



Vista Blood Establishment Computer Software (VBECS) Version 2.3.3

Technical Manual-Security Guide Version 4.0

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Introduction

The main purpose of the VistA Blood Establishment Computer Software (VBECS) is to automate the daily processing of blood inventory and patient transfusions in a hospital transfusion service.



Unauthorized access or misuse of this system and/or its data is a federal crime. Use of all data, printed or electronic, must be in accordance with VA policy on security and privacy.



Do not change the system! The U.S. Food and Drug Administration 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.

VBECS Versioning

The VBECS version (see Figure 1) is derived by combining a three part version number from the VBECS application software (e.g., 2.3.3) with the revision letter of the VBECS database. The VBECS version can be found under the **Help>About** menu option in *VBECS* or selecting **Help** from the *VBECS Admin* main menu.

The **3-part version number** (e.g., 2.3.3) is incremented for application code changes, such as:

- Changes to any VBECS visual element or behavior (e.g., new menu options, larger font size)
- Windows operating system or virtualization upgrade.
- New features or changes to existing functionality.

When the 3-part version number is incremented, the revision letter resets to “A”.

The **revision letter (i.e., A-Z)** is incremented for database-only changes, such as:

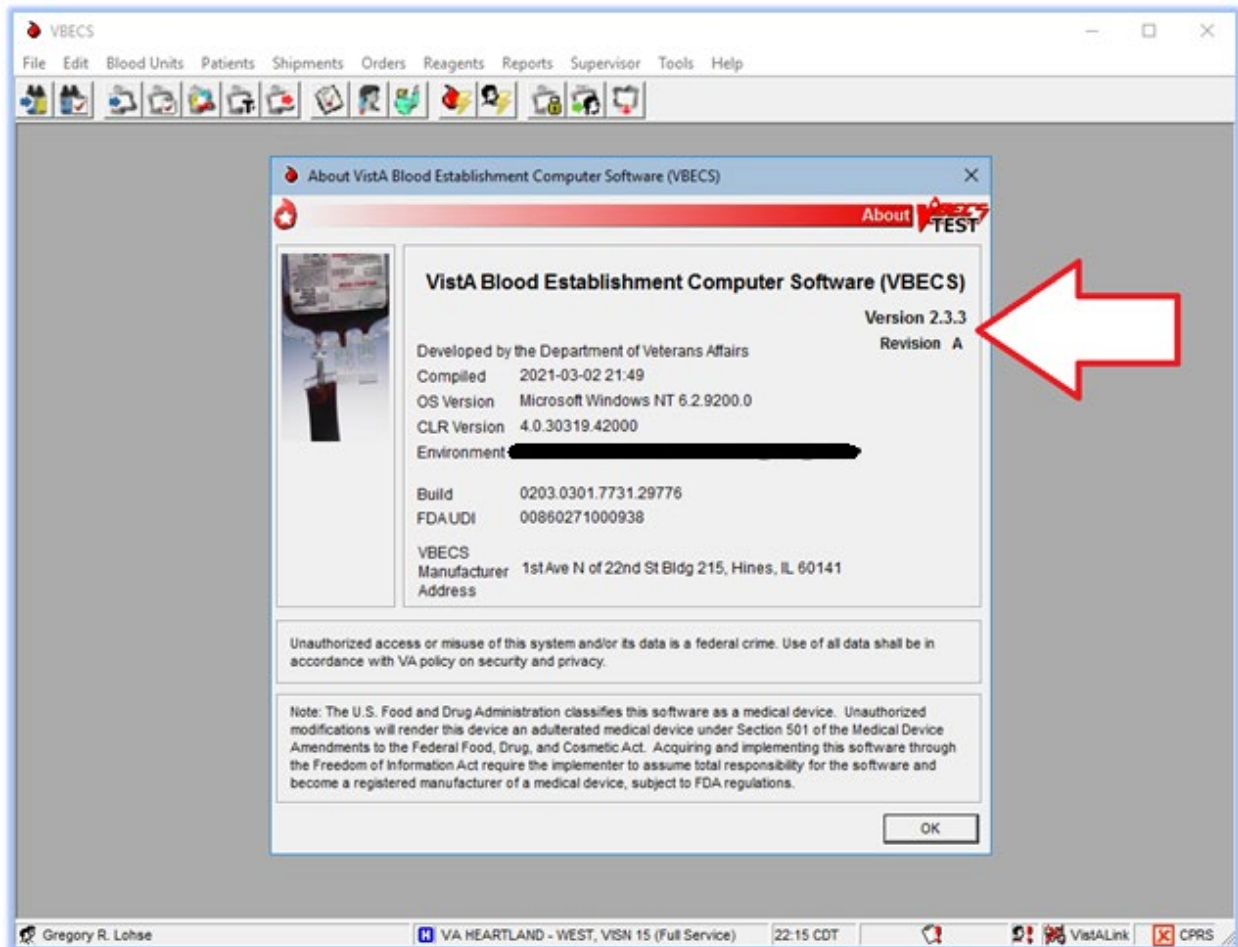
- Blood products added to or changed from VBECS’s available product list
- Changes to any core VBECS data (e.g., available facilities, new printer driver)
- Database query logic changes or performance improvements.

All VBECS documentation will contain the 3-part version number and when applicable, include the revision letter.

Modifications to environmental settings can be made without affecting the VBECS version. Environment changes affect the underlying hardware or remote desktop experience, such as:

- Changing server RAM, CPU or hard drive capacity
- Changing the VBECS desktop wallpaper
- Changing Remote Desktop session limits

Figure 1: Example of VBECs Versioning




Related Manuals and Reference Materials

- *CPRS-VBECs Interface (OR*3.0*212) Release Notes April 2009*
- *Duplicate Record Merge: Patient Merge Technical Manual Version 7.3 April 1998 Revised December 2010*
- *Health Product Support Release of Products and Patches Guide V2.3 Updated: February 2014*
- **REDACTED**
- *Kernel Systems Manual Version 8.0, Chapter 1: Sign-On Security/User Interface, pp. 13–20*
- *PIMS V. 5.3 Technical Manual*
- *VBECs – <instrument> Configuration and Setup Guide*
- *VBECs 2.3.3 Administrator User Guide*
- *VBECs 2.3.3 User Guide*
- *VistALink Version 1.5 Developer-System Manager Manual, Chapter 6: Security Management, pp. 34–35*

How This Technical Manual-Security Guide Is Organized

Outlined text is used throughout this guide to highlight warnings, limitations, and cautions:

 *Warnings, limitations, cautions*

Terms

In many instances, a user may scan a barcode or enter data manually (by typing). The term “enter” is used throughout this guide to mean “enter manually.”

See the Glossary for definitions of other terms and acronyms used in this guide.

Figures and Tables

If you refer to figures and tables from the Technical Manual-Security Guide in your local policy and procedure documents, you may wish to use their titles only, without figure or table numbers: as the technical manual-security guide is updated, those numbers may change.

Appendices

The appendices contain reference materials.

Customer Support

Contact your **Local/Regional** Office of Information Technology (OIT) or Laboratory Information Manager (LIM) if you encounter VistA or CPRS connection problems and for training support **before** contacting the Service Desk (SD).

 **Please ensure local/regional VistA Support contact information is available at all times.**

If you experience an FDA reportable adverse event (patient death or serious injury) that VBECS may have caused or contributed to, contact the Service Desk directly to enter a ticket for Blood Bank software support.

If the problem remains unresolved after local VistA triage, call the Service Desk (below) and specify the Enterprise Application be set as VBECS (VistA Blood Establishment Computer Software).

Service Desk Contact

REDACTED

For troubleshooting error messages in VBECS that read "Contact Your System Administrator", contact the Service Desk for VBECS Server support.

VBECs Hardware

Each blood bank will have separate PRODUCTION and TEST instances of VBECs. The term “instance” is used to represent all system components needed to make VBECs work. Some multidivisional sites will share a VBECs instance, but VBECs does not have a consolidated database or data shared between all VBECs instances.

A VBECs instance requires:

- Application (App) server
- SQL database (hosted on a Microsoft SQL Server cluster)
- Vista
- Additional Required Peripherals (see Table 1)

The VBECs team is responsible for providing and maintaining the App and SQL Servers, which run as virtualized hardware in the Microsoft Azure Government (MAG) VA Enterprise Cloud (VAEC). The System Schematic diagram (Figure 2) describes the major system components of a VBECs instance:

- **Application Server (App Server):** A Windows Server 2016 virtual machine and remote desktop session host.
 - A **Production instance** has two App servers, with one server always powered-on and a redundant identical server in a passive (powered-off) state. A second server provides decreased downtime during maintenance or system failure.
 - A **Test instance** only has one App server (always powered-on).
- **SQL Server Cluster:** Comprised of three Windows Server 2016 virtual machines, clustered using Microsoft Windows Failover Clustering software. This essentially results in three copies of every VBECs database for redundancy and maximum uptime.
- **User Workstations:** Users access the VBECs application using Remote Desktop Services.

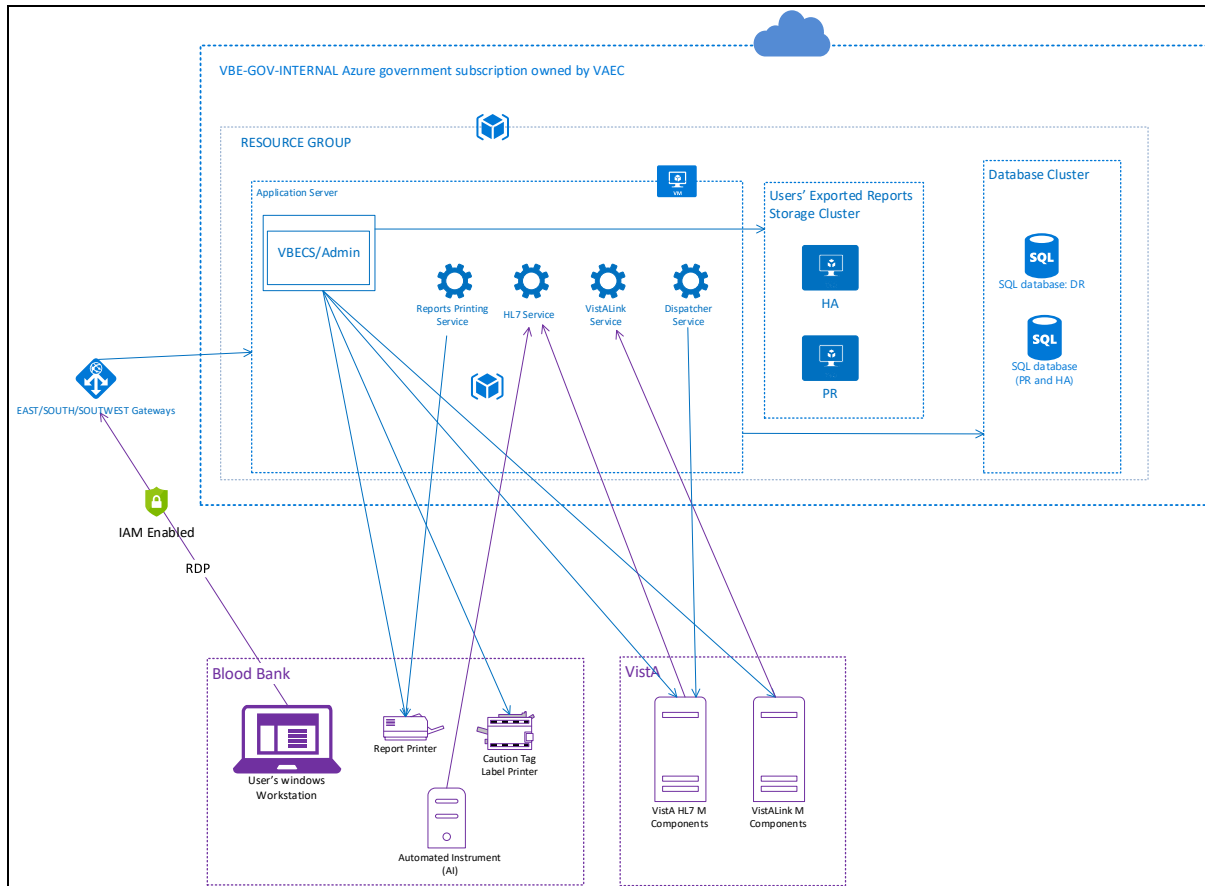
Required Peripherals

The following table lists the additional hardware required to complete a fully functional VBECs instance. This hardware can be shared between TEST and PRODUCTION instances. Obtaining and maintaining this hardware is the responsibility of each blood bank.

Table 1: Additional Required Peripherals

Barcode Scanner	<ul style="list-style-type: none"> • Windows compatible • Scanner must be capable of interpreting Code 39, ISBT 128, and PDF-417 barcodes
Report Printer	<ul style="list-style-type: none"> • Windows compatible • Laser quality • Capable of printing on at least 8.5" x 11" paper
Label Printer	<ul style="list-style-type: none"> • Thermal transfer • ZPL and ZPLII supported • 300 DPI print head must print on 4" x 4" label stock
User Workstation	<ul style="list-style-type: none"> • Display should be set to at least 1024 x 768 resolution. *Resolutions smaller than this value will not be able to fit all VBECs screens in the remote desktop window without scrolling. • Speaker(s) to hear VBECs audio alerts • Personal Identity Verification (PIV) card reader

Figure 2: System Schematic



Printers

If you need assistance setting up, configuring, or troubleshooting your printers; contact your hardware vendor.

Report Printer

The VBECS team recommends Lexmark and HP printers, however any Windows compatible printer should work with VBECS. Refer to the *VBECS Admin User Guide* for details on adding a new printer. Since PRODUCTION and TEST are separate instances, any printer changes will need to be made on both VBECS app servers.

Changing the IP address for your VBECS Report Printer

Refer to the *VBECS Admin User Guide* for more details and example screen prompts. You will need to repeat these steps in both your TEST and PRODUCTION instance.

- 1) Connect to your VBECS server, and launch VBECS Admin.
- 2) Select the *Edit Printer* option (VistA is not required).
- 3) Remove the existing VBECS printer.
- 4) Define a new VBECS printer, giving it the same name (case-sensitive) and driver but enter the new IP address.
- 5) Print a test page to ensure it is setup properly.

Label Printer

The VBECS team recommends the Zebra ZT-series label printers, however other brands may suffice as long as they meet the requirements listed in Table 1. Most Zebra label printers come with a standard 203 DPI print head and must be upgraded to a 300 DPI print head. If you purchased a new printer and tags are printing too big to fit on a label, the most likely cause is due to it having an incompatible print head.

Upgrading a Label Printer Print Head

If you have a label printer with a 203 DPI print head, it may be possible and more cost effective to upgrade it to 300 DPI rather than buying a new printer. However, the print head is just one of the needed components. Please contact a vendor for a print head upgrade **kit**. These kits include the additional gears and parts that are required in order for the printer to get the full DPI from the print head.

Changing the IP address for your Label Printer

If the IP address on your label printer changes, you'll need to update the IP address in the *Edit Division* menu option of the VBECS Admin software. All users will need to close the VBECS software first before you can make this change. You will need to update the IP address in both your TEST and PRODUCTION instance.

Refer to the *VBECS Admin User Guide* for more details and example screen prompts.

Port Requirements

Due to VA firewall rules, VBECS can only communicate with printers over port 9100. Make sure your label printer is configured on this port.

Scanners

The VBECS team recommends Honeywell scanners, however other brands may suffice as long as they meet the requirements listed in Table 1. Most scanners should be able to scan barcodes from a computer display. However, if you experience issues, it could mean the barcode is too small or large; try zooming in/out of the document.

Configuring Scanners

For VBECS to properly render barcode scans, the scanner needs to send all barcode data prefixed with a tilde (~) and appended with a TAB key. Configuring a scanner for use in VBECS is done by scanning special barcodes that instruct the scanner to send the tilde and TAB keys. If you have a new scanner or an existing scanner no longer works properly in VBECS, scan one of the configuration barcodes below and then proceed to the *Scanner Testing* section.

If you're experiencing scanner issues after trying out the configuration barcodes below, contact *Customer Support*.

Honeywell 4600

Scan Figure 3 to configure a Honeywell 4600 scanner and then validate it using the barcodes below. This configuration barcode may also work for other models.

Figure 3: Configuration Barcode for Honeywell 4600 (VBECS Settings)



Honeywell Xenon 1900 Series

Scan Figure 4 followed by Figure 5 to configure a Honeywell Xenon 1900 scanner. This approach may also work for other Xenon models.

Figure 4: Configuration Barcode for Honeywell Xenon 1900 Part 1 (Reset Scanner Defaults)



Figure 5: Configuration Barcode for Honeywell Xenon 1900 Part 2 (VBECS Settings)



Scanner Testing

A scanner that is configured for use in VBECS needs to add a tilde (~) prefix and a TAB suffix to all scans. To test your scanner, print this page or try scanning off the screen.

First, open Notepad on your workstation and click inside the blank document (the cursor should now be blinking in the whitespace).

- Test 1: Scan Figure 6. The text should read “~123456789” followed by a TAB.
- Test 2: Scan Figure 7. The text should read “~123456789” followed by a TAB.
- Test 3: Scan Figure 8. The text should read “~Testing” followed by a TAB.

If any of the tests failed, your scanner is not configured properly. Try using a different configuration barcode above or contact *Customer Support*.

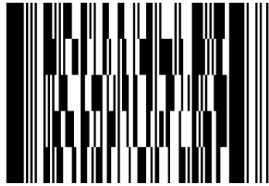
Figure 6: Code39 (Codabar) Test Barcode



Figure 7: ISBT 128 Test Barcode



Figure 8: PDF 417 Test Barcode



Optional Peripherals – Automated Instruments

VBECs currently supports Echo, Erytra, ProVue and Vision instruments. These instruments perform testing on a specimen and send the test results and interpretations to a server running Data Innovations (DI) Instrument Manager (IM) software. The IM software wraps those results and interpretations into HL7 messages which are then sent to your VBECs app server. Consult the VBECs SharePoint Web site for documentation on configuring an instrument/IM for use with VBECs.

For your IM server to successfully send test results to your VBECs Azure app server, the network pathway needs to be open between VBECs and IM server. This requires two separate firewall changes:

1. **National BPE change:**
Provide the VBECs team with all of your IM server IP addresses so that they can create a ticket to have communication opened between the VBECs Azure networks and your IM server(s).
2. **Local ACL modification:**
File a ticket with your local biomed team requesting an ACL modification to permit bidirectional traffic between your DI server(s) and the VBECs Azure networks.

Firewall changes can take up to two weeks to complete, so if your existing IM server is relocating or being re-IP'd, contact the VBECs team as soon as possible.

Remote Desktop

In simplest terms, Remote Desktop is Microsoft’s client software that allows a user at one computer to connect to another computer. The VBECS software runs on a virtualized application (app) server, which is only accessible using the Remote Desktop client.


Remote Desktop Shortcuts


- The VBECS team has published Remote Desktop shortcuts for each VBECS instance. Each shortcut contains all the required configuration values to access the VBECS VAEC servers. Shortcuts can be found on the VBECS SharePoint page: **REDACTED**


The VBECS VAEC servers are addressed by DHCP (not static IP address), and therefore rely on DNS entries to correctly route network connections to the proper server.

- PRODUCTION shortcuts are configured to connect to a VBECS load balancer DNS entry. This load balancer uses logic to determine which of the two PRODUCTION app servers are active and correctly routes incoming connections to that server.
- TEST shortcuts are configured to connect to a DNS entry which redirects to the single TEST app server.

In either instance, if the server’s DHCP IP address changes, the DNS entry will continue to correctly route all network connections.

 Do not modify the VBECS remote desktop shortcuts unless instructed to do so by the VBECS Team.

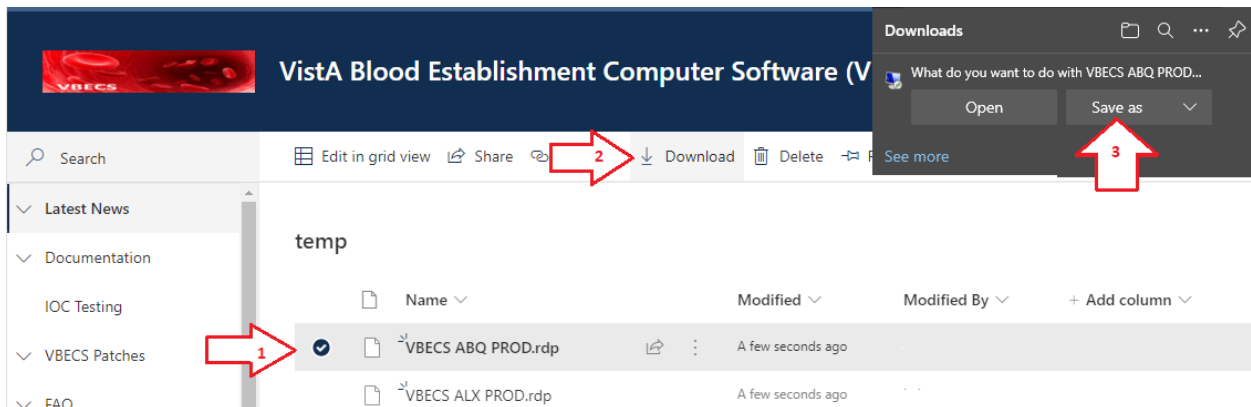
 Do not create your own VBECS remote desktop shortcut, unless it is an exact copy of the one provided by the VBECS Team.

