

VectorLock

Installation and User Guide



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1 INTRODUCTION

VectorLock is an ArcGIS® extension that enables organizations to protect geospatial data by controlling access to shapefiles. VectorLock is the first shapefile security system to:

- Limit how long shapefiles can be used
- Control user access and permissions
- Preserve the integrity of geospatial data

Whether sharing project files with contractors, protecting enterprise data integrity or selling proprietary datasets, VectorLock ensures that geospatial data doesn't fall into the wrong hands. Designed to replace complicated and unenforceable license agreements, VectorLock uses file permissions and timed licenses to allow users to control access to sensitive data both inside and outside their organization.

1.1 VectorLock Use Cases

Before the introduction of VectorLock, securing geospatial data was not an easy task. Now the paradigm has shifted and geospatial data can be secured for as long as a user chooses and to the degree that they choose. While this list does not include all possible applications, here are some common commercial, government and academic uses of VectorLock:

- As an internal security measure to protect sensitive geospatial data
- When sharing sensitive data for a limited time with independent contractors
- When licensing vector format data with reoccurring annual license agreements
- To assure data integrity across various internal departments

1.2 VectorLock Security Measures

VectorLock employs a flexible, multi-tiered strategy to assure the highest level of security possible. To this end, VectorLock protects geospatial data by controlling:

1. *Access permissions* – the first layer of protection that is established to control access to VectorLock files is an organization's identity. An organization's identity is a unique string that is similar to a driver's license number. Every time a VectorLock file is created, an approved identity is assigned to that file. Upon use, if the unique identity of the user does not match the approved identity of the VectorLock file, then access will be denied. During the licensing process, a list of approved computers can also be established. If a computer is being used that is not on this list, then access to VectorLock files will be denied. As a final layer of protection, a username and password can be established to enhance security.

2. *Length of access* – an important component of controlling access to data is assuring that the data is only used for the necessary duration. With VectorLock, licenses can be set to expire in as little as one day, or as long as a year or more. Once this license has expired, users cannot access the data unless they are provided with an updated license with a new expiration date.
3. *Data usage* – to assure that data is used in an appropriate manner, VectorLock files can be created with two permission levels: read-only or edit. If data is created as read-only, then users cannot access the ArcGIS Editor Mode and the integrity of the data will be maintained.
4. *Data formats* – as a final layer of protection, there is no risk that other programs can access a VectorLock file as they are delivered in an encrypted format that can only be read in ArcMap with an installed VectorLock Toolbar.

1.3 VectorLock File Structure

While VectorLock files work just like Esri shapefiles inside of ArcMap, they have a unique file structure. A VectorLock file (.vlf extension) contains the core elements of an Esri shapefile packaged in an unreadable, encrypted file format. Inside the VectorLock file are the following Esri shapefile elements: .shp; .shx; and the .dbf. The .dbf file contains all the attributes that have been linked to an Esri shapefile and can be opened with any version of Microsoft Excel[®]. Note that a .dbf file can not be opened after it has been included in a .vlf package. The .prj is left outside the .vlf so that users can easily determine the projection and datum of VectorLock files.

VectorLock Bundles contain one or more Esri shapefiles. Each shapefile in the Bundle is converted to a distinct VectorLock file with an associated .prj, if one exists to begin with. Data distributors then associate a VectorLock data license (.vll) with a particular Bundle and include the desired access and usage restrictions in the license file. Multiple VectorLock data licenses can be associated with the same Bundle so that this Bundle can be distributed to various organizations, each with different use restrictions and expiration dates. Data owners can modify any VectorLock data license they have created with new privileges, usage restrictions and/or an expiration date, and then redistribute to data consumers.

1.4 Using VectorLock

All VectorLock users have access to the VectorLock ArcMap Toolbar. Standard license holders can open and work with VectorLock files in traditional ArcGIS workflows; while Advanced License holders can also edit these files. Users with the Data Administrator Program included in their software license are able to create, package and then distribute the VectorLock Bundles they create. Every organization with VectorLock must assign a license administrator to manage their unique corporate identity. The Standard and Advanced versions of the ArcMap Toolbar are available free of charge from eMap; while the VectorLock Data Administrator Program is sold by the seat with annual license agreements.

1.5 VectorLock ArcMap Toolbar

Users can open VectorLock files licensed to their organization in ArcMap with the Toolbar. Once loaded, VectorLock files are treated by ArcMap as it would any point, line or polygon Esri shapefile so that users can complete typical GIS tasks; for instance:

- Change the symbology and layer ordering
- Measure distances
- Create printable maps
- Work with any ArcToolbox that exports Esri shapefiles

Esri shapefiles and VectorLock files work exactly the same when loaded in ArcMap. For example, users can combine VectorLock files and Esri shapefiles in ArcToolbox functions (e.g., a merge, dissolve or union) without any encumbrance. When this is done, the output is a VectorLock file that maintains the exact same access and usage restrictions that are contained in the original VectorLock data license(s). At this time, VectorLock files are not recognized in ArcCatalog.

1.6 VectorLock Data Administrator Program

In order to create VectorLock files and then license them to approved users, the Data Administrator Program is required. The Data Administrator Program allows the administrator to apply various levels of protection to VectorLock files so that the following specific controls are in place:

1. VectorLock file distribution

- *Organization Identity (required)* – sending a VectorLock Bundle to a data consumer the user must have the consumer's identity file (.vli). An organization's identity is shared through a VectorLock identity file (.vli) which is created by their License Manager.
- *Hosts (optional)* – if desired, access to VectorLock files can be restricted to a single computer or a set of computers within an organization. A list of possible hosts within an organization is shared via the VectorLock identity file.
- *Username/password (optional)* – to add an additional layer of security, a username and password can be required to access a VectorLock file. This username and password is established by the data distributor and can be as simple or as complex as you require.

2. How long approved users can access VectorLock files

- *Expiration date (required)* – access to VectorLock files can be limited to one day, set to never expire, or fixed to a specific expiration date. A calendar interface provides users with a clean method to enter your desired start and expiration dates.

- *Grace period (optional)* – if desired, the data distributor can add a 30, 60 or 90-day grace period to the expiration date. This will allow approved data consumers to renew their VectorLock data license(s) before they expire.

3. What approved users can do with VectorLock files

- *Permissions (required)* – if Edit permissions are granted, then data consumers can edit VectorLock files in ArcMap's Editor Mode. Alternatively, data distributors can restrict the ability to edit VectorLock files by applying Read-Only permissions. These Read-Only permissions would apply to Advanced Toolbar users as well.

The Data Administrator Program has functionality above and beyond the ability to create and manage VectorLock files and data licenses. An administrator can:

- Convert created VectorLock files (and any derivatives of these files that are created in ArcMap by users) back to Esri shapefiles. This can only be done by the original owner of the data.
- Distribute VectorLock files with ease by creating a file containing the Bundle, associated external files where applicable (e.g. the .prj file, etc.) and data licenses. These files, referred to as a VectorLock Package, can easily be converted to a ZIP file and sent to approved data consumers in a cohesive distribution format.
- Protect ESRI shapefiles to be assured that these files have not been altered during the duration of the project as the Data Administrator Program can apply (and detect) an invisible watermark to Esri shapefiles. This watermark is degraded through edits and the use of ArcMap toolboxes so that the Administrator can determine if the integrity of the original Esri shapefile has been compromised.

2 CONCEPT OF OPERATIONS

Users who have received VectorLock installation files from eMap International (Software Vendor) must first install the License Server, Toolbar, and Data Administrator Program as described in Section 3, Installation.

2.1 VectorLock Software Licensing

The License Server Administration Tool includes a firewall exception with a default port (set to 8000) that must be present to allow license validation and communication with networked systems. The port can be changed, and these changes must be coordinated so that each workstation running VectorLock has the same port exception. The License Server Administration Tool typically controls the VectorLock software licenses for multiple workstations. These workstations may be running the VectorLock Toolbar (either the Standard or Advanced version) and/or the VectorLock Admin Program.

The corporate identity manager is responsible for creating a .vli file that reflects the host names for systems that have installed VectorLock programs. This .vli file must be sent to the software vendor with a request for a valid software license. The license information is returned to the corporate identity manager by the software vendor as a .vls file.

The .vls file must be loaded into the license manager to validate the licenses and allow users to send and receive VectorLock files.

2.2 Data Distributors

VectorLock users that have purchased the Data Administrator Program are able to create data packages for distribution to VectorLock data consumers. The data distributor should first create bundles of one or more shapefiles for distribution. The VectorLock Data Administrator Program is used to convert those shapefiles to .vlf files and apply a data license to protect the data. The Admin user can restrict permissions to the data by node locking, applying a user name and password, and/or applying a specific time frame for data access.

2.3 Data Consumers

Data consumers use the VectorLock toolbar in ArcGIS to view data. Toolbar users with the standard license are permitted to view data packages created by data distributors and toolbar users with the advanced license and permitted to make changes to that data. Distributors can create read-only files that can not be altered with either toolbar license.

3 INSTALLATION

VectorLock works with a Windows XP or Windows 7 Operating System; and given its minimal memory and storage needs, runs smoothly on any computer that can handle ArcGIS. VectorLock requires Microsoft .net 3.5 and users may be prompted to download this directly from Microsoft during VectorLock installation. There are three components of VectorLock that function together to secure geospatial data:

- ***The License Server Administration Tool*** – manages an organization’s identity and their VectorLock software licenses.
- ***The ArcMap Toolbar*** – an extension that integrates with ArcGIS 9.3 and later. It is necessary to have ArcGIS 9.3 or higher installed before installation begins. The Toolbar allows users to view, edit and work with VectorLock files using traditional GIS workflows.
- ***The Data Administrator Program*** – a stand-alone program that creates VectorLock files and manages access to them with customized licenses. Access to these protected VectorLock files can be given to other organizations – and even to specific users – with an established identity for the necessary time period.

3.1 License Server Administration Tool

The VectorLock License Server Administration Tool must be able to communicate with workstations running the VectorLock Toolbar and Admin Program. If the License Server Administration Tool is running on an accessible network, this communication is controlled through the use of Firewall exceptions created in the operating system. Please see Appendix B, *Troubleshooting*, for guidance on creating firewall exceptions in Windows. In some cases, users may wish to install the License Server Administration Tool on a standalone VectorLock system. For example, a laptop without access to the networked License Server Administration Tool can have the License Server Administration Tool installed locally to control data and software license management independently. This independent License Server Administration Tool can and should be included in the corporate identity and software license. See Section 4, *Creating a Corporate Identity*, for information on managing the corporate identity.

To begin the installation of the VectorLock License Manager, double click on the VL License Server Service Setup executable (Figure 1) to launch the Installation Wizard.

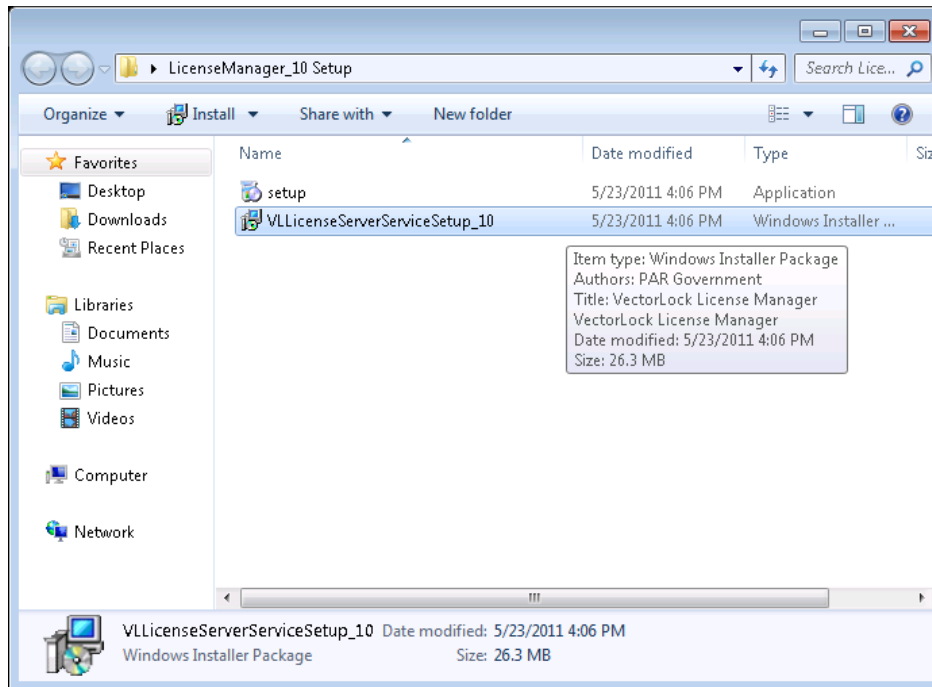


Figure 1 – License Server Administration Tool Executable

Click Next to begin installation, as depicted in Figure 2.

