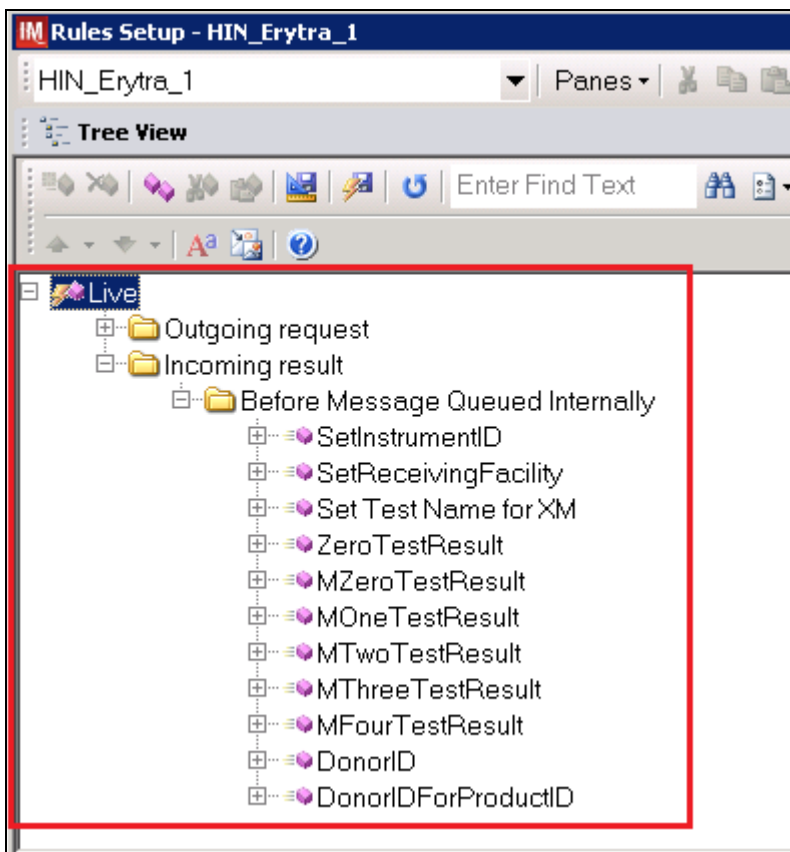
**Figure 19: Example of Save Rules in Live Set Button**



11. Expand the **Live Rule Set**, and verify that rule text matches *Appendix C: Rules* and includes changes made to **SetInstrumentID** and **SetReceivingFacility** (Figure 20).

This document is version controlled via approval signature. Do not assume that a printed, copied, or downloaded document is current. Consult the Electronic Document Control System to verify use of the current version.

**Figure 20: Example of Live Rules Set View**



*If differences in rules are encountered, file a national CA SDM ticket to coordinate assistance with installation using the template in Appendix E. Do not proceed until the issue is resolved.*

12. Close the **Rule Setup** window, returning to the main menu.

#### 4.6 Import VBECS (HL7) side configuration



**Only one VBECS side configuration is needed even if you use multiple Erytra instruments. All Erytras will share the same configuration.**



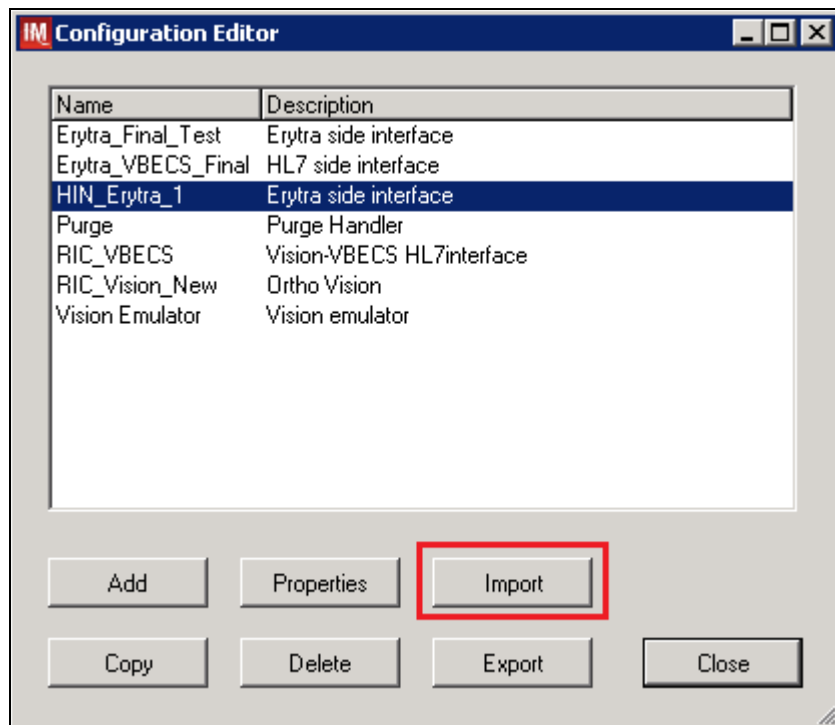
*Modifying rules or test code mappings in the **Instrument Manager** configuration outside of this Setup Guide is not allowed and may lead to malfunction of the Automated Instrument to VBECS interface.*

1. Navigate to **Configuration -> Configuration Editor** (Figure 21).

This document is version controlled via approval signature. Do not assume that a printed, copied, or downloaded document is current. Consult the Electronic Document Control System to verify use of the current version.

2. Click on the **Import** button.

**Figure 21: Example of Configuration Editor Window**



3. Once the **Restore Driver Configuration** window opens, click the **Browse** button and select **C:\Temp** folder (Figure 22).
4. Select **Erytra – HL7 Interface Configuration Template for VBECS 02022017.gsb** file from the list.
5. Enter a **Configuration Name** that contains 3 letter location code of the instrument (e.g. **HIN** for Hines VAMC), word **VBECS** and sequence number (**1** for the first configuration, **2** for the second etc.). Example Configuration Name for VBECS side configuration located at Hines would be:

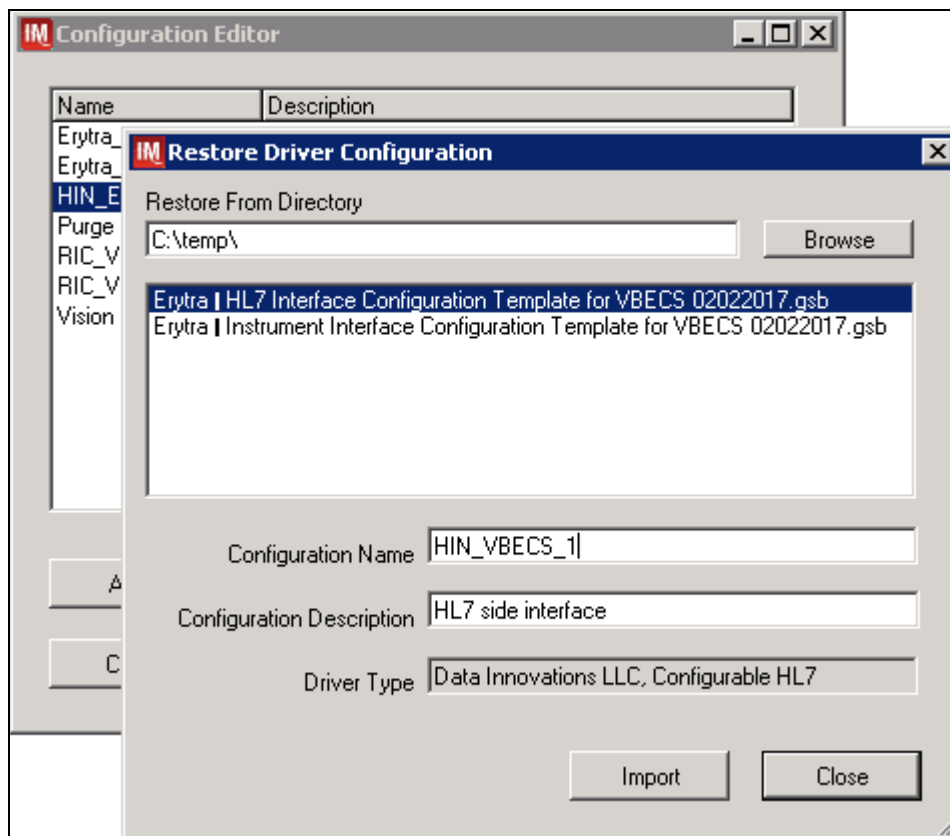
**HIN\_VBECS\_1**

This configuration name will be further referred in this document as *<HL7 Side Configuration>*.

This document is version controlled via approval signature. Do not assume that a printed, copied, or downloaded document is current. Consult the Electronic Document Control System to verify use of the current version.

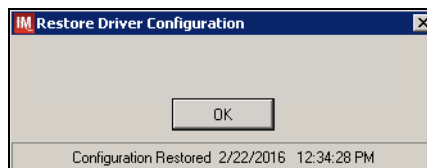


**Figure 22: Example of Configuration Import Window**



6. Enter **Configuration Description** and click **Import** button. Verify that the following confirmation window (Figure 23) displays.

**Figure 23: Example of Successful Configuration Import**

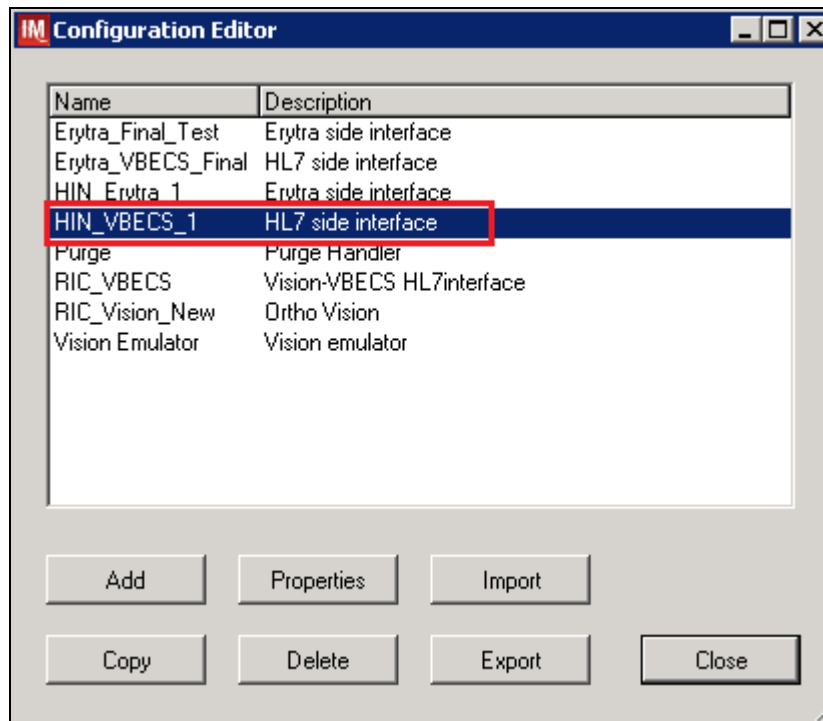


**i** *If you are using newer version of the driver than the one mentioned in section 3, the Instrument Manager will warn you about the discrepancy in driver versions. Please acknowledge this warning and continue.*

This document is version controlled via approval signature. Do not assume that a printed, copied, or downloaded document is current. Consult the Electronic Document Control System to verify use of the current version.

