

Installing and Configuring VLTrader

Introduction

This document describes the process to download, install, and configure VLTrader so that it can be used to perform SSH FTP file transfers between market participants in the Alberta utility market.

There are a number of advanced features in VLTrader such as storing log information in a database, setting up notifications, configuring pre and post-transfer file moves, etc. This document does not describe how to setup these features. Refer to the VLTrader documentation for assistance.

Standards

The following standards are to be followed by all market participants:

1. The VLTrader program will be used by all market participants for all file transfers.
2. The SSH FTP protocol will be used for all file transfers.
3. Port 6484 must be opened on the firewall as per the instructions in Appendix C.
4. Self-signed certificates are to be generated and exchanged with trading partners.
5. Both servers and clients will use OpenPGP packaging with the following options selected:
 - Encrypt Outbound
 - Decrypt Inbound
 - Encrypted
 - Signed
 - Compressed
 - Force Encryption
 - Force Signature
 - Signing/Encryption Certificate

All other designations in this document, such as server, mailbox, and folder names, are recommendations only and can be modified as desired.

Steps to Install and Configure VLTrader

In order to be able to send or receive files, port 6484 must be opened on the firewall. For additional security, VLProxy can be installed into the DMZ. Refer to Appendix C and D for more information about ports and VLProxy.

There are eight steps to install and configure VLTrader:

1. Download and Install VLTrader
2. Generate a Self-Signed User Certificate
3. Import Trading Partner Certificates
4. Configure the Listener
5. Create an SSH FTP Server
6. Create an SSH FTP Client

7. Set Miscellaneous Options
8. Perform File Transfer Test

It is assumed that the VLTrader administrator will be installing and configuring the software. It would be helpful to have an IT technician present to assist with the installation in the event there are technical difficulties. Usually these are permissions issues or problems with ports.

On most screens there is an *Apply* button which is used to save the changes. The instructions below won't say to press the *Apply* button. It is assumed you will do so at the end of each step. When there are changes to be saved on a screen, VLTrader enables the *Apply* button, i.e. the text on the button goes from a light color to a solid color. Also, if you try to move to another screen without saving your changes, VLTrader will inform you - a good safety feature.

If you require technical assistance, contact Cleo Support at support@cleo.com or 866-501-2536. Be sure to have your serial number available.

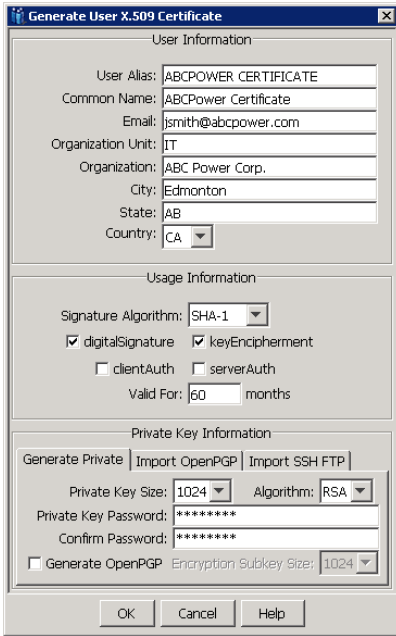
Step 1 - Download and Install VLTrader

You should have received an email from the Cleo Shipping department containing a link to their download site, a serial number and PDF documents called Get Starting Guide and VLTrader Made Simple. You might want to skim through these documents as well as the VersaLex User Guide. In these documents you will see references to VersaLex. VersaLex is the base technology that VLTrader is built on. VersaLex is synonymous with VLTrader or LexiCom.

1. Click on the download link in the email. The download is about 150 megs. Note that after pressing the download button, it takes a few seconds before the download message appears – be patient.
2. Run the install program. When running the install.exe program and selecting the install folder, you might see a message saying to disable Windows User Access Control (UAC) or install to a different location. Pressing OK may work or your tech may need to disabled it in Change User Account Control settings. Alternately you could choose to install outside of the program files directory.
3. Choose the default options and the remainder of the install should be straightforward.
4. Run VLTrader. The program always comes up in a small screen (640x480?). You can move and extend the screen but the program doesn't remember that setting. Not a huge problem but hopefully Cleo will fix that.
5. Enter your serial number and register the product.

Step 2 - Generate a Self-Signed User Certificate

1. Choose *Tools, Certificate Manager* from the menu (or press the *Certificate Manager* button). Right click on *Users*, select *Generate* and select *Self-signed User Certificate*. Fill in the form as shown below but use your company information and choose your own password.