 A video tutorial for downloading remote desktop shortcuts can be found by clicking **REDACTED**.

Download Instructions (Figure 9):

1. Navigate to and select your blood bank’s remote desktop entry for either TEST or PRODUCTION.
2. Click **Download**.
3. Click **Save As** (some browsers may not present this option).

Figure 9 : Downloading Remote Desktop Shortcuts



4. Save the icon to your Desktop (or path of your choosing).



To make a remote desktop shortcut available for all users of a workstation, it's recommended place the shortcut in the `C:\Users\Public\Desktop` folder on every lab workstation. However, this path is a protected system folder and only accessible to system administrators. Contact your local desktop IT support for assistance.

Remote Desktop Logon Warnings

The first time you connect to remote computer you may see the messages from Figure 10 and Figure 11. Check the box next to “Don’t ask me again for connections to this computer”.

Figure 10: Example of an Ignorable Remote Desktop Warning

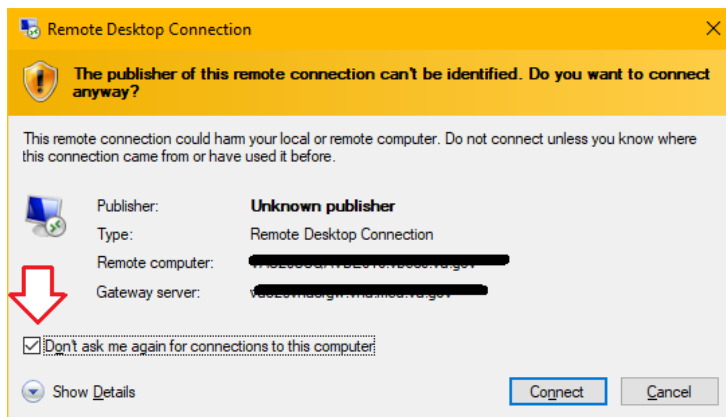
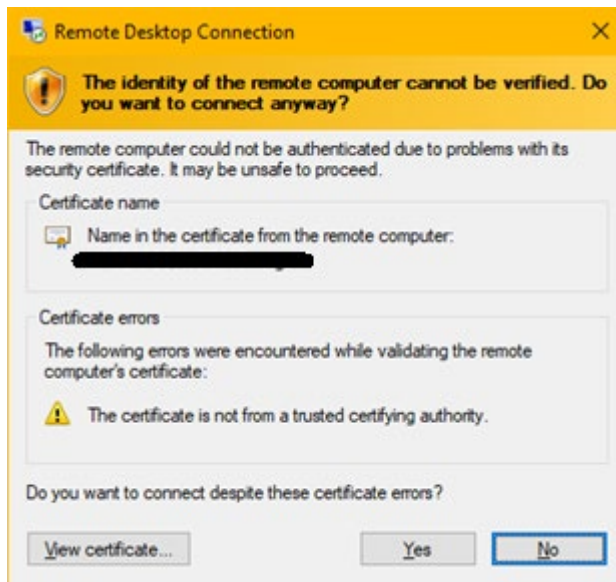


Figure 11: Example of Another Ignorable Remote Desktop Warning



Remote Desktop Credentials

When starting a remote desktop connection to the VBECS server, watch the PIN/Password field (Figure 12):

- If you are connecting with your PIV, the field must read **PIN**. If the field reads **Password**, you have the wrong credential selected.
- If you're connecting with your Windows ID and password, the field must read **Password**. If the field reads **PIN**, you have the wrong credential selected.



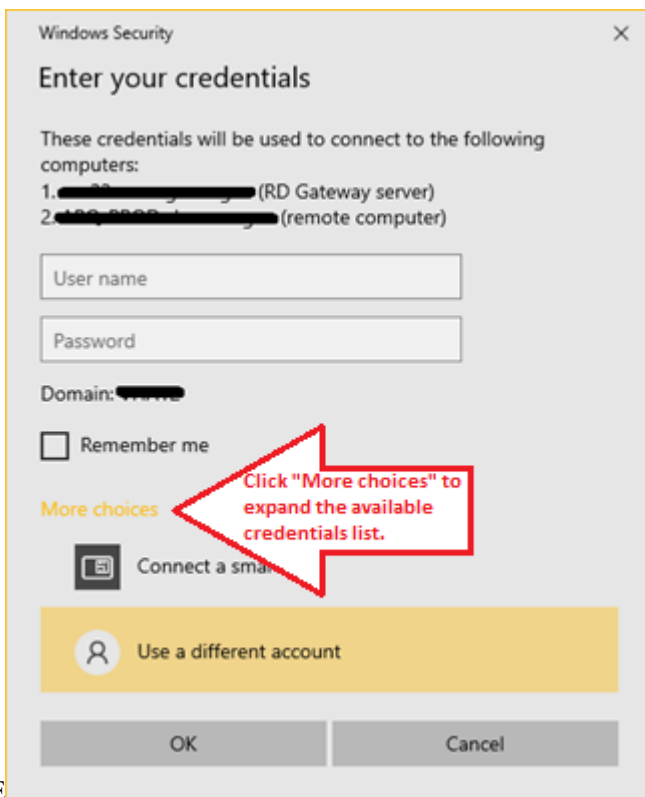
To select a different credential, click the **More choices** link, which will expand the window and show you all available credentials. PIV credentials will have the  (smart card icon) and Windows credentials will have the  (Windows user icon). If your Windows ID is not visible, select the “**Use a different account**” option. Do not check the **Remember me** box.

Figure 12: Example of Remote Desktop Credential Selection



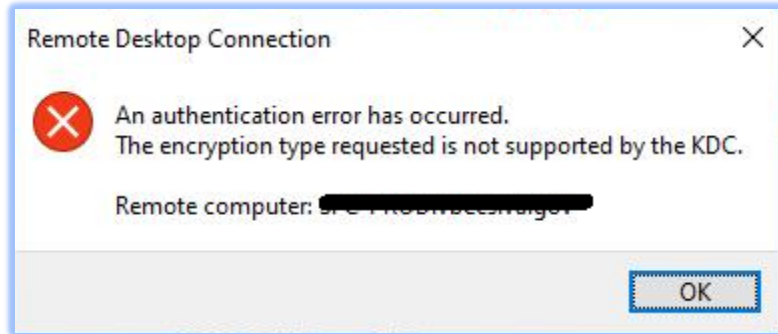
E

Remote Desktop Logon Troubleshooting

This section contains a list of several correctable errors you could receive while establishing your remote desktop connect to a VBECS app server.

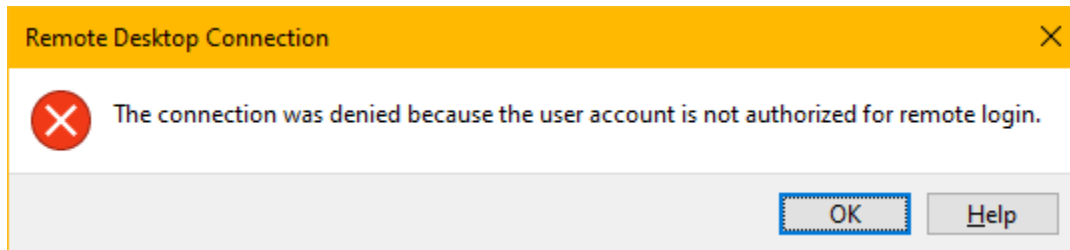
The VAEC servers require that all users connecting to the server have AES 256-bit encryption enabled on their Active Directory user account. As of the writing of this document, the VA has not yet mandated this field be set on all accounts, so if you see the error displayed in Figure 13 contact Customer Support to request the **AES 256-bit encryption** option be set on your account.

Figure 13: Example of Missing Active Directory Encryption Alert



Each VBECS app server grants remote desktop permission to two VBECS user groups (see *VBECS Active Directory (AD) Groups*). If you receive the error displayed in Figure 14, then you most likely do not belong to one of your blood bank's VBECS user groups. If you've verified you belong to the proper group, contact *Customer Support*.

Figure 14: Example of Missing Active Directory Group Membership Alert

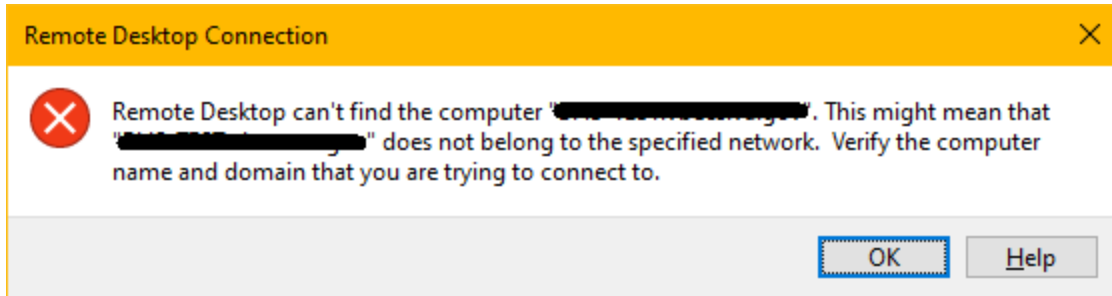


If you receive the error displayed in Figure 15, the Remote Desktop client was unable to contact the server you're trying to reach. There are a variety of possible causes this could occur, including:

- infrastructure disruption (brief or severe)
- server is rebooting (maintenance-related or unexpectedly)
- incorrect/corrupted Remote Desktop shortcut

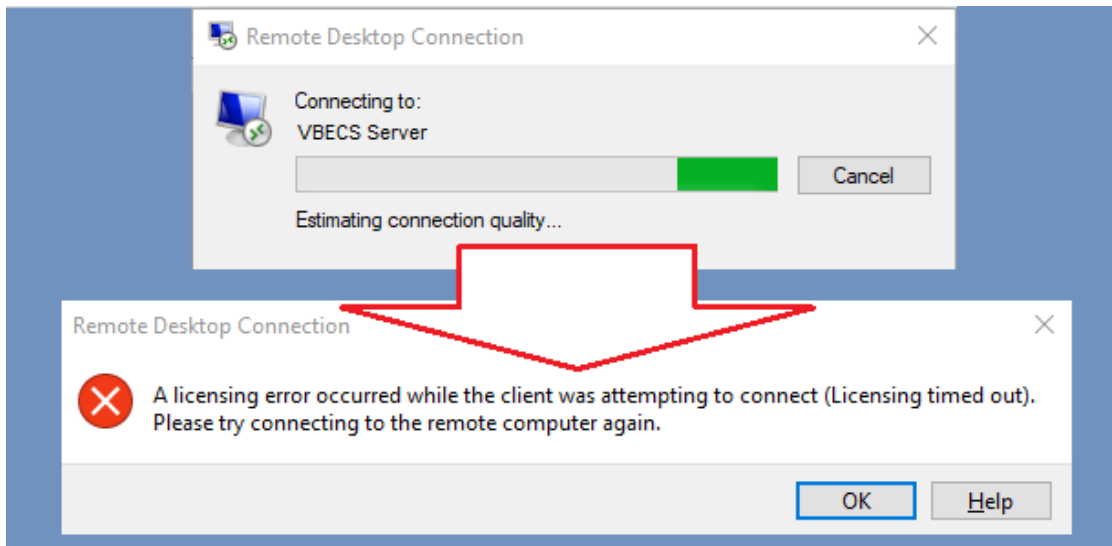
In most cases, waiting a minute or two before trying again resolves the issue. To rule out a corrupted shortcut, replace your existing copy with a fresh one. If you are still receiving this error after trying these corrective measures, please contact *Customer Support*.

Figure 15: Example of Unreachable Server Alert



If your connection attempt fails (Figure 16) while displaying “Estimating connection quality”, one underlying cause may be network latency between your workstation and the VBECS server (other workstations may work fine). Rebooting your workstation may resolve the issue; otherwise, move to another workstation (if you can) while the underlying issue resolves on its own. You may also contact *Customer Support* for further troubleshooting.

Figure 16: Example of Remote Desktop Timeout Alert



Remote Desktop Sessions

Connecting to a computer with Remote Desktop creates a session on the remote computer. Each VBECS user is allowed one session per VBECS instance. Trying to start a second session will simply reconnect you to your first session. You can switch workstations without losing your session. A session terminates when the user clicks the Sign Out desktop shortcut, or when a session times out (see next section).

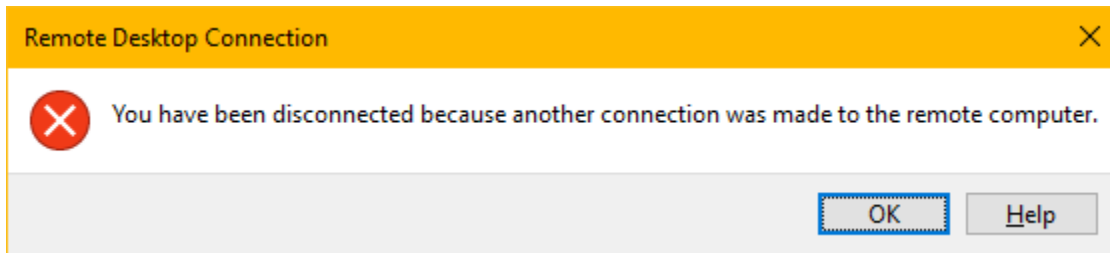
Session example 1:

- From workstation A, you open a remote desktop connection to the VBECS app server.
- You start using VBECS.
- You move to workstation B without closing your remote desktop window on workstation A.
- From workstation B you open a remote desktop connection to VBECS.
- You'll see VBECS exactly where you left off on workstation A, but if you returned to workstation A you'd see the message from Figure 17. You can click **OK** to dismiss it.

Session example 2:

- From workstation A you open a remote desktop connection to the VBECS app server.
- You start using VBECS.
- You minimize the remote desktop window.
- From workstation A you open a new remote desktop connection to VBECS.
- You'll see VBECS exactly where you left off in the minimized window, but you'd also see the message from Figure 17. You can click **OK** to dismiss it.

Figure 17: Example of a Single Session Reminder Alert



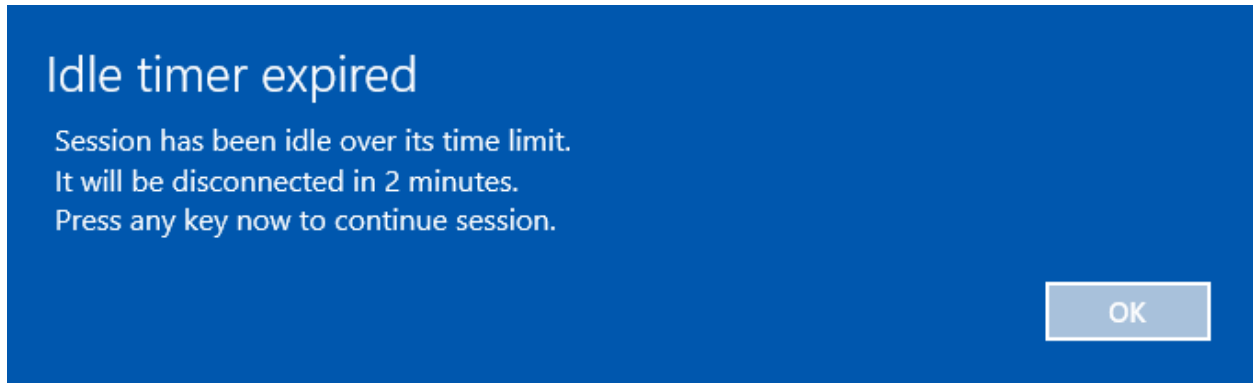
Since VBECS PRODUCTION and TEST are different instances, you can have a remote desktop window open to each at the same time. The sessions are independent and do not affect each other.

Session Time Limits

After starting a remote desktop session, it will remain “active” as long as it continues to receive user input (mouse movement, keystrokes, barcode scans, etc.). Once user input stops, the session becomes idle.

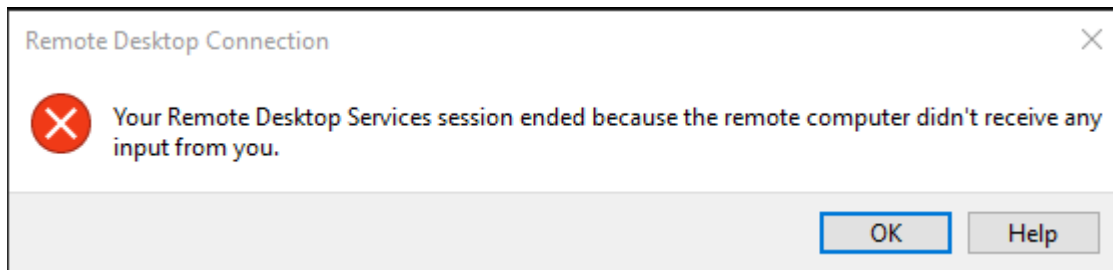
After a session has been idle for 60 minutes, the message in Figure 18 is displayed in the remote desktop window. Pressing any key or clicking **OK** will reset the idle timer.

Figure 18: Example of Remote Desktop Idle Time Limit Alert



Failure to respond to the *Idle timer expired* message, will disconnect your session and display the message in Figure 19. You can reconnect to a disconnected session from any workstation and resume your work in VBECS where you left off. However, a disconnected session that is not reconnected within 60 minutes is terminated; all programs are closed, all unsaved work is lost, and the user is signed out of the server. No messages are displayed when a disconnected session is terminated.

Figure 19: Example of Remote Desktop Disconnected Alert



Session Disconnect vs Sign Out

When you are finished using VBECS or need to move to another workstation, you have two options: **Sign Out** or **Disconnect**.

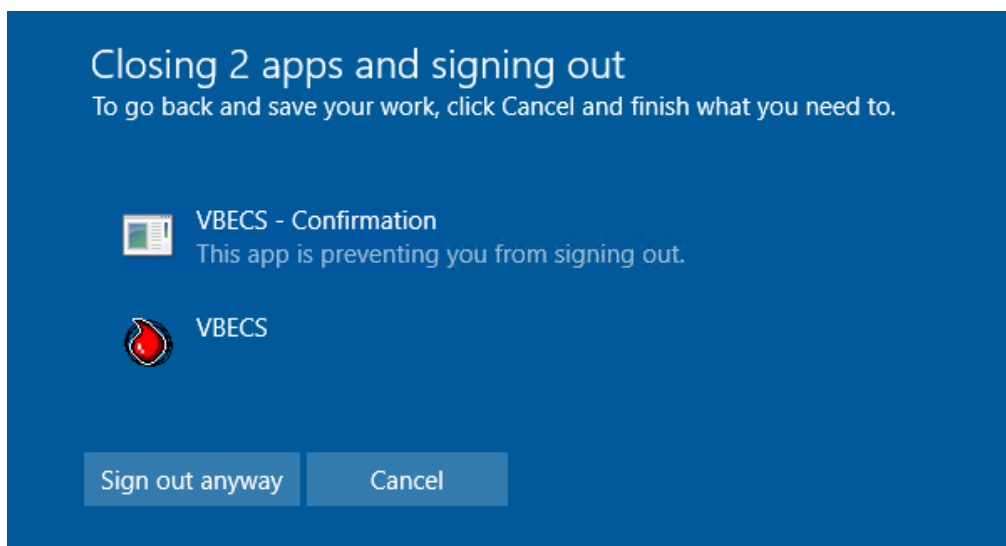
Disconnecting from a Remote Desktop session closes the client connection; your running applications on the server remain running and no work is lost. Disconnected sessions can be reconnected-to from any workstation until the disconnected session times-out (see Section: *Session Time Limits*).


Signing out of a Remote Desktop session attempts to terminate the session and close all running applications.

If you click **Sign Out** with VBECS running but have no unsaved changes, the session will terminate. However, if you click **Sign Out** with VBECS running and unsaved changes, the server will protect you against data loss by presenting Figure 20.

If you have not responded within 30 seconds, the message will disappear and the sign out process is automatically canceled.

Figure 20: Example of Sign Out Preventing VBECS Data Loss



 Do not click the **Sign out anyway** button. Clicking this button causes Windows to forcibly close VBECS, which fails to properly release your record locks. See Section: *Database Record Locks*..

To Sign out, click the **Sign Out** shortcut available on each app server desktop (Figure 21).

To Disconnect, click the **X** in the remote desktop window (Figure 21 and Figure 22).

