

MGH MUSE V9 TROUBLESHOOTING GUIDE

DEPARTMENT OF BIOMEDICAL ENGINEERING



Document created by - Ketaki Muthal, Nov 2019
 Muse system upgraded to version 9.0 – Oct 15th, 2019

➤ MUSE SYSTEM DETAILS

- Product version – 9.0 SP9
- Serial number – SN619121475TA
- GE tech support – 1-800-558-7044
- MUSE Support contract –
 - PO # 0008184464
 - Contract from 1/1/2017 to 12/31/2019 (joint contract for MGH and BWH)

➤ SYSTEM OVERVIEW AND ARCHITECTURE

MUSE system is composed of several components namely – multiple virtual servers, gateway computers, wireless ECG machines, serial modems, bedside monitors and even non-GE medical equipment. The purpose of this system is to collect 12-lead ECG records that are acquired through various medical devices and store them in a single unified database system. The clinicians and ECG editors can then access these records and review the information and ultimately confirm them to a hospital electronic medical record system.

Important components of MUSE system are listed below.

Server Name	Partners IS IP Address	Description	Location
PHSAPP3106	172.27.34.231	Application and wireless cart server	Needham data center
PHSAPP3107	172.18.93.71	HL7 and interface server	Needham data center
PHSQLAO3200(SQL CLUSTER)	172.18.93.141	SQL database	-
PHSQLAO3200A	172.18.93.73	SQL database	Needham data center
PHSQA03200B	172.27.34.155	SQL database	Marlboro data center
PHSWEB2379	172.27.34.203	Web server for ECG viewing	Needham data center
PHSPMUSE2	172.31.128.44	DataMed server for non-GE data	Needham data center

Table 1: Servers in production environment

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Server Name	Partners IS IP Address	Description	Location
PHSAPP3105	172.18.93.204	Application, HL7 and cart server	Needham data center
PHSSQL2246	172.27.34.50	SQL database	Needham data center
PHSWEB2378	172.18.93.206	Web server for ECG viewing	Needham data center

Table 2: Servers in test environment

Gateway Name	Partners IS IP Address	Description	Location
mghmusegateway1	172.17.242.196	Network Gateway for ECG Transmission from Bedside monitors on VLAN20 (Blk and Lun floors)	Lunder basement LL040
mghmusegateway2	172.17.242.197	Network Gateway for ECG Transmission from Bedside monitors on VLAN21 (EII floors)	Lunder basement LL040
mghmusegateway3	172.17.242.198	Network Gateway for ECG Transmission from Bedside monitors on VLAN22 (Wht, Gry, Big floors)	Lunder basement LL040
mghmusegtwy1	TBD	Backup to mghmusegateway1	Big 12
mghmusegtwy2	TBD	Backup to mghmusegateway2	Big 12
mghmusegtwy3	TBD	Backup to mghmusegateway3	Big 12
mghmusemodemv9	172.16.68.52	Connects to all modems listed below to send ECG's to Muse app server	Blake Sub-basement
CSIMODEM1	617-726-8024	Connected to MGHMUSEMODEM via Hunt Group Number (617-724-8818). Receives ECG's from Carts via phone line.	Blake Sub-basement
CSIMODEM2	617-726-0368		
CSIMODEM3	617-726-0897		
CSIMODEM4	617-726-4093		

Table 3: Muse gateways and modem systems

➤ **SUPPORT AND TROUBLESHOOTING**

Muse is spread across multiple Partners hospitals - MGH, MEEI, SRH, MVH, NCH, WDH.

Following MGH Biomed teams will be responsible for supporting different components of Muse as described below –

MGH technicians team includes in-patient, night, ambulatory, peri-op and Danvers will be responsible for issues that arise on the ECG machine, its inability to transmit to Muse or issues related to any accessory attached to this machine like the wireless module, barcode scanner or the acquisition module. This document describes common scenarios to help troubleshoot such issues.

MGH clinical engineering team will be responsible to handle all calls related to Muse on a system level i.e. where multiple users cannot access Muse, multiple ECG machines cannot transmit to Muse, adding users to Muse, server is down etc. This document describes common scenarios to help troubleshoot such issues.

Technicians for non-MGH hospitals will be responsible to manage ancillary components that communicate to Muse which are also physically located in their hospital before triaging the calls to clinical engineer on call to seek their expertise. These hospitals however will call the clinical engineer on-call for any Muse system related issue. Support for all off-sites is elaborated in their respective service level agreement document.