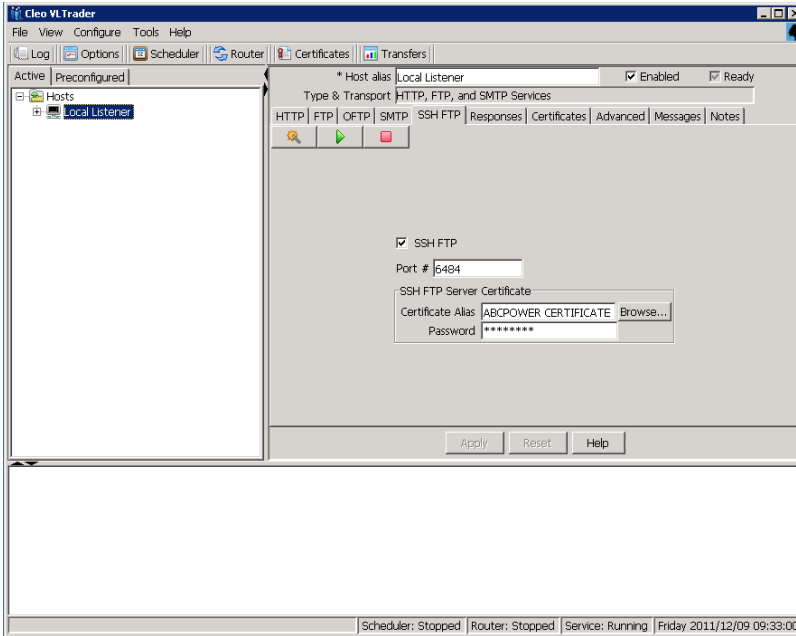
2. Click OK to save the certificate and you will see it in the *Users* list.
3. Right click on your certificate. Select *Export, User Certificate*. Click on *Base 64 encoded* and enter a file name such as *MyCompanyCertificate*. Click *Export* to export the certificate and save it somewhere. You will be sending this certificate to all of your trading partners.
4. Close the Certificate Manager window.

Step 3 - Import Trading Partner Certificates

1. For each company that you will be trading with, obtain their User Certificate. They can email it to you. Note that some email programs won't send certificates. The .cer file may have to be renamed as a .dat file.
2. Choose *Tools, Certificate Manager* from the menu.
3. Right click on *Root* which is within *Trusted CAs*.
4. Choose *Import, Trusted CA Certificate*
5. Browse to your trading partners certificate file and press *Import*.
6. Close the Certificate Manager window.

Step 4 - Configure the Listener

1. Click on *Local Listener*.
2. Click on the *Certificates* tab. Click on *Browse*, select your certificate and enter its password in the *Password* field.
3. Click on the *SSH FTP* tab. Click on the *SSH FTP* checkbox and enter 6484 for Port. Click on *Browse*, select your certificate and enter its password in the *Password* field.
4. Start the Listener by pressing the green "play" button.



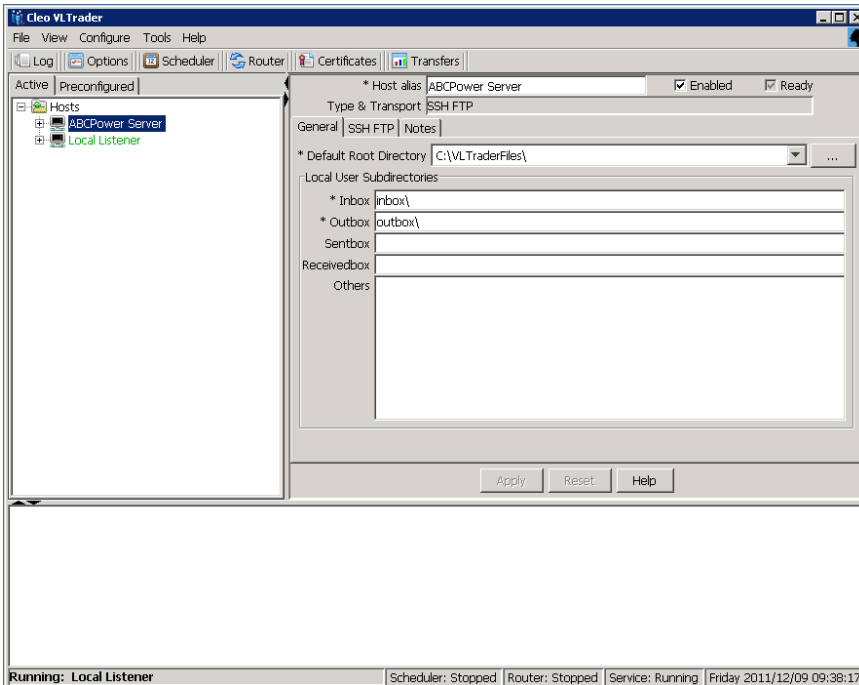
Step 5 - Create a Server

Only Distributors need to complete this step. Skip this step if you are a Retailer.