Figure 21: Example of Remote Desktop in Windowed-Mode

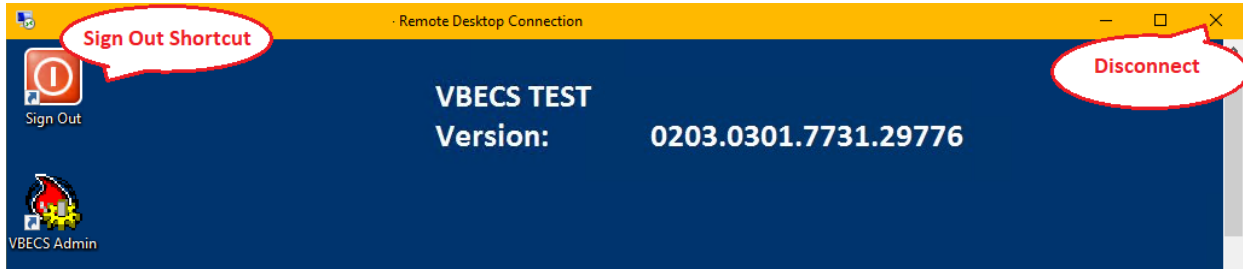


Figure 22: Example of Remote Desktop in Full Screen Mode



Removing your PIV card from the workstation will not disconnect your session.



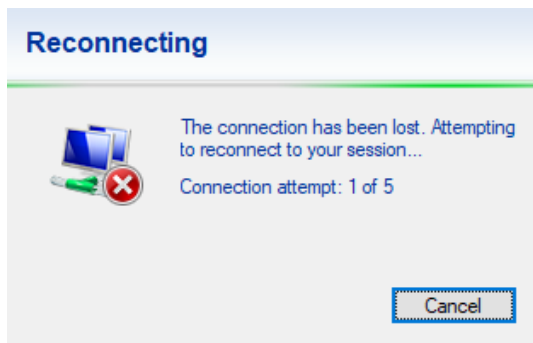
*The VBECS team recommends using the **Sign Out** shortcut when you are not expecting to need VBECS for over an hour OR at the end of your shift.*

Unexpected Remote Desktop Disconnections

In addition to being able to manually disconnect your Remote Desktop session, it is possible that your session will disconnect for other reasons – typically network related. If this happens, you will have 60 minutes to reconnect to your session or it will terminate.

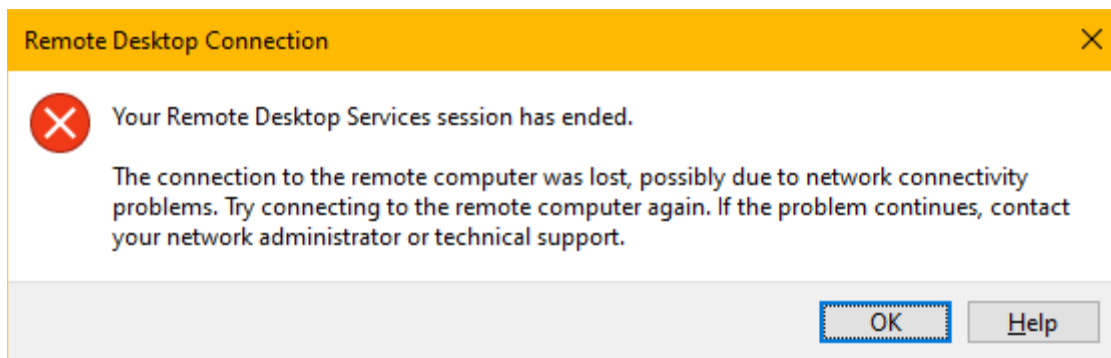
Depending on the severity of the cause, your connection may try to re-establish itself for you. When this happens, you'll see a message similar to Figure 23. Allow the reconnections to try. If all attempts fail, try manually reconnecting using the VBECS Remote Desktop shortcut. If you're still unable to connect, contact Customer Support.

Figure 23: Example of a Disconnected Session Automatically Retrying to Connect





When an unexpected disconnection is more severe in nature, you'll see a message similar to Figure 24. Try reconnecting again with your VBECS remote desktop shortcut. Try reconnecting using the VBECS Remote Desktop shortcut. If you're unable to connect, contact Customer Support.

Figure 24: Example of an Unexpected Disconnected Session Alert



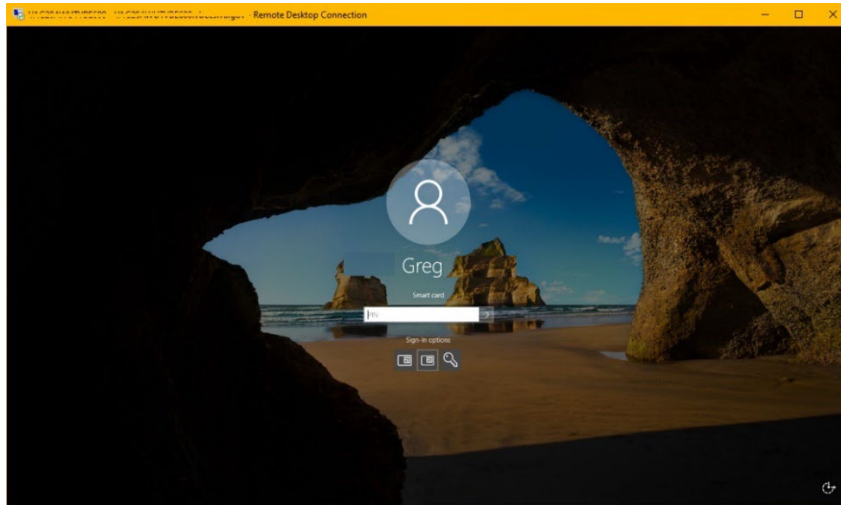
Remote Desktop Credentials – Lock Screen

Similar to the credential nuance mentioned with Remote Desktop login, if you find yourself at the VBECS server's lock screen (Figure 25), ensure you select the right credentials to login. Here, accounts are represented by icons:

-  - the smart card icon. Click this icon to login with your PIV credentials.
-  - the Windows user icon. Click this icon to login with your Windows ID and password.

If you don't see any of these icons, click the **Sign-in options** link.

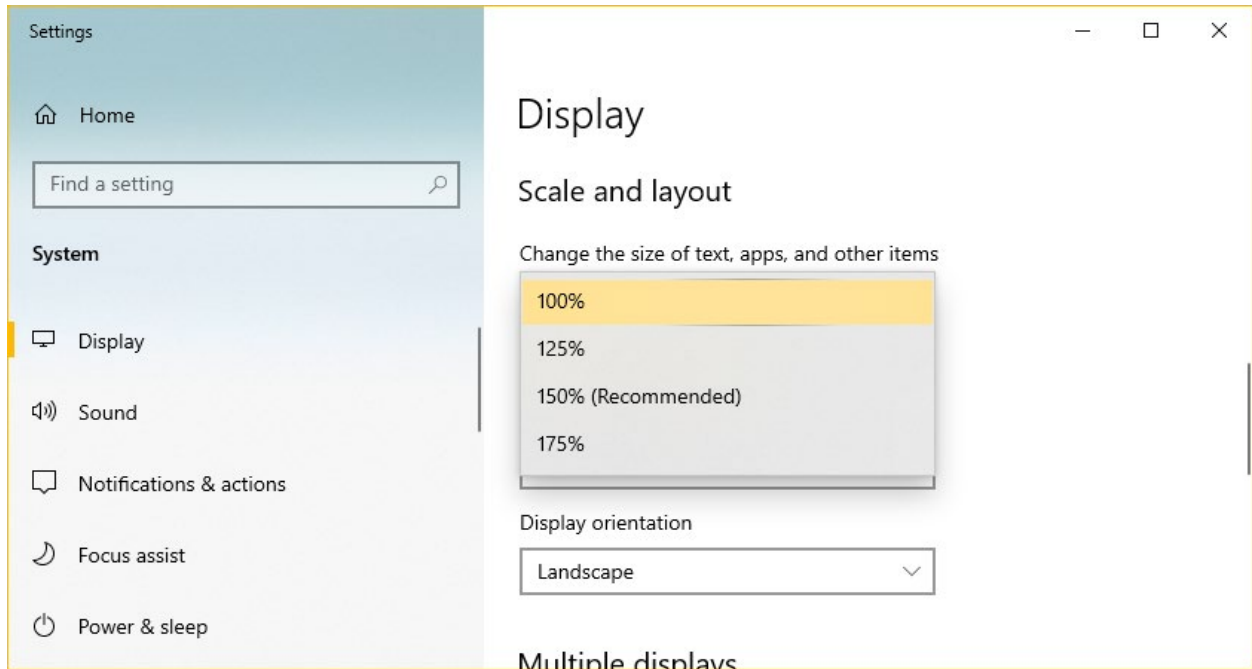
Figure 25: Example of Remote Desktop Lock Screen



Remote Desktop Appearance and Zooming

Windows includes a feature (Figure 26) allowing you to increase the scale (magnification) of your workstation display. Windows may recommend (and set) this value larger than 100%, which causes your fonts and apps to get larger and are easier to read. However, VBECS fonts are not affected by this setting. What is affected are VBECS report on-screen previews; report fields may no longer line up correctly. Printed and exported reports are unaffected by this setting.

Figure 26: Example of Windows Scale Setting That Affects VBECS Report Previews



Remote Desktop Navigation

Most Windows functionality has been hidden from VBECS users to protect system integrity. However, if VBECS ever freezes or you cannot see the **Sign Out** desktop shortcut, you can try clicking the “Show Desktop” button, located in the lower-right corner of the Windows taskbar. Figure 27 shows a magnified representation of where to click.

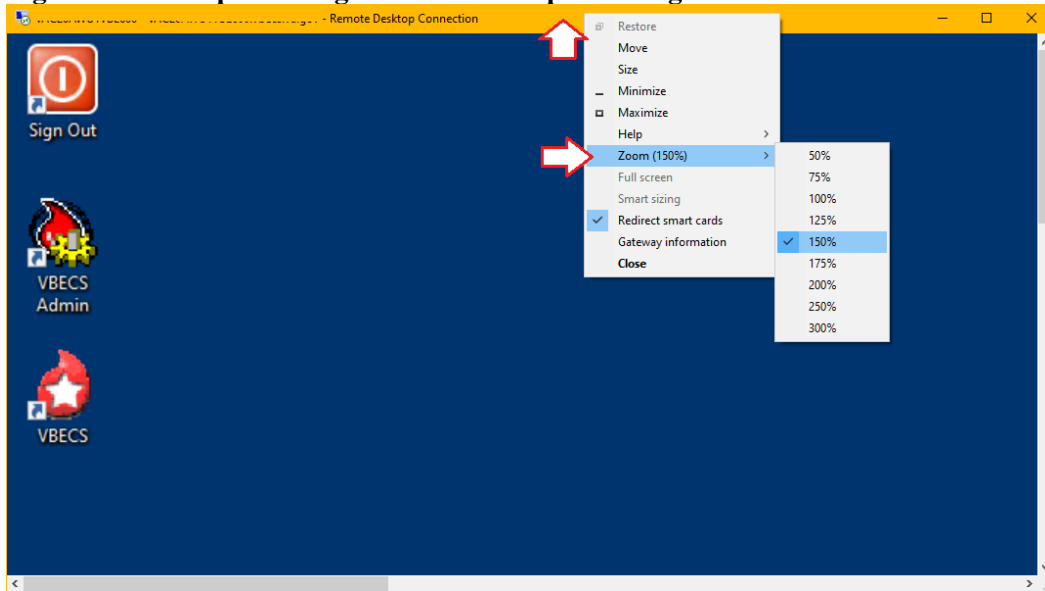
Figure 27: Example of the Show Desktop Button



Remote Desktop Zooming

VBECS fonts are a fixed size but you can magnify use the Remote Desktop Zoom feature to make the fonts appear larger. Remote Desktop zooming is only enabled when the window is not in full-screen mode. To disable full-screen mode, double click anywhere on the remote desktop title bar. Once in non-full-screen mode, right-click on the title bar to show the remote desktop options and select Zoom and then a factor of your liking (Figure 28). To return to full screen mode you will first need to revert the Zoom back to 100%. Changing the zoom on a remote desktop window has no effect on VBECS report previews.


Figure 28: Example Setting Remote Desktop Zooming



Exported Reports Network Share

For increased security, the VBECS application server blocks user access to the file system. As a result, exported reports are only accessible through network share. Each VBECS instance has its own network share, which means that TEST and PRODUCTION reports are saved to different locations. Only users with permission to VBECS Admin have the ability to create and delete folder on the network share, all other users have read-only access.

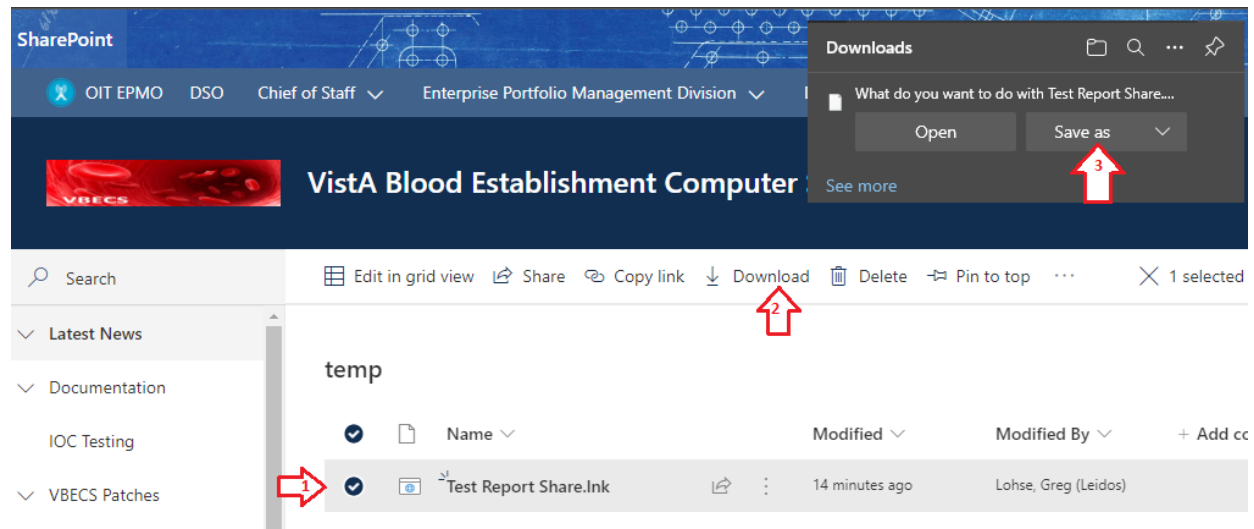
The VBECS Team has created shortcuts for each VBECS instance that can be saved on workstations for quick access to the exported report network share. These shortcuts can be found on the VBECS SharePoint page: REDACTED

 A video tutorial for downloading report share shortcuts can be found by clicking REDACTED

Download Instructions (Figure 29):

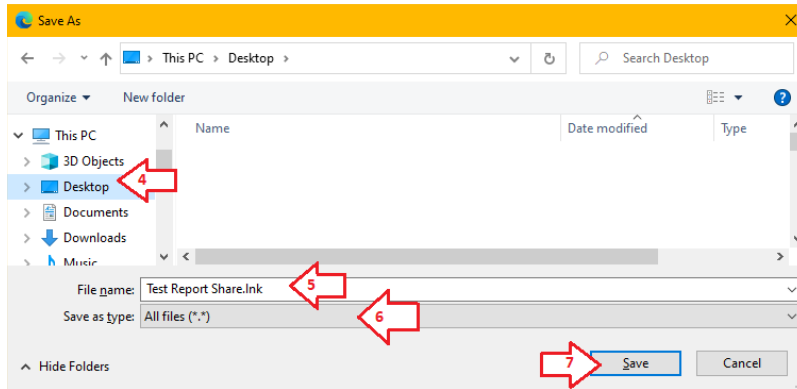
1. Navigate to and select your blood bank's report share entry for either TEST or PRODUCTION.
2. Click **Download**.
3. Click **Save As** (some browsers may not present this option).


Figure 29 : Example of Downloading the Report Share Shortcut (using Microsoft Edge)



4. A “Save As” window opens (Figure 30).
5. Select your Desktop (or path of your choosing).
6. Set the **Save as type** field to **All files (*.*)**
7. In the **File name** field, replace “download” with “Ink”.
8. Click **Save**.

Figure 30 : Example of Saving the Report Share Shortcut to the Desktop



 *To make a report share shortcut available for all users of a workstation, it's recommended place the shortcut in the **C:\Users\Public\Desktop** folder on every lab workstation. However, this path is a protected system folder and only accessible to system administrators. Contact your local desktop IT support for assistance.*

VBECs Server Maintenance

The VBECs servers must be updated regularly with security and software updates to enhance security and meet VA compliance. All software updates or changes affecting the VBECs servers are first tested by the VBECs team before being applied to blood bank test or production servers.

VBECs servers are not rebooted at a specific time but are instead rebooted at any time during a maintenance window. A maintenance window puts less stress on the infrastructure which should result in faster reboot times. All VBECs servers are rebooted during the week of the 4th Tuesday of each month, with plans to reboot bi-weekly (or weekly if needed) according to the schedule in Table 2. If a maintenance day falls on a VA observed holiday, the remaining maintenance schedule will shift forward one day. **Refer to Table 3 to see which maintenance window applies to your VBECs instance.** Servers may reboot outside of this posted schedule if emergency maintenance or security patches are needed.

Table 2: Maintenance Window Schedule

Environment	Tuesday	Wednesday	Thursday
PRODUCTION	10AM-1PM CST East region servers	10AM-1PM CST South region servers	10AM-1PM CST Southwest region servers
TEST	1PM-3PM CST East region servers	1PM-3PM CST South region servers	1PM-3PM CST Southwest region servers


Table 3: VBECs Server Regions

Site Code	Div#	Division Name	Server Region
ABQ	501	RAYMOND G. MURPHY VAMC	Southwest
ALT	503	JAMES E VAN ZANDT VAMC	East
ALX	502	ALEXANDRIA VAMC	South
AMA	504	AMARILLO HCS	Southwest
ANN	506	ANN ARBOR VA MEDICAL CENTER	South
ASH	637	CHARLES GEORGE VAMC	South
ATG	508	ATLANTA VAMC	South
AUG	509	AUGUSTA VAMC	South
BAC	515	BATTLE CREEK VA MEDICAL CENTER	South
BAL	512	VA MARYLAND HEALTH CARE SYS	East
BAY	516	C.W. BILL YOUNG DEPT OF VAMC	South
BEC	517	BECKLEY VA MEDICAL CENTER	South
BHH	568	BLACK HILLS HCS	South
BHH	568A4	HOT SPRINGS SD MC	South
BHS	523A4	WEST ROXBURY	East
BIG	519	WEST TEXAS HCS	Southwest
BIL	520	BILOXI VAMC	South
BIR	521	BIRMINGHAM VAMC	South
BOI	531	BOISE VA MEDICAL CENTER	Southwest
BRX	526	BRONX VAMC	East
CAV	619	CENTRAL ALABAMA HCS	South
CHA	534	CHARLESTON VAMC	South
CHS	537	JESSE BROWN VAMC	South
CHY	442	CHEYENNE VA MEDICAL	Southwest
CIN	539	CINCINNATI	South
CLA	540	LOUIS A JOHNSON VAMC	East
CLE	541	CLEVELAND VAMC	South
CLL	538	CHILLICOTHE VA MEDICAL CENTER	South
CMS	544	COLUMBIA SC VAMC	South

Site Code	Div#	Division Name	Server Region
COA	542	COATESVILLE VAMC	East
CON	689	CONNECTICUT HCS	East
COS	757	CHALMERS P. WYLIE VETERANS OC	South
CTX	674	OLIN E. TEAGUE VET CENTER	South
DAL	549	DALLAS VA MEDICAL CENTER	South
DAN	550	ILLIANA HCS	South
DAY	552	DAYTON	South
DEN	554	ROCKY MOUNTAIN REGIONAL VAMC	Southwest
DET	553	DETROIT MI VAMC	South
DUB	557	DUBLIN VAMC	South
DUR	558	DURHAM VA MEDICAL CENTER	South
ERI	562	ERIE VA MEDICAL CENTER	East
FAR	437	FARGO VA HCS	South
FAV	564	FAYETTEVILLE AR VAMC	South
FHM	436	FORT HARRISON MEDICAL CENTER	Southwest
FNC	565GH	BRUNSWICK COUNTY VA CLINIC	South
FNC	565	FAYETTEVILLE NC VAMC	South
FNC	565GK	FAYETTEVILLE VA CLINIC	South
FNC	565GF	GOLDSBORO VA CLINIC	South
FNC	565GD	HAMLET VA CLINIC	South
FNC	565GC	WILMINGTON VA CLINIC (NC)	South
FRE	570	FRESNO VA MEDICAL CENTER	Southwest
GLA	691	WEST LA VAMC	Southwest
GRJ	575	GRAND JUNCTION VAMC	Southwest
HAM	590	HAMPTON VA MEDICAL CENTER	South
HIN	578	HINES IL VAMC	South
HOU	580	HOUSTON VAMC	South
HUN	581	HUNTINGTON VAMC	South
HVH	620A4	CASTLE POINT	East
IND	583	RICHARD L. ROUDEBUSH VAMC	South
IRO	585	IRON MOUNTAIN VAMC	South
JAC	586	JACKSON VAMC	South
KAN	589A4	COLUMBIA MO VAMC	South
KAN	589A6	EASTERN KS HCS LEAVENWORTH DIV	South
KAN	589A5	EASTERN KS HCS TOPEKA DIV	South
KAN	589A7	ROBERT J. DOLE VAMC	South
KAN	589	VA HEARTLAND - WEST VISN 15	South
LAS	593	SOUTHERN NEVADA HCS	Southwest
LEB	595	LEBANON VA MEDICAL CENTER	East
LEX	596A4	LEXINGTON-CDD VAMC	South
LIT	598	CENTRAL ARKANSAS HCS	South
LOM	605	LOMA LINDA HCS	Southwest
LON	600	LONG BEACH VAMC	Southwest
LOU	603	ROBLEY REX VAMC	South
MAC	612GF	MARTINEZ VA MEDICAL CENTER	Southwest
MAC	612A4	SACRAMENTO VA MEDICAL CENTER	Southwest
MAD	607	WILLIAM S. MIDDLETON VAMC	South
MAN	608	MANCHESTER VAMC	East
MEM	614	MEMPHIS VA MEDICAL CENTER	South
MIA	546	MIAMI VAMC	South
MIN	618	MINNEAPOLIS VA HCS	South
MIW	695	MILWAUKEE VAMC	South
MOU	621	JAMES H. QUILLEN VAMC	South
MUS	623	JACK C. MONTGOMERY VAMC	South
MWV	613	MARTINSBURG VA MEDICAL CENTER	East