○ **Transmission problems –**

Problem	Cause	Resolution
User cannot view a record.	The record they are looking for is not in EPIC	<ul style="list-style-type: none"> ○ MUSE system requires the record to be confirmed before they are visible in the downstream system/s – EPIC Results. ○ Check MUSE CV WEB for status of record (Confirmed or Unconfirmed). <ul style="list-style-type: none"> - If record is unconfirmed, the user can reach out to EKG lab to expedite Confirmation. - If record is confirmed and not available in EPIC Results, contact Systems Administrator (Resource Engineer) to check what is happening.
	Wrong MRN	<ul style="list-style-type: none"> ○ Make sure they are looking for the correct patient record number and date of service. ○ MRN should have 9 digits beginning with double 0's/ 00.
	Record is not normally stored in EPIC Results.	<ul style="list-style-type: none"> ○ MEEI records are not stored in MGH's EPIC-Results.
	Record is not in MGH MUSE	<ul style="list-style-type: none"> ○ EKG is not transmitted correctly. Check to see if record is still saved on the monitor/ EKG cart.

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Problem	Cause	Resolution
MAC cart modems unable to dial into MUSE modems.	Serial Modem on the cart is not transmitting.	<ul style="list-style-type: none"> ○ Make sure EKG cart modem is plugged in and working properly. ○ Check modem settings such as baud rate and phone number. ○ Check the phone line and make sure jack is active and a number can be dialed from there. ○ Make sure that the cable is good. ○ Make sure that the cable is connected to RJ11 jack of the cart and not RJ45.
MAC cart modem dials into MUSE modems but fails to transmit	MUSE modems are busy	<ul style="list-style-type: none"> ○ There are many carts in MGH; it is very likely to get busy signal if many are transmitting at the same time. ○ Try re-dialing.
	MUSE modems are not responding	<ul style="list-style-type: none"> ○ Dial MUSE modem hunt group number – 617-724-8818. If number does not respond, there must be an IS Telecom issue. Call Help Desk to open an IS Telecom ticket. Likely, this number is not connecting to one of the individual modems. Individual modem numbers are: 6-8042; 6-0368; 6-0897; 6-4093. Try dialing them individually. ○ If there is no tone on the individual numbers, or they pick up and hang, call System Administrator to restart appropriate services. If that does not work, GE Tech Support to look at the modems (use Serial no. and PO no. provided at the start of this document). ○ If problem persists, go to Blake Subbasement and reset the modem individually. All modems are connected to the modem PC. To reset, disconnect the power and after about 10 sec reconnect the power. ○ Ensure all modems are back up with flashing green light and that you can hear a tone when you dial them individually or when you call the hunt group number.
Cannot transmit ECGs from Bedside Monitors	MUSE Gateway computer not responding	<ul style="list-style-type: none"> ○ Ping the MUSE Gateway computer at 126.8.8.1 from any CIC/ computer on a VLAN. If no response is received, then there is a problem with the MUSE Gateway on that VLAN. ○ Go to the MUSE Gateway which has the problem. Ensure that both the NIC cards are running fine. ○ Login to the Gateway Computer on that VLAN. <ul style="list-style-type: none"> - Username: museadmin and Password: Muse!Admin ○ Ping from the gateway to a monitor on that VALN and to the App Database server @ 172.27.34.231 ○ Make sure the services RWHAT and TFTP are running. If not, start those. If already running, restart those.

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		<ul style="list-style-type: none"> ○ Check the acq folder on the C: drive of the gateway. If records appear and disappear, then everything is running fine. If not, the records should simply stay in that folder, this means there is no connection between MUSE and that gateway and hence MUSE is not able to grab these files transmitted by the monitors on that VLAN. ○ IF for some reason the Gateway cannot be recovered, then use the backup gateway for than VLAN. Ensure you connect the biomed MC connection to the backup gateway. The IS connections should already be in place.
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○ **HL7 Problems -**

