Virginia Health Information Public Health Reporting Pathway Implementation Guide

Version 3 – August 2025

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Introduction to Virginia's Public Health Reporting Pathway

Virginia Health Information (VHI) is the statewide health information exchange (HIE) for Virginia and provides the transport of public health-related messages to and from government entities enabling healthcare entities, providers, etc. to meet Promoting Interoperability (PI) (formerly Meaningful Use) requirements. VHI currently supports submissions of the following data types through the Public Health Reporting Pathway (PHRP): Bi-Directional Immunization, Cancer, Dried Blood Spot Newborn Screening (NBS) Results and Orders, electronic Case Reporting (eCR), Electronic Lab Reporting (ELR), Immunization, Syndromic Surveillance, and vaccination/client matching data for payers' HEDIS measures.

VHI is responsible for helping organizations establish secure connections. All public health reporting submissions are transferred to the Virginia Department of Health (VDH) and Department of General Services (DGS), in a secure manner in partnership with the technology vendor CRISP Shared Services (CSS). The content or payload for public health messages is defined by VDH. VDH validates the message structure and content of public health reporting messages and provides corresponding MU attestation documentation based on achieved progress.

In addition to the mechanisms for reporting public health data required by Commonwealth of Virginia mentioned above, VHI also provides the technical infrastructure to support VDH exchanging public health data nationally. This includes ELR and eCR messages with the Association of Public Health Laboratories (APHL) Informatics Messaging Services (AIMS) Hub, as well as immunization messages between the Virginia Immunization Information System (VIIS) and the Centers for Disease Control (CDC) and Prevention's Immunization (IZ) Gateway.

More information about public health reporting, including message content specifications for PI Stage specifications, can be found on VDH's Meaningful Use website. Questions about MU can be sent to MeaningfulUse@vdh.virginia.gov. Information about VHI and Virginia's HIE Services can be found at VHI.org/ConnectVirginia/

Onboarding Process

Onboarding with VHI's Public Health Reporting Service is a multi-step process that must be coordinated with VDH.

1. **ALL** Eligible hospitals (EHs), critical access hospitals (CAH), eligible professionals (EPs), laboratories, etc., referred to herein as "Participant," MUST register with VDH Meaningful Use Registration System to indicate the public health reporting objectives they intend to submit for MU.
    - For Newborn Screening, Participant MUST complete a PHRP Participant Form.
2. VDH will provide Participants with the Memorandum of Agreement (MOA) necessary for submitting Immunization and Syndromic Surveillance data.
3. Registered Participants will use test data for structural evaluation by VDH to meet MU and VDH message requirements.
4. Each Participant must sign and return the VHI Public Health Reporting Agreement, via DocuSign, to initiate the onboarding process by emailing PHRSupport@vhi.org.
5. VHI will execute and return the Public Health Reporting Agreement.
6. VDH or DGS/DCLS (Newborn Screening ONLY) will perform message structure validation for messages submitted via email by the Participant or the Participant's vendor. Message structure validation generally utilizes test (non-Protected Health Information (PHI) containing) data.
7. While in the message structure validation stage, the participant should set up secure transport with VHI (either HTTPS or SFTP) in preparation for the message content validation phase.
8. Once structural testing is complete, VDH will approve message content validation for messages sent to the testing environment (TEST) via the secure transport provided by VHI. VDH will notify VHI and the participant (or EHR vendor) when the message content validation step has been completed.
9. Once confirmation is received from VDH, VHI will coordinate with the participant to move their transmissions from TEST to the production environment (PROD) and a go-live date will be confirmed between CSS, VDH and VHI. VDH will change the provider status to "In Production" and supply the appropriate documentation for MU attestation activities.

Obtaining HL7 Object Identifier (OID)

1. An OID is a globally unique ISO (International Organization for Standardization) identifier. Here is an example of an OID registered through HL7's OID Registry: 2.16.840.1.113883.3.1660.
    - OIDs may only be created by ISO Registration Authorities; Participants cannot create an OID.
2. **How to obtain an OID**
    - The participating organization or EHR vendor may already have one, if not, Participant may register for one through HL7's OID Registry: https://www.hl7.org/oid/index
    - VDH and VHI recommend using the HL7 OID Registry to obtain one, however, the participating organization is not required to obtain it from HL7. The Center for Disease Control (CDC) has an OID Registry, as well, at:

https://www.cdc.gov/phin/php/phindir/?CDC_AAref_Val=https://www.cdc.gov/phin/tools/phindir/index.html