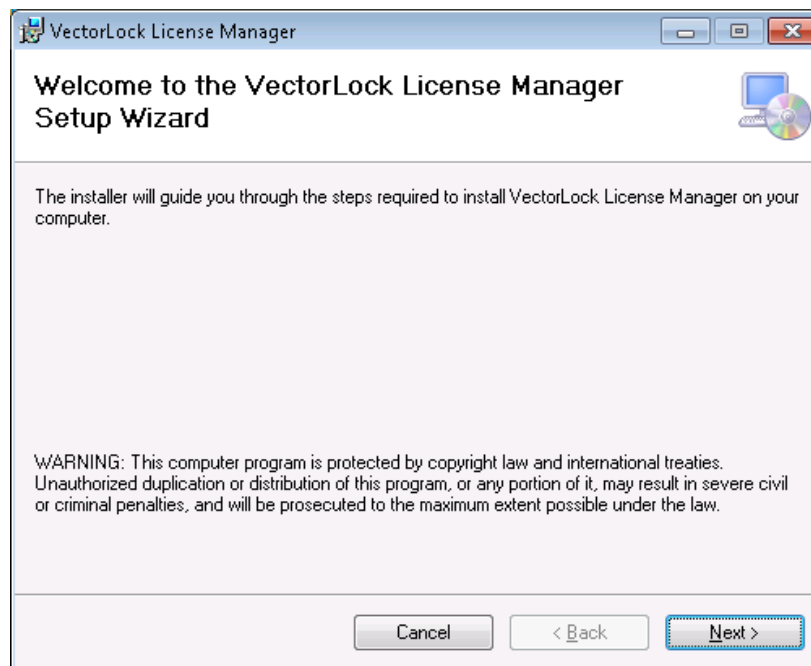


Figure 2 – Welcome to Setup

Review the terms of the VectorLock software license agreement, select the I Agree radio button and click Next (Figure 3)



Figure 3 – Software License Agreement

It is recommended that the default location be used. If a different location is required, browse to the location that the VectorLock License Server Administration Tool will be stored and click Next (Figure 4).

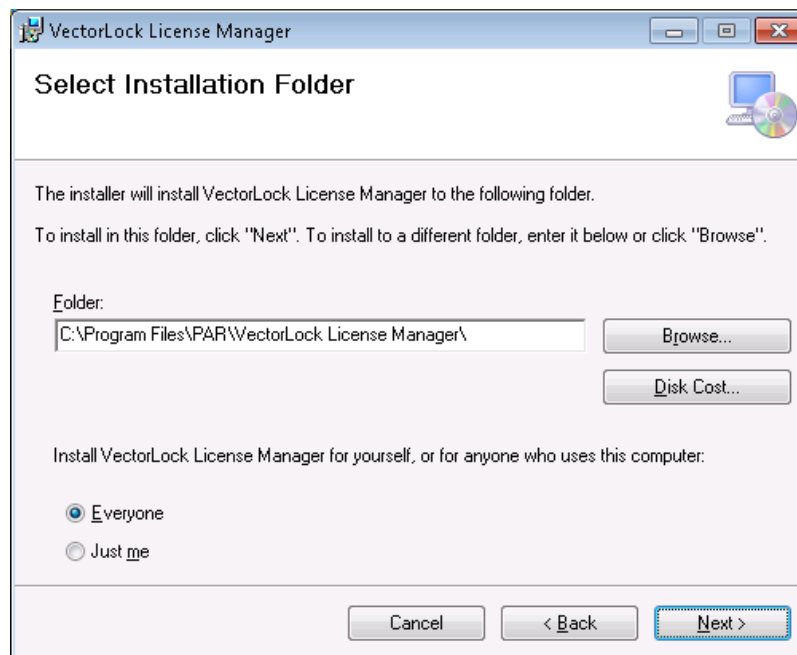


Figure 4 – Installation Folder

Click Next to install the software (Figure 5).

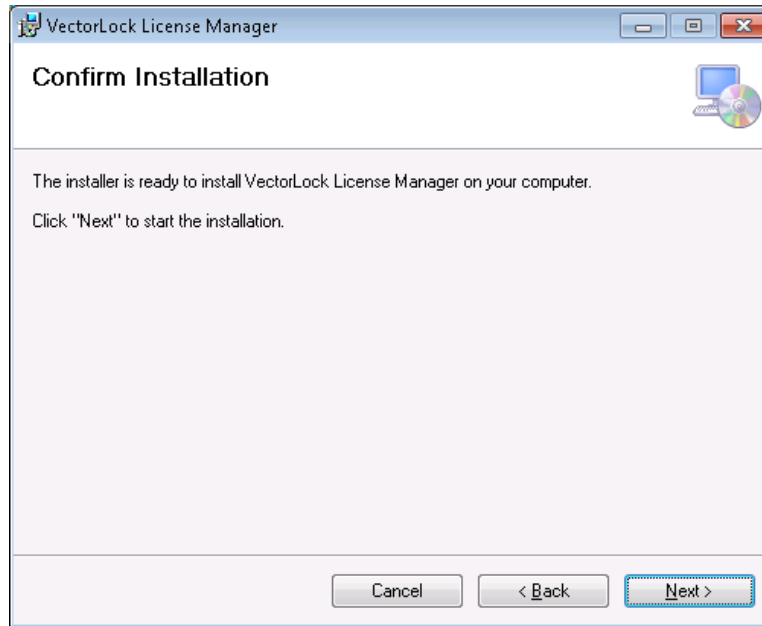


Figure 5 – Confirm Installation

The License Server Administration Tool installation requires that the system be rebooted (Figure 6) to initialize the License Server. This reboot should be done manually after the installation of the License Manager is complete. Click Next to continue the installation process.

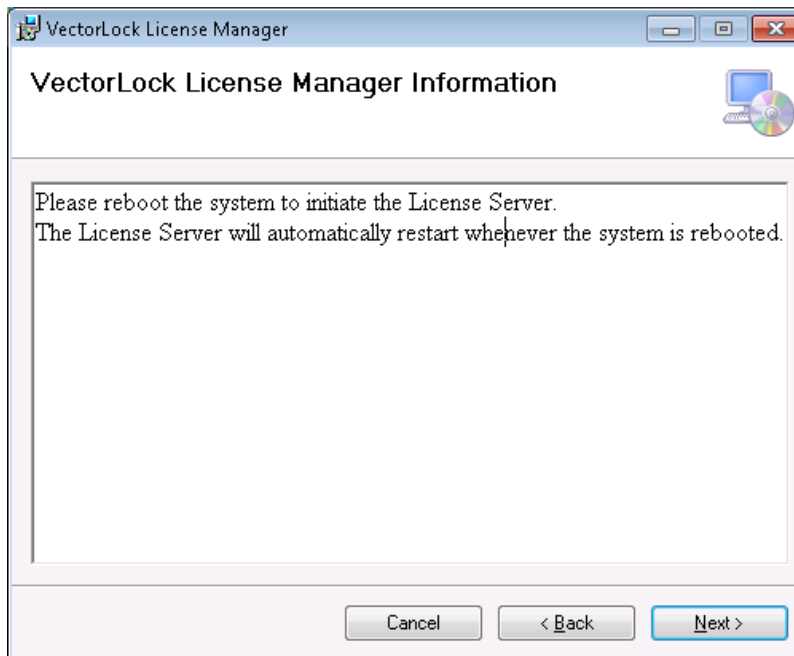


Figure 6 – Reboot Message

A status bar will appear to illustrate the progress of the installation. When the installation is complete a confirmation screen will appear (Figure 7). Click Close.

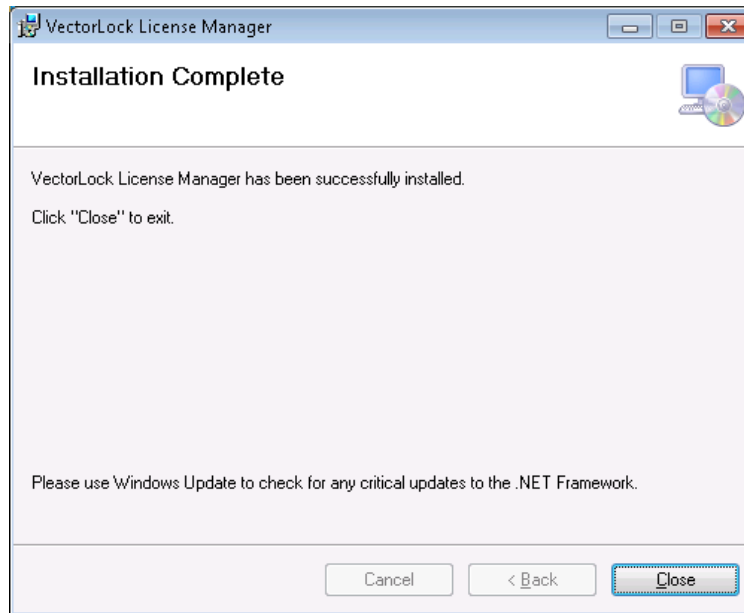


Figure 7 – Confirmation

Remember, it is necessary to reboot the computer after the License Server Administration Tool is installed to activate the License Server.

3.2 The VectorLock Toolbar

The VectorLock Toolbar should be installed on all the workstations that will be licensed to open VectorLock data. The VectorLock Toolbar must be installed to open and edit VectorLock data. To begin installation, click the VectorLock Toolbar Setup executable depicted in Figure 8.

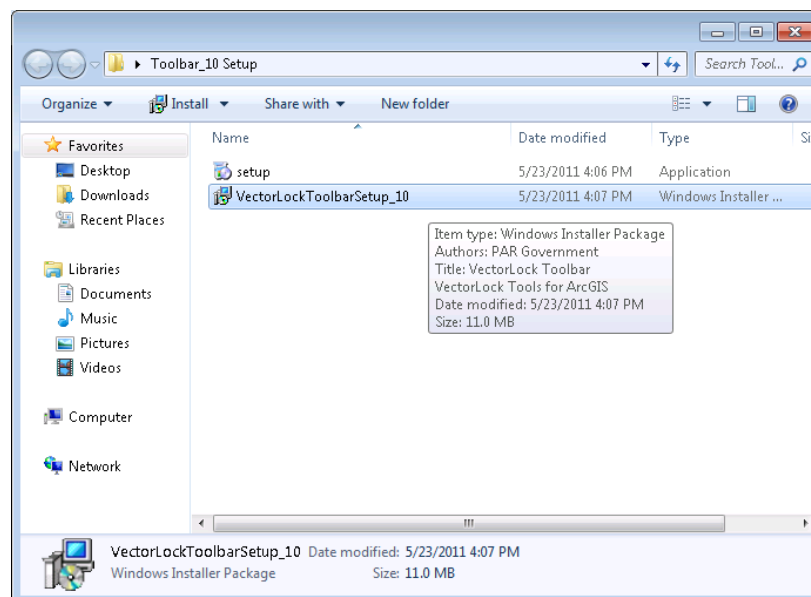


Figure 8 – VectorLock Setup Executable

Click on Next to begin the installation process (Figure 9).

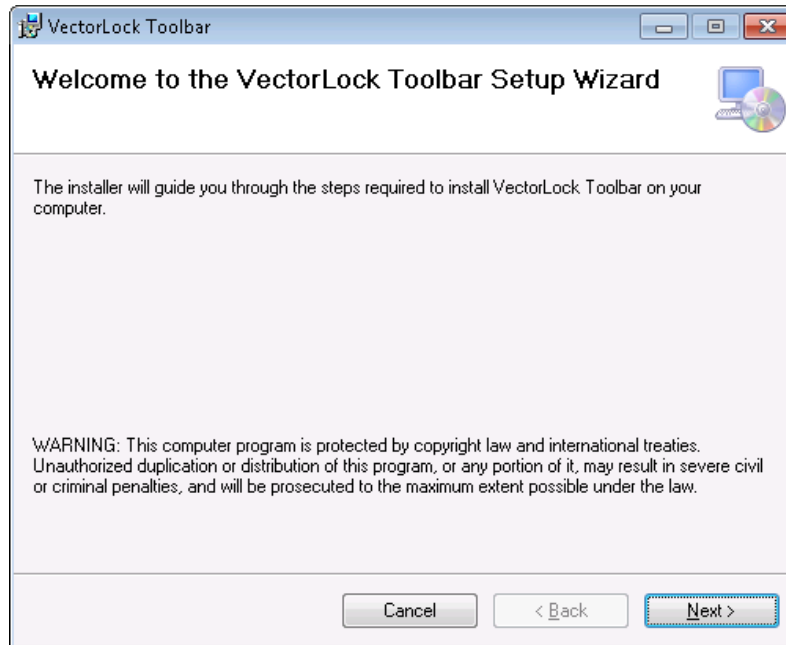


Figure 9 – Toolbar Welcome Screen

Review the terms of the VectorLock software license agreement, select the I Agree radio button and click Next (Figure 10).

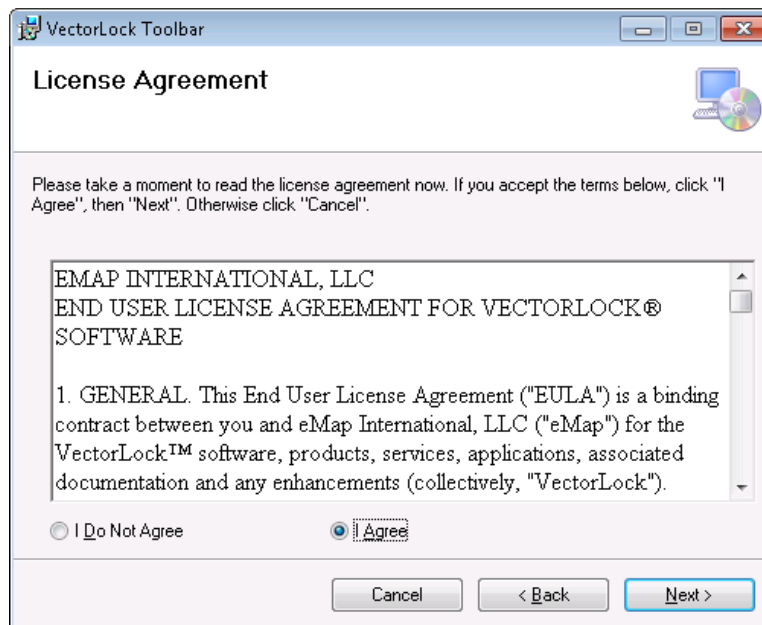


Figure 10 – Software License Agreement

It is recommended that the default location be used. If a different location is required, browse to the location that the VectorLock Toolbar will be stored in and click Next (Figure 11).