7. Click **OK** and close the **Restore Driver Configuration** window.
8. Verify that **Configuration Editor** shows the new configuration on the list (Figure 24).

**Figure 24: Example of Newly Imported HL7 Configuration**



#### 4.7 Verify test code mapping for VBECS side configuration

1. Navigate to **Reports ->Configuration Options and Mappings**.
2. Select the **<HL7 Side Configuration Name>** from the drop-down in the upper left corner (Figure 25).
3. Select the Results Test Code Mapping Tab (Figure 25).
4. Verify that the Results Test Code Mapping Tab matches all rules listed in **Appendix B: HL7 (VBECS) Side Mapping**.


This document is version controlled via approval signature. Do not assume that a printed, copied, or downloaded document is current. Consult the Electronic Document Control System to verify use of the current version.

**Figure 25: Example of HL7 Configuration Report Window**

The screenshot shows a window titled "Configuration Options and Mappings - HIN\_VBECS\_1 (HL7 side interface)". The "Results Test Code Mapping" tab is active, displaying a table with the following columns: Instrument Test Code, IM Test Code, Fluid, Fluid Description, Test Resulting Option, Display Name, Default Test Code, and LOINC. The table lists various test codes and their corresponding mappings, with checkboxes for default status.

Instrument Test Code	IM Test Code	Fluid	Fluid Description	Test Resulting Option	Display Name	Default Test Code	LOINC
VBECS ABDRev.gru~VBECS ABDRev.pln~A	AntiA	N/A		D	AntiA	<input checked="" type="checkbox"/>	
VBECS ABDRev.gru~VBECS ABDRev.pln~B	AntiB	N/A		D	AntiB	<input checked="" type="checkbox"/>	
VBECS ABDRev.gru~VBECS ABDRev.pln~CTL	DControl	N/A		D	DControl	<input checked="" type="checkbox"/>	
VBECS ABDRev.gru~VBECS ABDRev.pln~D	AntiD	N/A		D	AntiD	<input checked="" type="checkbox"/>	
VBECS ABDRev.gru~VBECS ABDRev.pln~Group	ABOInterp	N/A		D	ABOInterp	<input checked="" type="checkbox"/>	
VBECS ABDRev.gru~VBECS ABDRev.pln~A1	A1Cells	N/A		D	A1Cells	<input checked="" type="checkbox"/>	
VBECS ABDRev.gru~VBECS ABDRev.pln~B	BCells	N/A		D	BCells	<input checked="" type="checkbox"/>	
VBECS ABDRev.gru~VBECS ABDRev.pln~Remarks	Comment	N/A		D	Comment	<input checked="" type="checkbox"/>	
VBECS ABDRev.gru~VBECS ABDRev.pln~Rh	RhInterp	N/A		D	RhInterp	<input checked="" type="checkbox"/>	
VBECS ABS 2 Cell.gru~VBECS ABS 2 Cell.pln~I+	SC1	N/A		D	SC1	<input checked="" type="checkbox"/>	
VBECS ABS 2 Cell.gru~VBECS ABS 2 Cell.pln~II+	SC2	N/A		D	SC2	<input checked="" type="checkbox"/>	
VBECS ABS 2 Cell.gru~VBECS ABS 2 Cell.pln~Remarks	Comment	N/A		D	Comment	<input checked="" type="checkbox"/>	
VBECS ABS 2 Cell.gru~VBECS ABS 2 Cell.pln~Scr 2+	ABSIInterp	N/A		D	ABSIInterp	<input checked="" type="checkbox"/>	
VBECS ABS 3 Cell.gru~VBECS ABS 3 Cell.pln~I	SC1	N/A		D	SC1	<input checked="" type="checkbox"/>	
VBECS ABS 3 Cell.gru~VBECS ABS 3 Cell.pln~II	SC2	N/A		D	SC2	<input checked="" type="checkbox"/>	
VBECS ABS 3 Cell.gru~VBECS ABS 3 Cell.pln~III	SC3	N/A		D	SC3	<input checked="" type="checkbox"/>	
VBECS ABS 3 Cell.gru~VBECS ABS 3 Cell.pln~Remarks	Comment	N/A		D	Comment	<input checked="" type="checkbox"/>	
VBECS ABS 3 Cell.gru~VBECS ABS 3 Cell.pln~Scr 3	ABSIInterp	N/A		D	ABSIInterp	<input checked="" type="checkbox"/>	
VBECS Crossmatch Full IAT.gru~VBECS Crossmatch Full IAT.pln~X	AHG	N/A		D	AHG	<input checked="" type="checkbox"/>	
VBECS Crossmatch Full IAT.gru~VBECS Crossmatch Full IAT.pln~Xmatch	AHGInterp	N/A		D	AHGInterp	<input checked="" type="checkbox"/>	
VBECS Crossmatch Full IS.gru~VBECS Crossmatch Full IS.pln~ISX	IS	N/A		D	IS	<input checked="" type="checkbox"/>	
VBECS Crossmatch Full IS.gru~VBECS Crossmatch Full IS.pln~ISXmatch	ISInterp	N/A		D	ISInterp	<input checked="" type="checkbox"/>	
VBECS Crossmatch Full IS.gru~VBECS Crossmatch Full IS.pln~Remarks	Comment	N/A		D	Comment	<input checked="" type="checkbox"/>	
VBECS Crossmatch IAT.gru~VBECS Crossmatch IAT.pln~Remarks	Comment	N/A		D	Comment	<input checked="" type="checkbox"/>	
VBECS Crossmatch IAT.gru~VBECS Crossmatch IAT.pln~X	AHG	N/A		D	AHG	<input checked="" type="checkbox"/>	
VBECS Crossmatch IAT.gru~VBECS Crossmatch IAT.pln~Xmatch	XMIInterp	N/A		D	XMIInterp	<input checked="" type="checkbox"/>	
VBECS DAT.gru~VBECS DAT.pln~DAT	DATInterp	N/A		D	DATInterp	<input checked="" type="checkbox"/>	
VBECS DAT.gru~VBECS DAT.pln~DAT IgG	AHG	N/A		D	AHG	<input checked="" type="checkbox"/>	
VBECS DAT.gru~VBECS DAT.pln~Remarks	Comment	N/A		D	Comment	<input checked="" type="checkbox"/>	
VBECS NEG Relyte.gru~VBECS NEG Relyte.pln~A	AntiA	N/A		D	AntiA	<input checked="" type="checkbox"/>	
VBECS NEG Relyte.gru~VBECS NEG Relyte.pln~B	AntiB	N/A		D	AntiB	<input checked="" type="checkbox"/>	
VBECS NEG Relyte.gru~VBECS NEG Relyte.pln~CTL	DControl	N/A		D	DControl	<input checked="" type="checkbox"/>	

5. Close **Configuration Options and Mappings** window.

 ***If mismatches in Test Codes names, missing or extra Test Codes are encountered, file a national CA SDM ticket to coordinate assistance with installation of the automated interface associated with VBECS 2.2.0 using template in Appendix E. Do not proceed until the issue is resolved.***

## 5 Set Up HL7 Connection to VBECS TEST



*Modifying rules or test code mappings as imported using this Instrument Manager configuration Setup Guide may lead to malfunction of the Automated Instrument to VBECS interface.*

1. Navigate to **Configuration -> Connection Assignment**.
2. On the **Connection Assignment** window click **Add** button.
3. Select **Configuration Name** *<HL7 Side Configuration>* (Figure 26).
4. Enter the **Connection Name** that matches the *<HL7 Side Configuration>* and word **Connection**. For example:

**HIN\_VBECS\_1\_Connection**

5. Check **Include in Specimen Management** check box (Figure 26).
6. Select **TCP/IP connection** in Device (Figure 26).

**Figure 26: Example of Connection Properties Window**

IM Connection Properties - HIN\_VBECS\_1\_Connection

Connection Name: HIN\_VBECS\_1\_Connection

Configuration Name: HIN\_VBECS\_1

Site:

Location:

☒ Start on System Start

Destination Line(s):

Number of Days to Keep

Incoming Messages: 3

Outgoing Messages: 3

Communications Trace: 3

Error Messages: 3

Driver Data: 3

Advanced Options

☐ Explode Coded Entries for this Connection

☒ Include in Specimen Management

Default userid:

☐ Update Specimen Management on Status Messages

☐ Include in Specimen Storage and Retrieval

Device

☐ NULL ☐ COM ☒ TCP/IP

Device Parameters ...

Close

7. Click on **Device Parameters** button.
8. Enter **TCP/IP Address** and **TCP/IP Port Number** that matches **VBECS TEST Application IP Address and IP Port Number** configured in **VBECS TEST Administrator** application for **Auto Instrument Interface** (Figure 27). (Please refer to *VistA Blood Establishment Computer Software (VBECS) 2.2.0 Technical Manual Security Guide* for instruction on how to configure interfaces for VBECS.)

**Figure 27: Example of TCP/IP Configuration Window**

The screenshot shows a window titled "IM TCP/IP Port Configuration - HIN\_VBECS\_1\_Connection". It contains two text input fields: "TCP / IP Address" with the placeholder text "<ip address>" and "TCP / IP Port Number" with the value "21995". Below these is a checkbox labeled "Send String When Opening Connection" which is currently unchecked. Under the checkbox is a text input field labeled "String to Send". A "Close" button is located at the bottom right of the window.

9. Close the **TCP/IP Port Configuration** window and click **Yes** to save.
10. Close the **Connection Properties** window and click **Yes** to save.
11. Verify that the newly created connection shows on the **Connection Assignment** window (Figure 28).