Site Code	Div#	Division Name	Server Region
NCH	556	CAPT N JAMES LOVELL FED HLT CTR	South
NFL	573	N. FLORIDA/S. GEORGIA HCS	South
NIN	610A4	FORT WAYNE VA MEDICAL CENTER	South
NJH	561	EAST ORANGE-VA NEW JERSEY HCS	East
NOL	629	SE LOUISIANA VETERANS HCS	South
NOP	632	NORTHPORT VAMC	East
NYH	630A4	BROOKLYN HHS	East
NYH	630	NEW YORK HHS	East
OKL	635	OKLAHOMA CITY VAMC	South
OMA	636A8	IOWA CITY HCS	South
OMA	636A6	VA CIHS DES MOINES DIVISION	South
OMA	636	VA NWIHS OMAHA DIVISION	South
ORL	675	ORLANDO VAMC	South
PAL	640	PALO ALTO VA MEDICAL CENTER	Southwest
PAL	640A4	PALO ALTO VAMC-LIVERMORE	Southwest
PHI	642	PHILADELPHIA PA VAMC	East
PHO	644	PHOENIX VAMC	Southwest
POR	648	PORTLAND VA MEDICAL CENTER	Southwest
PRE	649	NORTHERN ARIZONA HCS	Southwest
PRO	650	PROVIDENCE VAMC	East
PTH	646	PITTSBURGH VAMC UNIVERSITY DR.	East
PUG	663	SEATTLE VA MEDICAL CENTER	Southwest
REN	654	IOANNIS A. LOUGARIS VAMC	Southwest
RIC	652	HUNTER HOLMES MCGUIRE HOSPITAL	South
ROS	653	ROSEBURG VA MEDICAL CENTER	Southwest
SAG	655	ALEDA E. LUTZ VAMC	South
SAJ	672	SAN JUAN VA MEDICAL CENTER	South
SAM	658	SALEM VA MEDICAL CENTER	South
SBY	659BY	KERNERSVILLE VA CLINIC	South
SBY	659BZ	SOUTH CHARLOTTE VA CLINIC	South
SBY	659	W.G. HEFNER SALISBURY VAMC	South
SDC	664	SAN DIEGO HCS	Southwest
SFC	662	SAN FRANCISCO VAMC	Southwest
SHR	667	SHREVEPORT VAMC	South
SLC	660	GEORGE E. WAHLEN VAMC	Southwest
SPO	668	MANN-GRANDSTAFF VAMC	Southwest
STC	656	ST. CLOUD VA HCS	South
STL	657A5	MARION IL VAMC	South
STL	657A4	POPLAR BLUFF MO VAMC	South
STL	657	ST. LOUIS MO VAMC-JC DIVISION	South
STX	671	AUDIE L. MURPHY MEMORIAL HOSP	South
STX	671A4	KERRVILLE VA MEDICAL CENTER	South
SUX	438	SIOUX FALLS VA HCS	South
TAM	673GC	BROOKSVILLE CBOC	South
TAM	673	TAMPA FL VAMC	South
TOG	402	VA MAINE HCS	East
TOM	676	TOMAH VAMC	South
TUC	678	SOUTHERN ARIZONA VA HCS	Southwest
TVH	626A4	ALVIN C. YORK VAMC	South
TVH	626	TENNESSEE VALLEY HCS	South
UNY	528A6	BATH VA MEDICAL CENTER	East
UNY	528A8	SAMUEL S. STRATTON VAMC	East
UNY	528A7	SYRACUSE VA MEDICAL CENTER	East
UNY	528	UPSTATE NEW YORK HCS	East
WAS	688	WASHINGTON VA MEDICAL CENTER	East

Site Code	Div#	Division Name	Server Region
WBP	693	WILKES-BARRE VAMC	East
WIM	460	WILMINGTON VA MEDICAL CENTER	East
WPB	548	WEST PALM BEACH VAMC	South
WRJ	405	WHITE RIVER JCT VAMROC	East

 *If you are unable to connect to your VBECS app server for more than 10 minutes during your server maintenance window (or ever), contact Customer Support.*

What to Expect During Server Maintenance

PRODUCTION Maintenance

When your PRODUCTION server's maintenance begins, all disconnected sessions are terminated. However, any user with an open Remote Desktop client window will see warning alerts similar to Figure 31. Seeing one of these alerts means that your passive VBECS server is already running. You should switch to it as soon as possible by signing out and back in; the load balancer will route you to the correct server.


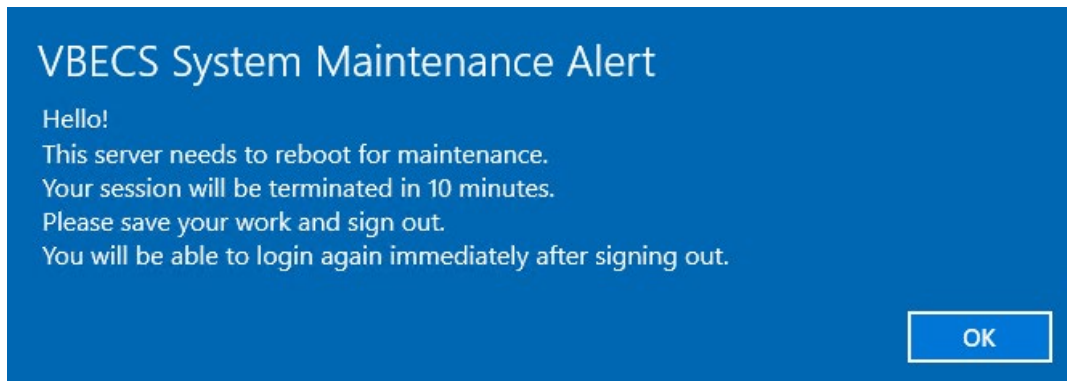
Please do not disconnect your session; instead, use the Sign Out shortcut  (see the *Session Disconnect vs Sign Out* section). Maintenance warning alerts will be sent at 10, 5 and 1 minute prior to the server reboot.

Figure 31: Example of Server Maintenance Alert (Production Server)



TEST Maintenance

Due to current limitations with the cloud, TEST environments will not receive warning alerts similar to Figure 31. TEST servers will reboot at some point during their maintenance window without warning, so plan accordingly. Test accounts will be completely unavailable while the server reboots; the expected downtime is between 5 and 30 minutes. Contact Customer Support if you are unable to access your TEST environment outside the maintenance window.

Anti-Virus Software and Virus Protection

Anti-virus software is required and running on all VBECS servers. The VA's Infrastructure Operations team determines which vendor's software to use, however the VBECS Team tests any updates on development servers before approving it for use on all VBECS servers.

VistA Maintenance Operations

Four HL7 Logical Links and one VistALink connection must be established and configured to establish proper communication with VBECS. The HL7 links are:

- OERR-VBECS
- VBECS-OERR
- VBECSPTU
- VBECSPTM

The VistALink connection configuration is the data that VistA will use to transmit data in XML format to VBECS. The following set of instructions will aid in the proper configuration of these links and ensure reliable communication between VistA and VBECS. These links must be configured during the initial installation of VBECS, and after any changes to the HL7 or VistALink configuration on VBECS. The settings should also be updated after the VistA Test account has been remirrored.

Set Up VBECS Outbound Logical Links

- 1) At the “Select HL7 Main Menu Option:” prompt, enter **Filer**.
- 2) Shut down the logical link.
- 3) At the “Select Filer and Link Management Options Option:” prompt, enter **Link Edit**.
- 4) At the “Select HL LOGICAL LINK NODE:” prompt, enter **OERR-VBECS** (Figure 32).

Figure 32: HL7 Logical Link Edit Menu Navigation

```
HL7 Main Menu
  Event monitoring menu ...
  Systems Link Monitor
  Filer and Link Management Options ...
  Message Management Options ...
  Interface Developer Options ...
  Site Parameter Edit

Select HL7 Main Menu Option: FILER

SM      Systems Link Monitor
FM      Monitor, Start, Stop Filers
LM      TCP Link Manager Start/Stop
SA      Stop All Messaging Background Processes
RA      Restart/Start All Links and Filers
DF      Default Filers Startup
SL      Start/Stop Links
PI      Ping (TCP Only)
ED    Link Edit
ER      Link Errors ...

Select Filer and Link Management Options Option: ED

Select HL LOGICAL LINK NODE: OERR-VBECS
```

- 5) Enter **Enabled** in the AUTOSTART field (Figure 33).
- 6) Move the cursor to the LLP TYPE field and press **Enter** (Figure 33).

Figure 33: HL7 Logical Link

```

HL7 LOGICAL LINK
-----
NODE: OERR-VBECs
INSTITUTION:
DOMAIN:
AUTOSTART: ENABLED
QUEUE SIZE: 10
LLP TYPE: TCP

COMMAND:                                     Press <PF1>H for help
Insert

```

- 7) In the “TCP/IP ADDRESS” field, enter the value contained from the “Computer Name” field of your VBECs remote desktop shortcut. **IP addresses cannot be used.**
- 8) In the “TCP/IP PORT” field, enter VBECs standard port numbers of 21993 for TEST and 21994 for PRODUCTION.
- 9) Set the “ACK TIMEOUT” field to **30**.
- 10) Set the “READ TIMEOUT” field to **30**.
- 11) Move the cursor to the “COMMAND:” prompt.
- 12) Enter **Close** to return to the previous screen.
- 13) At the “COMMAND:” prompt, enter **Save**.
- 14) Enter **Exit**.

Figure 34: TCP Lower Level Parameters: OERR-VBECs

```

HL7 LOGICAL LINK
-----
TCP LOWER LEVEL PARAMETERS
OERR-VBECs

TCP/IP SERVICE TYPE: CLIENT (SENDER)
TCP/IP ADDRESS: <DNS from the VBECs remote desktop shortcut>
TCP/IP PORT: <21993 or 21994>

ACK TIMEOUT: 30                                RE-TRANSMISSION ATTEMPTS:
READ TIMEOUT: 30                                EXCEED RE-TRANSMIT ACTION:
BLOCK SIZE:                                     SAY HELO:

STARTUP NODE:                                   PERSISTENT: NO
RETENTION: 15                                   UNI-DIRECTIONAL WAIT:

COMMAND:                                     Press <PF1>H for help
Insert

```

- 15) Repeat Steps 3 through 14 substituting “VBECsPTM” and “VBECsPTU” for “OERR-VBECs” when prompted for the logical link name to change the IP address and port numbers for the VBECsPTM and VBECsPTU logical links.

Set Up the VBECS Inbound Logical Link

- 1) At the “Select HL7 Main Menu Option:” prompt, enter **Filer**.
- 2) At the “Select Filer and Link Management Options Option:” prompt, enter **Link Edit**.
- 3) At the “Select HL LOGICAL LINK NODE:” prompt, enter **VBECS-OERR** (as shown for OERR-VBECS in Figure 32).
- 4) Enter **Enabled** in the AUTOSTART field (Figure 35).
- 5) Move the cursor to the LLP TYPE field and press **Enter** (Figure 35).

Figure 35: HL7 Logical Link

HL7 LOGICAL LINK	

NODE: VBECS-OERR	
INSTITUTION:	
DOMAIN:	
AUTOSTART: ENABLED	
QUEUE SIZE: 10	
LLP TYPE: TCP	

COMMAND:	Press <PF1>H for help
Insert	

- 6) Blank out the “TCP/IP ADDRESS” field.
- 7) In the “TCP/IP PORT” field, enter the correct (unique) port number for your Vista. Unique port numbers are in the format **1mn93** for TEST and **1mn94** for PRODUCTION, where “mn” is the site specific “magic number”. Regional support should be contacted for the correct port numbers.
- 8) Set the “ACK TIMEOUT” field to **30**.
- 9) Set the “READ TIMEOUT” field to **30**.
- 10) Set the “RE-TRANSMISSION ATTEMPTS” field to **10**.
- 11) Set the “EXCEED RE-TRANSMIT ACTION” field to **restart**.
- 12) Move the cursor to the “COMMAND:” prompt.
- 13) Enter **Close** to return to the previous screen.
- 14) At the “COMMAND:” prompt, enter **Save**.

15) Enter **Exit**.

Figure 36: TCP Lower Level Parameters: VBECS-OERR

```
HL7 LOGICAL LINK
-----
TCP LOWER LEVEL PARAMETERS
      VBECS-OERR

TCP/IP SERVICE TYPE: SINGLE LISTENER
TCP/IP ADDRESS:
TCP/IP PORT: <1mn93 OR 1mn94>

ACK TIMEOUT: 30
READ TIMEOUT: 30
BLOCK SIZE:
RE-TRANSMISION ATTEMPTS: 10
EXCEED RE-TRANSMIT ACTION: restart
SAY HELO:

STARTUP NODE:
RETENTION:
PERSISTENT: NO
UNI-DIRECTIONAL WAIT:

COMMAND:
Insert                                     Press <PF1>H for help
```

Start VistA HL7 Logical Links

- 1) Before data can be transmitted over the VBECS logical links, edit the link definitions as described above.
- 2) To turn on the new VBECS logical links, select **START/STOP LINKS [HL START]**.
- 3) Start the “OERR-VBECS” logical link.
- 4) Start the “VBECS-OERR” logical link.
- 5) Start the “VBECSPTM” logical link.
- 6) Start the “VBECSPTU” logical link.
- 7) Ensure that the VistA HL7 Link Manager is running; VBECS messaging cannot occur without it.
- 8) To check the status of the Link Manager (and, if necessary, restart it), access the **HL START/STOP LINK MANAGER** menu option.

Monitor VBECS HL7 Logical Links

Once two-way communication has been established, you can monitor the links.

- 1) Use the “System Link Monitor” to view the status of the VBECS Logical Links.
- 2) From the “HL7 Main Menu”, select **System Link Monitor** (Figure 37).

Figure 37: HL7 System Link Monitor Menu Navigation

```
HL7 Main Menu
  Event monitoring menu ...
  Systems Link Monitor
  Filer and Link Management Options ...
  Message Management Options ...
  Interface Developer Options ...
  Site Parameter Edit

Select HL7 Main Menu Option: System Link Monitor
```

- 3) When a list of Vista HL7 links defined at your site appears, press **V** at the “Select a Command:” prompt (Figure 38).
- 4) At the “Select LINK MONITOR VIEWS:” prompt, enter **VBECS** (Figure 38).

Figure 38: System Link Monitor

```
SYSTEM LINK MONITOR for <your site name>

      MESSAGES      DEVICE
      RECEIVED    PROCESSED    TO SEND    SENT        TYPE        STATE

LA7V 657                4          4          4          MM          Halting
LL15VISN    105          105        394        105        NC          Shutdown
MPIVA       0           0          322        0          NC          Shutdown
NPTF        0           0          25         0          MM          Halting
OERR-VBE    34           34        1019       1018       NC          Idle
PSOTPBA    28           28         52         28         NC          Shutdown
VABAC       0           0           1          0          NC          Shutdown
VAFAV       0           0           2          0          NC          Shutdown
VAFHM       0           0           3          0          NC          Shutdown
VAFRE       0           0           4          0          NC          Shutdown

Incoming filers running => 1          TaskMan running
Outgoing filers running => 1          Link Manager running
                                      Monitor OVERDUE

Select a Command:
(N)EXT (B)ACKUP (A)LL LINKS (S)CREENED (V)IEWS (Q)UIT (?) HELP: v

Select LINK MONITOR VIEWS: VBECS
```

5) A screen similar to Figure 39 appears.

Figure 39: System Link Monitor

```
SYSTEM LINK MONITOR for <your site name>

      MESSAGES      DEVICE
NODE   RECEIVED    PROCESSED  TO SEND   SENT      TYPE      STATE
-----
OERR-VBECS 0          0          0         0         NC        Idle
VBECS-OERR 0          0          0         0         SS        Idle
VBECSPTM  0          0          0         0         NC        Enabled
VBECSPTU  0          0          0         0         NC        Enabled

Incoming filers running => 1          TaskMan running
Outgoing filers running => 1          Link Manager Running
                                      Monitor OVERDUE

Select a Command:
(N)EXT (B)ACKUP (A)LL LINKS (S)CREENED (V)IEWS (Q)UIT (?) HELP:
```

- 6) To exit the “System Link Monitor”, at the “Select a Command:” prompt, enter **Q** to quit.
- 7) Refer to *Appendices*
- 8) *Appendix A: Verify VBECS HL7 Interface Protocol* if errors are noted and the configuration of the HL7 links is in question.



The volume of HL7 traffic over these links depends on the number of daily CPRS Blood Bank orders and updates to the VistA clinical information at your site. These can be significant at large sites. Monitor the links closely the first few days after the installation and purge the HL7 log data (as appropriate) in accordance with your standard HL7 monitoring and purging procedures.

Configure VBECS VistALink Links

- 1) Use the “Edit Parameter Values” option on the “GENERAL PARAMETER TOOLS” menu to edit the values for the VistALink connection to VBECS.
- 2) At the “Select Instance:” prompt, enter **LISTENER IP ADDRESS**.
- 3) At the “Value:” prompt, enter the value of the “Computer Name” field from the appropriate VBECS remote desktop shortcut. **IP addresses cannot be used.**
- 4) At the “Select Instance:” prompt, enter **LISTENER PORT NUMBER**.
- 5) At the “Value:” prompt, enter the VBECS VistALink listener port number: 21991 for TEST and 21992 for PRODUCTION.

6) Press **Enter** to exit the option.

Figure 40: VistALink Configuration

```
Select OPTION NAME: GENERAL PARAMETER TOOLS  XPAR MENU TOOLS  General
Parameter Tools

LV      List Values for a Selected Parameter
LE      List Values for a Selected Entity
LP      List Values for a Selected Package
LT      List Values for a Selected Template
EP      Edit Parameter Values
ET      Edit Parameter Values with Template
EK      Edit Parameter Definition Keyword

Select General Parameter Tools Option: EP  Edit Parameter Values
      --- Edit Parameter Values

Select PARAMETER DEFINITION NAME: VBECS VISTALINK

----- Setting VBECS VISTALINK  for Package: VBECS
Select Instance: LISTENER IP ADDRESS

Instance: LISTENER IP ADDRESS//  LISTENER IP ADDRESS
Value: <IP address>//  <"Computer Name" field value from the VBECS remote desktop
shortcut>
Select Instance: LISTENER PORT NUMBER

Instance: LISTENER PORT NUMBER  Replace  LISTENER PORT NUMBER
Value: 8000//  <21991 or 21992>
Select Instance:
```

Workload Data Transmission

VBECS workload data is recorded in VBECS when records that qualify as Workload Events are saved in VBECS. This data is extracted from VBECS to the VistA Laboratory workload recording system by way of a VistA scheduled task named **LR TASK NIGHT (NIGHTLY CLEANUP)**.

If VistA is not receiving VBECS workload, ensure the task is scheduled correctly in VistA.

This task is scheduled using the **SCHEDULE/UNSCHEDULE OPTIONS (XUTM SCHEDULE)** option.

Set the **"QUEUED TO RUN AT WHAT TIME:"** entry to just after midnight.

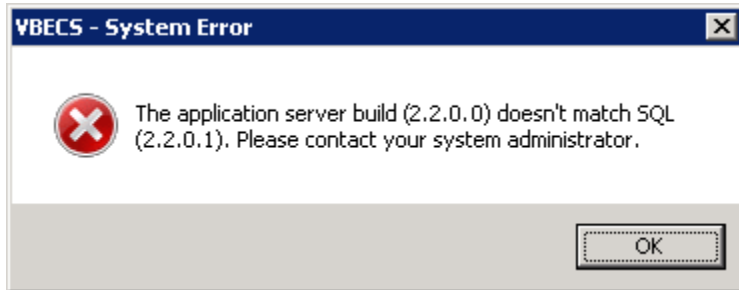
Set the **"RESCHEDULING FREQUENCY:"** to "1D", which indicates that the task should repeat daily.

Troubleshooting

Error on VBECS or VBECS Admin Launch

If you see the message depicted in Figure 41 it means that your VBECS environment is corrupted and your VBECS software version does not match the version expected in your VBECS database. This should never happen, so contact *Customer Support* immediately.