Servers accept files delivered to them or allow files to be picked up by clients. Servers do not actively push files or pick up files from other computers, i.e. they are passive.

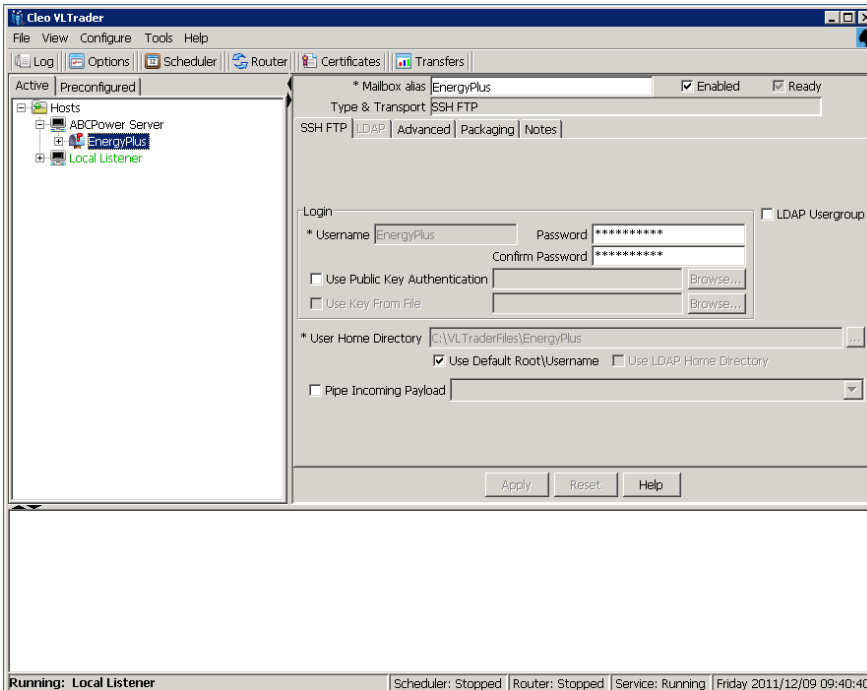
Create a Server Host

1. Over on the far left of the screen there are the Active and Preconfigured tabs. Click on *Preconfigured*.
2. Select and right click on *Local SSH FTP Users*. Select Clone and Activate. This preconfigured template is copied to the Active area.
3. Change *Host alias* to something like *MyCompanyName Server*.
4. Change the *Default Root Directory* to something like *C:\VLTraderFiles* and remove *payload* from *Outbox*.