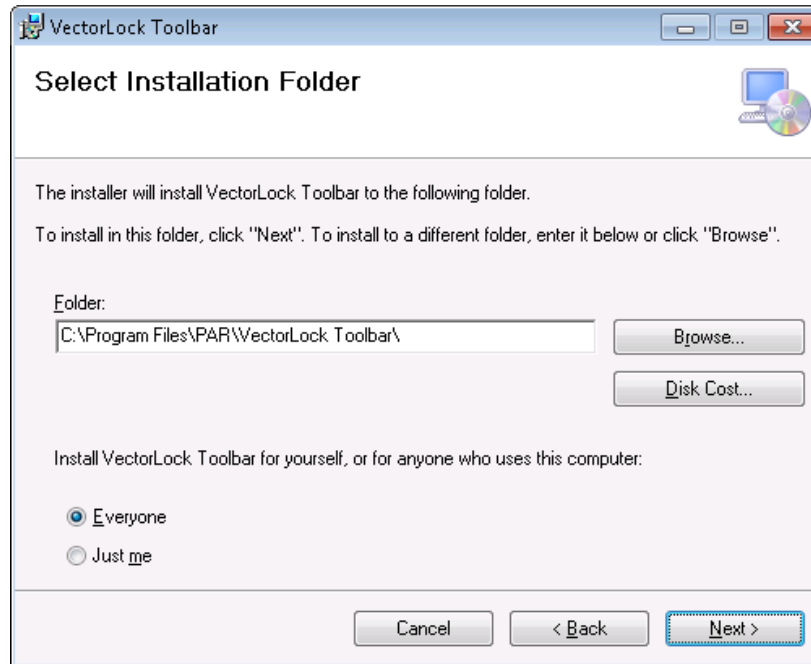


Figure 11 – Installation Location

Click Next to install the software (Figure 12).

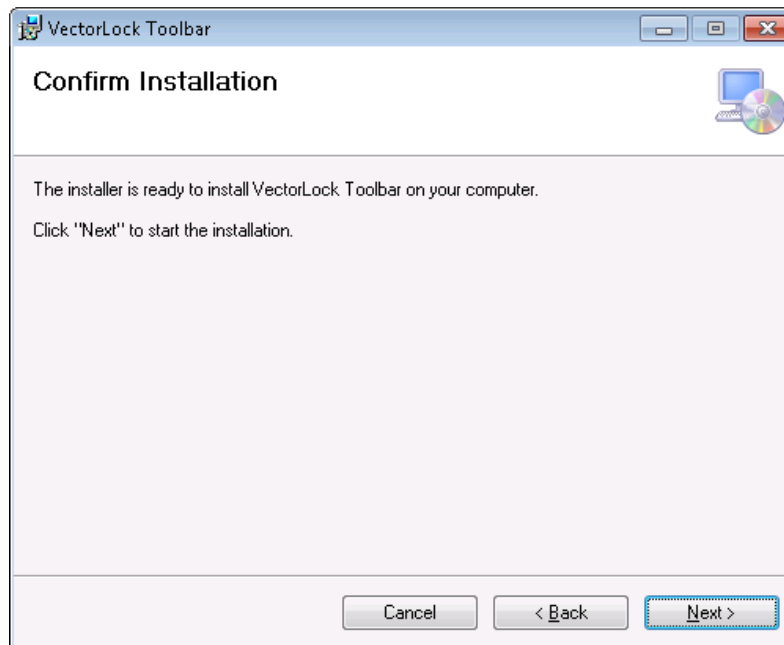


Figure 12 - Confirm Installation

A status bar will appear to illustrate the progress of the installation. When the installation is complete, a confirmation screen will appear (Figure 13). Click Close.

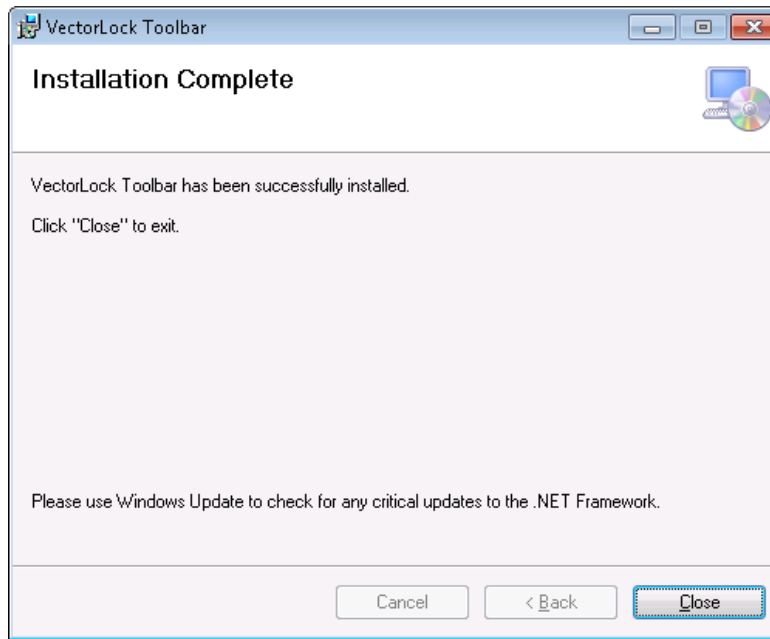


Figure 13 - Installation Confirmation

Open the ArcGIS program and right click on the tool bar to select the VectorLock Toolbar. If necessary, drag the VectorLock tool to the ArcGIS toolbar (Figure 14).

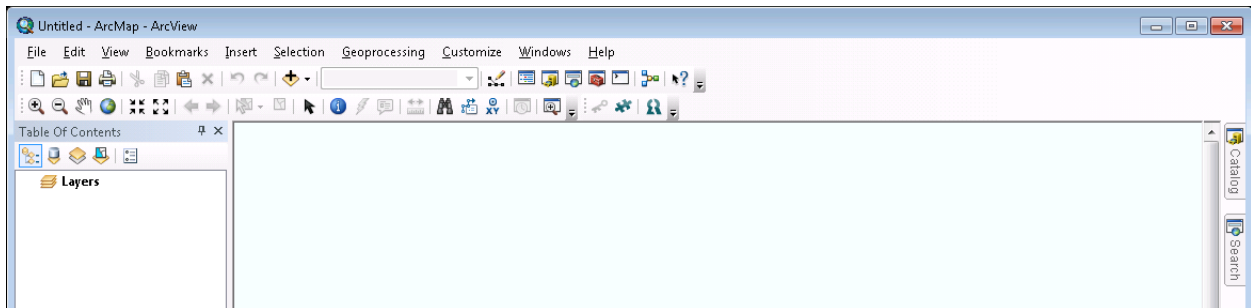


Figure 14 – Toolbar Location

Click on the keyhole icon on the tool bar and enter the name of Hostname location of the License Manger and its established Port number, as shown in Figure 15. If the Toolbar is running on the same computer as the License Server Administration Tool, the License Manager field can remain as localhost. The default port is set to 8000; the user may change this port number. If the port number is changed, be sure that it corresponds with the port number established in the License Manager program. Select Standard if the toolbar should be licensed to only view data, select Advanced if the toolbar will be licensed to edit data. Note that data license files may also contain additional editing permissions for individual data files and packages.



Figure 15 – Host Name and Port

Click Set to initiate communication with the License Manager, an error message may appear (Figure 16) warning users that the License Manager does not recognize the toolbar installation at this time. The License Manager must validate this toolbar with a software license before it can be activated.

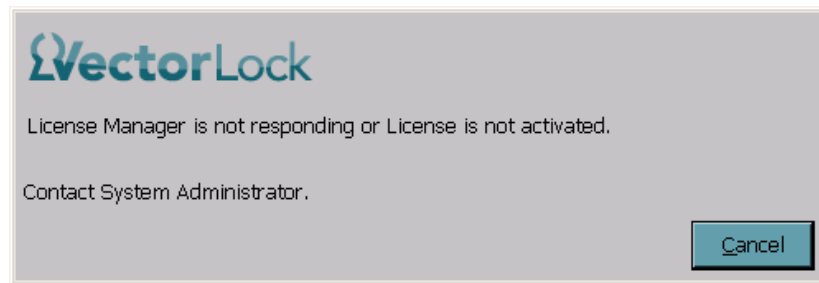


Figure 16 – License Manager Warning Message

3.3 Administrator Program

The Data Administrator Program can be run on the same computer as the License Server, or a remote system. To install the Administrator program, click on the VectorLock Administrator Setup executable file (Figure 17) to begin the installation wizard.

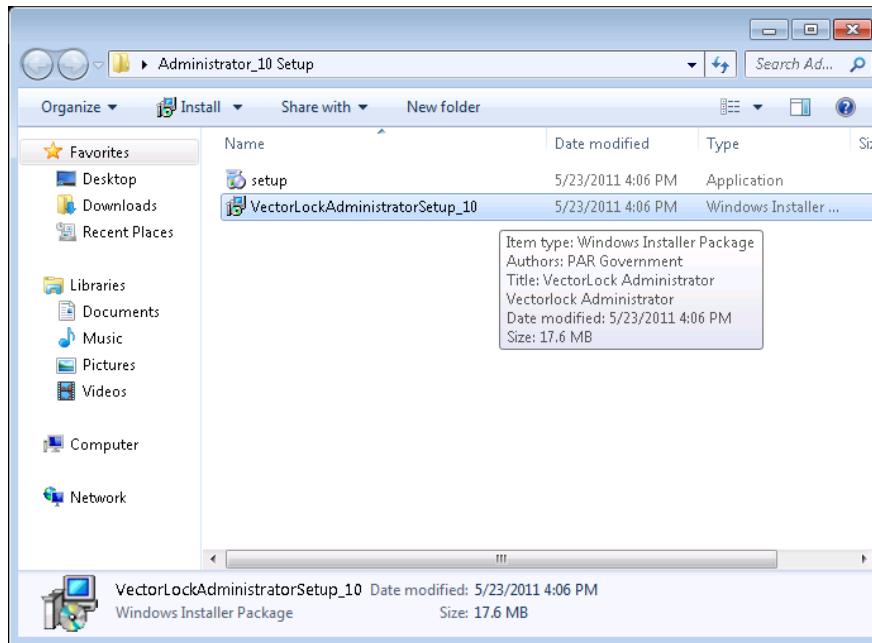


Figure 17 – VectorLock Administrator Executable

Click on Next to begin the installation process (Figure 18).

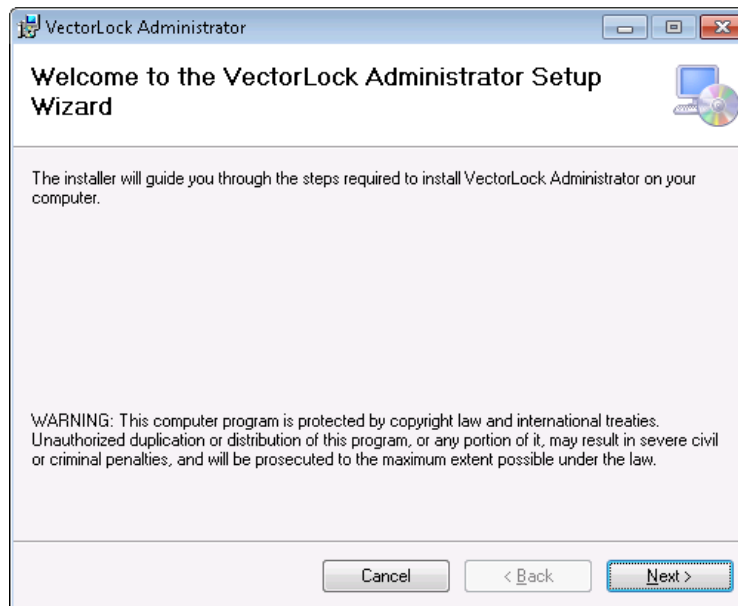


Figure 18 – Welcome to Installation

Review the terms of the license agreement, select the I Agree radio button and click Next, as depicted in Figure 19.

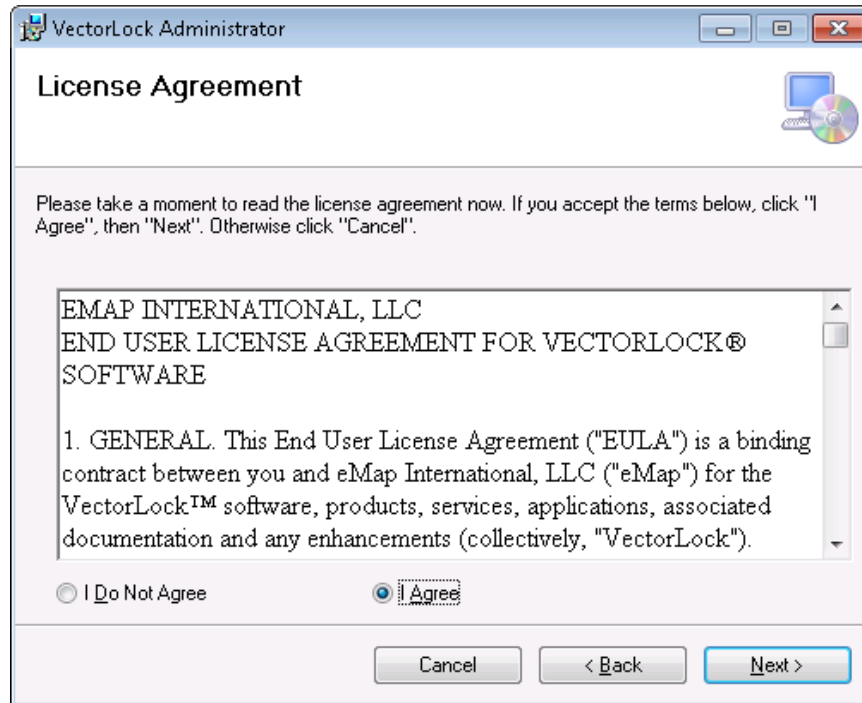


Figure 19 – Software License Agreement

It is recommended that the default location be used. If a different location is required, browse to the location to store the VectorLock Data Administrator Program and click Next, as depicted in Figure 20.