Figure 41: Example of Critical Software Mismatch Error



VBECS Application Interfaces

When the HL7 Listener service encounters an error parsing an HL7 message it generates an event description like the following:

VBECS Patient Update HL7 Parser: Error processing HL7 message:
Missing or invalid content in HL7 message:
ERR^MSH~1~12~203~

Upon troubleshooting an email message regarding an HL7 message, contact *Customer Support*. Due to PII and HIPAA constraints, patient information will not be sent over unencrypted email and the support personnel will need to manually retrieve this information from your VBECS server. Table 4 describes the possible error codes and problem descriptions.

Table 4: Troubleshooting Rejected VBECS HL7 Messages

Error Code	Description of Problem
100	Segment Sequence Error
101	Required Field Missing
102	Data Type Error
103	Table Value Not Found
200	Unsupported Message Type
201	Unsupported Event Code
202	Unsupported Processing ID
203	Unsupported Version Id
204	Unknown Key Identifier
205	Duplicate Key Identifier
206	Application Record Locked
207	Application Internal Error
208	Conflicting Processing Id

Table 5: Troubleshooting VBECS Application Interfaces

Source	Description of Problem	Possible Cause	Solution
VBECS: Order Alerts and Pending Order List	New orders or cancellations of existing orders in CPRS are not showing up in VBECS.	The OERR-VBECS HL7 Logical Link is not running on the VistA system.	Start the OERR-VBECS HL7 Logical Link.
		The VBECS HL7 Listener Windows service is not running or is hung on your VBECS app server.	Contact <i>Customer Support</i> to restart the VBECS HL7 Listener Windows service on your VBECS app server.
		Network connectivity issue	Contact <i>Customer Support</i> to troubleshoot possible network service disruptions or firewall issues.
		The HL7 message is missing patient name or one or more name components length(s) exceed(s) the VBECS maximum supported value.	VBECS responds to the new order request with an application reject (AR) acknowledgement message indicating Patient Name(s) not found in HL7 Message or Patient's Name(s) field size(s) exceed(s) VBECS maximum supported value. Rejected patient order messages due to invalid patient name message content are recorded on the Windows Event Log (Finding Application Log Entries from Email Alerts) and an email message containing the MSH segment of the rejected HL7 message.
VBECS Admin: Edit Division	New orders are not showing up in VBECS.	Order mappings to institutions within a division's configuration are not setup properly.	Map the missing CBOC facilities in the <i>Edit Divisions</i> menu option for <i>VBECS Admin</i> .
VBECS: Patient Update Alerts	VistA patient updates are not showing up in VBECS.	The Taskman scheduled option VAFC BATCH UPDATE is not scheduled to run or has not reached the time limit in the schedule.	Schedule the VAFC BATCH UPDATE option to run at the desired frequency (the recommended frequency is every 10 minutes) or use the option "One-time Option Queue" in the Taskman Management Options to start the task.
		The VBECSPTU HL7 Logical Link is not running on the VistA system.	Start the VBECSPTU HL7 Logical Link.
		The VBECS HL7 Listener Windows service is not running or is hung on your VBECS app server.	Contact <i>Customer Support</i> to restart the VBECS HL7 Listener Windows service on your VBECS app server.
		Network connectivity issue	Contact <i>Customer Support</i> to troubleshoot possible network service disruptions or firewall issues.

Source	Description of Problem	Possible Cause	Solution
		The HL7 message is missing the patient's name or one or more of the patient's name component length(s) exceed the VBECS maximum supported length.	Contact <i>Customer Support</i> to help identify which patient name component is causing the problem.
VBECS: Patient Merge Alerts	Vista Patient Merge events are not showing up in VBECS.	The VBECSPTM HL7 Logical Link is not running on the Vista system.	Start the VBECSPTM HL7 Logical Link.
		The VBECS HL7 Listener Windows service is not running or is hung on your VBECS app server.	Contact <i>Customer Support</i> to restart the VBECS HL7 Listener Windows service on your VBECS app server.
		Network connectivity issue	Contact <i>Customer Support</i> to troubleshoot possible network service disruptions or firewall issues.
		The HL7 message is missing the patient's name or one or more of the patient's name component length(s) exceed the VBECS maximum supported length.	Contact <i>Customer Support</i> to help identify which patient name component is causing the problem.
Vista: HL7 System Link Monitor	The Vista HL7 System Link Monitor shows more MESSAGES TO SEND than MESSAGES SENT for the OERR-VBECS Logical Link and is hung in an "Open" state.	The VBECS HL7 Listener Windows service is not running or is hung on your VBECS app server.	Contact <i>Customer Support</i> to restart the VBECS HL7 Listener Windows service on your VBECS app server.
	The Vista HL7 System Link Monitor shows more MESSAGES TO SEND than MESSAGES SENT for the VBECSPTU Logical Link and is hung in an "Open" state.		
	The Vista HL7 System Link Monitor shows more MESSAGES TO SEND than MESSAGES SENT for the VBECSPTM Logical Link and is hung in an "Open" state.	Network connectivity issue	Contact <i>Customer Support</i> to troubleshoot possible network service disruptions or firewall issues.
CPRS: Orders Tab	CPRS does not display the correct status of a blood bank order after it was updated in VBECS.	The VBECS HL7 Dispatcher Windows service is not running or is hung on your VBECS app server.	Contact <i>Customer Support</i> to restart the VBECS HL7 Dispatcher Windows service on your VBECS app server.
		The VBECS-OERR HL7 Logical Link is not running.	Start the VBECS-OERR HL7 Logical Link.
		Network connectivity issue	Contact <i>Customer Support</i> to troubleshoot possible network service disruptions or firewall issues.

Source	Description of Problem	Possible Cause	Solution
CPRS: Blood Bank Order Dialog	CPRS displays "Not able to open port" message in Patient Information screen in Blood Bank Order Dialog.	The VBECs VistALink Listener Windows service is not running or is hung on your VBECs app server.	Contact <i>Customer Support</i> to restart the VBECs VistALink Listener Windows service on your VBECs app server.
		Network connectivity issue	Contact <i>Customer Support</i> to troubleshoot possible network service disruptions or firewall issues.
CPRS: Reports Tab, Blood Bank Report	CPRS displays "---- BLOOD BANK REPORT IS UNAVAILABLE----"	The VBECs VistALink Listener Windows service is not running or is hung on your VBECs app server.	Contact <i>Customer Support</i> to restart the VBECs VistALink Listener Windows service on your VBECs app server.
		Network connectivity issue	Contact <i>Customer Support</i> to troubleshoot possible network service disruptions or firewall issues.
		Incorrect PARAMTERS field settings in VistA (File #8989.5)	Verify the PARAMETERS file is set correctly. Refer to the <i>Configure VBECs VistALink Links</i> section.
CPRS: Blood Bank Order Dialog: Signing an Order	CPRS displays an "Error Saving Order" dialog screen with the text "The error, One or more orders to the VBECs system failed and are queued for later delivery."	A severe error occurred in the VBECs HL7 Listener Windows service, which failed to respond to CPRS properly.	Contact <i>Customer Support</i> to review the logs of the VBECs HL7 Listener Windows service on your VBECs app server.
		Network connectivity issue	Contact <i>Customer Support</i> to troubleshoot possible network service disruptions or firewall issues.
		If the IP address is not from the local VistA system, a rogue HL7 system is sending messages to the VBECs server.	Contact IRM to identify the location of the server with which the IP address is associated. Notify the site that the message is coming from the problem so that the messages can be routed to the correct location.
Automated Instrument	VBECs is not receiving messages sent from the instrument.	The VBECs HL7 Dispatcher Windows service is not running or is hung on your VBECs app server.	Contact <i>Customer Support</i> to restart the VBECs HL7 Dispatcher Windows service on your VBECs app server.
		Network connectivity issue	Contact <i>Customer Support</i> to troubleshoot possible network service disruptions or firewall issues.
		The Automated Instrument interface is not enabled.	Enable the Automated Instrument interface in the <i>Edit Interfaces</i> menu option of <i>VBECs Admin</i> .

Scanner Problems



After scanning a barcode, a ` (backtick character) character appears at the start of the output.

Probable Cause

The **Caps Lock** is on.

Solution

Turn the **Caps Lock** off.



After scanning a barcode, characters appear in the output that do not match the label being scanned. Often, these bad characters are not alphanumeric.

Probable Cause

Network latency can cause data to become corrupted.

Solution

If the issue doesn't improve over time, you can try to add a delay to the characters sent by the scanner. Consult your scanner vendor or documentation to increase the intercharacter delay. Start with a small delay and gradually increase until the scanner is correctly rendering the data.

Database

Backups

VBECS databases are backed up daily using Microsoft's Azure Backup Service. This backup takes place at 4:00 AM (CST) and the data is saved to geo-redundant storage, which means it that three copies are made in both the primary and secondary storage regions to protect against drive failure. Backups are retained for 32 days.

Recovery

VBECS does not delete user-entered data. When a user invalidates or inactivates a record the record contains a status field which can be used to filter it from reports, but the record remains in the database. This is done to preserve the medical record for audit and protect against user error.

In the event of a catastrophic failure, a VBECS database can be recovered from a backup files, however all data entered after the backup file date, would need to be manually re-entered.

Database Record Locks

VBECS implements two record locking strategies for maximum protection against data editing collisions: optimistic and pessimistic. Neither locking strategy prevent reports or other read-only queries from running against the locked record.

Optimistic locking is controlled by the database. It prevents records from being updated if those records were changed since the record was retrieved for editing. This is less user friendly since a user isn't notified of a problem until they try saving their changes. This is VBECS's safety net in case Pessimistic locking logic fails.

Optimistic Locking Example (without Pessimistic locking in place):

User A selects a record for editing.

User B selects the same record for editing and makes their change quickly and saves.

User A makes their changes and receives an error indicating the record has already changed. They need to re-select the record and repeat their edits.

Pessimistic locking is controlled by VBECS application code and prevents a user from opening a record for edit if another user already has the same record open for edit.

Pessimistic Locking Example:

User A selects a record for editing. At this point VBECS locks the record.

User B attempts to select the same record for editing. VBECS displays an alert indicating that User A already has the record locked and prevents them from editing the record.

As long as a user is working on the data they have locked, the lock will stay active. However, if they switch to a different menu option or leave their workstation, their lock becomes **inactive** and an inactivity countdown begins.

The countdown value is defined by the *Lock Inactivity Timeout* field of the *Edit Divisions* menu in the *VBECS Admin* software (refer to the *VBECS Admin User Guide*).

If an inactive lock's countdown reaches zero, the record lock is released.

Example: A division with a *Lock Inactivity Timeout* value of 10 minutes. User A selects a record for editing. At this point VBECS locks the record. User A stops using VBECS. The lock becomes inactive and a 10-minute inactivity countdown begins.

Option 1:

User A returns to VBECS before the countdown hits zero. The lock is again active, and the inactivity countdown stops.

Option 2:

User A returns to VBECS 11-minutes later. The lock is released, its menu option is closed, and the user needs to repeat their changes on that record. *VBECS does display a message to users when they have 60 seconds left on an inactivity countdown.

If a user Signs out of VBECS, any locks are released unless they use the “**Sign out anyway**” option (see Section: *Session Disconnect vs Sign Out*).

If a user Disconnects from VBECS, their locks remain and will begin their inactive countdown.

If VBECS has an unexpected shutdown or the user forcibly signs out of the server, record locks are not released. If this happens, there are 3 options available to release those locks:

- The user that owns the locks can restart VBECS. Starting VBECS releases any of the user’s locks it finds which weren’t released by pessimistic locking logic.
- Wait: locked records are automatically released by the database after 30 minutes.
- Contact *Customer Support* who can manually release the locks.

Security

VBECs contains sensitive data and performs a critical function, so it is critical to secure the system. It is important to secure the server from both users and malicious attacks from an individual who is trying to gain access to the system.

VBECs Active Directory (AD) Groups

To use the VBECs software, users must belong to the proper security groups. Each VBECs installation has two AD security groups which grant them access to their app server only:

- One group that controls access to the VBECs software
- One group that controls access to the VBECs Admin software

Remote Desktop permissions are granted to each of these groups on the appropriate app server. Table 6 contains a list of all of the AD security groups used throughout VBECs. Lookup your Site Code or Division Number (Div#) to find your entry. The VBECs Team does not manage these groups..

REDACTED

New User Checklist

When onboarding a new employee, ensure the following actions have been completed:

- **Assign the B Type Option to all Blood Bank Users.**
 - The VBECS BUNDLE 1.0 KIDS build installed one new (B)roker Type menu option in the OPTION file (#19). VistALink uses the VBECS VISTALINK CONTEXT option to provide user context sign-on security to VistA. All users of the Blood Bank medical device software must be assigned the VBECS VISTALINK CONTEXT option as a secondary option. Refer to *the KERNEL SYSTEMS MANUAL Version 8.0* for more information on assigning secondary options to users.
- **Assign Proper VistA Security Keys to Blood Bank Users** (“NEW PERSON” file 200)
 - All users should all get the LRBLOODBANK security key
 - All users in a supervisor role should get the LRBLSUPER security key.
- All users must belong to the appropriate AD security group described in the previous section.
- All users need to have the “**This account support AES 256-bit encryption**” flag set on their AD account. If a user receives the error displayed in Figure 13, they are missing this flag. Contact *Customer Support* to resolve this issue.

Glossary

Acronym, Term	Definition
AD	Active Directory. A directory service used to organize and manage domain objects such as computers, users, and security groups.
CPRS	Computerized Patient Record System.
DNS	Domain Naming System. Service that resolves network-joined computer names into IP addresses.
HL7	Health Level Seven.
LLP	Lower Layer Protocol.
MAG	Microsoft Azure Government. Name of the government subscription in the Microsoft Azure cloud.
PIV	Personal Identification Verification.
RDP	Remote Desktop Protocol.
SQL	Structured Query Language.
TCP/IP	Transmission Control Protocol/Internet Protocol.
VAEC	VA Enterprise Cloud. Term used to describe the VA computer systems contained within a commercial cloud.
VBECS	VistA Blood Establishment Computer Software.
VISN	Veterans Integrated Service Network.
XML	Extensible Markup Language.

Appendices

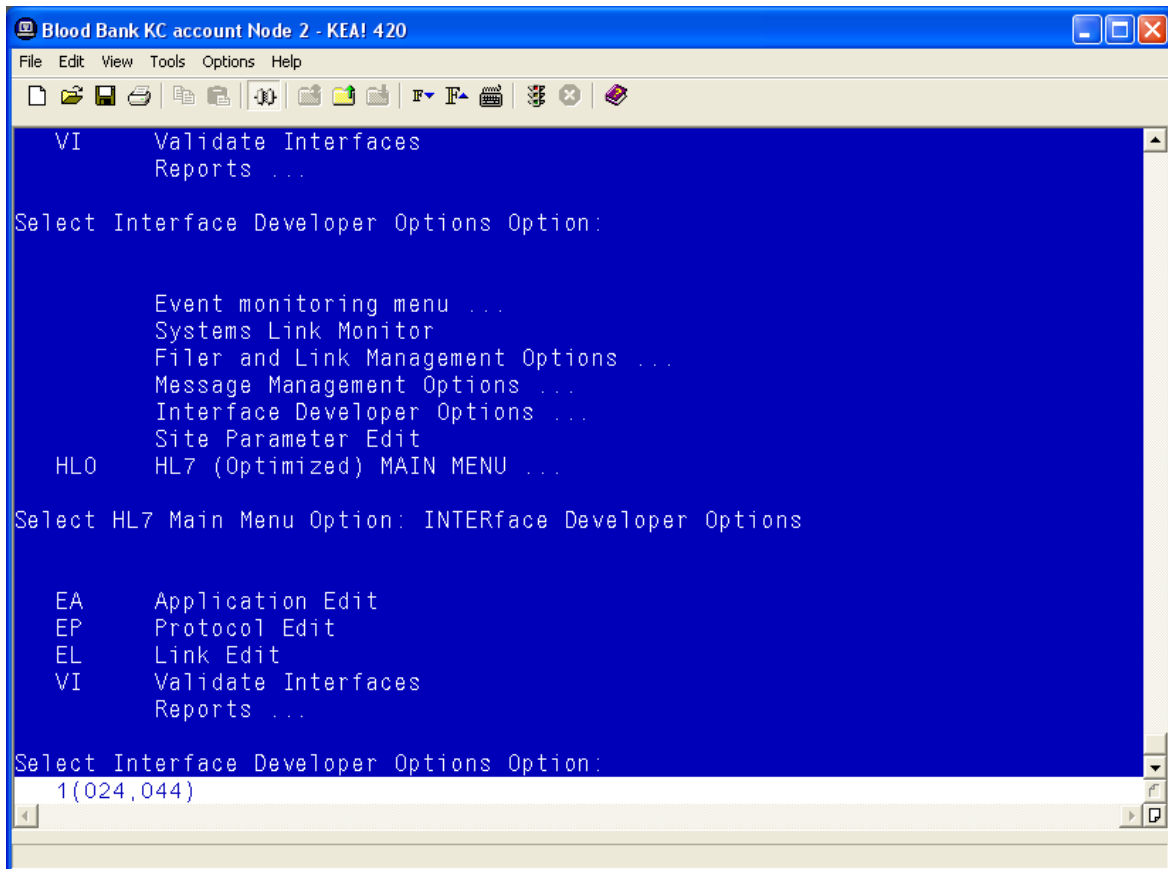
Appendix A: Verify VBECS HL7 Interface Protocols

This section can be used to verify the HL7 settings match initial VBECS installation values.

Set Up VBECS Protocol Definitions

- 1) From the 'HL7 Main" Menu, select **Interface Developer Options**.
- 2) Select **Protocol Edit**.

Figure 42: Example of HL7 Protocol Menu Navigation

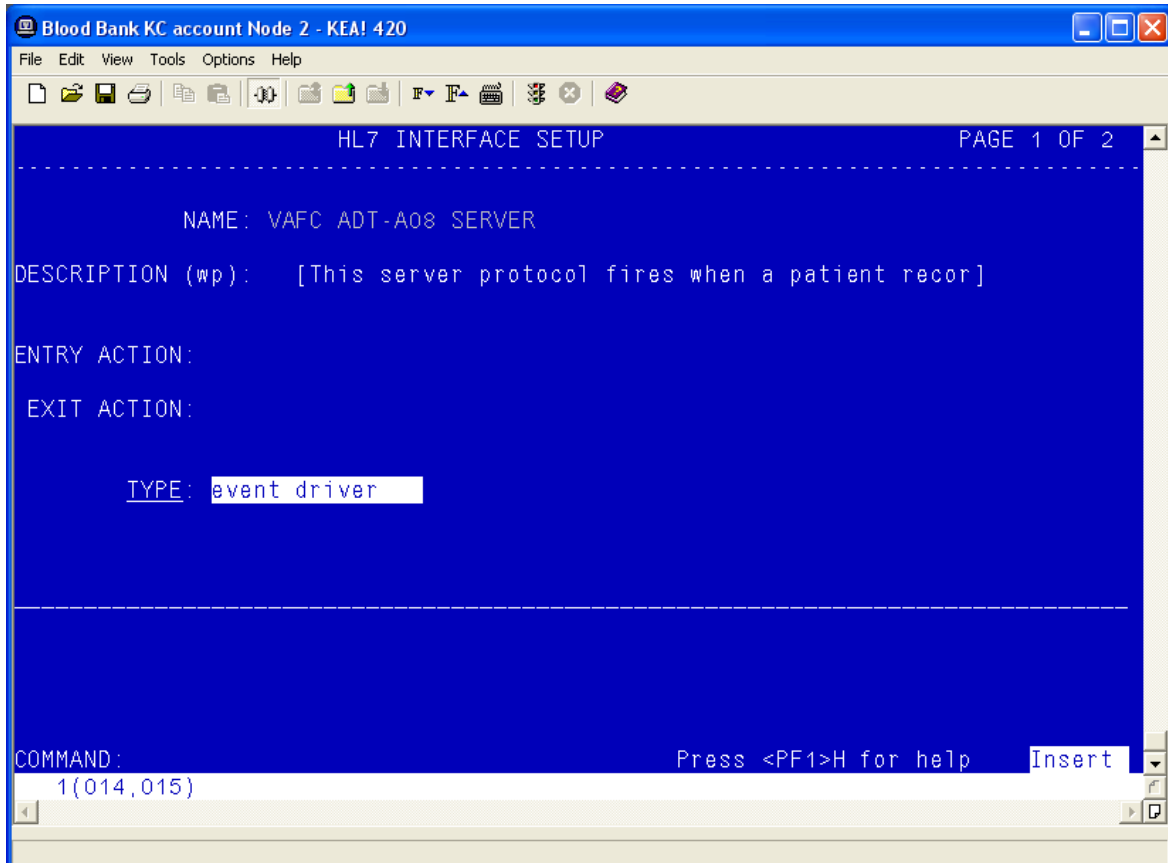


Patient Update Events

Edit VAFC ADT-A08 SERVER Protocol

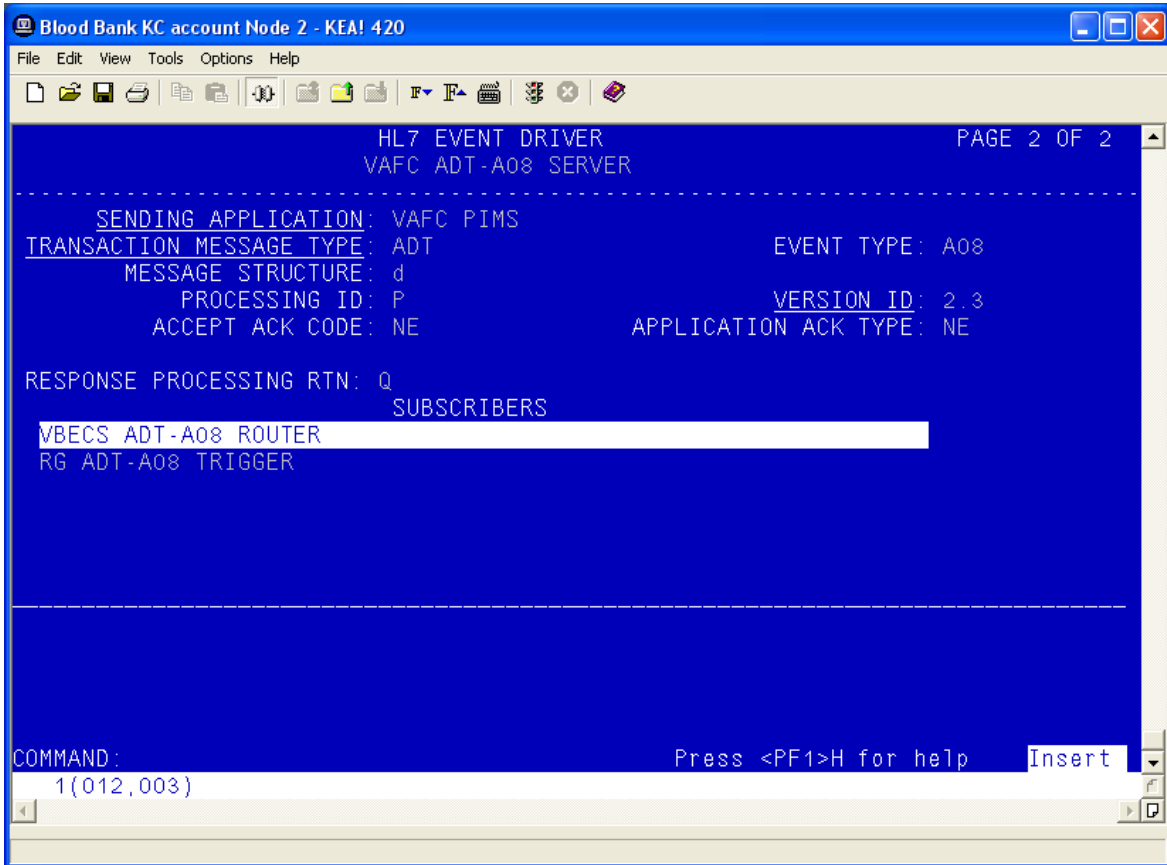
- 1) Select Edit Protocol and enter **VAFC ADT-A08 SERVER**.
- 2) Move the cursor to the “TYPE” field and press **Enter**.