Problem	Cause	Resolution
Records are not flowing from MUSE to Results and Billing. (Receive a call from IS/EPIC Results/ICM Billing) that MUSE interfaces are not responding.	HL7 threads have stopped working	<ul style="list-style-type: none"> ○ Stop and restart the threads on the Clover Leaf program in MUSE HL7 server – PHSAPP3107. If you are not familiar with the process, call Resource Engineer/ System Administrator. ○ You can remotely login to the HL7 server via remote desktop to your computer. ○ If you cannot login, then the MUSE HL7 server is down. Open a P1 service now ticket to server-phs group. ○ If you are not familiar with logging in to MUSE HL7 server, then DO NOT LOGIN. Call GE or CE on call to escalate the issue. <ul style="list-style-type: none"> - GE # 1-800-558-7044 (SR # SN619121475TA) - CE On Call Ph # 617-697-7525 (pager: 35699)

○ **CV Web Problems –**

Problem	Cause	Resolution
Users cannot access record in MUSE CV Web.	Users are not authorized through PAS access.	<ul style="list-style-type: none"> ○ Users can email Carlos Vasco (Cardiology Admin Manager) to request PAS access for CV Web.
Users have access through PAS but still cannot view records.	Wrong MRN	<ul style="list-style-type: none"> ○ Make sure the users are typing in the correct MRN and that they are typed with leading double zeros “00”.
	PDF of the record is not opening on certain PC	<ul style="list-style-type: none"> ○ Ensure that Adobe Reader is installed on the PC. ○ If PDF reader is installed, go to “Edit”, then “Preference”, then “Categories”. Click on “Internet”, make sure “Display PDF in Browser” is checked.

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	<p>No one can access records on CV web.</p>	<ul style="list-style-type: none"> ○ If no one can access any records using CV Web application, try to ping the Web server phsweb2379 – 172.27.34.203 from any Partners station. ○ If no response is received, then likely the CV Web Server is down. Open a P1 service now ticket to phs-server team. ○ If the server is running and ECG’s still cannot be viewed, then the Muse Api service might not be running. Try to restart the service.
<p>Users can access records in CV Web and via PHS MUSE Viewer link in EPIC, but it takes too long for the ECG to open</p>	<p>Muse API service is having issues</p>	<ul style="list-style-type: none"> ○ The PHS -CAS (CDR) team would be the first to report this issue as they monitor the time PHS MUSE viewer link takes to resolve. ○ Restart the Muse API service and you should see the difference in the time it takes to open the records. It will improve drastically. ○ To mitigate this issue, the Muse API service is automatically set to restart every night at 1:00 AM.

○ **Muse Editor Problems –**

Problem	Cause	Resolution
<p>MUSE Editor is not working properly.</p>	<p>One of the services is not working properly.</p>	<ul style="list-style-type: none"> ○ All such problems should be reported to System Administrator/ Resource Engineer from Biomed who is familiar with the system. GE Tech support should be notified by the Admin or the Resource Engineer. DO NOT LOGIN to the server if you are not familiar. ○ Admin/ Resource Engineer can start and stop appropriate services that pertain to the issue. ○ It is better to start and stop the main MUSE service. See screen shot below to view all MUSE services. ○ After restarting MUSE service, ensure all other services have been restarted as well. ○ If problem still exists and server needs to be rebooted (requested by GE tech support). Open P1 service now ticket for server-phs team to reboot the app server – phsapp3106. ○ Make sure they confirm that the server is back up and running after the reboot. Check the service to ensure all the services are up and running.
	<p>Muse service account “SQ7” password was</p>	<ul style="list-style-type: none"> ○ Service accounts need their password to be changed every 90 days. Passwords are managed by CyberArk. For Muse, this is not an automated step. Resource engineer will initiate this

	changed but it didn't update on the services	step, then CyberArk's already implemented logic will update the password on all the services. <ul style="list-style-type: none"> ○ If passwords need to be manually updated, then there is some issue with Cyberark's logic. Update the password on impacted services and then open a P1 ticket to CyberArk team (or Account Administration) to get the fix implemented.
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For this step, please make a note to self that all Muse services run on service account – SQ7 and not on generic “musebkgnd” account. If you are working with GE tech support, you may need to prompt them the same. To retrieve password on SQ7, please open the CyberArk app on your Partners computer and secure the password for SQ7.