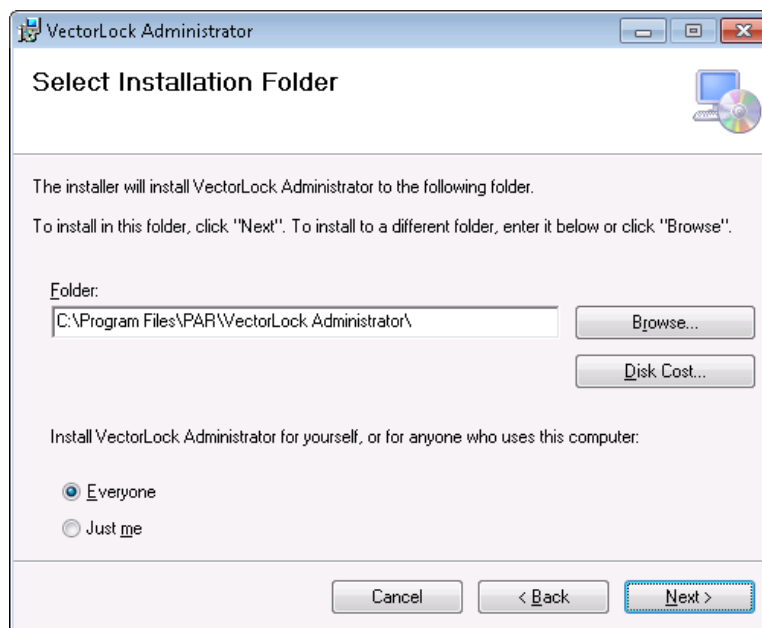


Figure 20 – Installation Folder

Click Next to install the software (Figure 21).

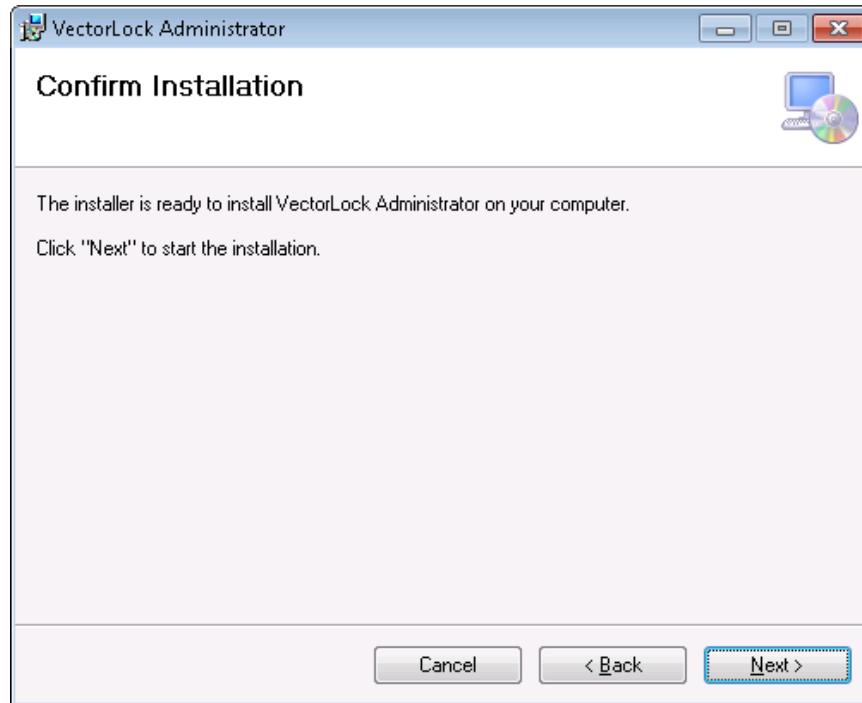


Figure 21 – Confirm

A status bar will appear to illustrate the progress of the installation. When the installation is complete, a confirmation screen will appear (Figure 22) and a VectorLock shortcut icon will appear on the desktop.

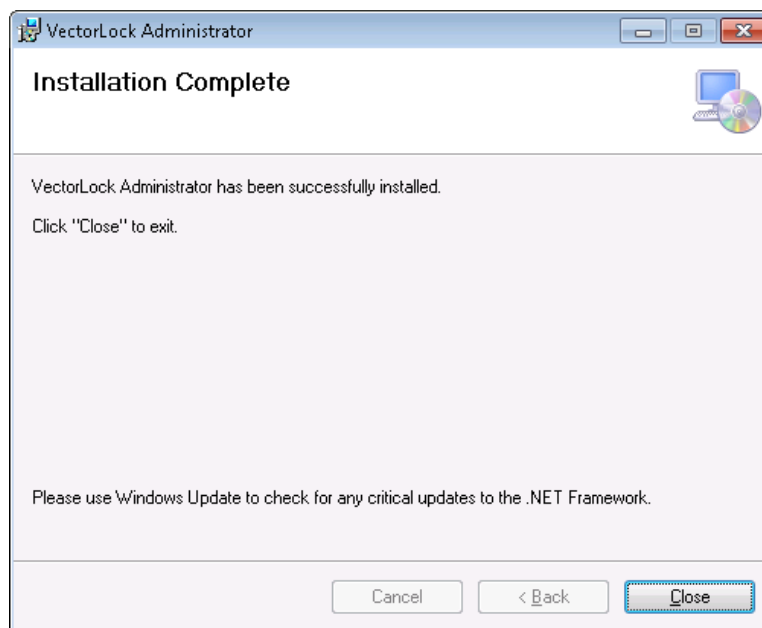


Figure 22 - Installation Confirmation

After the installation process is complete, run the Data Administrator Program to notify the license server that the admin program has been installed. An error message (Figure 23) may

appear indicating that the License Manager is not responding. The License Manager must validate this toolbar with a software license before it can be activated. Click Cancel.

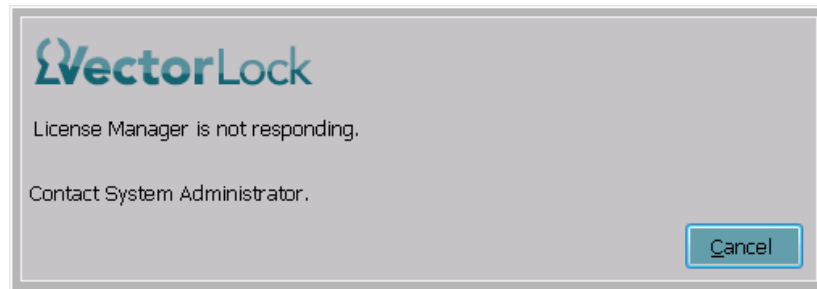


Figure 23 – License Manager Error

The Data Administrator Program will open, as depicted in Figure 24.

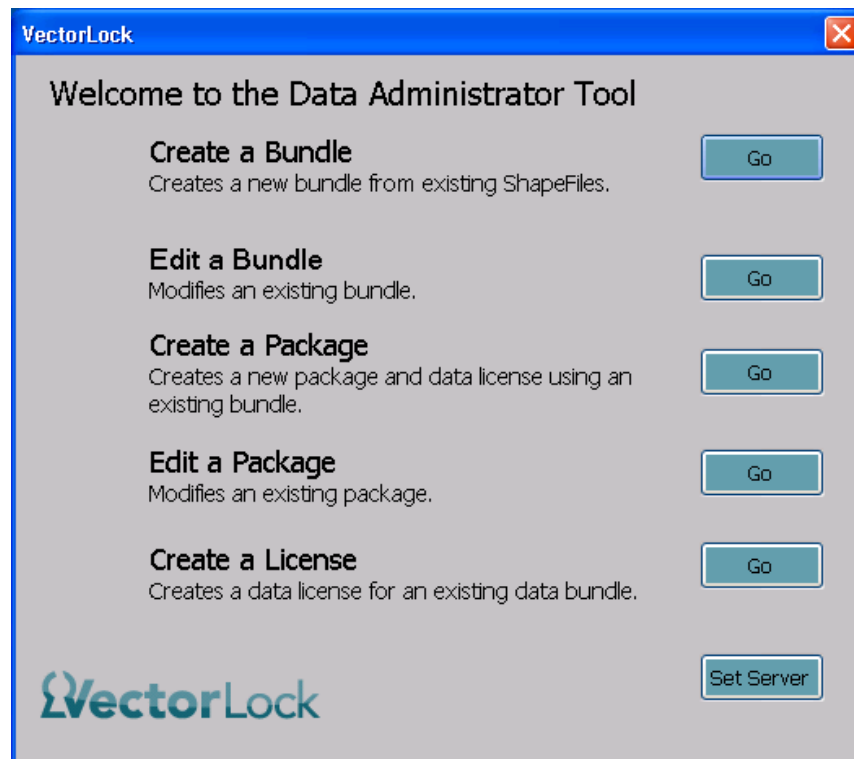


Figure 24 - Data Administrator Switchboard

Click the Set Server button to establish the License Server Information for the software license request (Figure 25).

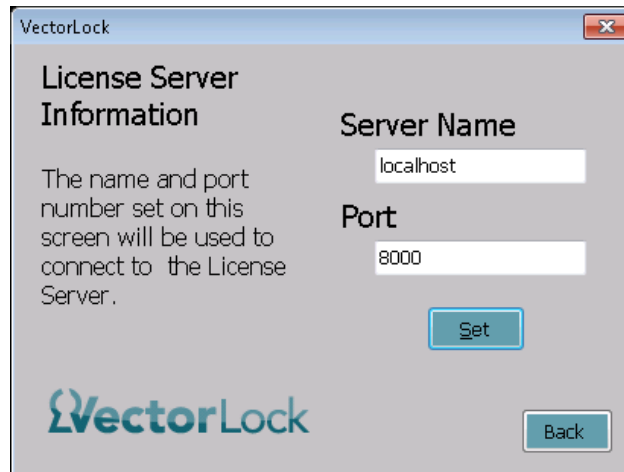


Figure 25 - License Server Information

If the Data Administrator Program is running on the same computer as the License Server, the License Server field can remain as localhost. The default port is set to 8000; the user may change this port number. If the port number is changed, be sure that it corresponds with the port number established in the License Server Administration Tool program.

Click Set to initiate communication with the License Manager, an error message may appear (Figure 26) warning users that the License Manager does not recognize the toolbar installation at this time. The License Manager must validate this toolbar with a software license before it can be activated.

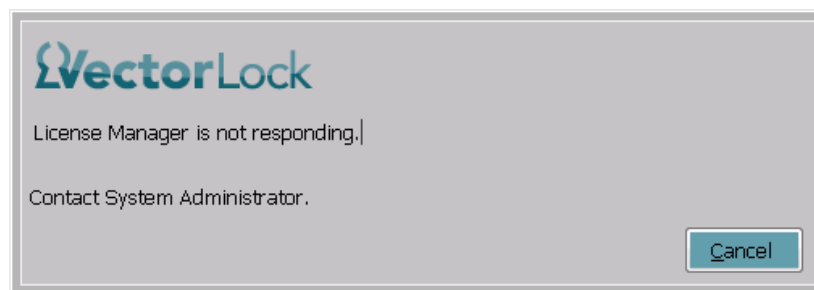


Figure 26 – License Manager Response Error

Click Cancel to return to the Data Administrator Tool switchboard.

4 GENERATING A CORPORATE IDENTITY

After an organization has installed VectorLock software it is necessary to generate a corporate identity file and send it to the software vendor. A .vli file should be created for each license server that is running in a particular organization. If an organization has multiple geographic locations, each running their own license server, the subordinate locations must each create a .vli and provide it to the corporate identity manager. The corporate identity manager serves as the point of contact for the overall software license. The corporate identity manager merges all the .vli files to create one .vli that encompasses the complete corporate identity information for all the License Servers.

Click the Go button in the Generate Corporate Identity region of the License Server Administration Tool (Figure 27).

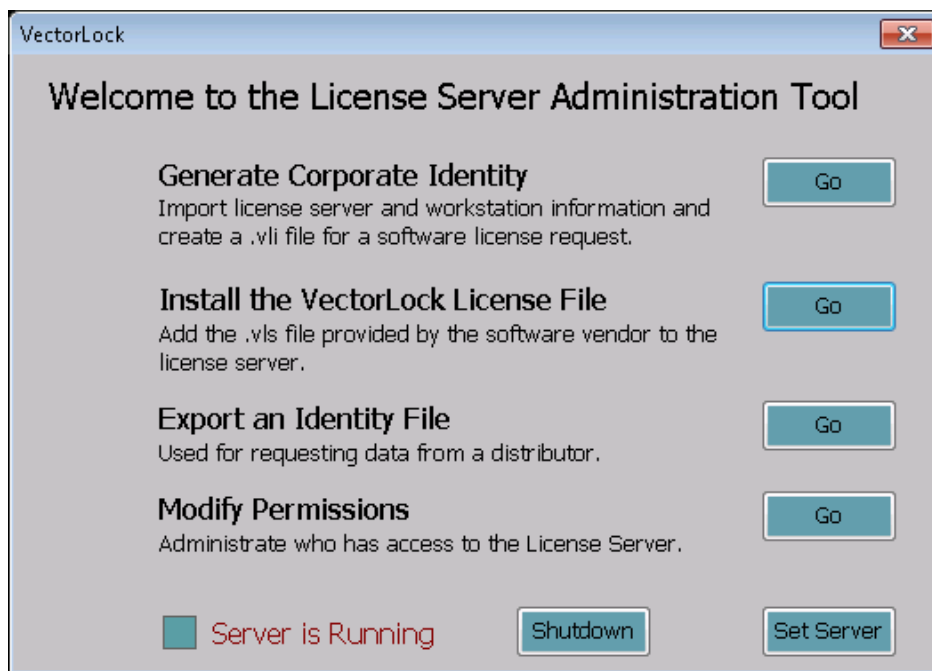


Figure 27 – License Server Administration Tool Switchboard

This will open the Corporate Identity Window, as depicted in Figure 28. Enter the contact information for the corporate identity manager.