Figure 43: Example of HL7 Interface Setup



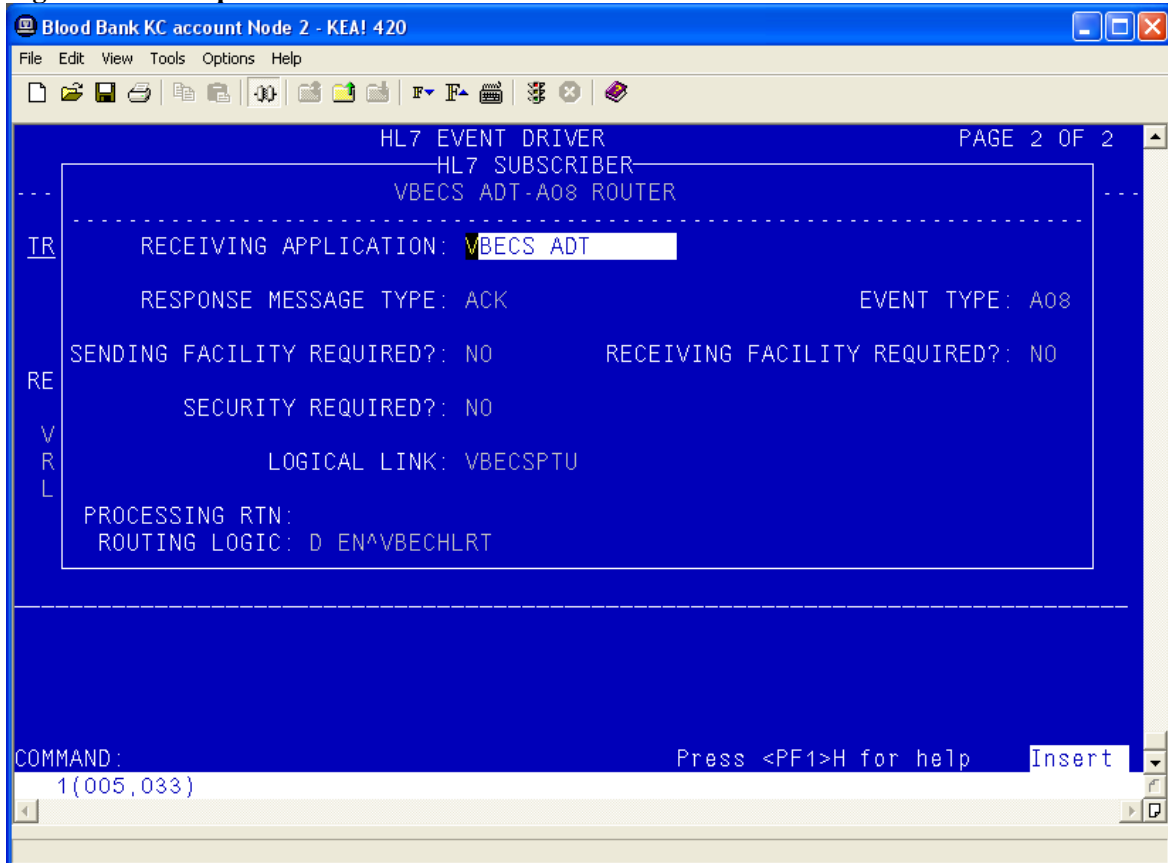
- 3) Move the cursor to below the last entry in the "SUBSCRIBERS" section.
- 4) Enter **VBECS ADT-A08 ROUTER** and press **Enter**.

Figure 44: Example of HL7 Event Driver



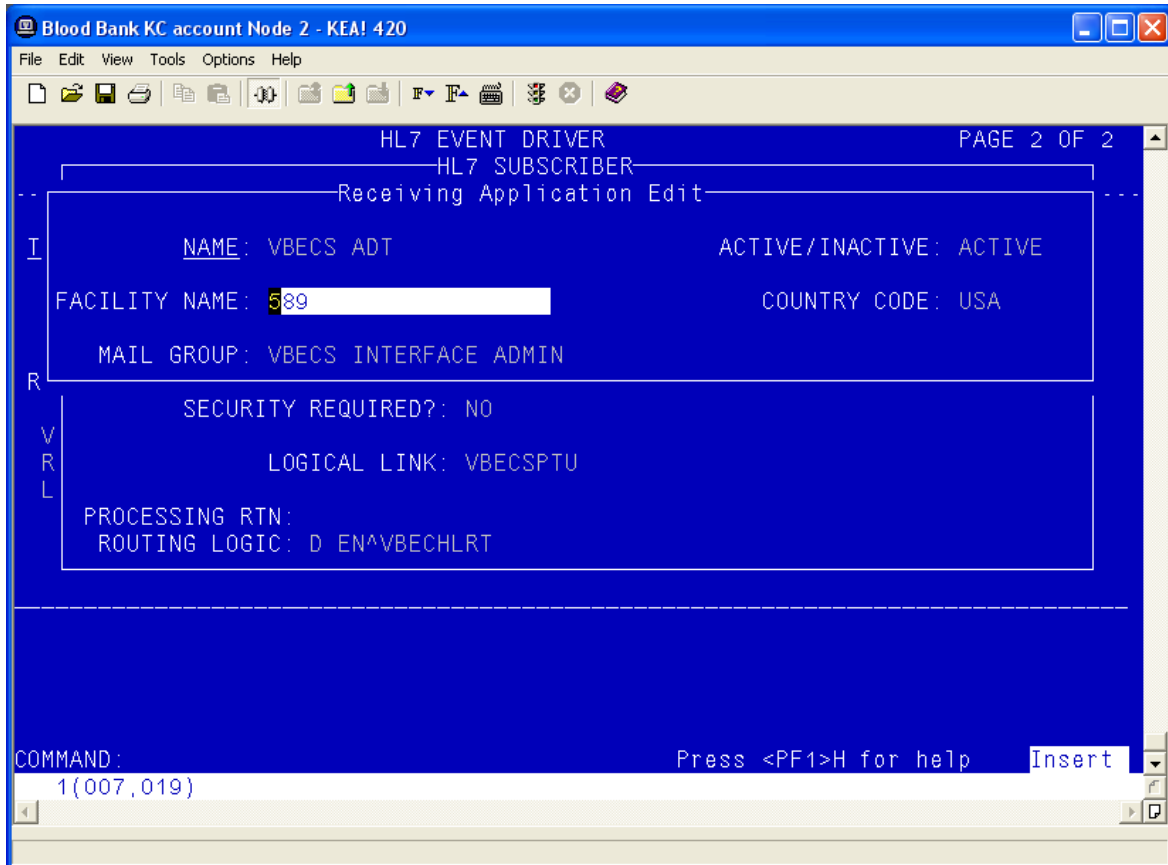
- 5) Accept the default settings in the sub-window.
- 6) Move the cursor to the “RECEIVING APPLICATION” prompt and verify that the entry is “VBECS ADT”.
- 7) Press **Enter**.

Figure 45: Example of HL7 Subscriber: VBECS ADT-A08 Router



- 8) Move the cursor to the “FACILITY NAME” prompt and enter the station number of the primary division of the site.
- 9) Move the cursor to the “COMMAND” prompt.
- 10) Enter **Close** and press **Enter**.

Figure 46: Example of HL7 Subscriber: VBECS ADT-A08 Router

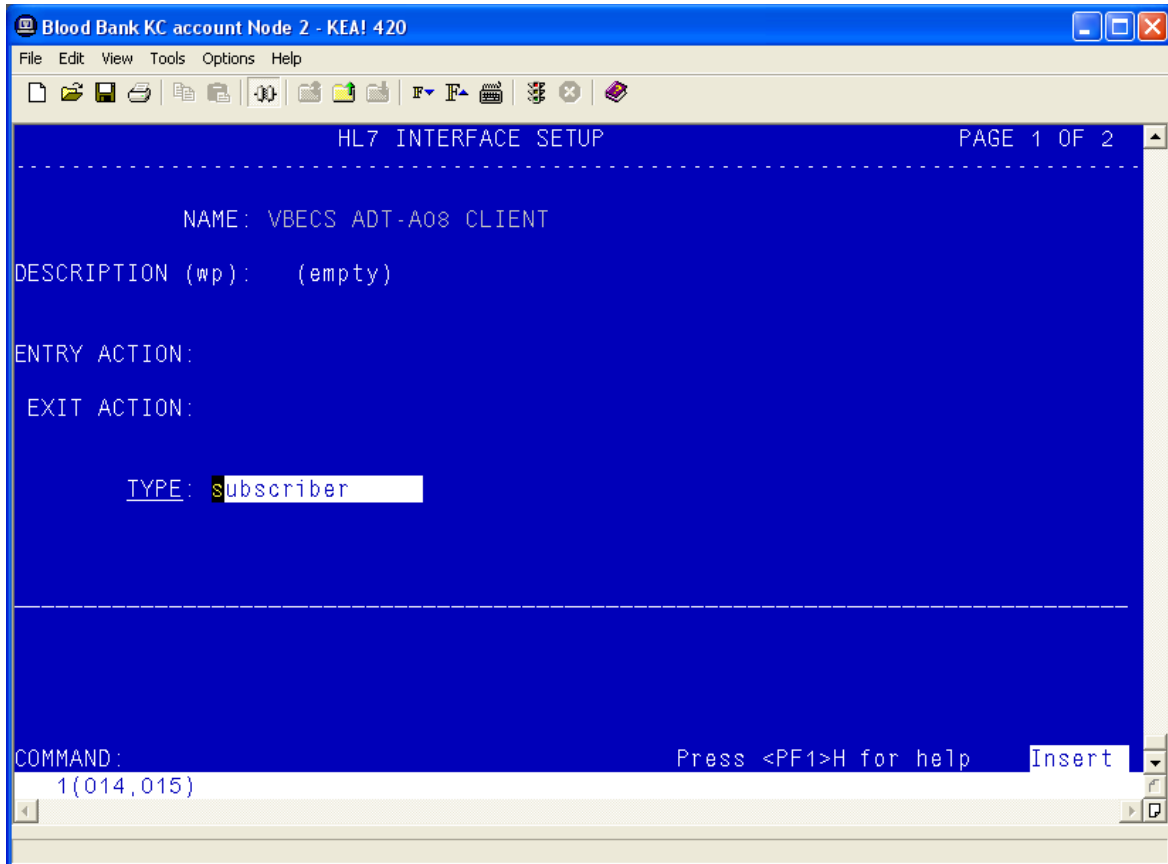


- 11) You will return to the previous screen (Figure 46). Move the cursor to the “COMMAND” prompt.
- 12) Enter **Save** and press **Enter**.
- 13) Enter **Exit** and press **Enter**.

VBECs ADT-A08 CLIENT

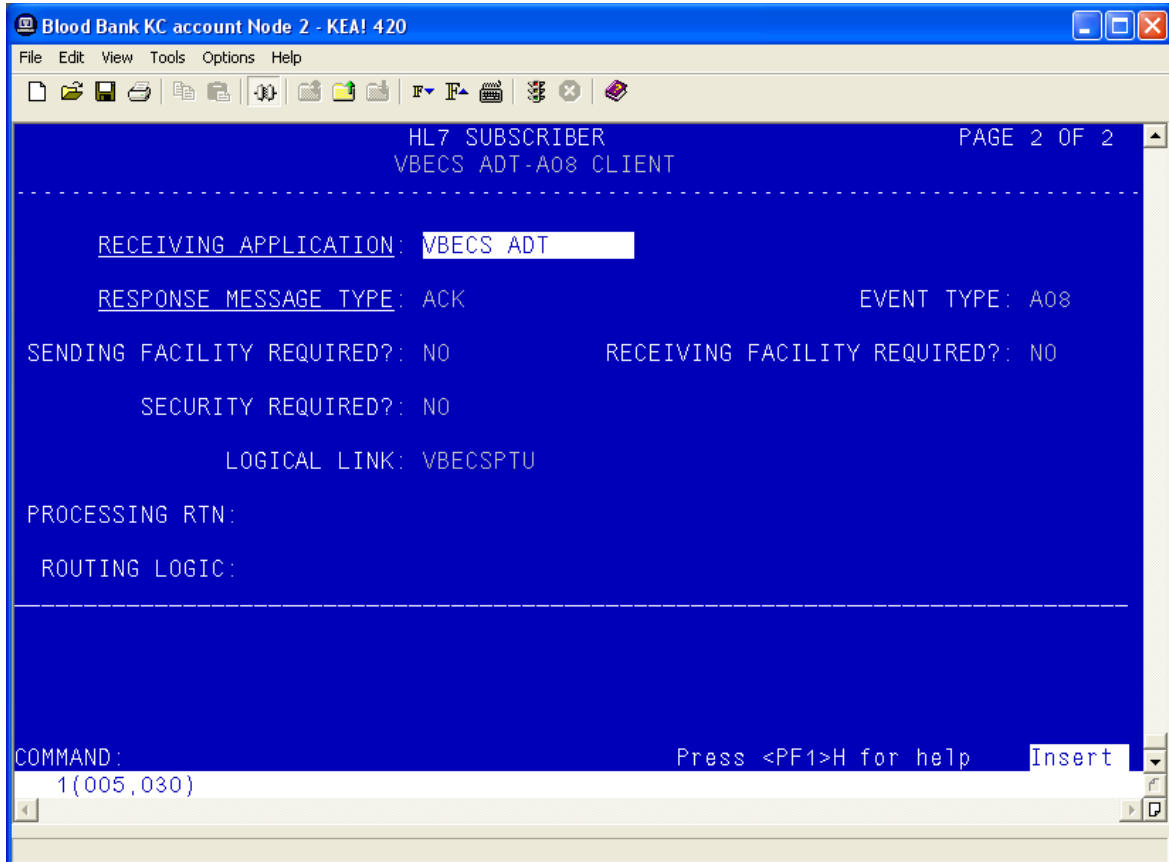
- 1) Select **VBECs ADT-A08 CLIENT**.
- 2) Move the cursor to the “TYPE” field and press **Enter**.

Figure 47: Example of HL7 Interface Setup



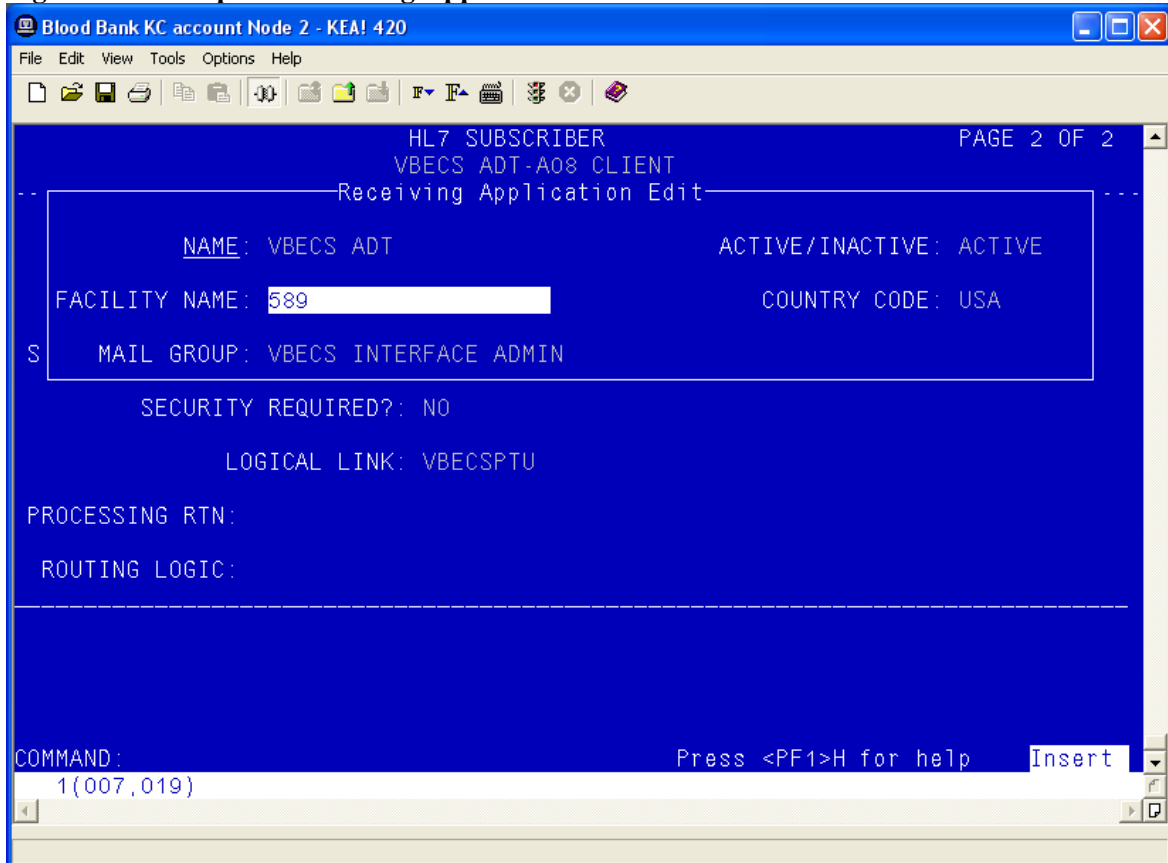
- 3) Move the cursor to the “RECEIVING APPLICATION” prompt and verify that the entry is “VBECS ADT”.
- 4) Press **Enter**.

Figure 48: Example of HL7 Subscriber: VBECS ADT-A08 Client



- 5) Move the cursor to the “FACILITY NAME” prompt and enter the station number of the primary division of the site.
- 6) Move the cursor to the “COMMAND” prompt.
- 7) Enter **Close** and press **Enter**.