- If the participating organization chooses to register through HL7's OID Registry, use their presentation "Introduction and Overview to the HL7 OID Registry" or "try the PDF version" as a guide through the OID process.
- If the participating organization already has a Root OID and wishes to establish multiple connections (e.g., multiple facilities), adding an extension to create a "sub-OID" is possible. For example, if the participating organization's OID is 2.16.667.1.145683.3.7433, the Participant's networking resources could create a sub-2.16.840.1.145683.3.7433.1. This process is completed internally and is up to the Participant to determine what is best for their organization.

Establishing a Connection

- With the Participant's internal networking team or EHR vendor, determine the type of connection to be established – HTTPS or SFTP. See the specifications and required information for both transport methods titled "HTTPS Specifications" and "SFTP Specifications". If a Participant is interested in a VPN connection, please notify VHI.
- VHI will assist the Participant with establishing connection(s) once they have determined transport method(s) and provided the required technical details by reviewing the outlined transport set up sections for HTTPS and SFTP and confirmed via email.

HTTPS Connectivity Procedure

- Participant will notify VHI by emailing PHRSupport@vhi.org of the organization's intent to utilize HTTPS for the purpose of data transfer/exchange between VDH/DGS.
- The following items **must** be included in the Participant's request:
  - A signed VHI Public Health Reporting Agreement
  - Participating organization's OID (EHR vendors supporting multiple facilities' data transfers are required to provide their own OID.) An OID must be acquired by the Participant or EHR vendor and provided to VHI. The Participant will not be allowed to proceed with testing connectivity until this step is complete.
  - Participating organization's physical address
  - A Certificate Signing Request (CSR) generated from participating organization's server(s) or EHR vendor server(s). See CSR requirements under "SSL Certificate Creation and Renewal."
- Please notify VHI upon receiving and successfully configuring the participating organization's Test and Production environments with the public certificates issued to the designated technical resource.
- Please notify VHI by emailing PHRSupport@vhi.org and the designated VDH contact once the Participant's technical resources have prepared test message(s) with custom HTTPS headers and are ready to test and validate connectivity (custom HTTPS headers and other tips are listed in the following section). For more information on testing headers before sending a message, please see Appendix.

- If there are any technical issues with the data transfer, please contact VHI by emailing PHRSupport@vhi.org during regular business hours (Monday-Thursday 9:00am – 5:00pm, Friday 9:00am – 1:00pm EST). Outside of business hours please contact CRISP Shared Services at interfacesupport@crisphealth.org for 24/7 Production data submission issues or technical support.

SSL Certificate Creation and Renewal

1. A CSR must be generated from each server that will be transferring/exchanging data with VDH so CSS can generate public certificates for the Participant to utilize. If only one server transfers data to multiple endpoints, one CSR is needed.
    - The CSR needs to be generated based on the Participant or its vendor's Test and Production environments where the public certificates for Test and Production (once provided by VHI) will be trusted on:
        - Common Name: Common name of Participant's server (e.g., regular Domain Name)
        - Organization Name: Participating organization's name
        - Location: Participating organization's location
        - Key Type: RSA
        - Key Size: Minimum 2048-bit
    - See CSR requirements below:
        - All Peer IP address(es) used by the participating organization for sending data to VDH.
            - IP addresses cannot be internal; all must be public IPs, otherwise connectivity to VHI will ultimately fail.
            - Please note that if the IPs from Test and Production environments are different, VHI will need both.
        - Contact information (Name, email, and phone number) of the technical resource(s) who will accept the certificates via encrypted email and install them on each environment.
2. The estimated timeline for generating public certificates upon receipt of CSRs is typically 3-5 business days.
    - For guidance on generating a CSR, visit: https://www.sslshopper.com/what-is-a-csr-certificate-signing-request.html
        - CSS will take the CSR and create a certificate from CSS's internal Certificate Authority (CA) and pass the certificate back to the Participant.
        - CSS will provide certificate(s) to the Participant in which the private key that was used to generate the CSR will be added to complete the full certificate chain. The certificate is then added to their Outbound Test and Prod servers.
        - The Participant will wait for confirmation from CSS informing them that the endpoints have been configured before the Participant can initiate a test message with the new certificate to validate its use.
        - Newly created SSL Certificates expire one year after the date of creation.
        - Participant(s) seeking to renew their certificate, the Participant must provide a new CSR. Please send it directly to PHRSupport@vhi.org.