Figure 28 – Corporate Identity Screen

Enter the Licensor Contact information and click Next to view the Registered Host interface (Figure 29). Note that in this example, the user is registering one advanced fixed seat and one Admin fixed seat on the host that is running the License Manager, as well as a remote computer running just the VectorLock toolbar.

License Server	Host	Fixed License		Floating License Permission		
		Admin	Advanced	Standard	Admin	Advanced
vector71	Remove				0	0
	vector71	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			
	vector73	<input type="checkbox"/>	<input checked="" type="checkbox"/>			

Figure 29 – Registered Hosts Screen

If this is the only license server associated with this identity, click Next and proceed to Figure 33.

If additional License Servers are required to be associated with the corporate identity, click Add License Server (Figure 30).

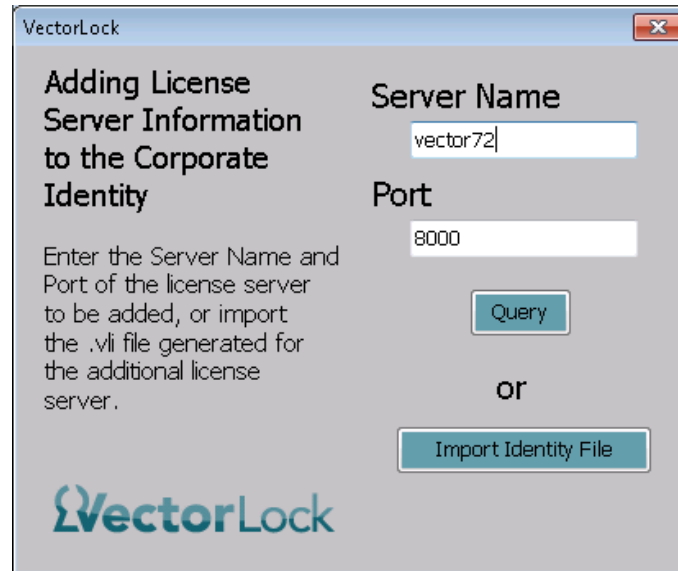


Figure 30 – Add License Server

Enter the Server Name and the Port and click Query, or click Import Identity File to add the license server details from a file supplied by the remote site to open the Open Dialog. Navigate to the .vli file that corresponds to the additional license server and click Open, as depicted in Figure 31.

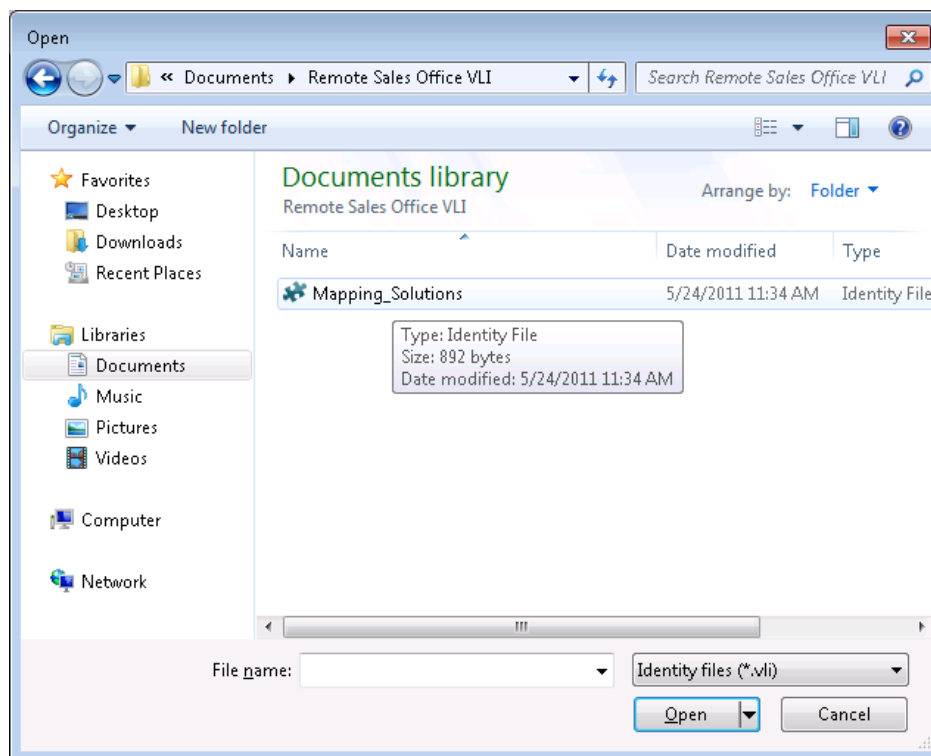


Figure 31 – Open Dialog

This will add the additional license server information to the Registered Host screen. When all the hosts have been added, click the Next button, depicted in Figure 32.

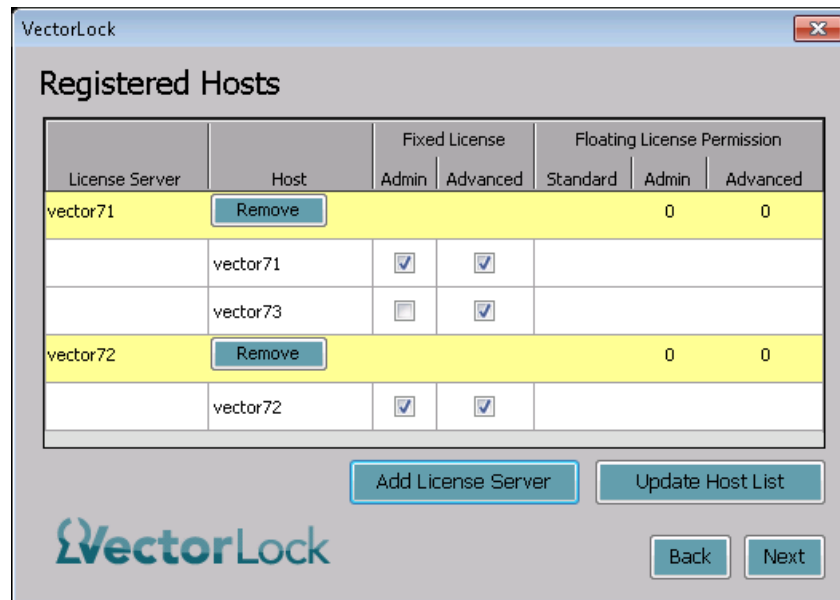


Figure 32 – Additional Registered Hosts

The Identity Submission screen (Figure 33) provides the user with instruction on the preferred way to deliver the .vli file to the VectorLock Vendor.

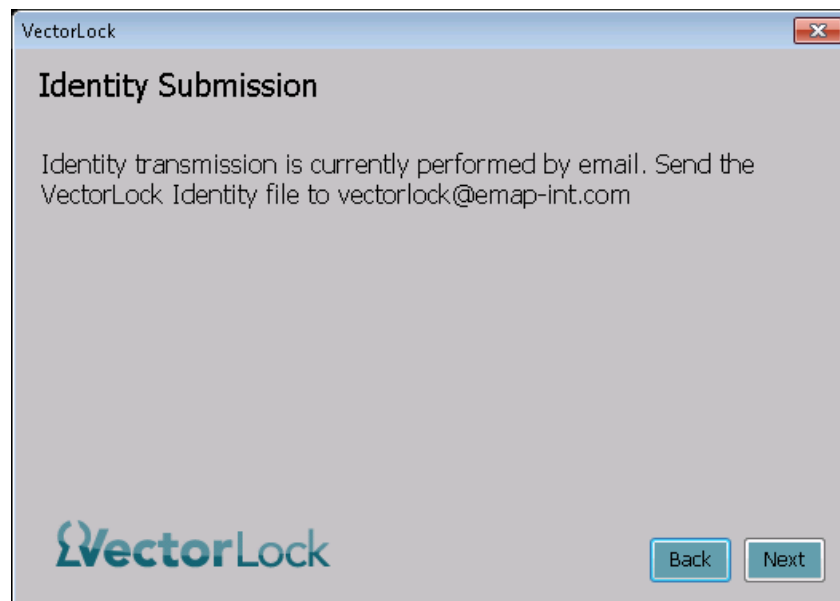


Figure 33 – Identity Submission

Click Next to save the file (Figure 34).

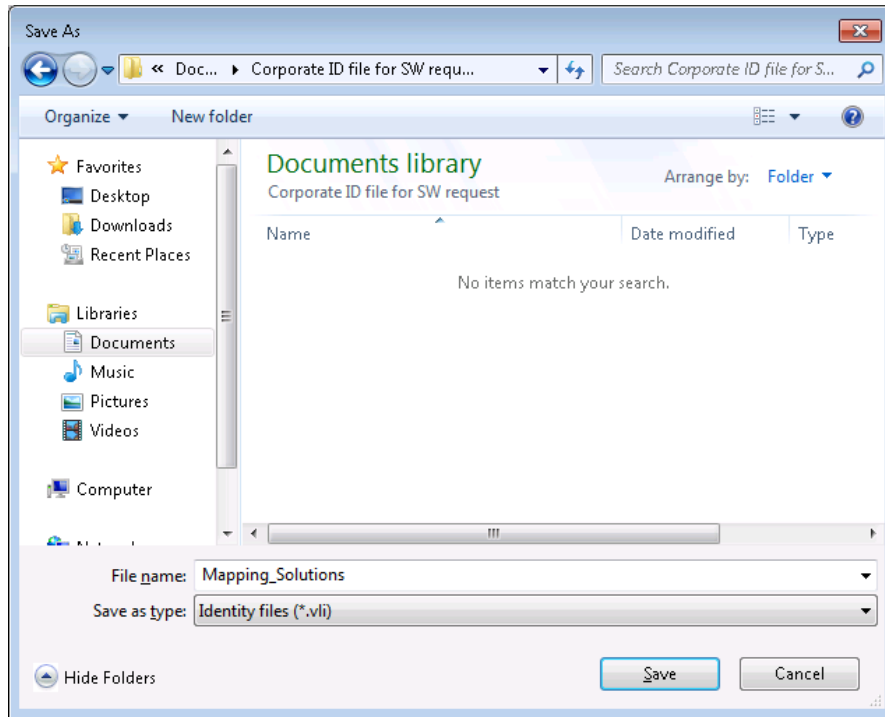


Figure 34 – Save As Dialog

5 INSTALLING A SOFTWARE LICENSE FILE

The Software Vendor will return a .vls file to the corporate identity manager for incorporation into the VectorLock system. The corporate identity manager has seven (7) calendar days to import the .vls file in the VectorLock system or the software license will not accept the license. Note that if the organization has more than one License Server installed and included in the corporate identity, the .vls must be installed on each License Server.

Note that only a user with the VectorLock License Server Administration Tool program can access this interface. Click the Go button in the Install a VectorLock License File region of the License Server Administration Tool switchboard (Figure 35) to install the .vls file provided by eMap or the corporate identity manager.

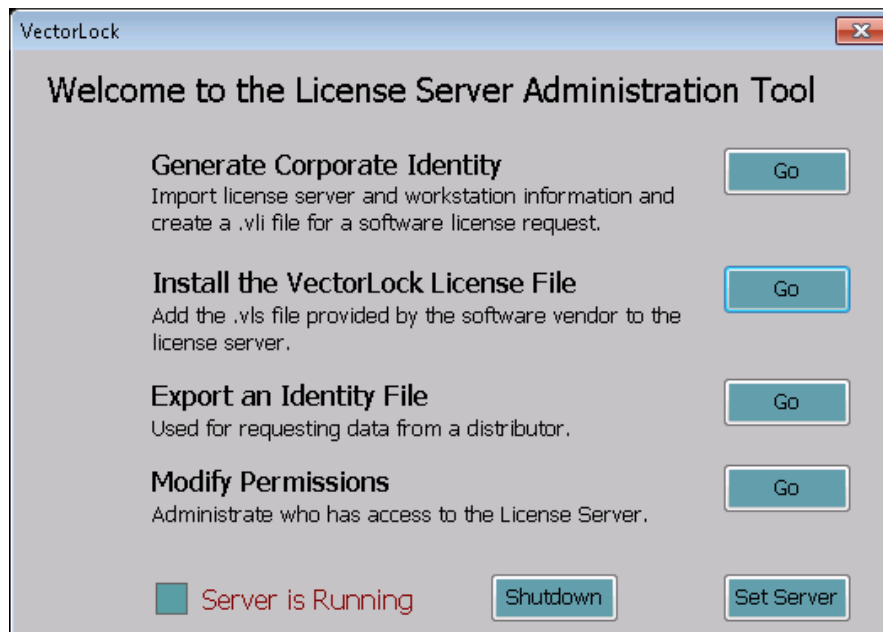


Figure 35 – License Server Switchboard

Navigate to the provided .vls file and Click Open, as depicted in Figure 36.