Figure 49: Example of Receiving Application Edit

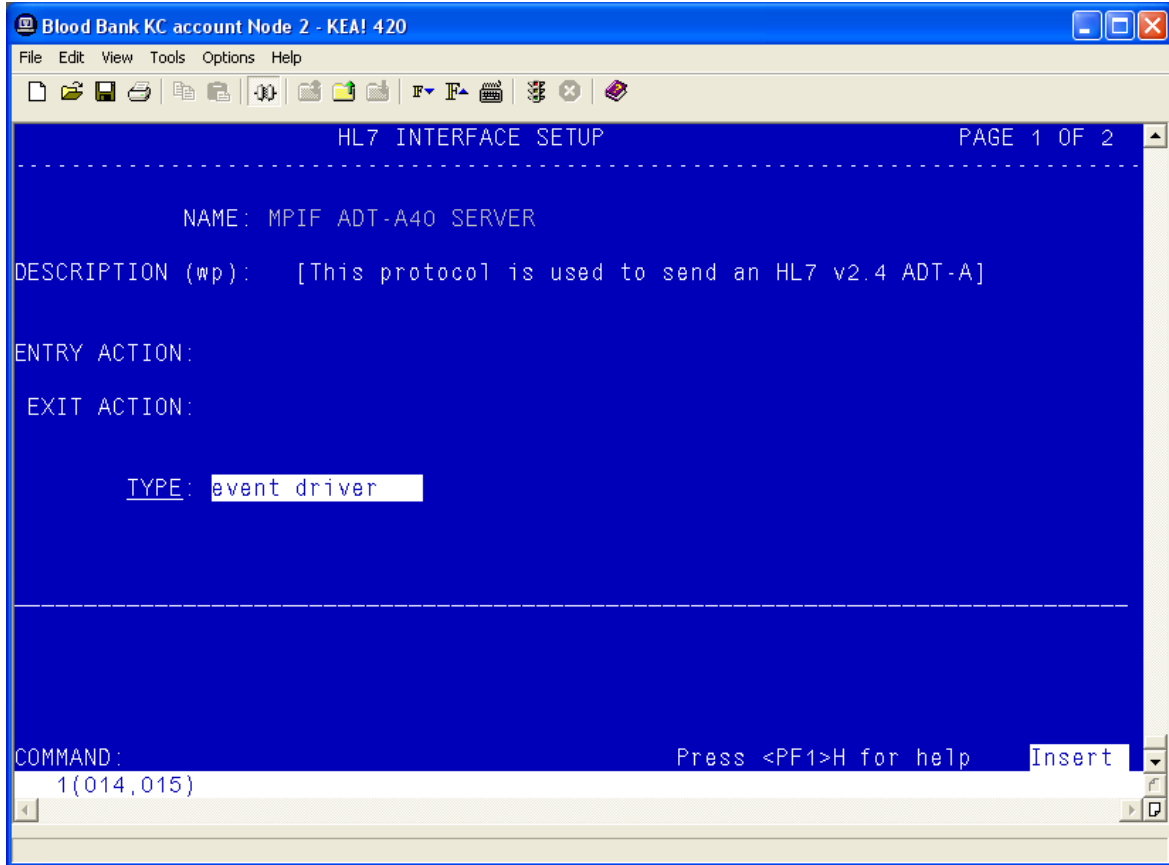


- 8) You will return to the previous screen (Figure 49). Move the cursor to the “COMMAND” prompt.
- 9) Enter **Save** and press **Enter**.
- 10) Enter **Exit** and press **Enter**.

Patient Merge Events

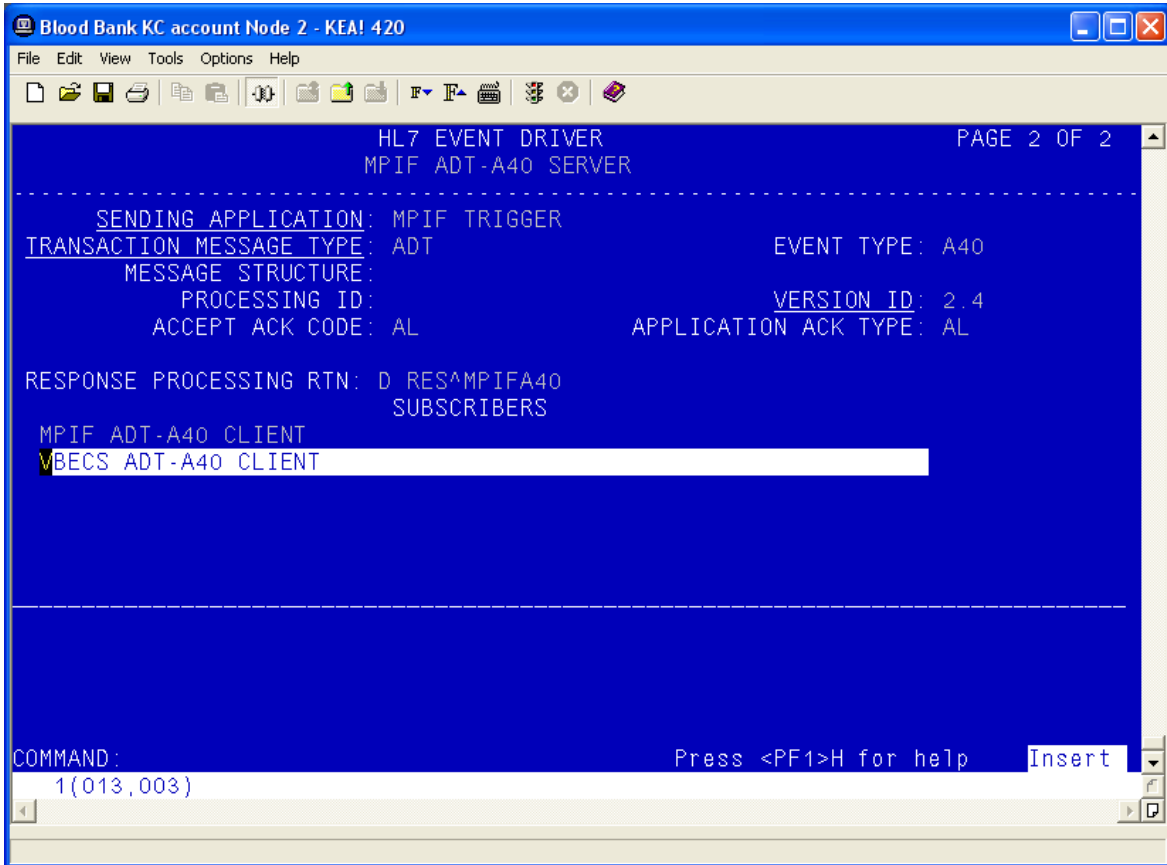
- 1) Select **MPIF ADT-A40 SERVER**.
- 2) Move the cursor to the “TYPE” field and press **Enter**.

Figure 50: Example of HL7 Interface Setup



- 3) Move the cursor to below the last entry in the “SUBSCRIBERS” section.
- 4) Enter **VBECS ADT-A40 CLIENT** and press **Enter**.

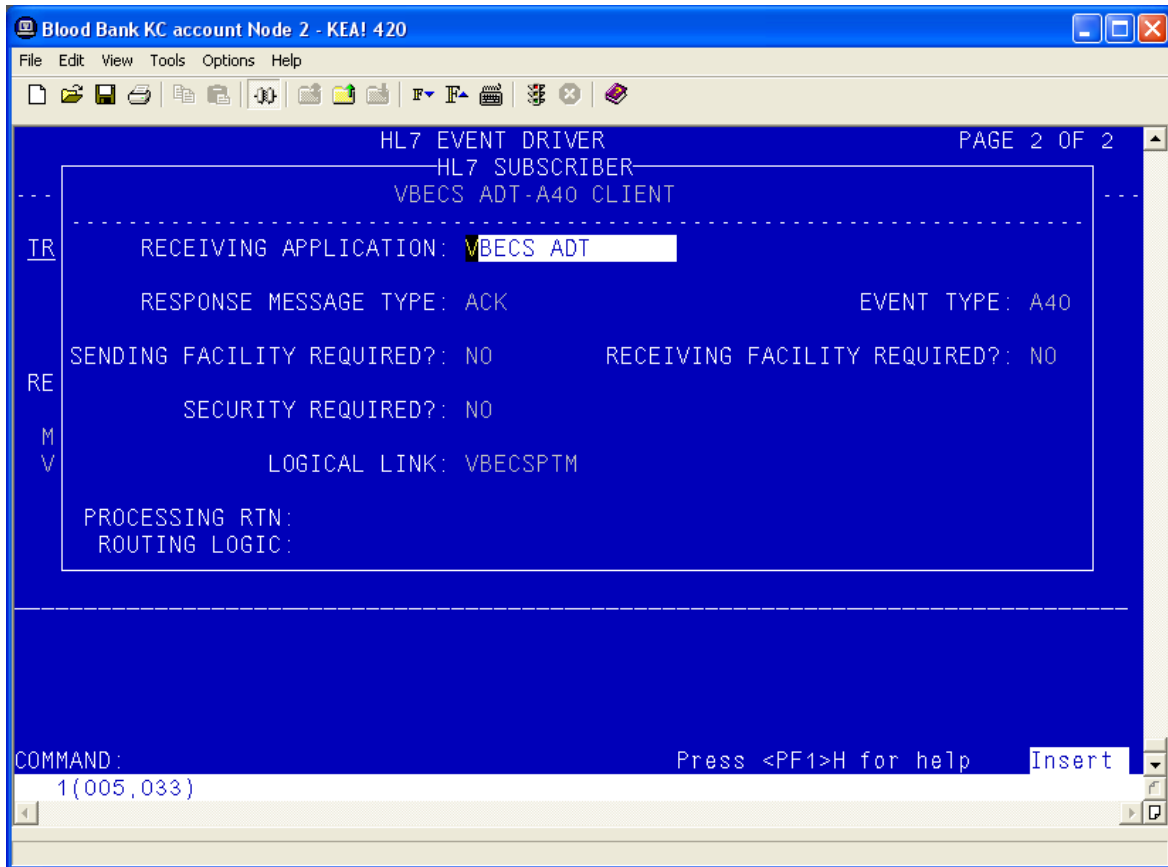
Figure 51: Example of HL7 Event Driver: MPIF ADT-A40 Server



- 5) Accept the default settings in the sub-window.
- 6) Move the cursor to the “COMMAND” prompt.
- 7) Enter **Close** and press **Enter**.

8) You will return to the previous screen. Move the cursor to the “COMMAND” prompt.

Figure 52: Example of HL7 Subscriber: VBECS ADT-A40 Client



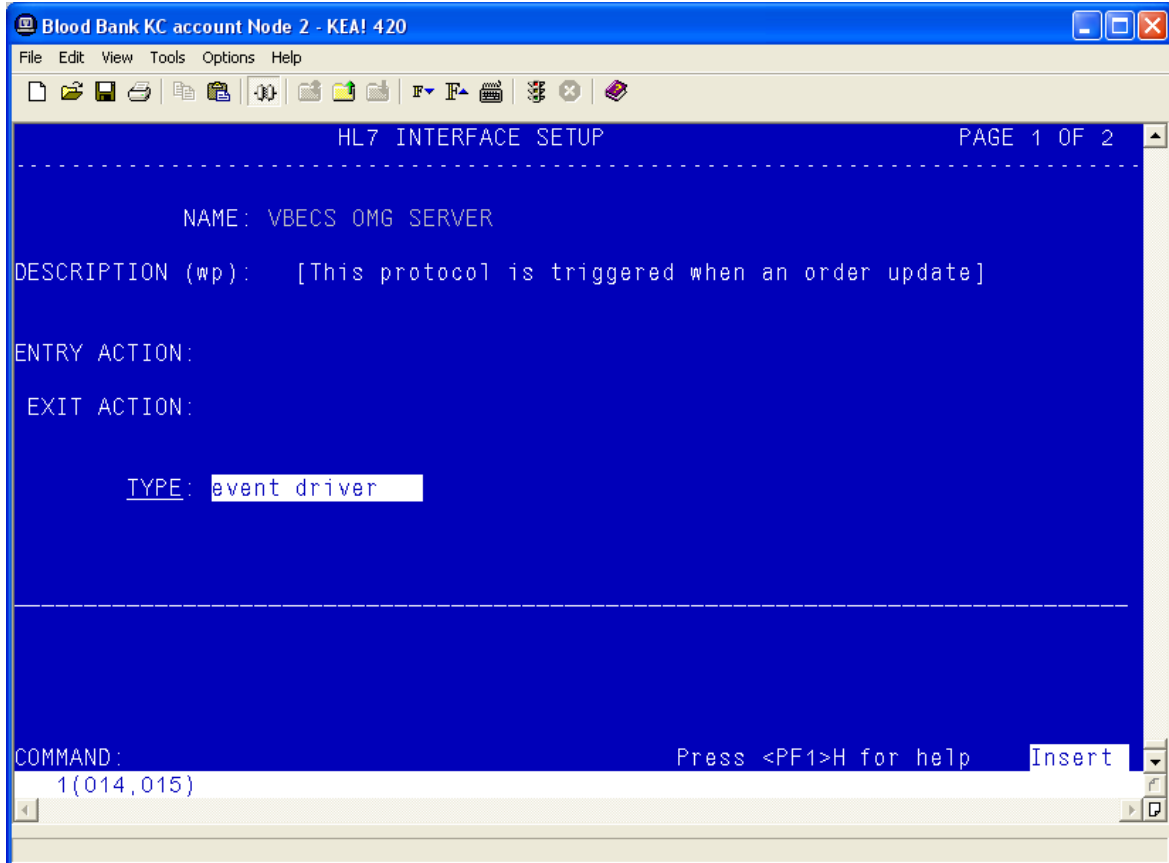
9) Enter **Save** and press **Enter**.

10) Enter **Exit** and press **Enter**.

Order Update Events

- 1) Select **VB ECS OMG SERVER**.
- 2) Move the cursor to the “TYPE” field and press **Enter**.

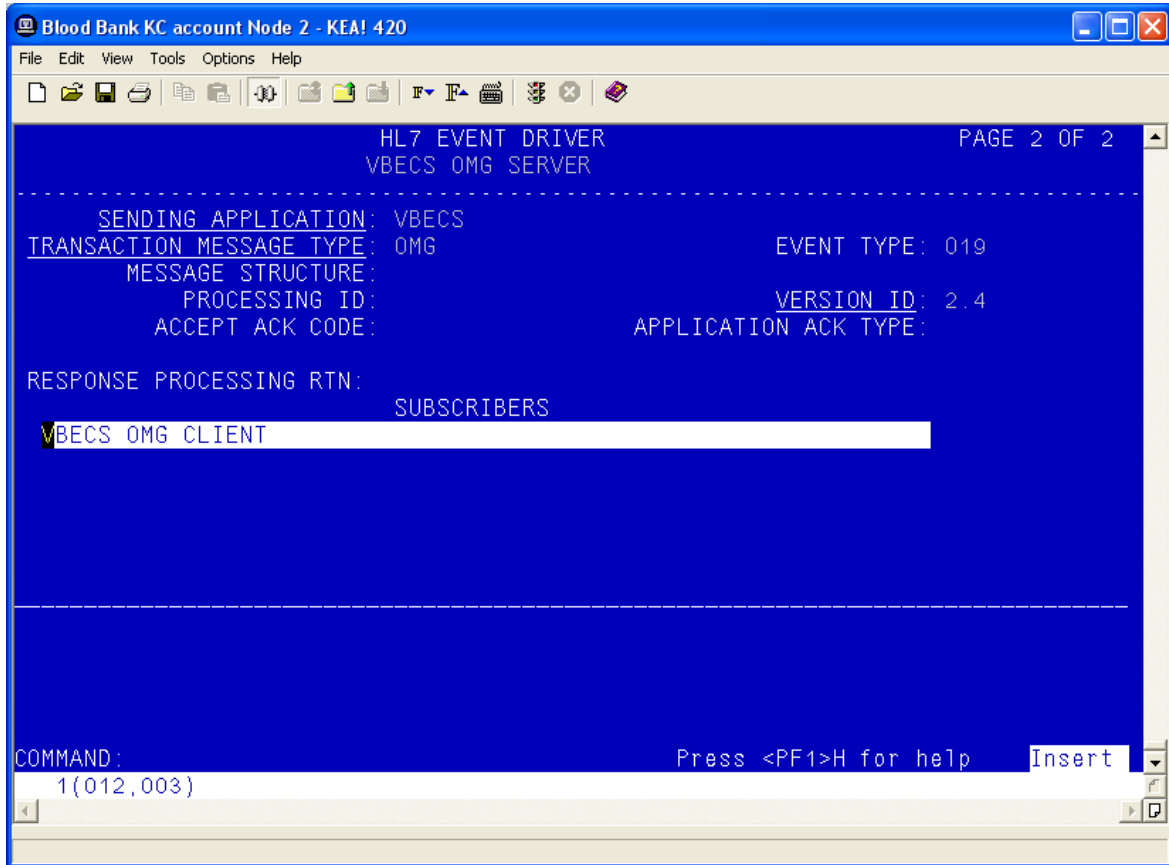
Figure 53: Example of HL7 Order Update Setup



- 3) Move the cursor to below the last entry in the “SUBSCRIBERS” section.

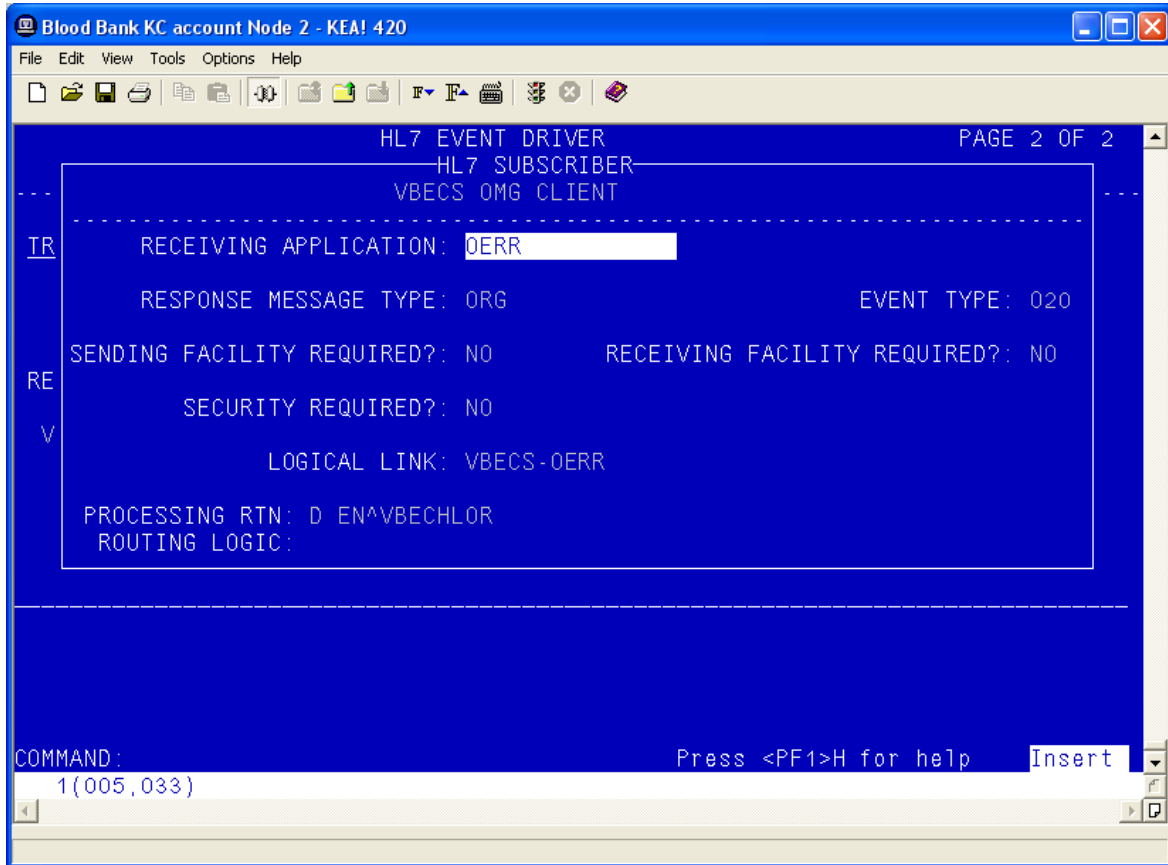
4) Enter **VBECS OMG CLIENT** and press **Enter**.

Figure 54: Example of HL7 Event Driver: VBECS OMG Server



5) Verify that the Receiving Application is OERR.