HTTPS Specifications

- As described above, VHI will issue public certificates for both Test and Production unique to the Participant or its EHR vendor to the Participant's designated technical resource.
- The POST request is used to submit the report data; the report (HL7 message data) is submitted in the **body** of the POST request.
- Custom HTTPS headers are used to indicate to VHI who the submitting organization is and what type of report is being submitted.
- The following custom headers must be provided in the HTTPS request for public health report processing to function properly:
    - **Css-custom-oid**: OID identifying the sending organization.
    - **Css-transaction-id**: Unique identifier provided by the submitting entity to identify the transaction for audit and response purposes. Each request provided to VHI must contain a unique identifier within the scope of the organization making the request.
    - **Css-phr-type**: Indicates the type of public health report being submitted.
- **Valid Report Types for Css-phr-type header are:**

Data Type	Format Types	Css-phr-type
Cancer Registry	HL7 2.5.1, CDA, C-CDA	CANREG
Electronic Lab Reporting (ELR)	HL7 2.3.1 and/or HL 2.5.1	ELR
Electronic Case Reporting (eCR)	eICR v1.1 and RR from AIMS	ELREICR
Electronic Lab Reporting Flat Files	.CSV	ELR_Flatfiles
Immunization Reporting (VXU)	HL7 2.3.1 or HL7 2.5.1	IMM
Immunization Query (QBP) (only via HTTPS)	HL7 2.3.1 or HL7 2.5.1	IMUNZQUERY
Immunizations Health Plan	HEDIS (for payers/health plans)	Imm_HealthPlan
Newborn Screening Orders	HL7 2.5.1	NBSORDERS_ENCRYPT
Newborn Screening Results	HL7 2.5.1	NBSRESULTS_RESP
Syndromic Surveillance (ADT)	HL7 2.5.1	SYND

- Organization authentication and authorization is provided by the public certificates issued by VHI/CSS. These certificates must be provided as part of the HTTPS POST request to VHI on every transaction.

HTTPS Tips and FAQs

- The HL7 message data are in the **body** of the request, **not** the headers. Custom headers as described in the HTTPS specifications above.
- VHI will issue a Test endpoint for VDH content testing. For ELR content testing Participant will need to submit data from the Production (PROD) environment.
- Each type of data must be validated before the Participant is approved by VDH and/or DGS to send to Production. This means the Participant may have data feeds for both Test and Production at the same time depending on where they are in content validation.
- VHI forwards ACKS and NACKS from VDH indicating successful or unsuccessful messages.

- If the Participant receives an ACK, connection is successful with a properly formatted HL7 message. If the Participant receives a NACK, connection is successful, but the message (in the body) is not formatted correctly per VDH or DGSs' message specifications. For NACKs, we encourage the Participant to reach out to VDH or DGS contacts for format verification.

- VHI's technology vendor uses port 443 – please ensure the participating organization's firewall settings are set to allow this connection.
- **Custom headers**
  - Header fields are colon-separated name-value pairs in clear-text string format, terminated by a carriage return (CR) and line feed (LF) character sequence. How the Participant accomplishes this depends upon existing software. The most common error is forgetting the colon.
- **HTTPS Error codes, description and troubleshooting**
  - Please see Appendix for a full list of error codes and descriptions.
- **Questions about the HL7 message content, or MU attestation status or MU documentation**
  - Use the designated VDH contacts for MU questions. The Participant should already be working with them on validating the message structure using test data sent to them via email.
- **Example a message processed correctly**
  - Please see Appendix.