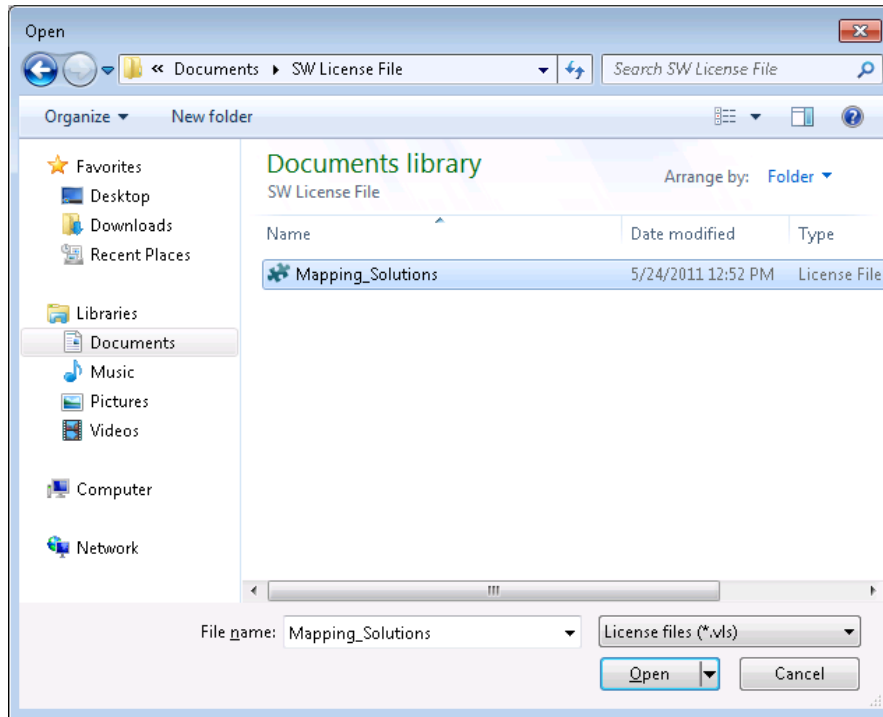


Figure 36 – Open File

The user will be returned to the License Server Administration Tool switchboard. If Data Administrator Program applications are included in the corporate identity, continue to the Modify Permissions interface to allow Admin access.

5.1 Modifying VectorLock User Permissions

The Modify Permissions workflow can be used to verify the licensing details after the .vls has been installed, review user permissions, and make changes to existing user permissions. Click Go in the Modify Permission region of the License Server Administration Tool (Figure 37).

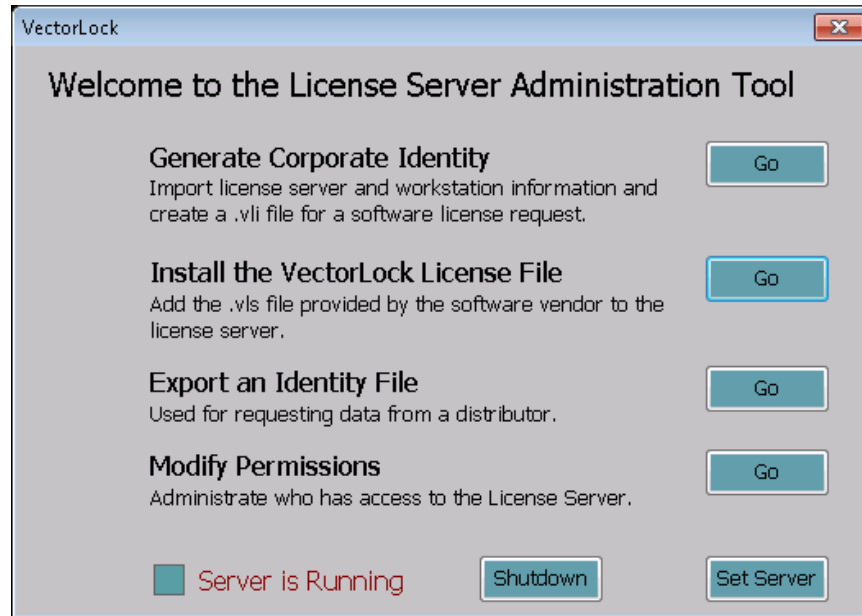


Figure 37 – License Server Administration Tool Switchboard

This interface is also used to apply Data Administrator Tool permissions; the Data Administrator Tool is not automatically enabled during the software license load process. The corporate identity manager or license server administrator must check a box on the Registered Host screen to apply these permissions. Make modifications to the license details for a specific user and click Save (Figure 38).

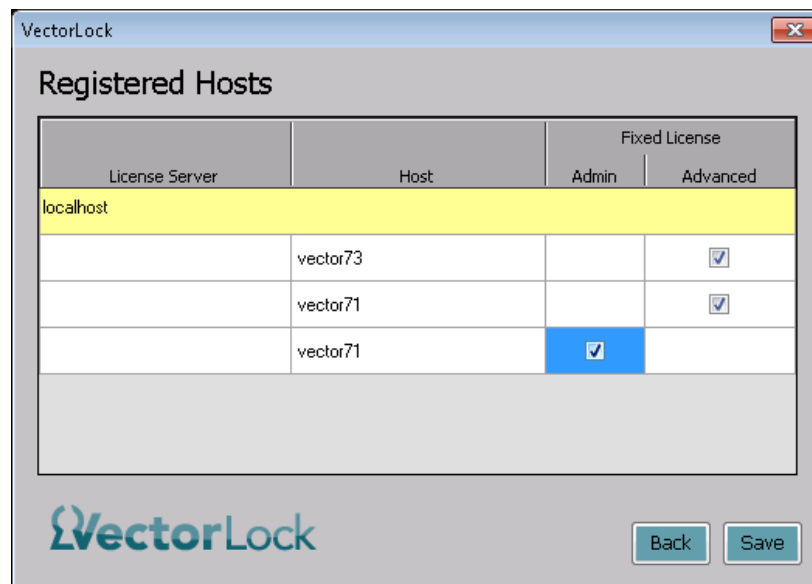


Figure 38 – Edit Registered Hosts

6 EXPORTING .VLI TO A DATA DISTRIBUTOR

After the VectorLock corporate identity manager has installed the software license file on any necessary VectorLock License Managers, a .vli file can be made to request data from data distributors. Click the Go button in the Export an Identity File region of the License Server Administration switchboard (Figure 39).

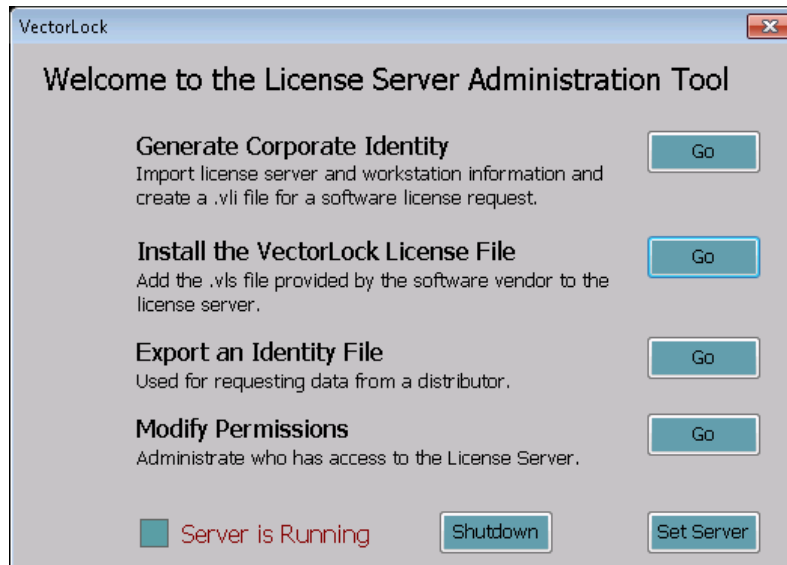


Figure 39 – License Server Administration Tool Switchboard

The Host Information Screen will appear, as depicted in Figure 40.

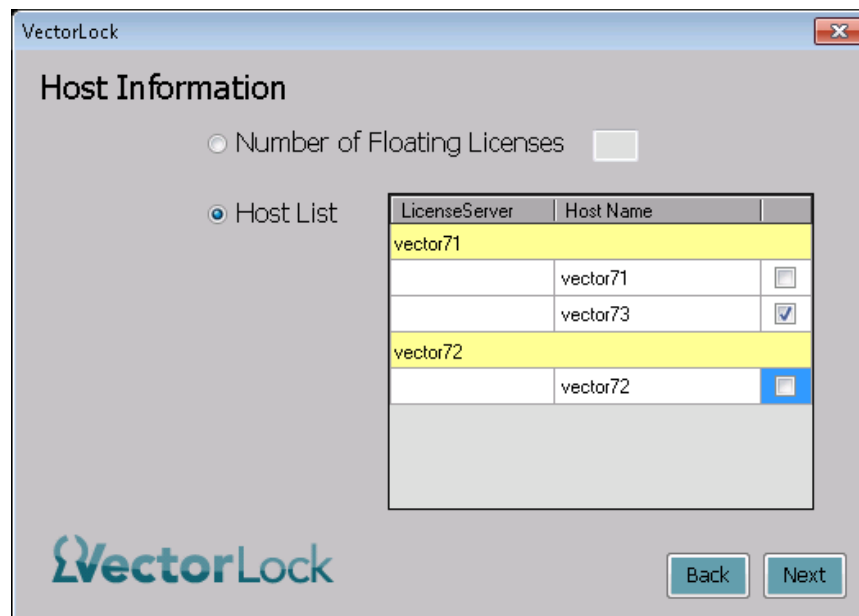


Figure 40 – Host Information Screen

Choose the Number of Floating License radio button to indicate that any VectorLock user in the organization will be able to open the Data Package that is being requested. If only specific users will be able to access the requested Package, click the Host list radio button and indicate which users from the list will be authorized. In the example in Figure 40, only the Toolbar running on the Vector73 host will be able to open the data package being requested with this particular .vli. After the host information has been established, click Next to open the save file dialog (Figure 41).

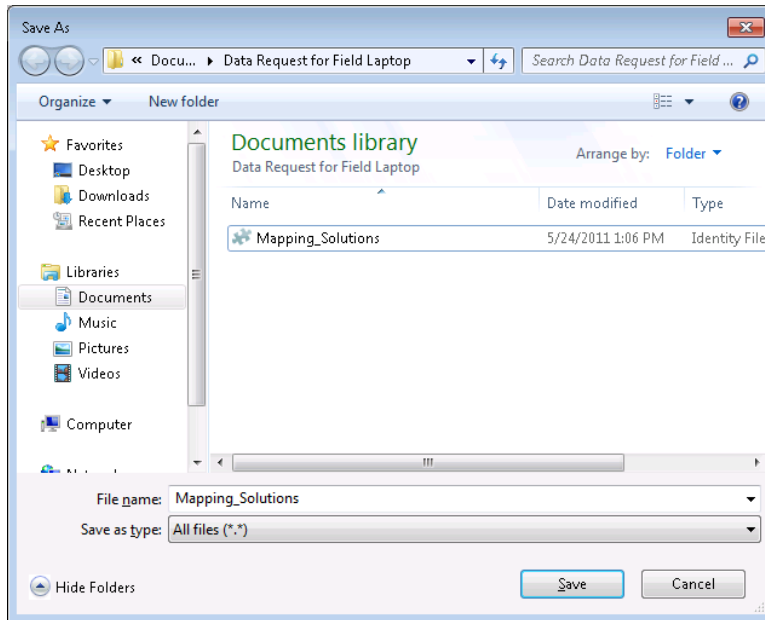


Figure 41 – Save File

The Save As navigation window will open. Navigate to the location that is appropriate to save the .vli package request file, and click Save.

7 CREATING A BUNDLE

Bundles of data can be created and stored prior to the creation of a licensed data package. The storage methodology is not controlled by the VectorLock System, but instead is the responsibility of the user bundling the data.

7.1 Creating a Bundle

Click the Go button in the Create a Bundle region of the Data Administrator Tool switchboard (Figure 42) to begin the bundle creation process.

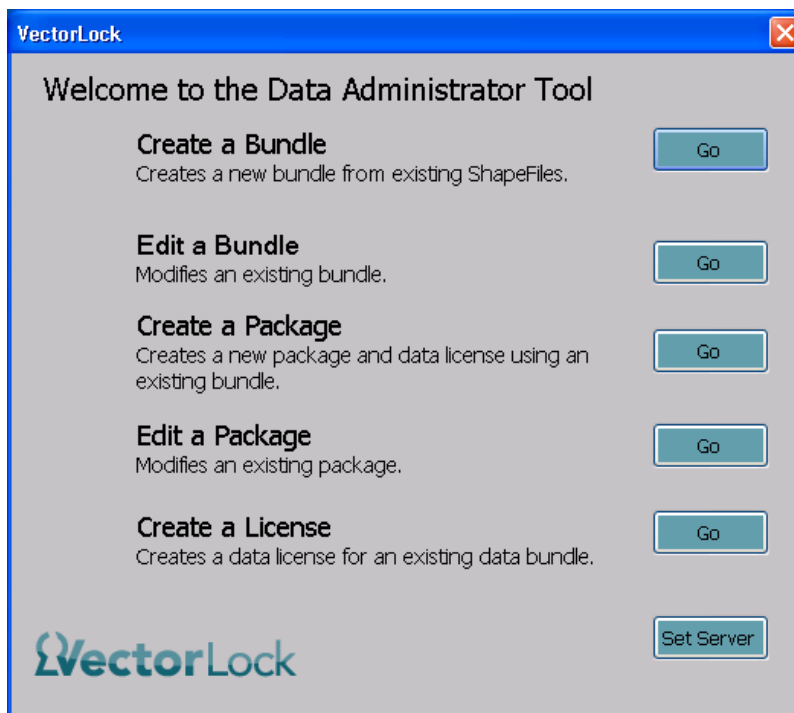


Figure 42 – Admin Tool Welcome Screen

Click the Add button (Figure 43) to add Shapefiles, projection files and metadata files as necessary. This will open the Open navigation window.