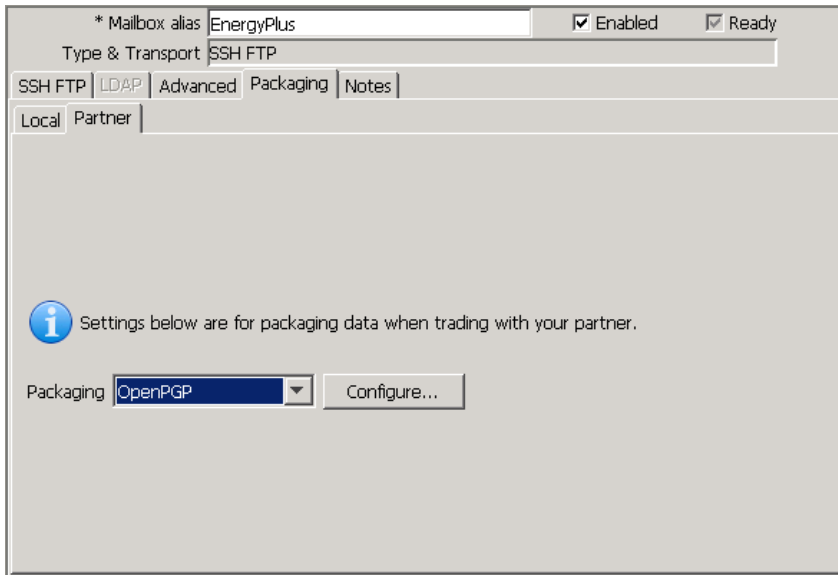


Configure the Server Mailbox

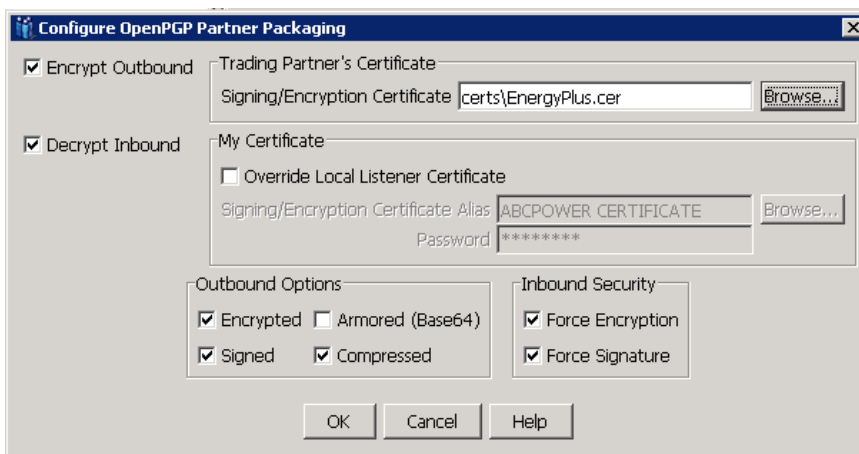
1. Click on *MyCompanyName Server* and expand the tree by clicking on the + sign to the left.
2. Click on *myTradingPartner* mailbox.
3. Change the *Mailbox alias* to your trading partner company name.
4. Enter a password into the *Password* field. You will give the *Username* and *Password* to your trading partner. They will use this information to be able to log into your server.



- Click on the *Packaging* tab and then click on the *Partner* subtab. Change the Packaging dropdown to *OpenPGP*. *Note: be sure to select the Partner subtab as the Local and Partner screens look the same.*



- Press the *Configure* button and select:
 - Encrypt Outbound
 - Decrypt Inbound
 - Encrypted
 - Signed
 - Compressed
 - Force Encryption
 - Force Signature
- Press the top *Browse* button and select your trading partner's certificate. If *Override Local Listener Certificate* is checked, uncheck it. Press the *OK* button.



- Click on the mailbox (renamed from *myTradingPartner*) and expand the tree by clicking on the + sign to the left.

9. You will see two preconfigured Actions called <collect> and <release>.
10. Click on <collect> and delete everything except the “#” symbol from right hand screen, i.e. from *Initialize* down. Do the same for the <release> action.

Step 6 - Create a Client

Only Retailers need to complete this step. Skip this step if you are a Distributor.

Clients actively push files to a server or pick up files from a server. A separate Client will be created for each of your trading partners.

Create a Client Host

1. Click on the *Preconfigured* tab.
2. Click on *Generic* and expand the tree by clicking on the + sign to the left.
3. Right click on *Generic SSH FTP* and select *Clone & Activate*. This preconfigured template is copied to the Active area.
4. Change *Host alias* to something like *trading partner's name Client*, e.g. EnergyPlus Client.
5. Enter their *Server Address* and 6484 for *Port*.
6. Change *Default Directories Inbox* to something like *c:\VLTraderFiles\tradingpartnername\inbox*.
7. Change *Default Directories Outbox* to something like *c:\VLTraderFiles\tradingpartnername\outbox*.

The screenshot shows a configuration window for a client host. At the top, there are checkboxes for 'Enabled' and 'Ready', both of which are checked. Below this, the 'Host alias' is set to 'EnergyPlus Client' and the 'Type & Transport' is set to 'SSH FTP'. There are three tabs: 'General', 'Advanced', and 'Notes', with 'General' being the active tab. The main configuration area includes:

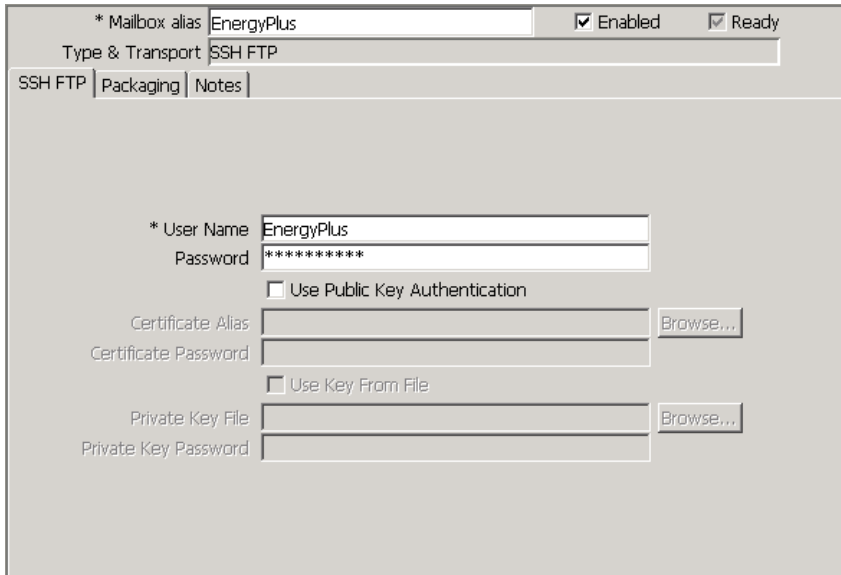
- '* Server Address': vltrader.energyplus.com
- '* Port #': 6484
- '* Connection Type': System Default (dropdown menu)
- 'Forward Proxy': <None> (dropdown menu) with a checked 'System Default' checkbox.
- 'Default Directories' section:
 - 'Inbox': c:\VLTraderFiles\EnergyPlus\inbox
 - 'Outbox': c:\VLTraderFiles\EnergyPlus\outbox
 - 'Sentbox': (empty)
 - 'Receivedbox': (empty)

 Each directory field has a dropdown arrow and a browse button (three dots).