SFTP Connectivity Procedure

- Notify VHI by emailing PHRSupport@vhi.org of the participating organization's intent to utilize SFTP for the purpose of data transfer. The following items **must** be included in the request:
  - A signed VHI Public Health Reporting Agreement
  - Participating organizations' OID (EHR vendors supporting multiple facilities' data transfers are required to provide their own OID.) An OID must be acquired by the Participant or EHR vendor and provided to VHI. The Participant will not be allowed to proceed with testing connectivity until this step is complete.
  - Participating organization's physical address
  - All public IP addresses of the server(s) uploading the SFTP Messages (all need to be received so firewall permissions can be installed, or the participating organization will receive error messages attempting to connect)
  - Contact information (Name, distribution/support email, and phone number) of any technical resource(s) who will accept MFT Account Login credentials.
- Login credentials will be sent via iaa@crisphealth.org. Please ensure technical resources check their spam folder in the event they do not see an email from iaa@crisphealth.org.
- Here is what VHI will provide once the Participant's SFTP account is created:
  - Username & Password
  - SFTP/MFT URL
    - Access to web portal is available at: https://virginia.mft.crisphealth.org/
  - Hostname & Port with Test and Production directories

- They will receive instructions to log in to the VHI MFT portal to change the temporary password and set up 2FA (2 Factor Authentication). This is required prior to using the SFTP function of the account.
    - Note: User accounts require 2FA (2 factor authentication) and the password changes on first login and every 90 days. Email reminders will be sent out.
- Accounts should **never be shared**. Accounts should **ONLY** go to the person/organization that is using it and should not be shared with POCs, requestors, etc.
- MFT accounts expire after 180 days of inactivity.
- Accounts are locked out after 3 invalid attempts. After **5 invalid login attempts** the IP address will be autoblocked
- Password length is 12 characters and VERY COMPLEX.
    - The software will check against dictionary words, names, and common patterns.
    - It is **highly** recommended to use a completely random password.
- All SFTP accounts created with IP address whitelisting will receive a 3-year password policy.
    - The main point of contact that the account belongs to will receive notice 30 days prior to expiration from iaa@crisphealth.org.
- If the Participant chooses not to provide IP addresses for whitelisting, then they will receive a 1-year password policy.
    - It is highly suggested that the account has a distribution or group email address that can be reached in the future. This is for the password to be changed per the given timeframe.
    - All Service accounts will have access to the Web Portal. Participant will need to login, change the password and set up 2FA **prior** to using the SFTP function of the account, otherwise the password will fail on attempting to reach the SFTP server.
- SFTP access URL is on **port 22** for TEST and PROD

- Please notify VHI by emailing PHRSupport@vhi.org and the designated VDH contact once the participating organization's technical resources have prepared test message(s) and are ready to test and validate connectivity.
    - All files sent/uploaded are retained for up to 72 hours and subsequently deleted.
- Each type of data must be validated for structure (via email using test data with VDH) before the Participant is approved to send data to VDH for content testing in TEST. Then, each type of data must be approved to move into PROD. This means the Participant may have data submissions for both TEST and PROD at the same time depending on where the Participant is in content validation and testing with VDH.
    - VHI forwards ACKS and NACKS from VDH indicating successful (or unsuccessful) HL7 message processing – these will be in the **out** directory.
- After the content has been validated, the Participant will get a PROD hostname/port. If the Participant experiences any technical issues with the data transfer, please contact VHI by emailing PHRSupport@vhi.org during regular business hours (Monday-Thursday 9:00am – 5:00pm, Friday 9:00am – 1:00pm EST).

SFTP Specifications

- When the Participant logs into their SFTP account, they will be presented with 2 directories:
  - **PROD** (e.g., SFTP/PARTICIPANTNAME/PHRTYPE/PROD/PHR-in folder)
  - **TEST** (e.g., SFTP/PARTICIPANTNAME/PHRTYPE/TEST/PHR-in folder)
- Within each directory, the Participant will see 3 folders:
  - **PHR-in** – input directory, where the Participant drops HL7 files
  - **PHR-out** – output directory, for responses (ACKs/NACKs) or messages from VDH
  - **PHR-err** – error directory, for other errors
- All public health reporting files are placed in the same folder (in)
- Each filename **must** be formatted with the **PHR type** and a **Transaction ID**.
  - Transaction ID is a unique identifier provided by the submitter to identify the transaction for audit and response purposes.
- The filename **must** be formatted as: {**phr-type}~{transaction-id}.extension**
  - The PHR Type is CASE SENSITIVE.
  - The extension of the file name **CANNOT** be **.out** or **.err**
  - Any other extension will work (e.g. .hl7, .txt, .in, .xlsx, etc.)
- For filename examples, please see Appendix B.
- **VALID PHR types** are:

Data Type	Format Types	Css-phr-type
Cancer Registry	HL7 2.5.1, CDA, C-CDA	CANREG
Electronic Lab Reporting (ELR)	HL7 2.3.1 and/or HL 2.5.1	ELR
Electronic Case Reporting (eCR)	eICR v1.1 and RR from AIMS	ELREICR
Electronic Lab Reporting Flat Files	.CSV	ELR_Flatfiles
Immunization Reporting (VXU)	HL7 2.3.1 or HL7 2.5.1	IMM
Immunization Query (QBP) (only via HTTPS)	HL7 2.3.1 or HL7 2.5.1	IMUNZQUERY
Immunizations Health Plan	HEDIS (for payers/health plans)	Imm_HealthPlan
Newborn Screening Orders	HL7 2.5.1	NBSORDERS_ENCRYPT
Newborn Screening Results	HL7 2.5.1	NBSRESULTS_RESP
Syndromic Surveillance (ADT)	HL7 2.5.1	SYND
All AIMS messages	Different formats	INTERPARTNER
AIMS Interstate messages	HL7 2.3.1 or HL7 2.5.1	INTERSTATE_ELR

- **Transaction ID** is a unique identifier provided by the submitter to identify the transaction for audit and response purposes.

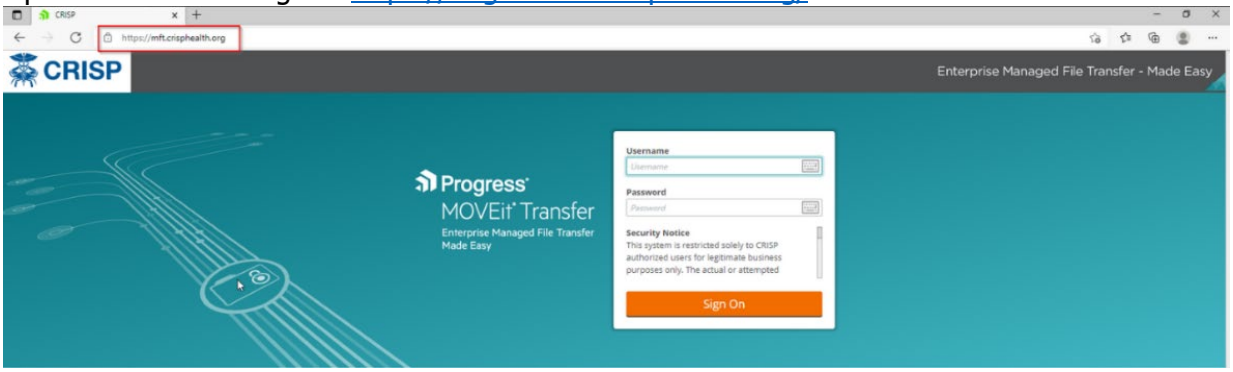
SFTP Tips and FAQs

- If you have any SFTP account questions, please have the main point of contact for that account reach out to iaa@crisphealth.org.

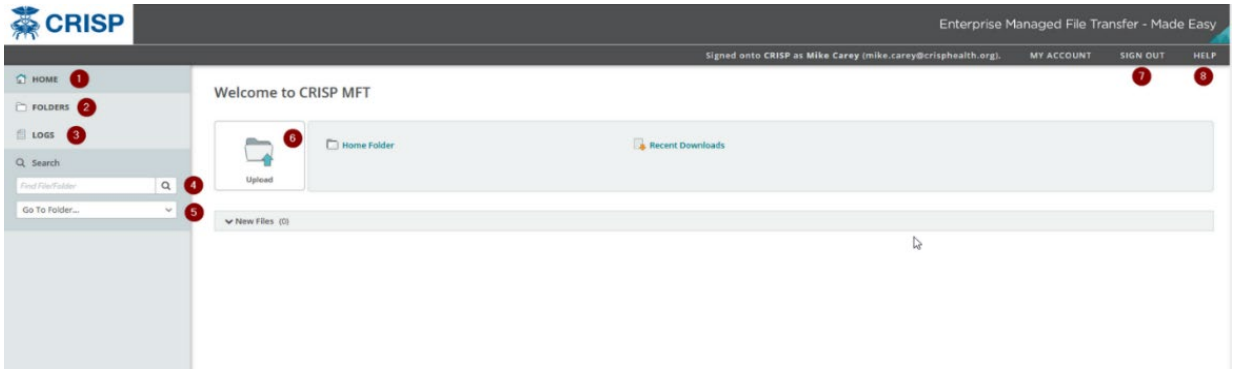
- **How will I know if I have connected successfully?** Please notify VHI by emailing PHRSupport@vhi.org before sending a test message. Check the out directory**.** If the Participant receives an ACK, connection is successful with a properly formatted HL7 message. If the Participant receives a NACK, connection is successful, but the message (in the body) is not formatted correctly per VDH's message specifications. For NACKs, we encourage the Participant to reach out to VDH or DGS contacts for format verification.
- **What if I have questions about the HL7 message content, or my MU attestation status or MU documentation?** Use the designated VDH contacts for MU questions. The Participant should already be working with them on validating the message structure using test data sent to them via email.
- **Who do I contact in case I have problems connecting?** Please notify VHI by emailing phrsupport@vhi.org during regular business hours (Monday-Thursday 9:00am – 5:00pm, Friday 9:00am – 1:00pm EST). Outside of business hours please contact CRISP Shared Services at interfacesupport@crisphealth.org for 24/7 Production data submission issues or technical support.
- **What if I'm already sending data directly to VDH?** All existing direct connections to VDH will be transferred to VHI.
- **This is my first time attempting to log in with credentials but I'm getting a time out error. What is the cause and resolution?** This error usually occurs when the Participant is attempting to access from an IP address that firewall permissions have not been established for. Please contact VHI by emailing PHRSupport@vhi.org all public IP addresses of the server(s) SFTP messages will be sent from.