MUSE	MUSE Servi...	Running	Automatic (D...	PARTNERS\SQ7	Main MUSE service
MUSE DCP Inbound	MUSE DCP I...	Running	Manual	PARTNERS\SQ7	
MUSE DCP Outbound	MUSE DCP ...	Running	Manual	PARTNERS\SQ7	
MUSE Email	MUSE Email...	Running	Manual	PARTNERS\SQ7	
MUSE File Copy	MUSE File C...	Running	Manual	PARTNERS\SQ7	
MUSE Format 1	MUSE Repo...	Running	Manual	PARTNERS\SQ7	
MUSE Format 2	MUSE Repo...	Running	Manual	PARTNERS\SQ7	
MUSE Format 3	MUSE Repo...	Running	Manual	PARTNERS\SQ7	
MUSE Format 4	MUSE Repo...	Running	Manual	PARTNERS\SQ7	
MUSE FTP Copy	MUSE FTP ...	Running	Manual	PARTNERS\SQ7	
MUSE Generacq	MUSE Gene...	Running	Manual	PARTNERS\SQ7	
MUSE HL7 Outbound	MUSE HL7 ...	Running	Manual	PARTNERS\SQ7	
MUSE HL7 Parser 1	MUSE HL7 ...	Running	Manual	PARTNERS\SQ7	
MUSE HL7 Parser 2	MUSE HL7 ...	Running	Manual	PARTNERS\SQ7	
MUSE HL7 Parser 3	MUSE HL7 ...	Running	Manual	PARTNERS\SQ7	
MUSE HL7 Parser 4	MUSE HL7 ...	Running	Manual	PARTNERS\SQ7	
MUSE Modem	MUSE Mod...	Running	Manual	PARTNERS\SQ7	
MUSE MT Host	MUSE Midd...	Running	Manual	PARTNERS\SQ7	
MUSE Normal	MUSE Nor...	Running	Manual	PARTNERS\SQ7	
MUSE Print	MUSE Print...	Running	Manual	PARTNERS\SQ7	
MUSE Scheduler	MUSE Sche...	Running	Manual	PARTNERS\SQ7	
MUSE XML Parser	MUSE XML ...	Running	Manual	PARTNERS\SQ7	
MUSEAPI3	MUSEAPI3	Running	Automatic	Partners\SQ7	
Net Driver HD712		Running	Automatic	Local Service	

Other MUSE services

Picture 1: Muse services on the application server – phsapp3106

○ **Muse access problems –**

Any new user who need to edit or interpret ECG's should have access to Muse Editor app. Their user profile should be created in Muse and he/she should be given PAS access to Muse Editor, so the same application becomes available under their Partners profile.

MUSECVTC is the PAS group for Muse Editor. Within Biomed, Jared Ruckman and Stan Grzybek can provide this PAS access; outside of Biomed, Carlos Vasco from Cardiology can provide PAS access to the users.

Any new users who needs to view, print ECG’s for their workflow should have access to Muse CV Web app. Their profile should be created in Muse and he/she should be given PAS access to Muse CV Web, so the same application becomes available under their Partners profile.

MGMUSECV is the PAS group for Muse CV Web. Within biomed, Jared Ruckman and Stan Grzybek can provide this PAS access; outside of Biomed, Carlos Vasco from Cardiology can provide PAS access to the users.

○ **DataMed server problems –**

WDH users will call regarding this issue.

DataMed server (phspmouse2) hosts two software’s on it. DataMed and Eli Link. DataMed software works closely with Muse to translate its data to downstream equipment and conversely translates data that is acquired by non-GE equipment back into Muse. Eli Link is a software for Welch Allyn/ Mortara carts that is managed by Hill-Rom. This software will allow to collect ECG’s from Mortara carts and send them to specific folder on this DataMed server. Appropriate DataMed services will then pick them and populate them on Muse edit/retrieve list.