**Figure 28: Example of Newly Created Connection**

The screenshot shows a window titled "IM Connection Assignment". It features a table with two columns: "Connection Name" and a list of connections. The connection "HIN\_VBECS\_1\_Connection" is listed under the "Connection Name" column.

Connection Name
HIN_VBECS_1_Connection

This document is version controlled via approval signature. Do not assume that a printed, copied, or downloaded document is current. Consult the Electronic Document Control System to verify use of the current version.

## 6 Set Up Instrument Connection



Execute instructions in this section for each instrument that will be connecting to VBECS.



*Modifying connection settings in the Instrument Manager outside of this Setup Guide is not allowed and may lead to malfunction of the Automated Instrument to VBECS interface.*

1. On the **Connection Assignment** window, click **Add** button.
2. On the **Connection Properties** window, enter the **Connection Name**. Enter a name that contains *<Instrument Side Configuration>* and word **Connection**. For example:

### **HIN\_Erytra\_1\_Connection**

3. Select *<Instrument Side Configuration>* as **Configuration Name**.
4. Check **Include in Specimen Management** check box.
5. Select **TCP/IP connection**.
6. On the **Destination Lines** list, check the box next to connection configured in previous section (Figure 29).

**Figure 29: Example of Connection Properties Window**

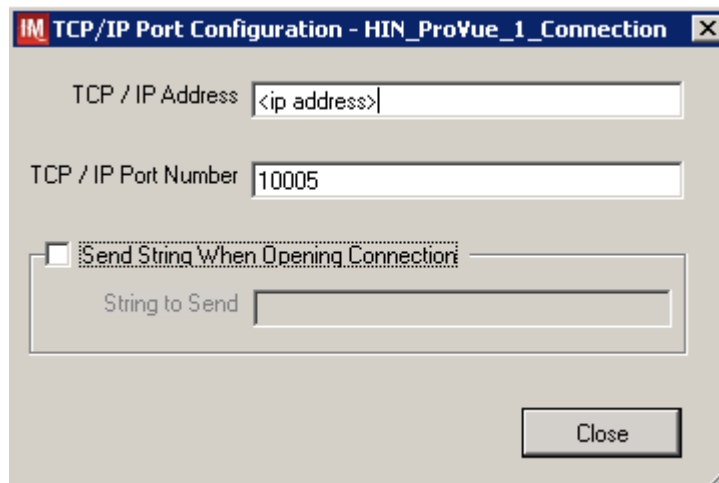
The screenshot displays the 'Connection Properties - HIN\_Erytra\_1\_Connection' window. Key elements include:

- Connection Name:** HIN\_Erytra\_1\_Connection
- Configuration Name:** HIN\_Erytra\_1 (highlighted with a red box)
- Site:** (empty dropdown)
- Location:** (empty dropdown)
- Start on System Start:** ☒
- Destination Line(s):** ☒ HIN\_VBECS\_1\_Connection (highlighted with a red box)
- Number of Days to Keep:**
  - Incoming Messages: 3
  - Outgoing Messages: 3
  - Communications Trace: 3
  - Error Messages: 3
  - Driver Data: 3
- Advanced Options:**
  - ☐ Explode Coded Entries for this Connection
  - ☒ Include in Specimen Management (highlighted with a red box)
  - Default userid: (empty text box)
  - ☐ Update Specimen Management on Status Messages
  - ☐ Include in Specimen Storage and Retrieval
- Device:**
  - ☐ NULL
  - ☐ COM
  - ☒ TCP/IP (highlighted with a red box)
- Buttons:** Device Parameters ..., Close

7. Click on **Device Parameters** button.
8. Enter **TCP/IP Address** and **TCP/IP Port Number** that matches *<Instrument IP>* and *<Instrument Port>* discussed in Section **Network Connectivity Setup**.
9. Uncheck **Send String When Opening Connection** check box (Figure 30).

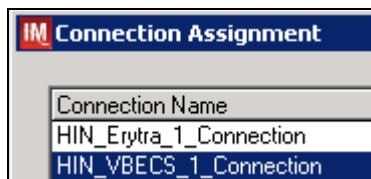


**Figure 30: Example of TCP/IP Configuration Window**



10. Click close on the **TCP/IP Port Configuration** window and click **Yes** to save.
11. Click close on the **Connection Properties** window and click **Yes** to save.
12. Verify the newly created connection shows on **Connection Assignment** window (Figure 31).
13. Close the **Connection Assignment** window.

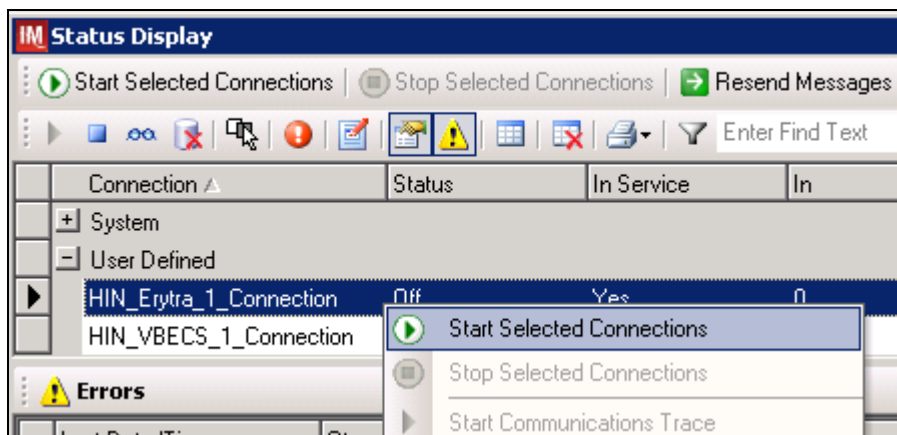
**Figure 31: Example of Newly Created Connection**



## 7 Test New Connections

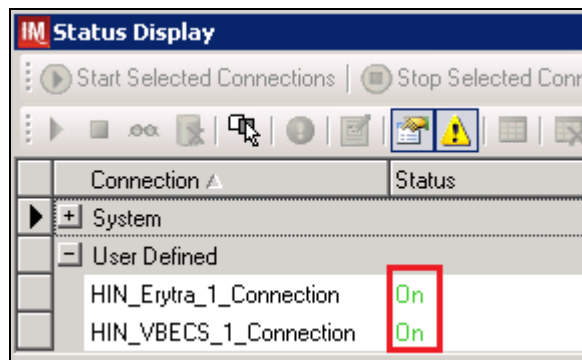
1. Navigate to **System -> Status**.
2. Right-click on each newly created connection and choose option to **Start Selected Connections** (Figure 32).

**Figure 32: Example of Connection Status Window**



3. Verify that all newly created connections are showing **Status** of **On** after about a minute or so. (Figure 33).

**Figure 33: Example of Successful Connection Test**




**STOP** If one or more connections fail to start, file a national CA SDM ticket to coordinate assistance with installation of the automated interface associated with VBECS 2.2.0 using template in Appendix E. Do not proceed until the issue is resolved.

4. Close the **Status Display**.

This document is version controlled via approval signature. Do not assume that a printed, copied, or downloaded document is current. Consult the Electronic Document Control System to verify use of the current version.

## 8 Validate Instrument connectivity to VBECS TEST

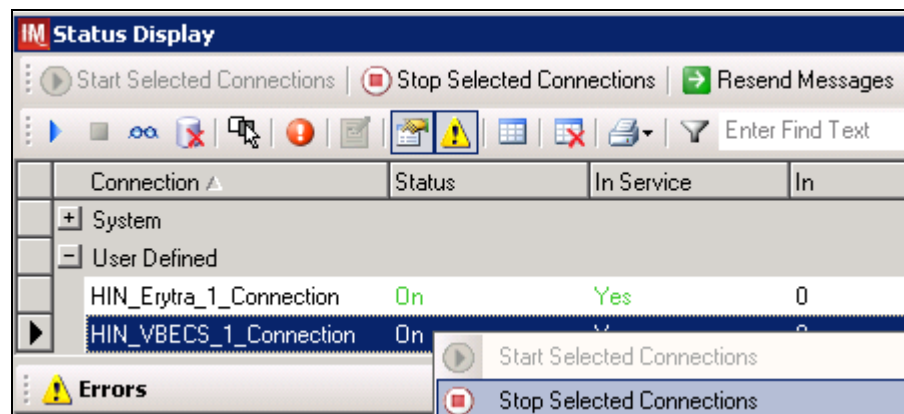
Execute validation instructions from *Appendix F* to verify that Instrument is properly interfacing with VBECS.

 ***If one or more validation scenarios fail, file a national CA SDM ticket to coordinate assistance with installation of the automated interface associated with VBECS 2.2.0 using template in Appendix E. Do not proceed until the issue is resolved.***

## 9 Set up HL7 Connection to VBECS PROD

1. Navigate to **System -> Status**.
2. Right-click <VBECS\_Connection> and choose option to **Stop Selected Connections** (Figure 34).

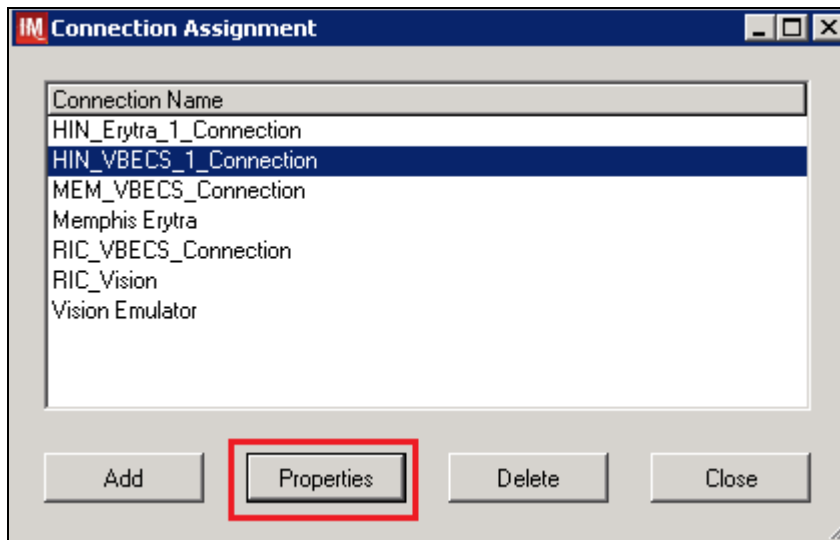
**Figure 34: Example of Stop Selected Connections**



3. Wait until connection status changes to **Off**. Navigate to **Configuration -> Connection Assignment**.
4. Select <VBECS\_Connection> and click **Properties** (Figure 35).