8. Click on the Advanced tab. Click on the *Resume Failed Transfers* checkbox and enter 10 for *Command Retries*.

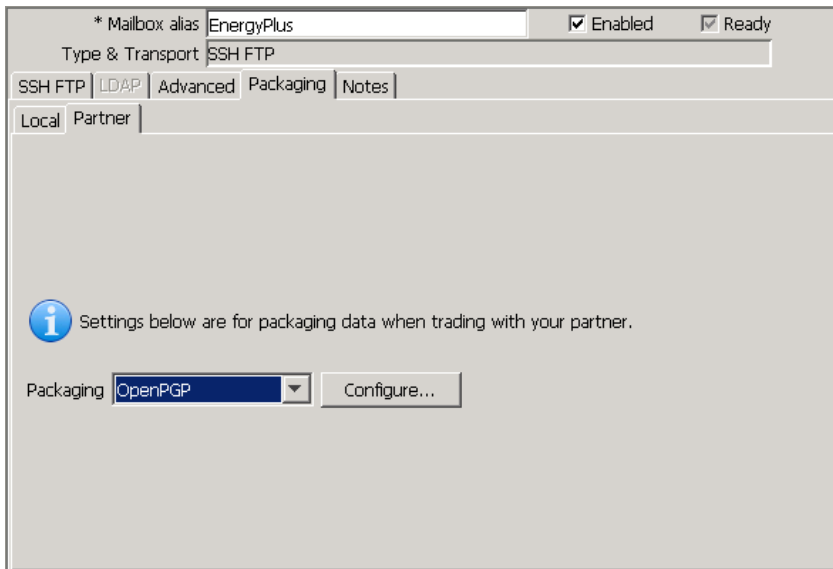
Configure the Client Mailbox

1. Click on the client host (renamed from Generic SSH FTP) and expand the tree by clicking on the + sign to the left.
2. Click on *myMailbox*.
3. Change *Mailbox alias* to your trading partner name.
4. Enter your *User Name* and *Password* as given to you by your trading partner.



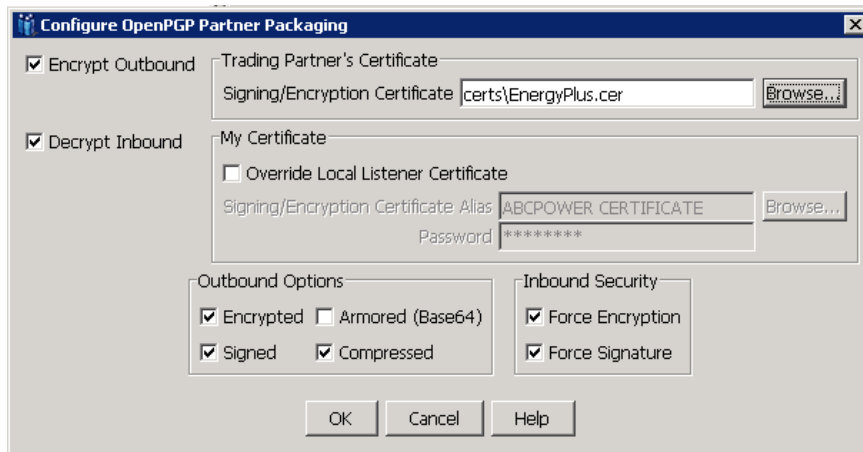
The screenshot shows a configuration window for a mailbox. At the top, there is a field for '* Mailbox alias' containing 'EnergyPlus', with 'Enabled' and 'Ready' checkboxes checked. Below this is a 'Type & Transport' field set to 'SSH FTP'. A tabbed interface at the top shows 'SSH FTP', 'Packaging', and 'Notes', with 'SSH FTP' selected. The main area contains fields for '* User Name' (EnergyPlus) and 'Password' (masked with asterisks). There are two checkboxes: 'Use Public Key Authentication' (unchecked) and 'Use Key From File' (unchecked). Below these are fields for 'Certificate Alias', 'Certificate Password', 'Private Key File', and 'Private Key Password', each with a 'Browse...' button.