DataMed server runs 2 services –

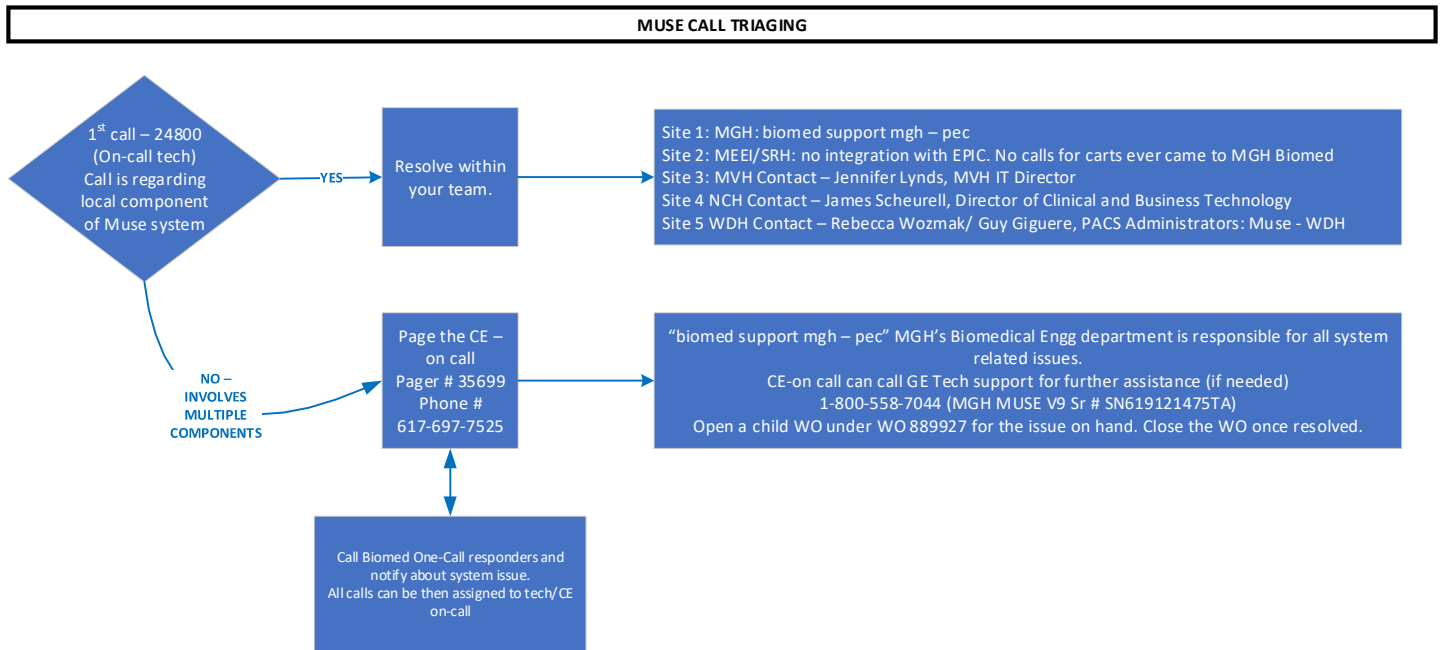
DataMed FT – responsible for format translation i.e. it translates data (ADT/ Orders) from Muse to non-GE Carts and vice-versa, translates non-GE ECG’s (Results) back to Muse. If this service is not running, the ECG’s will not be seen in Muse.

DataMed WL – responsible for orders to download on the Mortara carts i.e. worklists to be downloaded on the downstream equipment. If this service is not running, the orders will not download on the Mortara carts.

Problem	Cause	Resolution
Orders are not flowing from MUSE to non-Ge carts and vice-versa; ECG’s are not being transmitted to Muse Editor.	DataMed server is down or DataMed Ft and/or DataMed WL services are not running.	<ul style="list-style-type: none"> ○ Stop and restart the DataMed FT and DataMed WL services on the DataMed server phspmouse2. ○ REMEMBER, the DataMed services do not run on SQ7 account, they run on the traditional museadmin account mentioned below. ○ You can remotely login to this server using account <ul style="list-style-type: none"> - Username – museadmin - Password – Muse!Admin ○ If you cannot login, then the server may be down. Open a P1 service now ticket to server-phs team. ○ If you are not familiar with logging in to phspmouse2, then DO NOT LOGIN. Call GE or CE on call to escalate the issue. <ul style="list-style-type: none"> - GE # 1-800-558-7044 (SR # SN619121475TA) - CE On Call Ph # 617-697-7525 (pager: 35699)

➤ **MUSE CALL TRIAGING AND IMPORTANT NUMBERS**

1. If the Muse call you received is local to a component of the system, then you can refer to most appropriate description of the problem from the above tables and work on its resolution. Please open a TMS WO for the issue. Complete this WO when issue is fixed.
2. If the Muse call pertains to multiple components within the Muse system, then page the Clinical Engineer on-call on pager # 35699 and seek their thoughts.
3. Please follow the flow chart below to identify correct team or person to address the nature of problem you have. MGH biomed group is responsible for MUSE system related issues.



Picture 2: MGH Muse call triaging