This document is version controlled via approval signature. Do not assume that a printed, copied, or downloaded document is current. Consult the Electronic Document Control System to verify use of the current version.

**Figure 35: Example of Connection Assignment**



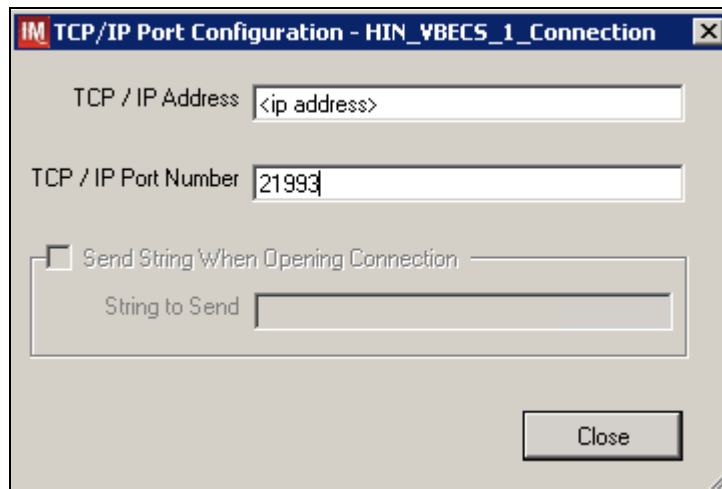
**5. On Connection Properties window click Device Parameters (Figure 36).**

**Figure 36: Example of Connection Properties**

6. Enter **TCP/IP Address** and **TCP/IP Port Number** that matches **VBECS PROD Application IP Address and IP Port Number** configured in **VBECS PROD Administrator** application for **Auto Instrument Interface** (Figure 37). Please refer to *VistA Blood Establishment Computer Software (VBECS) Technical Manual Security Guide* for instruction on how to configure interfaces for VBECS.

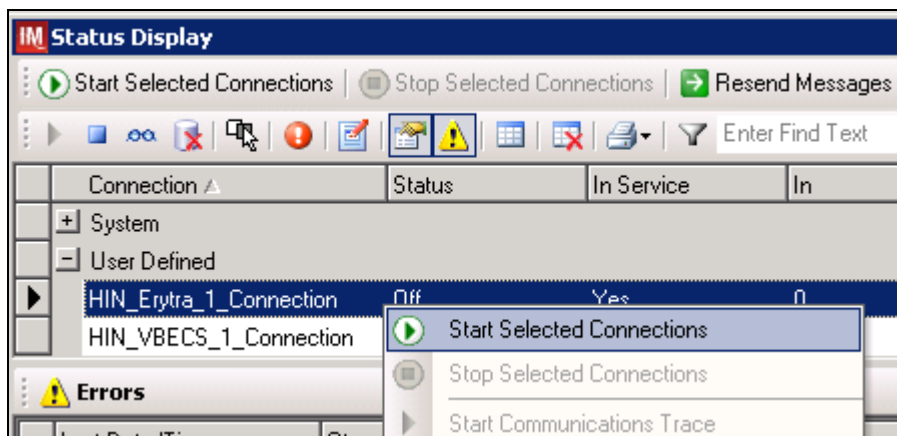
This document is version controlled via approval signature. Do not assume that a printed, copied, or downloaded document is current. Consult the Electronic Document Control System to verify use of the current version.

**Figure 37: Example of TCP/IP Configuration Window**



7. Close the **TCP/IP Port Configuration** and click **Yes** to confirm changes.
8. Close the **Connection Properties window** and click **Yes** to confirm changes.
9. Close the **Connection Assignment** window.
10. Navigate to **System -> Status**.
11. Right-click **<VBECS\_Connection>** and choose option to **Start Selected Connections** (Figure 38).

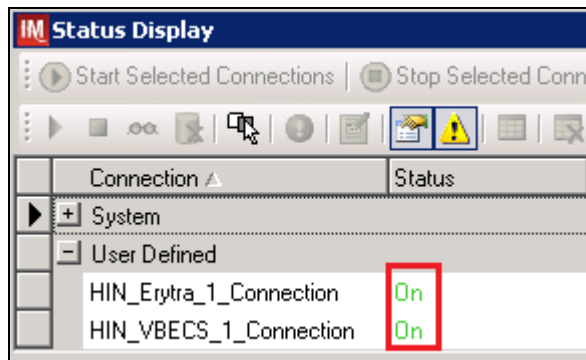
**Figure 38: Example of Connection Status Window**



12. Verify that **<VBECS\_Connection>** is showing Status of **On** after about a minute or so. (Figure 39).

This document is version controlled via approval signature. Do not assume that a printed, copied, or downloaded document is current. Consult the Electronic Document Control System to verify use of the current version.

**Figure 39: Example of Successful Connection Test**



*If connection fails to start, **file a national CA SDM ticket to coordinate assistance with installation using template in Appendix E. Do not proceed until the issue is resolved.***

13. Close the **Status Display** and Log Off the system.

## Glossary

Acronym, Term	Definition
<b>Automated Instrument</b>	Blood Bank Analyzer that performs blood testing.
<b>Division Code</b>	Also known as Station Number in Vista is the unique alphanumeric code that is associated with each hospital (e.g. 589 for VA Heartland West).
<b>Instrument Manager (IM)</b>	Software created by Data Innovations that serves as a middleware between Automated Instrument and VBECS. It translates messages containing test results sent from an instrument into HL7 messages that are then parsed into VBECS.
<b>VA</b>	Department of Veterans Affairs.
<b>VBECS</b>	VistA Blood Establishment Computer Software.
<b>VistA</b>	Veterans Health Information Systems and Technology Architecture. VistA software, developed by the VA, is used to support clinical and administrative functions at VA Medical Centers nationwide. VistA is composed of packages that undergo a verification process to ensure conformity with name spacing and other VistA standards and conventions.

This document is version controlled via approval signature. Do not assume that a printed, copied, or downloaded document is current. Consult the Electronic Document Control System to verify use of the current version.



## Appendices

### Appendix A: Instrument Side Mapping

**Table 1: Instrument Side Mapping**

Instrument Test Code	IM Test Code	Display Name
VBECs ABDRev.gru^VBECs ABDRev.pln^A	VBECs ABDRev.gru^VBECs ABDRev.pln^A	AntiA
VBECs ABDRev.gru^VBECs ABDRev.pln^B	VBECs ABDRev.gru^VBECs ABDRev.pln^B	AntiB
VBECs ABDRev.gru^VBECs ABDRev.pln^CTL	VBECs ABDRev.gru^VBECs ABDRev.pln^CTL	DControl
VBECs ABDRev.gru^VBECs ABDRev.pln^D	VBECs ABDRev.gru^VBECs ABDRev.pln^D	AntiD
VBECs ABDRev.gru^VBECs ABDRev.pln^Group	VBECs ABDRev.gru^VBECs ABDRev.pln^Group	ABOInterp
VBECs ABDRev.gru^VBECs ABDRev.pln^rA1	VBECs ABDRev.gru^VBECs ABDRev.pln^rA1	A1Cells
VBECs ABDRev.gru^VBECs ABDRev.pln^rB	VBECs ABDRev.gru^VBECs ABDRev.pln^rB	BCells
VBECs ABDRev.gru^VBECs ABDRev.pln^Remarks	VBECs ABDRev.gru^VBECs ABDRev.pln^Remarks	Comment
VBECs ABDRev.gru^VBECs ABDRev.pln^Rh	VBECs ABDRev.gru^VBECs ABDRev.pln^Rh	RhInterp
VBECs ABS 2 Cell.gru^VBECs ABS 2 Cell.pln^I+	VBECs ABS 2 Cell.gru^VBECs ABS 2 Cell.pln^I+	SC1
VBECs ABS 2 Cell.gru^VBECs ABS 2 Cell.pln^II+	VBECs ABS 2 Cell.gru^VBECs ABS 2 Cell.pln^II+	SC2
VBECs ABS 2 Cell.gru^VBECs ABS 2 Cell.pln^Remarks	VBECs ABS 2 Cell.gru^VBECs ABS 2 Cell.pln^Remarks	Comment
VBECs ABS 2 Cell.gru^VBECs ABS 2 Cell.pln^Scr 2+	VBECs ABS 2 Cell.gru^VBECs ABS 2 Cell.pln^Scr 2+	ABSInterp
VBECs ABS 3 Cell.gru^VBECs ABS 3 Cell.pln^I	VBECs ABS 3 Cell.gru^VBECs ABS 3 Cell.pln^I	SC1
VBECs ABS 3 Cell.gru^VBECs ABS 3 Cell.pln^II	VBECs ABS 3 Cell.gru^VBECs ABS 3 Cell.pln^II	SC2
VBECs ABS 3 Cell.gru^VBECs ABS 3 Cell.pln^III	VBECs ABS 3 Cell.gru^VBECs ABS 3 Cell.pln^III	SC3
VBECs ABS 3 Cell.gru^VBECs ABS 3 Cell.pln^Remarks	VBECs ABS 3 Cell.gru^VBECs ABS 3 Cell.pln^Remarks	Comment
VBECs ABS 3 Cell.gru^VBECs ABS 3 Cell.pln^Scr 3	VBECs ABS 3 Cell.gru^VBECs ABS 3 Cell.pln^Scr 3	ABSInterp
VBECs Crossmatch Full IAT.gru^VBECs Crossmatch Full IAT.pln^X	VBECs Crossmatch Full IAT.gru^VBECs Crossmatch Full IAT.pln^X	AHG
VBECs Crossmatch Full IAT.gru^VBECs Crossmatch Full IAT.pln^Xmatch	VBECs Crossmatch Full IAT.gru^VBECs Crossmatch Full IAT.pln^Xmatch	AHGInterp
VBECs Crossmatch Full IS.gru^VBECs Crossmatch Full IS.pln^ISX	VBECs Crossmatch Full IS.gru^VBECs Crossmatch Full IS.pln^ISX	IS
VBECs Crossmatch Full IS.gru^VBECs Crossmatch Full IS.pln^ISXmatch	VBECs Crossmatch Full IS.gru^VBECs Crossmatch Full IS.pln^ISXmatch	ISInterp
VBECs Crossmatch Full IS.gru^VBECs Crossmatch Full IS.pln^Remarks	VBECs Crossmatch Full IS.gru^VBECs Crossmatch Full IS.pln^Remarks	Comment
VBECs Crossmatch IAT.gru^VBECs Crossmatch IAT.pln^Remarks	VBECs Crossmatch IAT.gru^VBECs Crossmatch IAT.pln^Remarks	Comment

This document is version controlled via approval signature. Do not assume that a printed, copied, or downloaded document is current. Consult the Electronic Document Control System to verify use of the current version.