11. Click on the Packaging tab and then click on the *Partner* subtab. Change the *Packaging* dropdown to OpenPGP. *Note: be sure to select the Partner subtab as the Local and Partner screens look the same.*



The screenshot shows the same configuration window, but with the 'Packaging' tab selected. The 'Local' and 'Partner' subtabs are visible at the top, with 'Partner' selected. An information icon (i) is present with the text: 'Settings below are for packaging data when trading with your partner.' Below this is a 'Packaging' dropdown menu set to 'OpenPGP' and a 'Configure...' button.

5. Press the Configure button and select:
 - Encrypt Outbound
 - Decrypt Inbound
 - Encrypted
 - Signed
 - Compressed
 - Force Encryption
 - Force Signature
6. Press the top *Browse* button and select your trading partner's certificate. If *Override Local Listener Certificate* is checked, uncheck it. Press the *OK* button.



Modify the Actions

1. Click on the mailbox (renamed from *myMailbox*) and expand the tree by clicking on the + sign to the left.
2. You will see three preconfigured Actions called <receive>, <send> and <send+receive>.
3. Click on the <receive> Action and change it to:


```
# Receive all files from remote host
SET PreGetCommand=CD outbox
GET -DEL *
```
4. Click on the <send> Action and change it to:


```
# Send files to remote host
SET PrePutCommand=CD inbox
PUT -DEL *
```
5. Click on the <send+receive> Action and change it to:


```
# Send files to remote host
SET PrePutCommand=CD inbox
PUT -DEL *
# Receive all files from remote host
SET PreGetCommand=CD ../outbox
GET -DEL *
```

Step 7 - Set Miscellaneous Options

1. Select *Configure, Options, Transfers*. Change *Transfer Logging* to *XML File*. This means all logging information will go to a local XML file. Later this can be changed so that logging goes to a database.
2. Select *Tools, Scheduler* from the main menu. Click on *Continue*. The Cleo VLTrader Schedule will appear. Click on the *Automatically run at startup checkbox*.
3. Start the Scheduler by choosing *File, Start Scheduler* from the main menu.

Step 8 - Perform a File Transfer Test

1. Place a file (any file) into *c:\VLTraderFiles\tradingpartnername\outbox*.
2. In VLTrader click on your trading partner's client, expand the tree, and expand the mailbox. You should see three *Actions*: *<receive>*, *<send>*, and *<send+receive>*. Click on *<send>*.
3. Press the green arrow button to execute the send action.
4. The outbox folder should be empty and the trading partner's inbox should have the file.
5. The bottom portion of the screen shows the log information. On the server, you may see warning messages (in yellow) such as "Permission Denied" or "No such file or directory". Cleo says these messages are normal and they can be ignored.

Appendix A - Advanced Configurations

There are a number of advanced configurations that need to be done. Refer to the VLTrader documentation or call upon their support department for assistance.

Setup VLProxy

VLProxy is used in the DMZ to forward requests to and from the VLTrader server.

Pre-Transfer and Post-Transfer File Manipulations

VLTrader is capable of performing pre-transfer and post-transfer file moves, etc.

Copy to AESO

Some utility companies send the same file to AESO that they send to a trading partner. To do this, create a client for AESO. Then put the following command into the trading partner's send action (modifying the folders appropriately):

```
# Copy to AESO before sending
LCOPY C:\VLTraderFiles\EnergyPlus\outbox C:\VLTraderFiles\AESO\outbox
```

Notifications

VLTrader can send notifications on failures and successes. To email notifications, you may have to configure your SMTP server (VLTrader uses a default name which may be different than your SMTP server name). Go to *Configure, Proxies* to set it up.

Scheduling

VLTrader has many options for scheduling. To see the schedule screen, right click on the <send> action.

Configure Actions

By default, VLTrader creates <send>, <receive>, and <send+receive> actions. Depending on what you do, you can delete the unneeded actions.

Logging to Database

In the instructions above, logging was setup to log to go to an XML file. You may want to send log information to a database.

Backing Up Configurations

In the VLTrader directory, only the conf, data, hosts, and certs folders need to be backed up. These 4 folders contain all of the configured information in VLTrader.

Manual Sending of Files

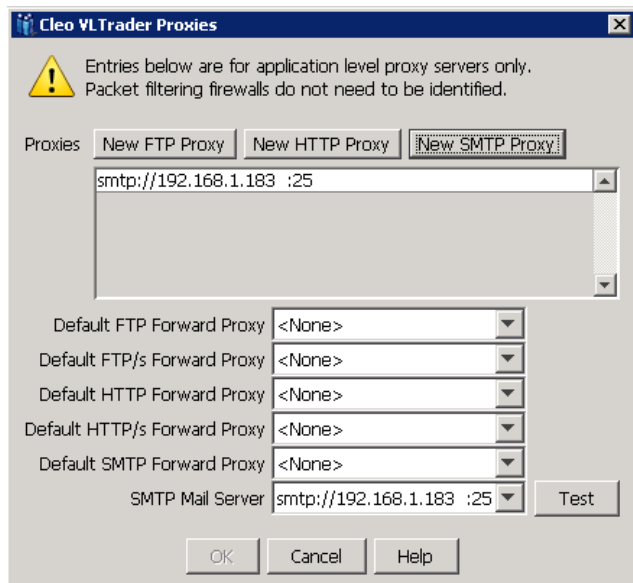
Files can be manually sent via a web interface using VLPortal.