Logging into the Web Portal

1. Open a browser and go to https://virginia.mft.crisphealth.org/

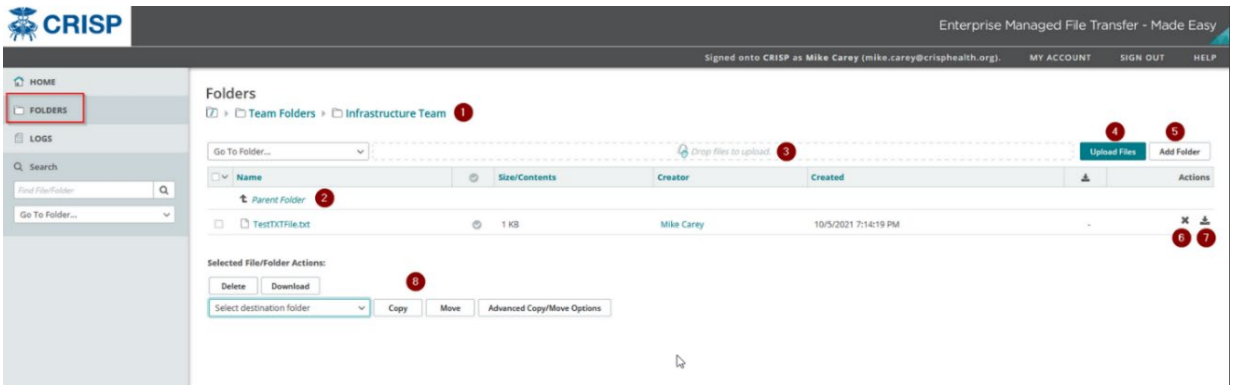


2. Once logged in, the Participant will be presented with a screen like the interface below.



Upload/Download Files

1. Click the **Folders** button.
2. Traverse through the folders until the Participant finds where to upload a file or find the file they want to download.
3. Folder set breadcrumbs: move back and forth through the Folders.
4. Move back up to the folder above the folder you're in (the parent folder) (2).
5. Drag and drop quick file upload (3).
6. File upload box (4). Allows the Participant to drag and drop or search for the file.
7. Add a folder to the folder the Participant is currently in (5).
8. Delete a file in the current folder (6).
9. Download the file (7).
10. Highlight the file (using checkbox in front of the file name) then the Participant can use these controls to Delete/Download the file or Move/Copy the file to other folders in the system (8).