Instrument Test Code	IM Test Code	Display Name
VBECs Crossmatch IAT.gru^VBECs Crossmatch IAT.pln^X	VBECs Crossmatch IAT.gru^VBECs Crossmatch IAT.pln^X	AHG
VBECs Crossmatch IAT.gru^VBECs Crossmatch IAT.pln^Xmatch	VBECs Crossmatch IAT.gru^VBECs Crossmatch IAT.pln^Xmatch	XMIInterp
VBECs DAT.gru^VBECs DAT.pln^DAT	VBECs DAT.gru^VBECs DAT.pln^DAT	DATInterp
VBECs DAT.gru^VBECs DAT.pln^DAT IgG	VBECs DAT.gru^VBECs DAT.pln^DAT IgG	AHG
VBECs DAT.gru^VBECs DAT.pln^Remarks	VBECs DAT.gru^VBECs DAT.pln^Remarks	Comment
VBECs NEG Retype.gru^VBECs NEG Retype.pln^A	VBECs NEG Retype.gru^VBECs NEG Retype.pln^A	AntiA
VBECs NEG Retype.gru^VBECs NEG Retype.pln^B	VBECs NEG Retype.gru^VBECs NEG Retype.pln^B	AntiB
VBECs NEG Retype.gru^VBECs NEG Retype.pln^CTL	VBECs NEG Retype.gru^VBECs NEG Retype.pln^CTL	DControl
VBECs NEG Retype.gru^VBECs NEG Retype.pln^D	VBECs NEG Retype.gru^VBECs NEG Retype.pln^D	AntiD
VBECs NEG Retype.gru^VBECs NEG Retype.pln^Fwd Gr	VBECs NEG Retype.gru^VBECs NEG Retype.pln^Fwd Gr	ABOInterp
VBECs NEG Retype.gru^VBECs NEG Retype.pln^Remarks	VBECs NEG Retype.gru^VBECs NEG Retype.pln^Remarks	Comment
VBECs NEG Retype.gru^VBECs NEG Retype.pln^Rh	VBECs NEG Retype.gru^VBECs NEG Retype.pln^Rh	RhInterp
VBECs Phenotype Kell.gru^VBECs Phenotype Kell.pln^K	VBECs Phenotype Kell.gru^VBECs Phenotype Kell.pln^K	AntiK
VBECs Phenotype Kell.gru^VBECs Phenotype Kell.pln^Remarks	VBECs Phenotype Kell.gru^VBECs Phenotype Kell.pln^Remarks	Comment
VBECs Phenotype Rh.gru^VBECs Phenotype Rh.pln^C	VBECs Phenotype Rh.gru^VBECs Phenotype Rh.pln^C	AntiC
VBECs Phenotype Rh.gru^VBECs Phenotype Rh.pln^E	VBECs Phenotype Rh.gru^VBECs Phenotype Rh.pln^E	AntiE
VBECs Phenotype Rh.gru^VBECs Phenotype Rh.pln^Remarks	VBECs Phenotype Rh.gru^VBECs Phenotype Rh.pln^Remarks	Comment
VBECs Phenotype Rh.gru^VBECs Phenotype Rh.pln^sm c	VBECs Phenotype Rh.gru^VBECs Phenotype Rh.pln^sm c	Antic
VBECs Phenotype Rh.gru^VBECs Phenotype Rh.pln^sm e	VBECs Phenotype Rh.gru^VBECs Phenotype Rh.pln^sm e	Antie
VBECs POS Retype.gru^VBECs POS Retype.pln^A	VBECs POS Retype.gru^VBECs POS Retype.pln^A	AntiA
VBECs POS Retype.gru^VBECs POS Retype.pln^B	VBECs POS Retype.gru^VBECs POS Retype.pln^B	AntiB
VBECs POS Retype.gru^VBECs POS Retype.pln^Fwd Gr	VBECs POS Retype.gru^VBECs POS Retype.pln^Fwd Gr	ABOInterp
VBECs POS Retype.gru^VBECs POS Retype.pln^Remarks	VBECs POS Retype.gru^VBECs POS Retype.pln^Remarks	Comment
VBECs TAS 2 Cell.gru^VBECs TAS 2 Cell.pln^A	VBECs TAS 2 Cell.gru^VBECs TAS 2 Cell.pln^A	AntiA
VBECs TAS 2 Cell.gru^VBECs TAS 2 Cell.pln^B	VBECs TAS 2 Cell.gru^VBECs TAS 2 Cell.pln^B	AntiB

This document is version controlled via approval signature. Do not assume that a printed, copied, or downloaded document is current. Consult the Electronic Document Control System to verify use of the current version.

Instrument Test Code	IM Test Code	Display Name
VBECs TAS 2 Cell.gru^VBECs TAS 2 Cell.pln^CTL	VBECs TAS 2 Cell.gru^VBECs TAS 2 Cell.pln^CTL	DControl
VBECs TAS 2 Cell.gru^VBECs TAS 2 Cell.pln^D	VBECs TAS 2 Cell.gru^VBECs TAS 2 Cell.pln^D	AntiD
VBECs TAS 2 Cell.gru^VBECs TAS 2 Cell.pln^Group	VBECs TAS 2 Cell.gru^VBECs TAS 2 Cell.pln^Group	ABOInterp
VBECs TAS 2 Cell.gru^VBECs TAS 2 Cell.pln^I+	VBECs TAS 2 Cell.gru^VBECs TAS 2 Cell.pln^I+	SC1
VBECs TAS 2 Cell.gru^VBECs TAS 2 Cell.pln^II+	VBECs TAS 2 Cell.gru^VBECs TAS 2 Cell.pln^II+	SC2
VBECs TAS 2 Cell.gru^VBECs TAS 2 Cell.pln^rA1	VBECs TAS 2 Cell.gru^VBECs TAS 2 Cell.pln^rA1	A1Cells
VBECs TAS 2 Cell.gru^VBECs TAS 2 Cell.pln^rB	VBECs TAS 2 Cell.gru^VBECs TAS 2 Cell.pln^rB	BCells
VBECs TAS 2 Cell.gru^VBECs TAS 2 Cell.pln^Remarks	VBECs TAS 2 Cell.gru^VBECs TAS 2 Cell.pln^Remarks	Comment
VBECs TAS 2 Cell.gru^VBECs TAS 2 Cell.pln^Rh	VBECs TAS 2 Cell.gru^VBECs TAS 2 Cell.pln^Rh	RhInterp
VBECs TAS 2 Cell.gru^VBECs TAS 2 Cell.pln^Scr 2+	VBECs TAS 2 Cell.gru^VBECs TAS 2 Cell.pln^Scr 2+	ABSInterp
VBECs TAS 3 Cell.gru^VBECs TAS 3 Cell.pln^A	VBECs TAS 3 Cell.gru^VBECs TAS 3 Cell.pln^A	AntiA
VBECs TAS 3 Cell.gru^VBECs TAS 3 Cell.pln^B	VBECs TAS 3 Cell.gru^VBECs TAS 3 Cell.pln^B	AntiB
VBECs TAS 3 Cell.gru^VBECs TAS 3 Cell.pln^CTL	VBECs TAS 3 Cell.gru^VBECs TAS 3 Cell.pln^CTL	DControl
VBECs TAS 3 Cell.gru^VBECs TAS 3 Cell.pln^D	VBECs TAS 3 Cell.gru^VBECs TAS 3 Cell.pln^D	AntiD
VBECs TAS 3 Cell.gru^VBECs TAS 3 Cell.pln^Group	VBECs TAS 3 Cell.gru^VBECs TAS 3 Cell.pln^Group	ABOInterp
VBECs TAS 3 Cell.gru^VBECs TAS 3 Cell.pln^I	VBECs TAS 3 Cell.gru^VBECs TAS 3 Cell.pln^I	SC1
VBECs TAS 3 Cell.gru^VBECs TAS 3 Cell.pln^II	VBECs TAS 3 Cell.gru^VBECs TAS 3 Cell.pln^II	SC2
VBECs TAS 3 Cell.gru^VBECs TAS 3 Cell.pln^III	VBECs TAS 3 Cell.gru^VBECs TAS 3 Cell.pln^III	SC3
VBECs TAS 3 Cell.gru^VBECs TAS 3 Cell.pln^rA1	VBECs TAS 3 Cell.gru^VBECs TAS 3 Cell.pln^rA1	A1Cells
VBECs TAS 3 Cell.gru^VBECs TAS 3 Cell.pln^rB	VBECs TAS 3 Cell.gru^VBECs TAS 3 Cell.pln^rB	BCells
VBECs TAS 3 Cell.gru^VBECs TAS 3 Cell.pln^Remarks	VBECs TAS 3 Cell.gru^VBECs TAS 3 Cell.pln^Remarks	Comment
VBECs TAS 3 Cell.gru^VBECs TAS 3 Cell.pln^Rh	VBECs TAS 3 Cell.gru^VBECs TAS 3 Cell.pln^Rh	RhInterp
VBECs TAS 3 Cell.gru^VBECs TAS 3 Cell.pln^Scr 3	VBECs TAS 3 Cell.gru^VBECs TAS 3 Cell.pln^Scr 3	ABSInterp

This document is version controlled via approval signature. Do not assume that a printed, copied, or downloaded document is current. Consult the Electronic Document Control System to verify use of the current version.