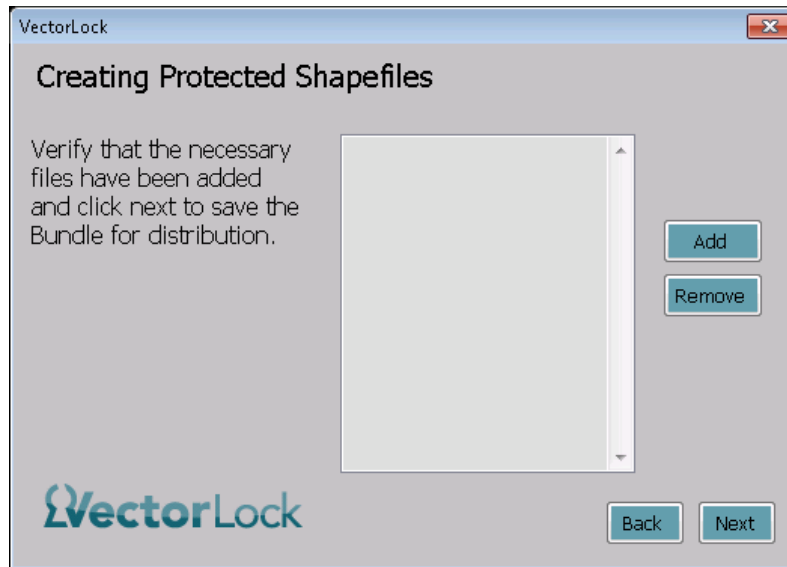


Figure 43 – Add Files

Select the files to be added (Figure 44) and click Open.

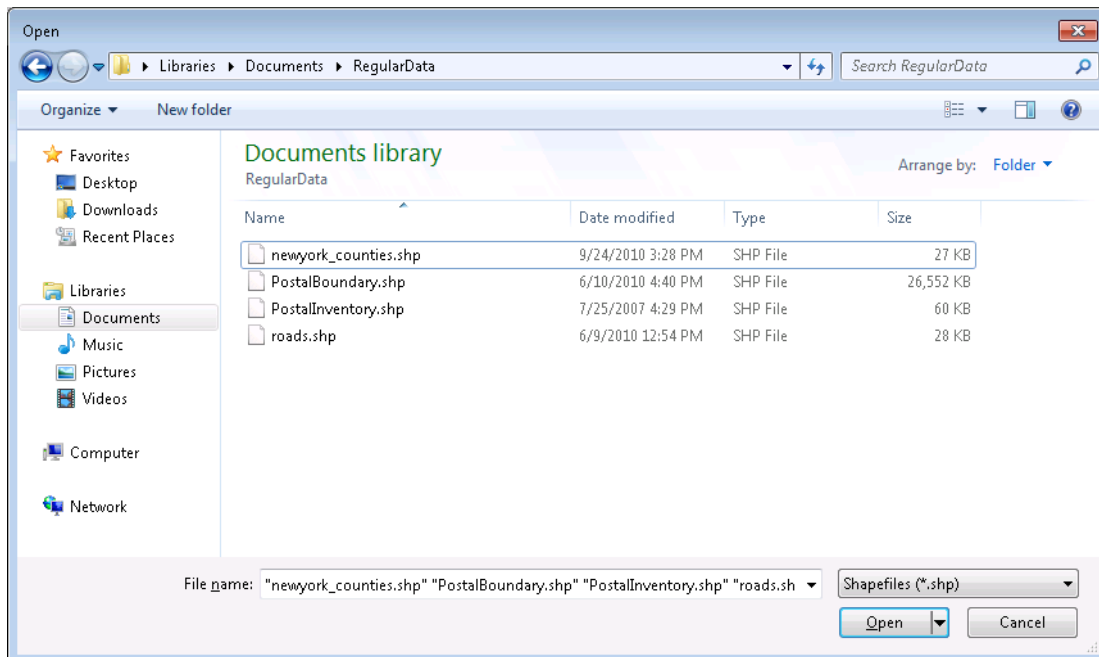


Figure 44 – Open Dialog

This will add files to the list as depicted in Figure 45.

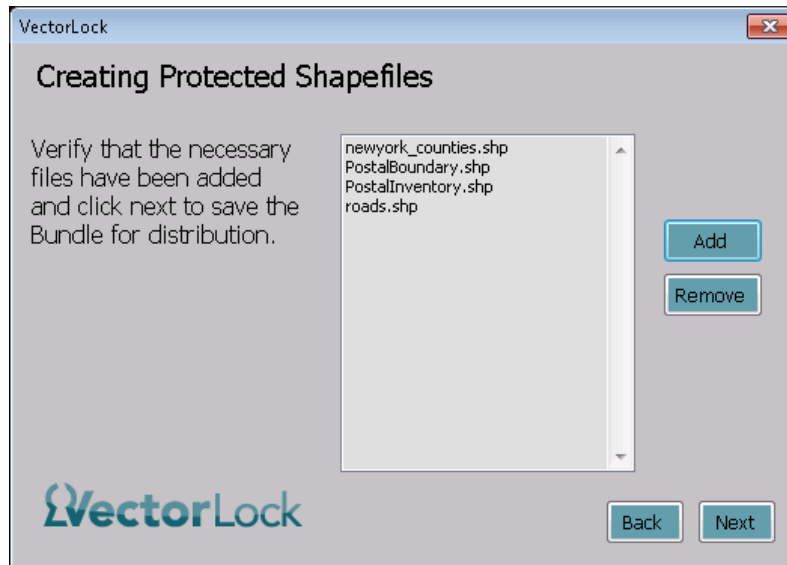


Figure 45 – File that have been added

After the details have been reviewed, click Next. Note that more files can be added by navigating back to the Add Files screen. If the files are acceptable, navigate to the folder in which the bundle should be saved, as shown in Figure 46.

A new folder can be created through this interface if necessary.

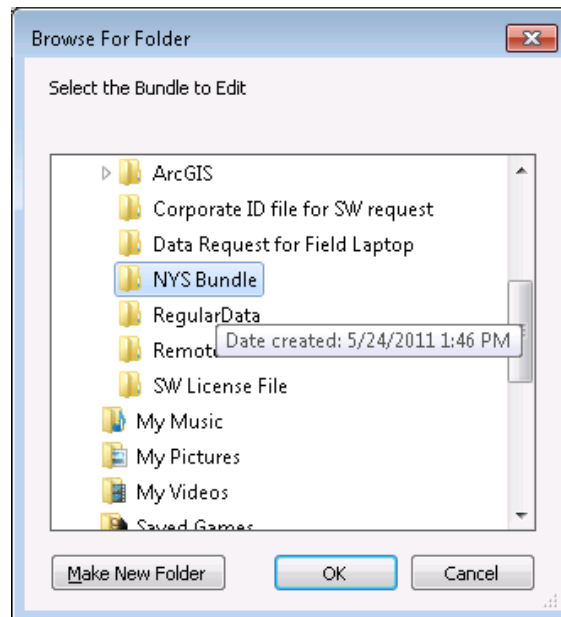


Figure 46 – Create a folder

When the desired location has been selected, click OK. This will open the Creating a Bundle screen (Figure 47) that will show bundle creation progress.

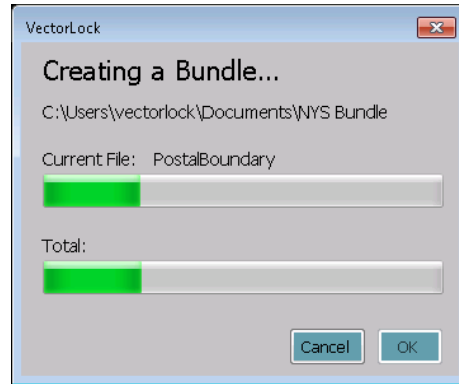


Figure 47 – Bundle Creation

When the total bar indicates that the process is complete, as depicted in Figure 48, click OK.

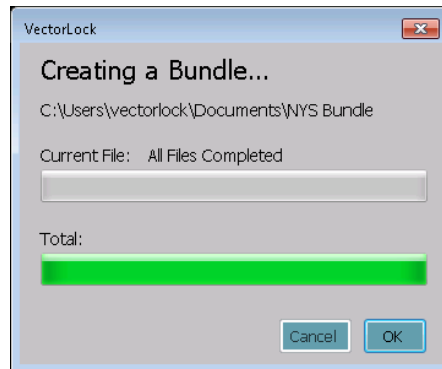


Figure 48 – Bundle Complete

7.2 Editing a Bundle

Click on the Go button in the Edit a Bundle region of the Data Administrator Tool switchboard screen, depicted in Figure 49.

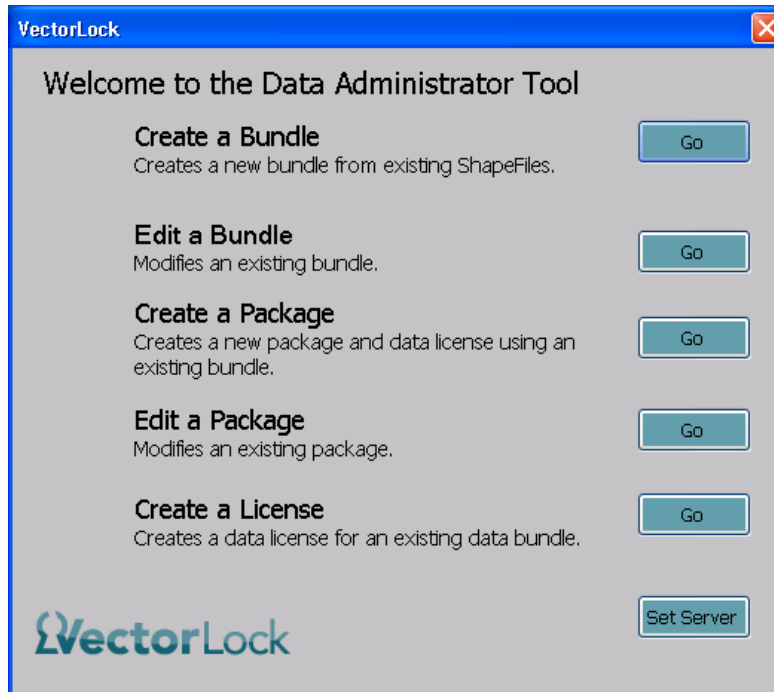


Figure 49 – Admin Welcome Screen

Navigate to the Bundle folder (Figure 50) that should be edited, and click Ok.

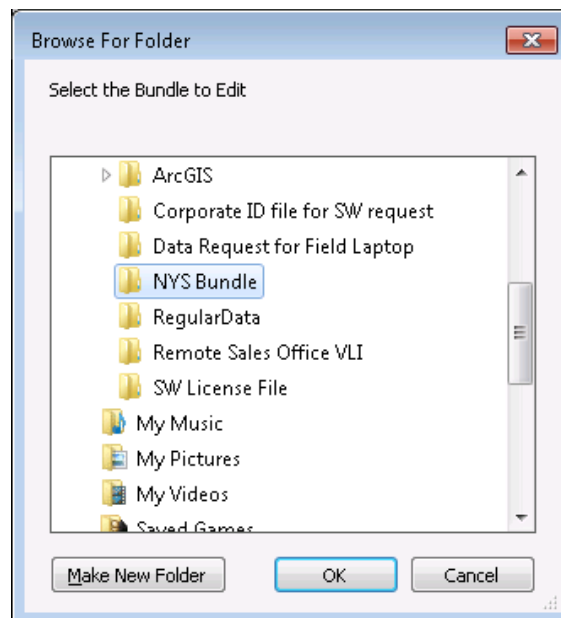


Figure 50 – Browse For Folder

Add or remove files as necessary (Figure 51) and click Next.

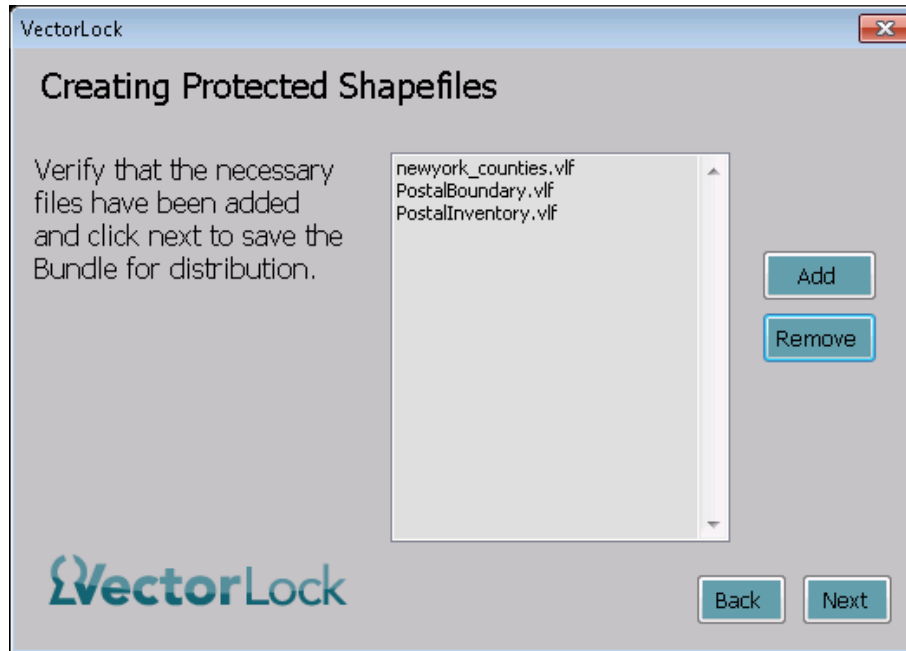


Figure 51 – Edit Bundle

Navigate to the folder that should be replaced with the edited folder, or create a new Bundle folder, and click Ok in the Browse for Folder screen depicted in Figure 52.