Appendix

Appendix A: HTTPS

- **Can I test my headers before I send a message through?** Httpbin.org/post allows you to send an HTTP Post request and returns the request for verification it is properly formatted. Below is an example of a response from a properly formatted ELR message:
  - { "args": {}, "data": "MSH|^~\\&|QA^1.234.1^ISO|SAMPLE LABORATORY^34D0932172^CLIA|VDHELR|VDH^2.16.840.1.113883.3.3556^ISO|20140101210443||ORU ^R01^ORU_R01|@No-CC_1400226988|P|2.5.1|||AL|NE|||||PHLabReport- 8 | P a g e Ack^^2.16.840.1.114222.4.10.3^ISO\nSFT|ORION HEALTH|4.1.1|RHAPSODY CONNECT|0100101||20120926\nPID|1||ABC-458^^^SAMPLE LABORATORY&1.234.1&ISO^MR||LAST^FIRST||19000115|F|||1234 MAIN ST^^CITY^VA^16850|||||||0\nPV1|1|O|||||12345^LAST^FIRST||||||||||OS|||||||||||||||| |||| |||| ||||201312310000\nORC|RE||Z1234567^SAMPLE LAB^1.234.1^ISO|||||||||1234567890^LAST^FIRST^MIDDLE^^^^^CMS&2.16.840.1.113883.19.4.6&ISO^ ^^^NPI||^WPN^PH^^1^703^1234567|||||||SAMPLE LAB|1234 MAIN ST ^^CITY^VA^24018|^WPN^PH^^1^703^1234567|123 MAIN STREET^^CITY^VA^16850\nOBR|1|| Z1234567^SAMPLE^1.234.1^ISO|13955-0^Hepatitis C virus Ab [Presence] in Serum by Immunoassay^LN^HCABS^Hepatitis C Ab Screen^L|||201301011155|||||||201301011155||1234567890^LAST^FIRST^MIDDLE^^^^^CMS&2.16.840.1.113883.19.4.6&ISO^^^^NPI|^WPN^PH^^1^703^1234567||123L34567890|Z1234567||201301011155||SP|F|HBABC&HCABS|||||||3978\nOBX|1|CWE|13955-0^Hepatitis C virus Ab [Presence] in Serum by Immunoassay^LN^HCAB^Hepatitis C Ab Screen^L|1|11214006^(Note) Reactive Screen^SCT^^^^^(Note) Reactive Screen||NEG||||F|||201301011155||123^FAKE^FAKE FAKE^^^^^^CLIA&1.3.6.2.3.0.00000.0.1234.1&ISO^^^^EN|||201301011155||||FAKE LAB ^L^^^^CLIA&1.3.6.2.3.0.00000.0.1234.1&ISO^XX^^^34D1234567|123 MAIN STREET-Ste. 000^^CITY^VA^16850\nNTE|1|L|Results checked\nSPM|1|^T1610713&FAKELAB&1.234.1&ISO||119364003^Serum specimen (specimen)^SCT||||||||||||201312310000|201312310000", "files": {}, "form": {}, "headers": { "Accept-Encoding": "gzip,deflate", "Connection": "close", "Content-Length": "1567", "Content-Type": "application/soap+xml;charset=UTF-8;action=\"urn:ReceiveELR\"", "Host": "httpbin.org", "Css-Custom-Oid": "1.3.6.1.4.1.39899", "Css-Phr-Type": "ELR", "Css-Transaction-Id": "e835bfdc-0b92-4f32-bab0-180eff347a72", "User-Agent": "Apache-HttpClient/4.1.1 (java 1.5)", "X-Request-Id": "52b49d0d-f944-4fba-8a1c-26c8c01a3925" }, "json": null, "origin": "174.79.162.2", "url": "http://httpbin.org/post" }

- **HTTPS Error codes, description and troubleshooting** – The following error codes are some of the most common errors you may run into when attempting to establish connectivity to VHI's UAT/Test and Production environments:

Error Code	Error Description	Action Needed by Crisp Shared Services (CSS) or Participant
400	No required SSL certificate was sent	Participant: The organization sending the data (participant or its vendor) will need to attach a certificate to each request sent to the endpoint.
400	Bad Request	Participant and CSS: Typically, this refers to a whitelisting issue and requires the participant to provide all additional IP address(es) and CSS to whitelist appropriate IPs.
401/403	Unauthorized	Participant: Typically means that a wrong certificate is being sent in the request or that the certificate has expired or is invalid
404	Not Found	CSS: Ensure the URL (TEST and/or PROD) is configured. Participant: Confirm if proxy exists between itself and CSS and if so, confirm the URL (TEST and/or PROD) is whitelisted/accepted
429	Too Many Requests	Participant/CSS: A technical call is needed to understand the volume of messages expected and the appropriate upper limits configured.
499	Client Closed Connection	CSS: Review the connections and responses being sent from the Mirth Connect channel and validate the format
502	Bad Gateway	CSS: Check the upstream mirth channel and ensure proper configuration
504	Gateway Timeout	Participant/CSS: Typically, a whitelisting issue. The organization sending the data (participant or its vendor) needs to provide additional IPs and CSS to whitelist appropriate IPs.