## Appendix B: HL7 (VBECS) Side Mapping

Table 2: HL7 (VBECS) Side Mapping

Instrument Test Code	IM Test Code
VBECS ABDRev.gru^VBECS ABDRev.pln^A	AntiA
VBECS ABDRev.gru^VBECS ABDRev.pln^B	AntiB
VBECS ABDRev.gru^VBECS ABDRev.pln^CTL	DControl
VBECS ABDRev.gru^VBECS ABDRev.pln^D	AntiD
VBECS ABDRev.gru^VBECS ABDRev.pln^Group	ABOInterp
VBECS ABDRev.gru^VBECS ABDRev.pln^rA1	A1Cells
VBECS ABDRev.gru^VBECS ABDRev.pln^rB	BCells
VBECS ABDRev.gru^VBECS ABDRev.pln^Remarks	Comment
VBECS ABDRev.gru^VBECS ABDRev.pln^Rh	RhInterp
VBECS ABS 2 Cell.gru^VBECS ABS 2 Cell.pln^I+	SC1
VBECS ABS 2 Cell.gru^VBECS ABS 2 Cell.pln^II+	SC2
VBECS ABS 2 Cell.gru^VBECS ABS 2 Cell.pln^Remarks	Comment
VBECS ABS 2 Cell.gru^VBECS ABS 2 Cell.pln^Scr 2+	ABSInterp
VBECS ABS 3 Cell.gru^VBECS ABS 3 Cell.pln^I	SC1
VBECS ABS 3 Cell.gru^VBECS ABS 3 Cell.pln^II	SC2
VBECS ABS 3 Cell.gru^VBECS ABS 3 Cell.pln^III	SC3
VBECS ABS 3 Cell.gru^VBECS ABS 3 Cell.pln^Remarks	Comment
VBECS ABS 3 Cell.gru^VBECS ABS 3 Cell.pln^Scr 3	ABSInterp
VBECS Crossmatch Full IAT.gru^VBECS Crossmatch Full IAT.pln^X	AHG
VBECS Crossmatch Full IAT.gru^VBECS Crossmatch Full IAT.pln^Xmatch	AHGInterp
VBECS Crossmatch Full IS.gru^VBECS Crossmatch Full IS.pln^ISX	IS
VBECS Crossmatch Full IS.gru^VBECS Crossmatch Full IS.pln^ISXmatch	ISInterp
VBECS Crossmatch Full IS.gru^VBECS Crossmatch Full IS.pln^Remarks	Comment
VBECS Crossmatch IAT.gru^VBECS Crossmatch IAT.pln^Remarks	Comment
VBECS Crossmatch IAT.gru^VBECS Crossmatch IAT.pln^X	AHG
VBECS Crossmatch IAT.gru^VBECS Crossmatch IAT.pln^Xmatch	XMIInterp
VBECS DAT.gru^VBECS DAT.pln^DAT	DATInterp
VBECS DAT.gru^VBECS DAT.pln^DAT IgG	AHG
VBECS DAT.gru^VBECS DAT.pln^Remarks	Comment
VBECS NEG Retype.gru^VBECS NEG Retype.pln^A	AntiA
VBECS NEG Retype.gru^VBECS NEG Retype.pln^B	AntiB
VBECS NEG Retype.gru^VBECS NEG Retype.pln^CTL	DControl
VBECS NEG Retype.gru^VBECS NEG Retype.pln^D	AntiD

This document is version controlled via approval signature. Do not assume that a printed, copied, or downloaded document is current. Consult the Electronic Document Control System to verify use of the current version.

Instrument Test Code	IM Test Code
VBECS NEG Retype.gru^VBECS NEG Retype.pln^Fwd Gr	ABOInterp
VBECS NEG Retype.gru^VBECS NEG Retype.pln^Remarks	Comment
VBECS NEG Retype.gru^VBECS NEG Retype.pln^Rh	RhInterp
VBECS Phenotype Kell.gru^VBECS Phenotype Kell.pln^K	AntiK
VBECS Phenotype Kell.gru^VBECS Phenotype Kell.pln^Remarks	Comment
VBECS Phenotype Rh.gru^VBECS Phenotype Rh.pln^C	AntiC
VBECS Phenotype Rh.gru^VBECS Phenotype Rh.pln^E	AntiE
VBECS Phenotype Rh.gru^VBECS Phenotype Rh.pln^Remarks	Comment
VBECS Phenotype Rh.gru^VBECS Phenotype Rh.pln^sm c	Antic
VBECS Phenotype Rh.gru^VBECS Phenotype Rh.pln^sm e	Antie
VBECS POS Retype.gru^VBECS POS Retype.pln^A	AntiA
VBECS POS Retype.gru^VBECS POS Retype.pln^B	AntiB
VBECS POS Retype.gru^VBECS POS Retype.pln^Fwd Gr	ABOInterp
VBECS POS Retype.gru^VBECS POS Retype.pln^Remarks	Comment
VBECS TAS 2 Cell.gru^VBECS TAS 2 Cell.pln^A	AntiA
VBECS TAS 2 Cell.gru^VBECS TAS 2 Cell.pln^B	AntiB
VBECS TAS 2 Cell.gru^VBECS TAS 2 Cell.pln^CTL	DControl
VBECS TAS 2 Cell.gru^VBECS TAS 2 Cell.pln^D	AntiD
VBECS TAS 2 Cell.gru^VBECS TAS 2 Cell.pln^Group	ABOInterp
VBECS TAS 2 Cell.gru^VBECS TAS 2 Cell.pln^I+	SC1
VBECS TAS 2 Cell.gru^VBECS TAS 2 Cell.pln^II+	SC2
VBECS TAS 2 Cell.gru^VBECS TAS 2 Cell.pln^rA1	A1Cells
VBECS TAS 2 Cell.gru^VBECS TAS 2 Cell.pln^rB	BCells
VBECS TAS 2 Cell.gru^VBECS TAS 2 Cell.pln^Remarks	Comment
VBECS TAS 2 Cell.gru^VBECS TAS 2 Cell.pln^Rh	RhInterp
VBECS TAS 2 Cell.gru^VBECS TAS 2 Cell.pln^Scr 2+	ABSInterp
VBECS TAS 3 Cell.gru^VBECS TAS 3 Cell.pln^A	AntiA
VBECS TAS 3 Cell.gru^VBECS TAS 3 Cell.pln^B	AntiB
VBECS TAS 3 Cell.gru^VBECS TAS 3 Cell.pln^CTL	DControl
VBECS TAS 3 Cell.gru^VBECS TAS 3 Cell.pln^D	AntiD
VBECS TAS 3 Cell.gru^VBECS TAS 3 Cell.pln^Group	ABOInterp
VBECS TAS 3 Cell.gru^VBECS TAS 3 Cell.pln^I	SC1
VBECS TAS 3 Cell.gru^VBECS TAS 3 Cell.pln^II	SC2
VBECS TAS 3 Cell.gru^VBECS TAS 3 Cell.pln^III	SC3
VBECS TAS 3 Cell.gru^VBECS TAS 3 Cell.pln^rA1	A1Cells
VBECS TAS 3 Cell.gru^VBECS TAS 3 Cell.pln^rB	BCells
VBECS TAS 3 Cell.gru^VBECS TAS 3 Cell.pln^Remarks	Comment

This document is version controlled via approval signature. Do not assume that a printed, copied, or downloaded document is current. Consult the Electronic Document Control System to verify use of the current version.

Instrument Test Code	IM Test Code
VBECS TAS 3 Cell.gru^VBECS TAS 3 Cell.pln^Rh	RhInterp
VBECS TAS 3 Cell.gru^VBECS TAS 3 Cell.pln^Scr 3	ABSInterp

## ***Appendix C: Rules***

### **--- Test / In Validation - Incoming result - Before Message Queued Internally ---**

#### **Rule # 1**

Desc - SetInstrumentID  
If - {Always}  
Then - {Set} {Instrument ID} = ""

#### **Rule # 2**

Desc - SetReceivingFacility  
If - {Always}  
Then - {Set} {Receiving Facility} = ""

#### **Rule # 3**

Desc - Set Test Name for XM  
If - {Test Code} {On Any Test} {Contains} "Crossmatch"  
Then - {Set} {Test Code Sub ID} {On That Test} = "XM"

#### **Rule # 4**

Desc - Set Test Name for TAS  
Child of Rule # 3 - Else  
If - {Test Code} {On Any Test} {Contains} "TAS"  
Then - {Set} {Test Code Sub ID} {On That Test} = "TAS"

#### **Rule # 5**

Desc - Set Test Name for DAT  
Child of Rule # 4 - Else  
If - {Test Code} {On Any Test} {Contains} "DAT"  
Then - {Set} {Test Code Sub ID} {On That Test} = "DAT"

#### **Rule # 6**

Desc - Set Test Name for Patient ABORh  
Child of Rule # 5 - Else  
If - {Test Code} {On Any Test} {Contains} "ABDRev"  
Then - {Set} {Test Code Sub ID} {On That Test} = "Patient ABORh"

#### **Rule # 7**

Desc - Set Test Name for ABS  
Child of Rule # 6 - Else  
If - {Test Code} {On Any Test} {Contains} "ABS"  
Then - {Set} {Test Code Sub ID} {On That Test} = "ABS"

#### **Rule # 8**

Desc - Set Test Name for Unit ABORh  
Child of Rule # 7 - Else  
If - {Test Code} {On Any Test} {Contains} "Retype"  
Then - {Set} {Test Code Sub ID} {On That Test} = "Unit ABORh"

#### **Rule # 9**

Desc - Set Test Name for Antigen Typing  
Child of Rule # 8 - Else  
If - {Test Code} {On Any Test} {Contains} "Phenotype"  
Then - {Set} {Test Code Sub ID} {On That Test} = "Antigen Typing"

This document is version controlled via approval signature. Do not assume that a printed, copied, or downloaded document is current. Consult the Electronic Document Control System to verify use of the current version.