Figure 55: Example of HL7 Event Driver: VBECS OMG Server

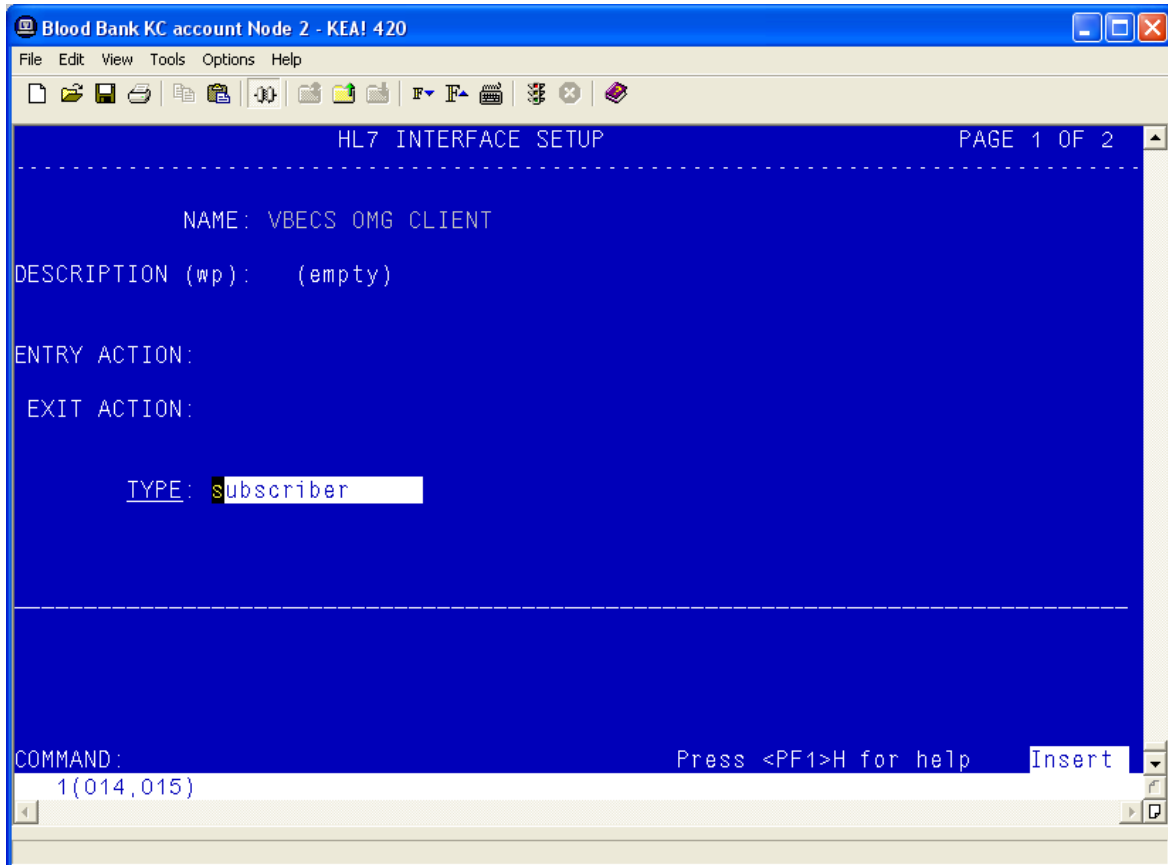


- 6) Move the cursor to the "COMMAND" prompt.
- 7) Enter **Close** and press **Enter**.
- 8) Move the cursor to the "COMMAND" prompt.
- 9) Enter **Save** and press **Enter**.
- 10) Enter **Exit** and press **Enter**.

Order Update Events (continued)

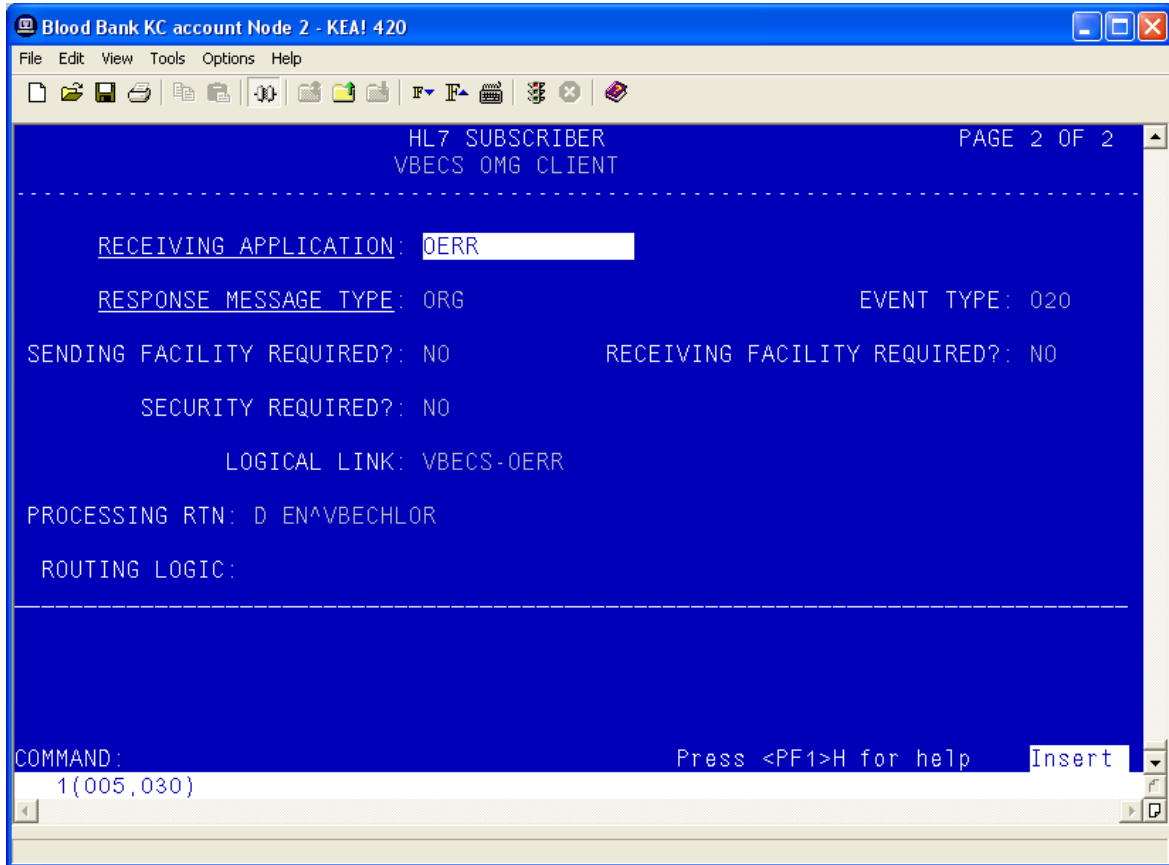
- 1) Select **VBECS OMG CLIENT**.
- 2) Move the cursor to the “TYPE” field and press **Enter**.

Figure 56: Example of HL7 Interface Setup



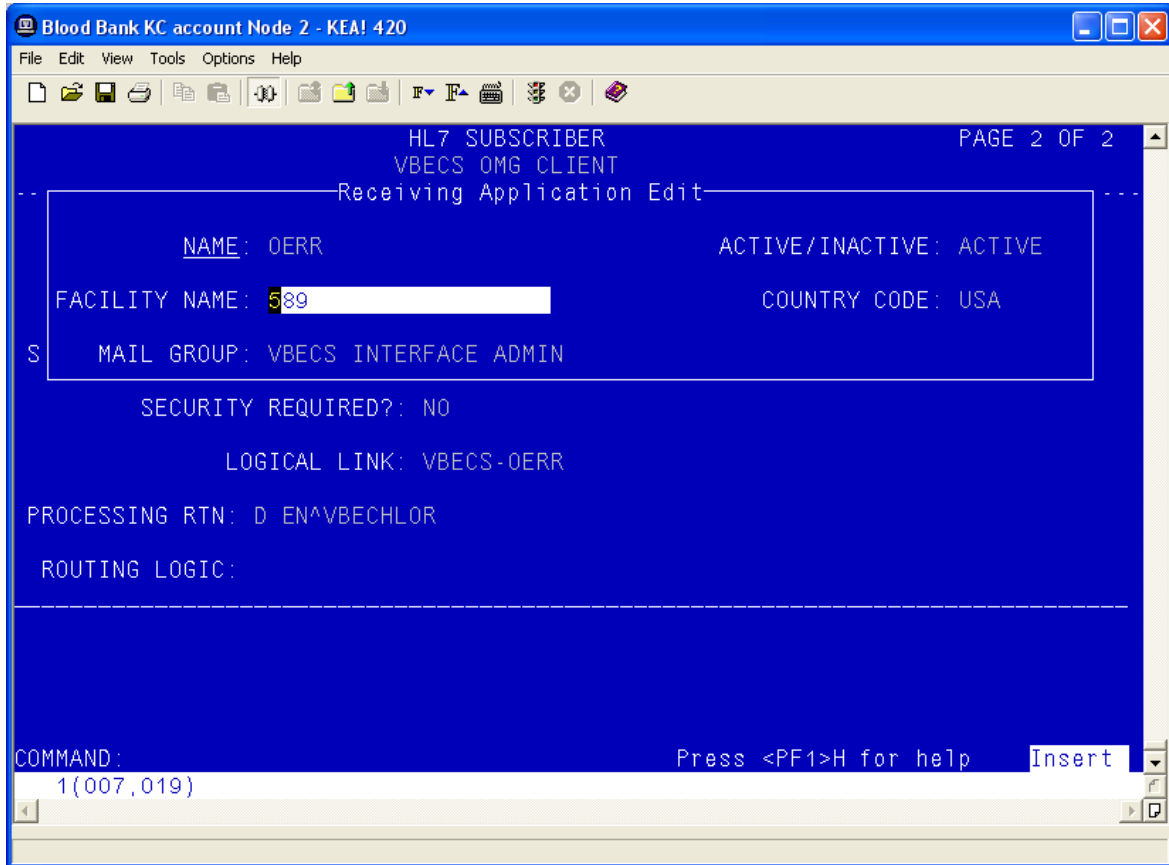
3) Verify that the Receiving Application is OERR and press **Enter**.

Figure 57: Example of HL7 Event Driver: VBECS OMG Client



4) Enter the correct Facility Name


Figure 58: Example of HL7 Subscriber: VBECS ADT-A40 Client



- 5) Move the cursor to the “COMMAND” prompt.
- 6) Enter **Close** and press **Enter**.
- 7) Move the cursor to the “COMMAND” prompt.
- 8) Enter **Save** and press **Enter**.
- 9) Enter **Exit** and press **Enter**.

Appendix B: Laboratory Test File (#60)

Improper configuration of the VBECs related Laboratory tests may result in anomalies when ordering, resulting, or reporting workload for these tests. If any anomalies are noted, refer to this list for the proper configuration of these tests.

 *The Laboratory tests must be configured for your site. The appropriate INSTITUTION and ACCESSION AREA must be added using the “Edit cosmic tests” (LRDIECOSMIC) option. The TYPE field in Existing Blood Bank tests should be set to OUTPUT to prevent these tests from being ordered after VBECs has been installed.*

Any of the diagnostic tests that will be ordered for Lab Collect (LC) must also have a LAB COLLECTION SAMPLE defined in addition to the COLLECTION SAMPLE. The LAB COLLECTION SAMPLE can be edited with the EDIT COSMIC TESTS (LRDIECOSMIC) option.

LABORATORY TEST File (#60)	
NAME: ABO/RH - LAB SUBSCRIPT: BLOOD BANK HIGHEST URGENCY ALLOWED: STAT COLLECTION SAMPLE: BLOOD INSTITUTION: VA HEARTLAND - WEST, VISN 15 ACCESSION AREA: BLOOD BANK INSTITUTION: COLUMBIA, MO VAMC INSTITUTION: LEAVENWORTH VAMC INSTITUTION: TOPEKA, KS VAMC INSTITUTION: WICHITA VAMC	TYPE: OUTPUT (CAN BE DISPLAYED) UNIQUE COLLECTION SAMPLE: YES PRINT NAME: ABO RH ACCESSION AREA: COBLOOD BANK ACCESSION AREA: LEBLOOD BANK ACCESSION AREA: TOBLOOD BANK ACCESSION AREA: WIBLOOD BANK
NAME: ANTIBODY SCREEN - LAB SUBSCRIPT: BLOOD BANK HIGHEST URGENCY ALLOWED: STAT COLLECTION SAMPLE: BLOOD INSTITUTION: VA HEARTLAND - WEST, VISN 15 ACCESSION AREA: BLOOD BANK INSTITUTION: COLUMBIA, MO VAMC INSTITUTION: LEAVENWORTH VAMC INSTITUTION: TOPEKA, KS VAMC INSTITUTION: WICHITA VAMC	TYPE: OUTPUT (CAN BE DISPLAYED) UNIQUE COLLECTION SAMPLE: YES PRINT NAME: AB SCRN ACCESSION AREA: COBLOOD BANK ACCESSION AREA: LEBLOOD BANK ACCESSION AREA: TOBLOOD BANK ACCESSION AREA: WIBLOOD BANK
NAME: CRYOPRECIPITATE - LAB SUBSCRIPT: BLOOD BANK HIGHEST URGENCY ALLOWED: STAT COLLECTION SAMPLE: VBECs - NO SPECIMEN REQUIRED INSTITUTION: VA HEARTLAND - WEST, VISN 15 ACCESSION AREA: BLOOD BANK INSTITUTION: COLUMBIA, MO VAMC INSTITUTION: LEAVENWORTH VAMC INSTITUTION: TOPEKA, KS VAMC INSTITUTION: WICHITA VAMC	TYPE: OUTPUT (CAN BE DISPLAYED) UNIQUE COLLECTION SAMPLE: YES PRINT NAME: CRYOPRE ACCESSION AREA: COBLOOD BANK ACCESSION AREA: LEBLOOD BANK ACCESSION AREA: TOBLOOD BANK ACCESSION AREA: WIBLOOD BANK
NAME: DIRECT ANTIGLOBULIN TEST - LAB SUBSCRIPT: BLOOD BANK HIGHEST URGENCY ALLOWED: STAT COLLECTION SAMPLE: BLOOD INSTITUTION: VA HEARTLAND - WEST, VISN 15 ACCESSION AREA: BLOOD BANK	TYPE: OUTPUT (CAN BE DISPLAYED) UNIQUE COLLECTION SAMPLE: YES PRINT NAME: DAT

LABORATORY TEST File (#60)	
INSTITUTION: COLUMBIA, MO VAMC	ACCESSION AREA: COBLOOD BANK
INSTITUTION: LEAVENWORTH VAMC	ACCESSION AREA: LEBLOOD BANK
INSTITUTION: TOPEKA, KS VAMC	ACCESSION AREA: TOBLOOD BANK
INSTITUTION: WICHITA VAMC	ACCESSION AREA: WIBLOOD BANK
NAME: FRESH FROZEN PLASMA - LAB	TYPE: OUTPUT (CAN BE DISPLAYED)
SUBSCRIPT: BLOOD BANK	UNIQUE COLLECTION SAMPLE: YES
HIGHEST URGENCY ALLOWED: STAT	PRINT NAME: FFP
COLLECTION SAMPLE: VBECS - NO SPECIMEN REQUIRED	
INSTITUTION: VA HEARTLAND - WEST, VISN 15	
ACCESSION AREA: BLOOD BANK	
INSTITUTION: COLUMBIA, MO VAMC	ACCESSION AREA: COBLOOD BANK
INSTITUTION: LEAVENWORTH VAMC	ACCESSION AREA: LEBLOOD BANK
INSTITUTION: TOPEKA, KS VAMC	ACCESSION AREA: TOBLOOD BANK
INSTITUTION: WICHITA VAMC	ACCESSION AREA: WIBLOOD BANK
NAME: OTHER - LAB	TYPE: OUTPUT (CAN BE DISPLAYED)
SUBSCRIPT: BLOOD BANK	UNIQUE COLLECTION SAMPLE: YES
HIGHEST URGENCY ALLOWED: STAT	PRINT NAME: VBOTHER
COLLECTION SAMPLE: VBECS - NO SPECIMEN REQUIRED	
INSTITUTION: VA HEARTLAND - WEST, VISN 15	
ACCESSION AREA: BLOOD BANK	
INSTITUTION: COLUMBIA, MO VAMC	ACCESSION AREA: COBLOOD BANK
INSTITUTION: LEAVENWORTH VAMC	ACCESSION AREA: LEBLOOD BANK
INSTITUTION: TOPEKA, KS VAMC	ACCESSION AREA: TOBLOOD BANK
INSTITUTION: WICHITA VAMC	ACCESSION AREA: WIBLOOD BANK
NAME: PLATELETS - LAB	TYPE: OUTPUT (CAN BE DISPLAYED)
SUBSCRIPT: BLOOD BANK	UNIQUE COLLECTION SAMPLE: YES
HIGHEST URGENCY ALLOWED: STAT	PRINT NAME: PLTLTS
COLLECTION SAMPLE: VBECS - NO SPECIMEN REQUIRED	
INSTITUTION: VA HEARTLAND - WEST, VISN 15	
ACCESSION AREA: BLOOD BANK	
INSTITUTION: COLUMBIA, MO VAMC	ACCESSION AREA: COBLOOD BANK
INSTITUTION: LEAVENWORTH VAMC	ACCESSION AREA: LEBLOOD BANK
INSTITUTION: TOPEKA, KS VAMC	ACCESSION AREA: TOBLOOD BANK
INSTITUTION: WICHITA VAMC	ACCESSION AREA: WIBLOOD BANK
NAME: RED BLOOD CELLS - LAB	TYPE: OUTPUT (CAN BE DISPLAYED)
SUBSCRIPT: BLOOD BANK	UNIQUE COLLECTION SAMPLE: YES
HIGHEST URGENCY ALLOWED: STAT	PRINT NAME: RED BLD
COLLECTION SAMPLE: VBECS - NO SPECIMEN REQUIRED	
INSTITUTION: VA HEARTLAND - WEST, VISN 15	
ACCESSION AREA: BLOOD BANK	
INSTITUTION: COLUMBIA, MO VAMC	ACCESSION AREA: COBLOOD BANK
INSTITUTION: LEAVENWORTH VAMC	ACCESSION AREA: LEBLOOD BANK
INSTITUTION: TOPEKA, KS VAMC	ACCESSION AREA: TOBLOOD BANK
INSTITUTION: WICHITA VAMC	ACCESSION AREA: WIBLOOD BANK
NAME: TRANSFUSION REACTION WORKUP - LAB	
TYPE: OUTPUT (CAN BE DISPLAYED)	SUBSCRIPT: BLOOD BANK
UNIQUE COLLECTION SAMPLE: YES	HIGHEST URGENCY ALLOWED: STAT
PRINT NAME: TRW	
COLLECTION SAMPLE: BLOOD	
INSTITUTION: VA HEARTLAND - WEST, VISN 15	
ACCESSION AREA: BLOOD BANK	
INSTITUTION: COLUMBIA, MO VAMC	ACCESSION AREA: COBLOOD BANK
INSTITUTION: LEAVENWORTH VAMC	ACCESSION AREA: LEBLOOD BANK

LABORATORY TEST File (#60)	
INSTITUTION: TOPEKA, KS VAMC	ACCESSION AREA: TOBLOOD BANK
INSTITUTION: WICHITA VAMC	ACCESSION AREA: WIBLOOD BANK
NAME: TYPE & SCREEN - LAB	TYPE: OUTPUT (CAN BE DISPLAYED)
SUBSCRIPT: BLOOD BANK	UNIQUE COLLECTION SAMPLE: YES
HIGHEST URGENCY ALLOWED: STAT	PRINT NAME: T&S
COLLECTION SAMPLE: BLOOD	
INSTITUTION: VA HEARTLAND - WEST, VISN 15	
ACCESSION AREA: BLOOD BANK	
INSTITUTION: COLUMBIA, MO VAMC	ACCESSION AREA: COBLOOD BANK
INSTITUTION: LEAVENWORTH VAMC	ACCESSION AREA: LEBLOOD BANK
INSTITUTION: TOPEKA, KS VAMC	ACCESSION AREA: TOBLOOD BANK
INSTITUTION: WICHITA VAMC	ACCESSION AREA: WIBLOOD BANK
NAME: WHOLE BLOOD - LAB	TYPE: OUTPUT (CAN BE DISPLAYED)
SUBSCRIPT: BLOOD BANK	UNIQUE COLLECTION SAMPLE: YES
HIGHEST URGENCY ALLOWED: STAT	PRINT NAME: WB
COLLECTION SAMPLE: VBECS - NO SPECIMEN REQUIRED	
INSTITUTION: VA HEARTLAND - WEST, VISN 15	
ACCESSION AREA: BLOOD BANK	
INSTITUTION: COLUMBIA, MO VAMC	ACCESSION AREA: COBLOOD BANK
INSTITUTION: LEAVENWORTH VAMC	ACCESSION AREA: LEBLOOD BANK
INSTITUTION: TOPEKA, KS VAMC	ACCESSION AREA: TOBLOOD BANK
INSTITUTION: WICHITA VAMC	ACCESSION AREA: WIBLOOD BANK

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Revision History

Date	Revision	Description	Author
9/15/21	1.0	VBECS 2.3.3 Rev A Modified Vista Blood Establishment Computer Software (VBECS) 2.3.2 Technical Manual-Security Guide, Version 2.0 to create the VBECS 2.3.3 Technical Manual-Security Guide, Version 1.0.	BBM team
10/7/21	2.0	VBECS 2.3.3 Rev A Updated from IOC Test input.	BBM team
4/12/22	3.0	VBES 2.3.3 Rev B Report Printer: Updated Step 4. Label Printer, Upgrading a Label Printer Print Head: Section added. Remote Desktop Shortcuts and Exported Reports Network Share sections: Added link to video tutorial. VBECS Server Maintenance: Section and subsections updated.	BBM team
8/11/22	4.0	Table 6 VBECS Active Directory Groups: Updated VBECS Software Groups and VBECS Supervisor Software Groups. (Task 108173) All figures: Added alternate text for 508 compliance. (Task 111157)	BBM team

This is the last page of the *VBECS 2.3.3 Technical Manual-Security Guide*.