- **For other less common errors, please refer to this webpage:** https://developer.mozilla.org/en-US/docs/Web/HTTP/Status. If you continue to receive error messages, please email PHRSupport@vhi.org.

- **Do you have an example of a message processed correctly?** Yes, below is an example of an ELR message that has processed successfully:
  - POST https://test.crisphealth.org/[yourorgname]/vhi/phr: 443 HTTP/1.1
    Accept-Encoding: gzip,deflate
    Content-Type: application/soap+xml;charset=UTF-8;action="urn:ReceiveELR"
    Css-custom-oid: 1.2.3.4.5.
    Css-phr-type: ELR
    Css-transaction-id: e835bfdc-0b92-4f32-bab0-180eff347a70
    Content-Length: 1567
    Host: https://test.crisphealth.org/yourorgname/vhi/phr:443
    Connection: Keep-Alive
    User-Agent: Apache-HttpClient/4.1.1 (java 1.5)

MSH|^~\&|QA^1.234.1^ISO|SAMPLE LABORATORY^34D0932172^CLIA|VDHELR|VDH^2.16.840.1.113883.3.3556^ISO|20140101210443||ORU^R01^ORU_R01|@No-CC_1400226988|P|2.5.1|||AL|NE|||||PHLabReport-Ack^^2.16.840.1.114222.4.10.3^ISO
SFT|ORION HEALTH|4.1.1|RHAPSODY CONNECT|0100101||20120926
PID|1||ABC-458^^^SAMPLE LABORATORY&1.234.1&ISO^MR||LAST^FIRST||19000115|F|||1234 MAIN ST^^CITY^VA^16850|||||||0
PV1|1|O|||||12345^LAST^FIRST||||||||||OS|||||||||||||||||||||||||201312310000
ORC|RE||Z1234567^SAMPLE LAB^1.234.1^ISO|||||||||1234567890^LAST^FIRST^MIDDLE^^^^^CMS&2.16.840.1.113883.19.4.6&ISO^^^^NPI||^WPN^PH^^1^703^1234567|||||||SAMPLE LAB|1234 MAIN ST ^^CITY^VA^24018|^WPN^PH^^1^703^1234567|123 MAIN STREET^^CITY^VA^16850
OBR|1|| Z1234567^SAMPLE^1.234.1^ISO|13955-0^Hepatitis C virus Ab [Presence] in Serum by Immunoassay^LN^HCABS^Hepatitis C Ab Screen^L|||201301011155|||||||201301011155||1234567890^LAST^FIRST^MIDDLE^^^^^CMS&2.16.840.1.113883.19.4.6&ISO^^^^NPI|^WPN^PH^^1^703^1234567||123L34567890| Z1234567||201301011155||SP|F|HBABC&HCABS|||||||3978
OBX|1|CWE|13955-0^Hepatitis C virus Ab [Presence] in Serum by Immunoassay^LN^HCAB^Hepatitis C Ab Screen^L|1|11214006^(Note) Reactive Screen^SCT^^^^^(Note) Reactive Screen||NEG||||F|||201301011155||123^FAKE^FAKE FAKE^^^^^^CLIA&1.3.6.2.3.0.00000.0.1234.1&ISO^^^^EN|||201301011155||||FAKE LAB ^L^^^^CLIA&1.3.6.2.3.0.00000.0.1234.1&ISO^XX^^^34D1234567|123 MAIN STREET-Ste. 000^^CITY^VA^16850
NTE|1|L|Results checked
SPM|1|^T1610713&FAKELAB&1.234.1&ISO||119364003^Serum specimen (specimen)^SCT||||||||||||201312310000|201312310000

Appendix B: SFTP

- **Examples of formatted ELR messages:**
  - SFTP Example Filenames
    - **ELR**~1234567890.in
    - **IMM**~B4E1682D-BDB8-401B-9005-5A78FAB33FAA.txt
    - **SYND**~AA3719193.hl7
    - **ELR_Flatfiles**~AA3719193.txt

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