Zero Length Files

In the Advanced options tab, there are 2 options for handling zero length files – Do Not Send Zero Length Files and Delete Zero Length Files

Emailing Alerts

To email an alert, VLTrader uses an SMTP server. By default it uses the mail server name of “mail.yourdomain.com”. If your SMTP email server is not named mail.yourdomain.com select *Configure*, then *Proxies* from the VLTrader menu. Press the *New SMTP Proxy* button and enter your mail server information. Then in the SMTP Mail Server dropdown, select the mail server entry. The screen should look something like the following.



Saving Sent Files

To save all sent files in another folder, enter a folder name in Sentbox in the Default Directories of the General tab of the client.

Appendix B - Miscellaneous Comments

When configuring a Host, you will see a tab called Notes. This is where you can enter information about the host.

VLTrader uses right-click extensively. To see additional options and commands, right click on controls. For example you can right click on the status bar control to start or stop the scheduler.

When setting up a host, at the top-right of the screen, there is a *Ready* check box. If everything has been setup properly it will be checked. If not, it won't be checked and it often indicates what needs to be done.

You might experience difficulty with the scheduler changing a schedule. Pop-up messages appear and you might not be able to do what you want to do. If this happens try pressing the *Unschedule* button and then re-do the schedule.

The folders that VLTrader uses to store incoming or outgoing files are configurable. For clients there is one set of folders for each client and they set in the *General* tab of the client. Servers are slightly different. There is a set of folders created for each mailbox under the default root directory. The default root directory and the local user subdirectories are set in the *General* tab of the server. For example, if mailboxes were created for trading partners called SparksInc and ZapItInc, the folders that VLTrader would create and use are:

C:\VLTraderFiles\SparksInc\inbox	<= incoming files from SparksInc
C:\VLTraderFiles\SparksInc\outbox	<= files to be picked up by SparksInc
C:\VLTraderFiles\ZapItInc\inbox	<= incoming files from ZapItInc
C:\VLTraderFiles\ZapItInc\outbox	<= files to be picked up by ZapItInc

The server folder structure can be overridden in the *SSH FTP* tab of the mailbox. Unselect *Use Default Root\Username* and enter a new folder path into the *User Home Directory* field. If you are changing folders, Cleo will create folders upon pressing Apply but it doesn't delete old folders. You may be left with some cleanup to do.

If you get errors when transferring very large files, try changing Connection Timeout (seconds) to 600. This parameter can be found in the *Advanced* tab of the Listener and Client. If you are using VLProxy enter 600 for #16 - VersaLex Read Timeout (seconds) and #17 - Remote Read Timeout (seconds).

Appendix C - Port Configuration

Introduction

SSH FTP is a TCP/IP based internet protocol. Each connection is passed through a single command port to secure and authenticate the connection. That secured connection is then used to transfer the secured payload. Multiple connections run on this same port. SSH FTP works as a client-server model. Clients always initiate communications, either pulling files or pushing files. Servers are always listening for these connections. Firewall/port configurations are easier for the client due to this architecture. The below sections are split into client and server rules as they differ slightly.

Server Configuration

Server side connections are always listening for connections from the outside world. An initial connection come in on the command port of 6484, and once authenticated secured data is passed along this connection. From a firewall perspective port 6484 needs to be opened inbound from the outside world to your outmost facing server (VLProxy).

Client Configuration

Client side connections always initiate connectivity to servers. Because of this firewall rules are generally easier, as they are all outbound based. Many firewalls allow any outbound connections by default, and require no changes. From a firewall perspective port 6484 needs to be opened outbound from your outmost facing server to the outside world.