Rule # 10

Desc - ZeroTestResult  
If - {Result} {On Any Test} = "-"  
Then - {Set} {Result} {On That Test} = "0"

Rule # 11

Desc - MZeroTestResult  
If - {Result} {On Any Test} = "M-"  
Then - {Set} {Result} {On That Test} = "0"

Rule # 12

Desc - MOneTestResult  
If - {Result} {On Any Test} = "M1+"  
Then - {Set} {Result} {On That Test} = "1+"

Rule # 13

Desc - MTwoTestResult  
If - {Result} {On Any Test} = "M2+"  
Then - {Set} {Result} {On That Test} = "2+"

Rule # 14

Desc - MThreeTestResult  
If - {Result} {On Any Test} = "M3+"  
Then - {Set} {Result} {On That Test} = "3+"

Rule # 15

Desc - MFourTestResult  
If - {Result} {On Any Test} = "M4+"  
Then - {Set} {Result} {On That Test} = "4+"

Rule # 16

Desc - DonorID  
If - ( ( {Length of} {Specimen ID} = "16" ) {AND} ( {Specimen ID} {Contains} "=" ) )  
Then - {Set} {Specimen ID} = {Extract Section of} {Specimen ID} {From} "2" {To} "14"

Rule # 17

Desc - DonorIDForProductID  
If - ( ( {Length of} {Product ID} {On Test} {Value List:crossmatch} = "16" ) {AND} ( {Product ID} {On Test} {Value List:crossmatch} {Contains} "=" ) )  
Then - {Set} {Product ID} {On Test} {Value List:crossmatch} = {Extract Section of} {Product ID} {On Test} {Value List:crossmatch} {From} "2" {To} "14"

Value List

"Row Enabled","crossmatch"  
"1","VBECS Crossmatch IAT.gru^VBECS Crossmatch IAT.pln^X"  
"1","VBECS Crossmatch IAT.gru^VBECS Crossmatch IAT.pln^Xmatch"  
"1","VBECS Crossmatch IAT.gru^VBECS Crossmatch IAT.pln^Remarks"  
"1","VBECS Crossmatch Full IAT.gru^VBECS Crossmatch Full IAT.pln^X"  
"1","VBECS Crossmatch Full IAT.gru^VBECS Crossmatch Full IAT.pln^Xmatch"  
"1","VBECS Crossmatch Full IAT.gru^VBECS Crossmatch Full IAT.pln^Remarks"  
"1","VBECS Crossmatch Full IS.gru^VBECS Crossmatch Full IS.pln^ISX"  
"1","VBECS Crossmatch Full IS.gru^VBECS Crossmatch Full IS.pln^ISXmatch"  
"1","VBECS Crossmatch Full IS.gru^VBECS Crossmatch Full IS.pln^Remarks"



## Appendix D: Testing Templates

**Table 3: Testing Templates**

Template Name	Selected Fields	VBECS Test	Test Component
VBECS ABDRev.gru VBECS ABDRev.pln	A B rA1 rB D CTL Group RH Remarks	Patient ABO/Rh	Anti-A Anti-B A1 Cells B Cells Anti-D D Control ABO Interp Rh Interp Comments
VBECS ABS 2 Cell.gru VBECS ABS 2 Cell.pln	I II Scr 2+ Remarks	Antibody Screen (2 Cell)	Screening Cells1 Screening Cells2 ABS Interp Comments
VBECS ABS 3 Cell.gru VBECS ABS 3 Cell.pln	I II III Scr 3 Remarks	Antibody Screen (3 Cell)	Screening Cells1 Screening Cells 2 Screening Cells 3 ABS Interp Comments
VBECS TAS 2 Cell.gru VBECS TAS 2 Cell.pln	A B rA1 rB D CTL Group RH I II Scr 2+ Remarks	Type and Screen (2 Cell Screen)	Anti-A Anti-B A1 Cells B Cells Anti-D D Control ABO Interp Rh Interp Screening Cells1 Screening Cells2 ABS Interp Comments
VBECS TAS 3 Cell.gru VBECS TAS 3 Cell.pln	A B rA1 rB D CTL Group RH I II III Scr 3 Remarks	Type and Screen (3 Cell Screen)	Anti-A Anti-B A1 Cells B Cells Anti-D D Control ABO Interp Rh Interp Screening Cells1 Screening Cells2 Screening Cells 3 ABS Interp Comments
VBECS DAT.gru VBECS DAT.pln	DAT DAT IgG Remarks	DAT	AHG DAT Interp Comment
VBECS Crossmatch IAT.gru VBECS Crossmatch IAT.pln	X Xmatch Remarks	Crossmatch (IAT only)	AHG XM Interp Comments

This document is version controlled via approval signature. Do not assume that a printed, copied, or downloaded document is current. Consult the Electronic Document Control System to verify use of the current version.

Template Name	Selected Fields	VBECS Test	Test Component
VBECS Crossmatch Full IS.gru VBECS Crossmatch Full IS.pln	ISX ISXmatch Remarks	Full Crossmatch (IS + IAT)	IS IS Interp Comments
VBECS Crossmatch Full IAT.gru VBECS Crossmatch Full IAT.pln	X Xmatch Remarks	Full Crossmatch (IS + IAT)	AHG AHG Interp Comments
VBECS POS Retype.gru VBECS POS Retype.pln	A B Fwd Gr Remarks	Unit ABO/Rh Confirmation	Anti-A Anti-B ABO Interp Comments
VBECS NEG Retype.gru VBECS NEG Retype.pln	A B D CTL Fwd Gr Rh Remarks	Unit ABO/Rh Confirmation	Anti-A Anti-B Anti-A,B Anti-D ABO Interp Rh Interp Comments
VBECS Phenotype RH.gru VBECS Phenotype RH.pln	C E sm c sm e Rh Pheno Remarks	Patient and Unit Antigen Typing (RH)	Anti-C Anti-E Anti-c Anti-e N/A Comment
VBECS Phenotype Kell.gru VBECS Phenotype Kell.pln	K K Ag Remarks	Patient and Unit Antigen Typing (K)	Anti-K K Interp Comment

## ***Appendix E: CA SDM Support Ticket Template***

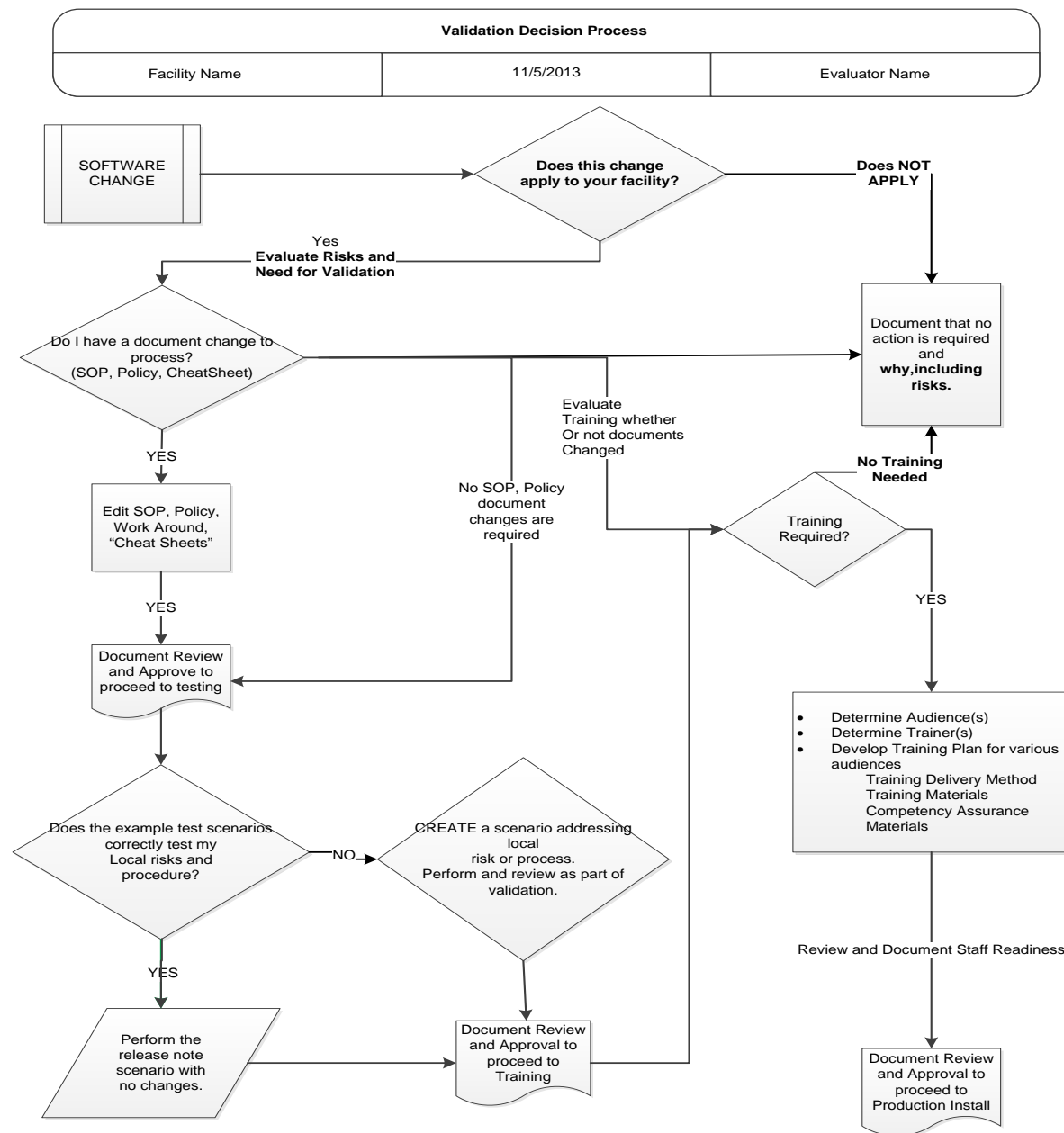
Please use the following to complete your ticket:

- **Incident area:** NTL.APP.HealtheVet VistA.VBECS 2\_0
- **Summary:** VBECS 2.2.0 Automated Instrument configuration assistance request
- **Description:**
  - Enter contact information for the main blood bank and the name of the responsible individual(s) for all communications.
  - Enter preferred date and time.
- **Property Questions:** Respond NO to the required questions.
- **Group:** automatically fills in correctly do not change it from. *NTL Alert Blood Bank & VBECS*
- **Add additional information as required.**

This page intentionally left blank.

## Appendix F: Validation Planning and Example Test Scenarios

The following is a flowchart to help assess any one change and plan accordingly.



This document is version controlled via approval signature. Do not assume that a printed, copied, or downloaded document is current. Consult the Electronic Document Control System to verify use of the current version.



*These are examples of test scenarios. Each site is responsible for evaluating changes for their intended use, assess risk, and for establishing additional validation test scenarios.*

*All test scenarios have a suggested user role, this may require adjustment to align with the patient or unit data selected to execute the scenario. Process any overrides as well, based on patient or unit selection.*

*\*The Expected Outcome numbering corresponds to the Step number where the change verification appears.*

## Test Group One: AI interface disabled

**Test Objective:** Demonstrate that the system will reject test results sent from automated instrument if the Automated Instrument interface is disabled.

**Option: VBECS Administrator, Automated Instrument Interface**

**At least one instrument available in any division and configured for connection with VBECS via Instrument Manager.**

**Note:** This may be executed at only one division if VBECS is used in a multidivisional configuration as the interface is enabled/disabled for all or none.

Data	<p>Before beginning, verify current configuration, activity, and status of the existing interfaces, VistALink, and CPRS in your test account.</p> <p>Make sure that the VBECS-OERR HL7 link in VistA is NOT shutdown.</p> <ol style="list-style-type: none"> <li>1. Create RBC and TAS orders in CPRS and accept them in VBECS.</li> </ol>
User	<p>VBECS Administrator access is required to configure the AUTOMATED TESTING interface.</p> <p>No specific user role is required to process TAS and RBC orders in VBECS.</p>
Steps	<ol style="list-style-type: none"> <li>1. Log into VBECS Administrator:</li> <li>2. Disable the AUTOMATED TESTING interface using Configure Interfaces option.</li> <li>3. A message appears (You are about to disable Auto Instrument Interface. It will cause VBECS to stop sending and receiving messages via that interface. Continue?), Click Yes.</li> <li>4. Close the window as all fields are disabled.</li> <li>5. Perform TAS test on the instrument and send results of testing to VBECS</li> </ol>
Expected Outcome	<ol style="list-style-type: none"> <li>5. Verify that after sending test results from an instrument fails it is possible to complete TAS test using manual testing grids and subsequently issue and transfuse blood unit to a patient.</li> </ol>
Reports:	<ol style="list-style-type: none"> <li>6. Review the Audit Trail report for changes to the interface.</li> </ol>

This document is version controlled via approval signature. Do not assume that a printed, copied, or downloaded document is current. Consult the Electronic Document Control System to verify use of the current version.

## Test Group Two: Verify AI individual test(s)

**Test Objective:** Demonstrate that the system will allow the selected user role to perform normal workflow activities using your local blood bank testing instrument.

**Note:** Validate all tests that are performed at your site using an automated instrument.



Prior to initiating any testing of the automated instrument interface, see the VistA Blood Establishment Computer Software (VBECS) 2.2.0 Technical Manual-Security Guide for instructions for configuring your local instrument and Data Innovations Instrument Manager.



Configure your Test UID to clearly differentiate from a Production UID during your validation, for example, production is 1234567890, with 123 being your consistent prefix, change 123 or 12 to TS or TST or 999. Please change the Numeric Identifier for the Blood Bank Accession Area in your site Test Account.

**Enable Automated Instrument Interface in VBECS Admin if it was disabled while performing testing in Test Group One.**

Verify your VBECS processes with the Automated Instrument interface.

Your local test plan will demonstrate that the system will perform normal daily work per your local policies, procedures and local validation plan that may include:

Blood Units: Automated Instrument or via the short cut key



- ABO-Rh confirmation
- Unit Antigen Typing or Repeat

Patients: Automated Instrument or via the short cut key



- Perform a Type and Screen test (ABS and ABS with Auto-control only)
- Perform crossmatch tests: Serologic (*Selected in Blood Units: Select Units before testing. \**)
- Patient Tests:
  - ABO/Rh or Repeat
  - Antibody Screen or Repeat
  - Direct Antiglobulin Test or Repeat
  - Antigen Typing or Repeat
- Overrides, (ABO/Rh Discrepancy, Crossmatch incompatible: Give with Medical Director Approval)
- Report data from these actions is available for retrieval.
  - Testing Worklist Report
  - Patient History Report
  - Unit History Report
  - Exception Report (ABO/Rh Discrepancy, Give with Medical Director Approval)

\*Remember to click NO to proceeding to the serologic crossmatch when selecting units for automated instrument testing.

## ***Test Group 2 Scenario 1: Verify AI TAS test***

**Note:** the Type and Screen (TAS) is a combination of two tests and may be saved as individual tests without completing the TAS as a whole.

<b>Data</b>	VBECS: Select a patient. CPRS: Place a Type and Screen (TAS) order for the patient LAB: Accession the order VBECS: Accept the order. (Orders, Accept Orders)
<b>User</b>	No specific user role is required to process TAS order in VBECS.
<b>Steps</b>	<ol style="list-style-type: none"> <li>1. User checks the Patient testing list to make sure the order is accepted in VBECS and appears on the Pending Task List (PTL). (Patient, Patient Testing, Diagnostic Tests).</li> <li>2. Close the PTL.</li> <li>3. Process the specimen on the instrument using the recommended TAS template for that instrument. Complete all work needed to transmit the information to VBECS.</li> <li>4. Select Patients, Automated Instrument to review TAS results.</li> <li>5. Select the specimen UID, scanning the UID is preferred.</li> <li>6. Review TAS test results.</li> <li>7. Accept only the ABS or ABO/Rh test. Close the window.</li> <li>8. Open the PTL.</li> <li>9. Try to select TAS on PTL and complete testing on it manually.</li> <li>10. Open the Automated instrument window and accept the second part of TAS.</li> <li>11. Close the automated instrument window.</li> <li>12. Check Reports</li> </ol>
<b>Expected Outcome</b>	<ol style="list-style-type: none"> <li>5. Verify that the specimen UID is selectable by scanning, entry or patient selection</li> <li>6. Verify that the correct test results appear on the Automated Instrument review list.</li> <li>8. Verify that the TAS appears on the PTL with a status of "Instrument Results Pending Review".</li> <li>9. Verify that system prevents user from completing TAS since they are still pending results from an instrument for it.</li> <li>12. Verify that the results and comments appear as expected on the reports: <ul style="list-style-type: none"> <li>• Testing Worklist Report</li> <li>• Patient History Report</li> <li>• Exception Report</li> </ul> </li> </ol>



<b><i>Test Group 2 Scenario 2: Verify AI serologic crossmatch test</i></b>	
<b>Data</b>	<p>VBECS: Select a patient.</p> <p>CPRS: Place a Type and Screen (TAS) order and Red Blood Cell order for the patient</p> <p>LAB: Accession the orders</p> <p>VBECS: Accept the order. (Orders, Accept Orders)</p> <p>Process the TAS to completion.</p> <p>Select a blood unit for a selected patient*:</p> <ul style="list-style-type: none"> <li>• Previously entered into the division's inventory (Blood Units, Incoming Shipment)</li> <li>• ABO compatible</li> <li>• May be available or selected for another patient (available, selected, crossmatched) status.</li> <li>• May or may not trigger selection overrides</li> </ul> <p>*Remember to click NO to proceeding to the serologic crossmatch when selecting units for automated instrument testing.</p>
<b>User</b>	No specific user role is required to process crossmatch test in VBECS.
<b>Steps</b>	<ol style="list-style-type: none"> <li>1. Process the component unit's specimen on the instrument using the recommended template for that instrument. Complete all work needed to transmit the information to VBECS.</li> <li>2. Select Patients, Automated Instrument to review crossmatch results.</li> <li>3. Select the specimen UID, scanning the UID is preferred.</li> <li>4. Review results, select compatibility and accept crossmatch result.</li> <li>5. Print or do not print tag as desired.</li> <li>6. Accept the test and close the automated instrument window.</li> <li>7. Check Reports.</li> </ol>
<b>Expected Outcome</b>	<ol style="list-style-type: none"> <li>4. Verify that crossmatch results sent from an instrument show correctly on the screen.</li> <li>7. Verify that the results and comments appear as expected on the reports: <ul style="list-style-type: none"> <li>• Testing Worklist Report</li> <li>• Patient History Report (interpretations only).</li> <li>• Exception Report</li> </ul> </li> </ol>

<b>Test Group 2 Scenario 3: Verify AI patient diagnostic tests</b> (ABO/Rh, Antibody Screen, Direct Antiglobulin Test, Patient Antigen Typing, and the reflex test)	
<b>Data</b>	VBECS: Select a patient. CPRS: Place a diagnostic test order for the patient LAB: Accession the order VBECS: Accept the order. (Orders, Accept Orders)
<b>User</b>	No specific user role is required to process diagnostic tests in VBECS.
<b>Steps</b>	<ol style="list-style-type: none"> <li>1. User checks the Patient testing list to make sure the order is accepted in VBECS and appears on the Pending Task List (PTL). (Patients, Patient Testing, Diagnostic Tests).</li> <li>2. Close the PTL.</li> <li>3. Process the specimen on the instrument using the recommended testing template for that instrument. Complete all work needed to transmit the information to VBECS.</li> <li>4. Select Patients, Automated Instrument to review test results.</li> <li>5. Select the specimen UID, scanning the UID is preferred.</li> <li>6. Review and accept test results</li> <li>7. Close the automated instrument window.</li> <li>8. Check reports.</li> </ol>
<b>Expected Outcome</b>	<ol style="list-style-type: none"> <li>5. Verify that the specimen UID is selectable by scanning, entry or patient selection.</li> <li>6. Verify that patient test results sent from an instrument show correctly on the screen.</li> <li>8. Verify that the results and comments appear as expected on the reports: <ul style="list-style-type: none"> <li>• Testing Worklist Report</li> <li>• Patient History Report</li> <li>• Exception Report</li> </ul> </li> </ol>

This document is version controlled via approval signature. Do not assume that a printed, copied, or downloaded document is current. Consult the Electronic Document Control System to verify use of the current version.

<b><i>Test Group 2 Scenario 4: Verify AI blood unit tests</i></b>	
<b>Data</b>	<p>VBECS: Select a blood unit previously entered into the division's inventory (Blood Units, Incoming Shipment).</p> <p>For ABO/Rh Confirmation testing on the instrument, unit should be in a Limited status.</p> <p>For Unit Antigen Typing, the unit may or may not have been confirmed.</p>
<b>User</b>	No specific user role is required to process blood unit tests in VBECS.
<b>Steps</b>	<ol style="list-style-type: none"> <li>1. Process the component unit's specimen on the instrument using the recommended template for that instrument. Complete all work needed to transmit the information to VBECS.</li> <li>2. Select Blood Units, Automated Instrument to review test results.</li> <li>3. Select the blood component unit's Donor Identification Number (DIN), scanning the DIN is preferred.</li> <li>4. Select the product code (if there are multiple blood units with the same product code)</li> <li>5. Review the transmitted blood unit test.</li> <li>6. Accept the test and close the automated instrument window.</li> <li>7. Check Reports</li> </ol>
<b>Expected Outcome</b>	<ol style="list-style-type: none"> <li>5. Verify that blood unit test results show correctly on the screen.</li> <li>7. Verify that the results and comments appear as expected on the reports: <ul style="list-style-type: none"> <li>• Testing Worklist Report</li> <li>• Unit History Report (interpretations only).</li> <li>• Exception Report</li> </ul> </li> </ol>