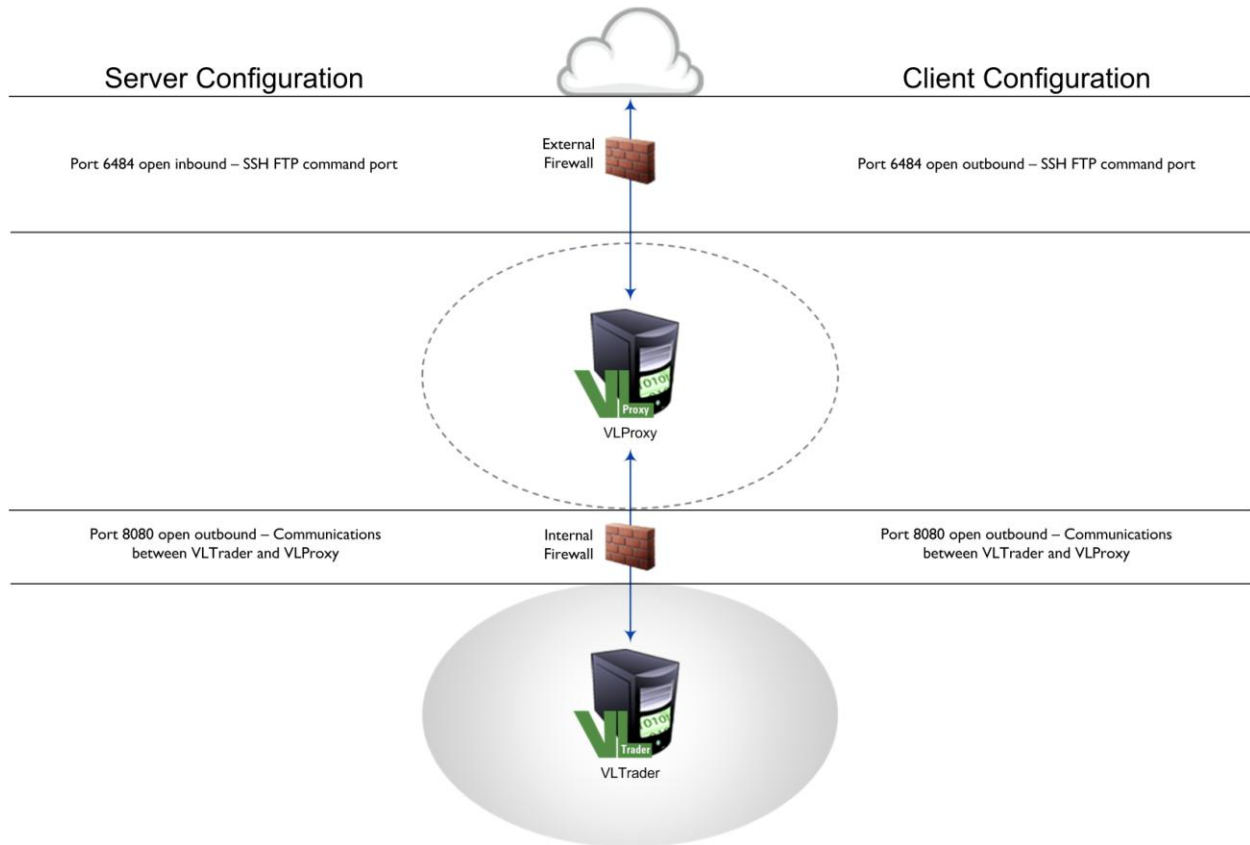
VLProxy

VLProxy communicates with VLTrader to act as a gateway for all traffic into and out of your network. VLTrader connects outbound to VLProxy on a single port of 8080 for all of the traffic. From a firewall perspective port 8080 needs to be opened outbound from your internal VLTrader machine to the VLProxy machine.

Summary

Type of connection	Ports	Direction	From	To
Server	6484	Inbound	Internet	Outmost server
Client	6484	Outbound	Outmost server	Internet
VLProxy/VLTrader	8080	Outbound	VLTrader	VLProxy

AUC Architecture



Appendix D - VLProxy Configuration

VLProxy Configuration

Setup the following configurations in the VLProxy command line configuration program:

- | | |
|--|------------------------|
| 1. Configuration Password | password |
| 2. Serial Number | VLTrader serial number |
| 3. Internal Forward Proxy HTTP Ports | 8080 |
| 4. Internal Address | external IP address |
| 6. External Address | external IP address |
| 13. External Reverse Proxy SSH FTP Ports | 6484 |

All other options have their default settings.

VLTrader Configurations

In VLTrader, select *Configure, Proxies, New HTTP Proxy* and enter the following values:

- | | |
|-----------------------------|---------------------|
| Proxy Server Address | external IP address |
| Port # | 8080 |
| Using VLProxy | Enabled |
| Enable reverse proxying | Enabled |
| Forward proxy backup only | Disabled |
| Reverse forward connections | Enabled |

In the same Cleo VLTrader Proxies screen, setup the following forward proxies:

- | | |
|------------------------------|-----------------------------------|
| Default FTP Forward Proxy | http://<external IP address>:8080 |
| Default FTP/s Forward Proxy | http://<external IP address>:8080 |
| Default HTTP Forward Proxy | http://<external IP address>:8080 |
| Default HTTP/s Forward Proxy | None |
| Default SMTP Forward Proxy | None |
| SMTP Mail Server | None |