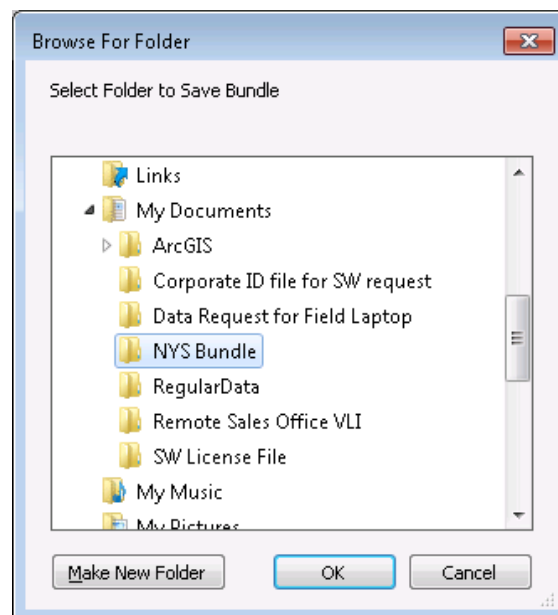


Figure 52 – Browse for Folder

A confirmation screen will appear to verify that the change the user requested is appropriate as shown in Figure 53. Click Ok to confirm.

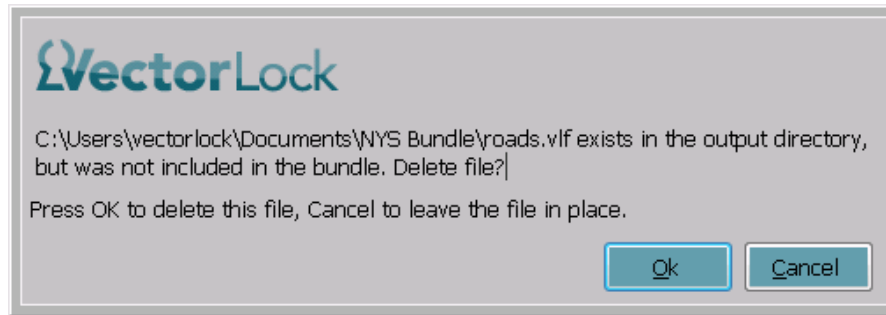


Figure 53 – Confirmation Screen

The Bundle will be created, as depicted in Figure 54.

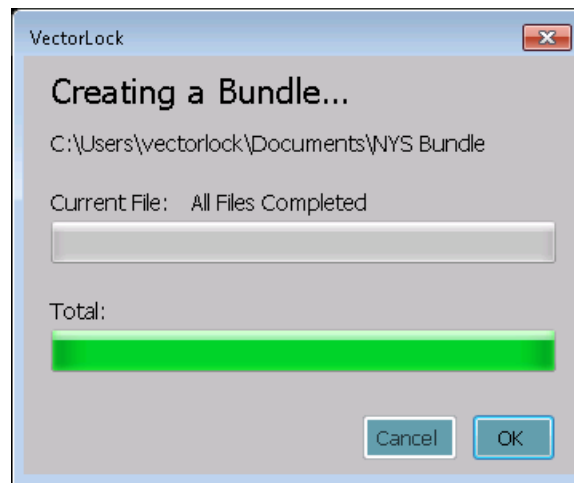


Figure 54 – Bundle Created

7.3 Creating a Package

The Creating a Package process allows the user to license and distribute data in the VectorLock system. Click Go in the Create a Package region of the Data Administrator Tool switchboard (Figure 55).

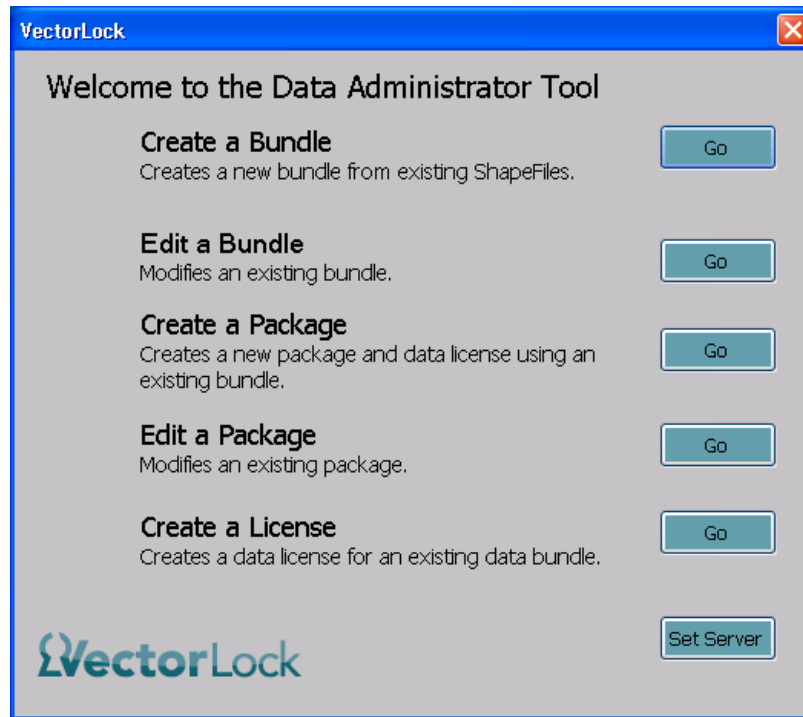


Figure 55 – Package Welcome

Click Next to begin the process of creating a VectorLock Package for distribution (Figure 56).

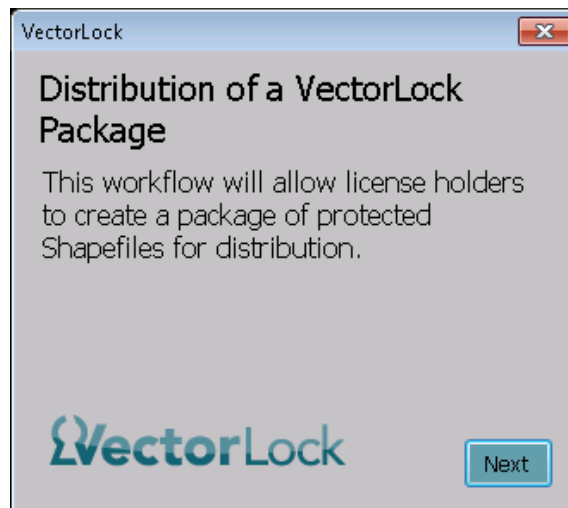


Figure 56 – Distribution

In order to create a VectorLock Package, the data consumer's corporate identity file must be provided. To load an identity file that has been provided by a data consumer click Load (Figure 57).



Figure 57 – Add Requester’s Identity

Navigate to the data consumer’s identity file in the Open navigation window (Figure 58) and click Open.

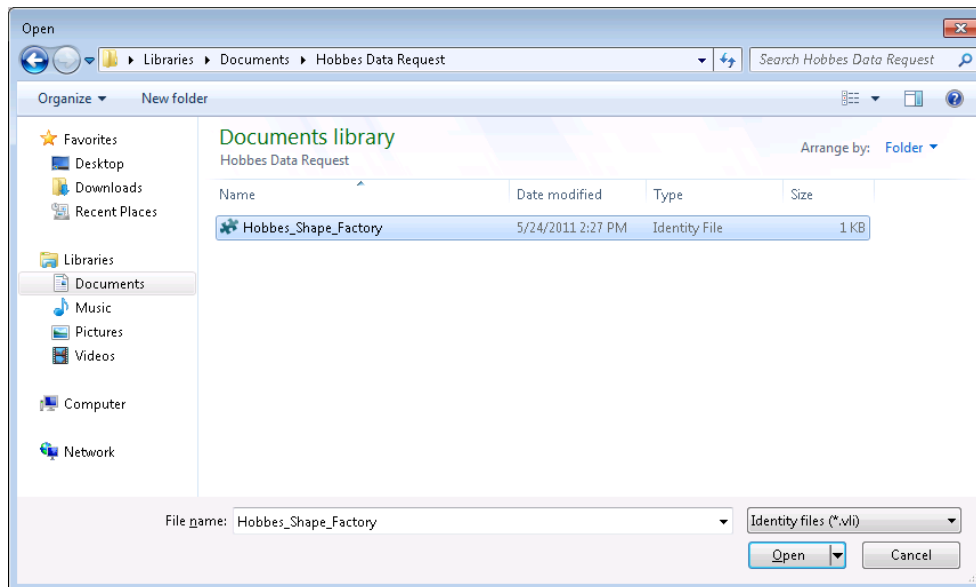


Figure 58 – Open Navigation

After the contact information is loaded, click Next, as depicted in Figure 59.

Figure 59 – Requestor Identity Screen

If the data package should be restricted to specific users within the data consumer organization's identity, click the Node Locked checkbox and then click the boxes that correspond with users who should have access to the data in the package. When the host names have been selected, or if no user restrictions are applicable, click Next (Figure 60).

LicenseServer	HostName	
WEEDJLAPTOP	WEEDJLAPTOP	<input checked="" type="checkbox"/>

Figure 60 – Restricted Host

Enter a name for the data license in the License Name Field. Additional data license restrictions (Figure 61) may be added to enhance the restrictions on a data distributor's data package. Select the Username and Password checkbox to assign a user name and password for the data package. Select the Grace Period drop-down to assign a 30, 60, or 90 day grace period.

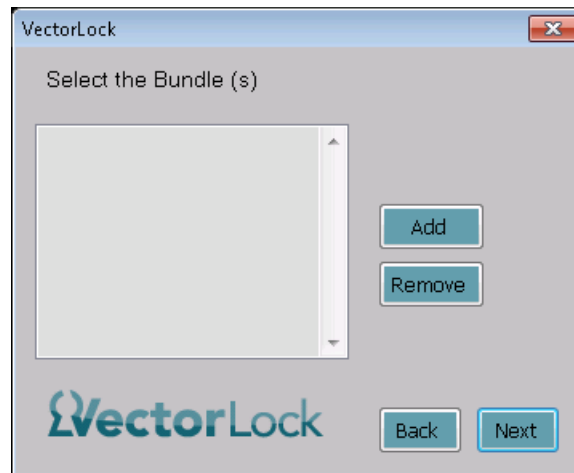
Select the Expiration Date checkbox to assign an expiration date for use of the data package. If the Shapefiles should not be edited by the data consumer, click the Read Only checkbox. When the appropriate restrictions have been assigned, click Next.



The screenshot shows the 'Data Restrictions' dialog box in VectorLock. The title bar reads 'VectorLock'. The main heading is 'Data Restrictions'. Below the heading is a paragraph: 'A VectorLock data license may have additional attributes. Expiration Date, Grace Periods, and the ability to prompt for a Username and Password provide additional protection.' To the right of this text are several input fields: 'License Name:' with the value 'kage for Hobbes', 'Username:' with a checked checkbox and the value 'Hobbes', 'Password:' with the value 'NYSdata', 'Grace Period:' with a checked checkbox and a dropdown menu set to '30 Days', and 'Expiration Date:' with a checked checkbox and a dropdown menu set to '5/27/2012'. At the bottom right, there are two radio buttons: 'Allow Editing' (selected) and 'Read Only'. The VectorLock logo is in the bottom left corner. At the bottom right, there are three buttons: 'Cancel', 'Back', and 'Next'.

Figure 61 – Data Restrictions

Click Add to add bundles to the data package (Figure 62).



The screenshot shows the 'Add Bundles' dialog box in VectorLock. The title bar reads 'VectorLock'. The main heading is 'Select the Bundle (s)'. Below the heading is a large empty rectangular area for selecting bundles. To the right of this area are two buttons: 'Add' and 'Remove'. At the bottom right, there are two buttons: 'Back' and 'Next'. The VectorLock logo is in the bottom left corner.

Figure 62 - Add Bundles to the Package

The Browse for Folder window will open (Figure 63) to allow the data distributor to add bundles to the data package.

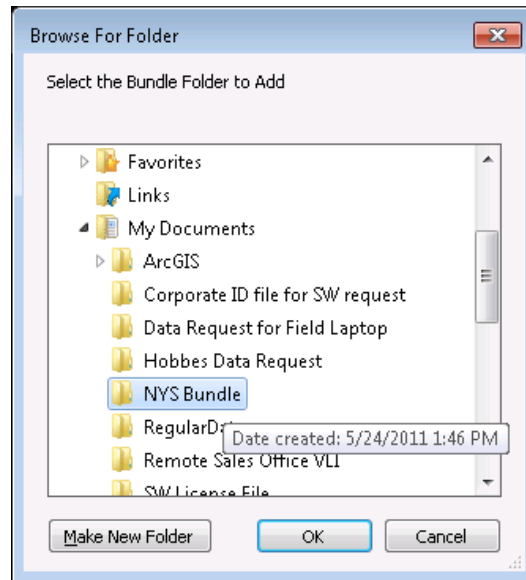


Figure 63 – Browse for Folder

Select the desired bundle and click Open. The Add Bundle interface will display the Bundles that have been added for distribution (Figure 64).

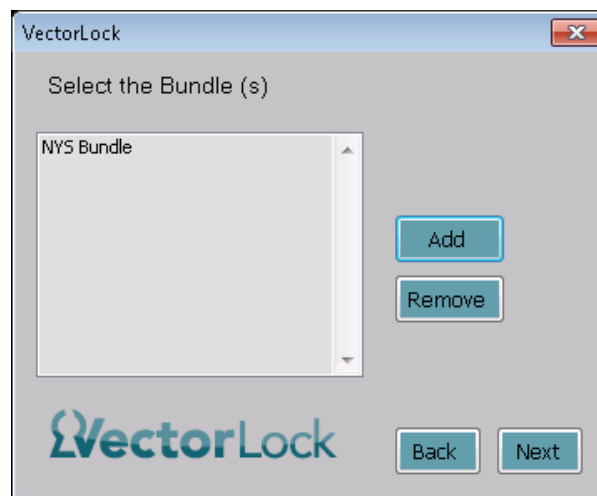


Figure 64 – Bundle Review Screen

The Review Screen (Figure 65) will allow the user to verify the identity of the data consumer, whether the data package is node locked, and the bundles that are included in the package. The Back button can be used to make changes if the package requires a change.

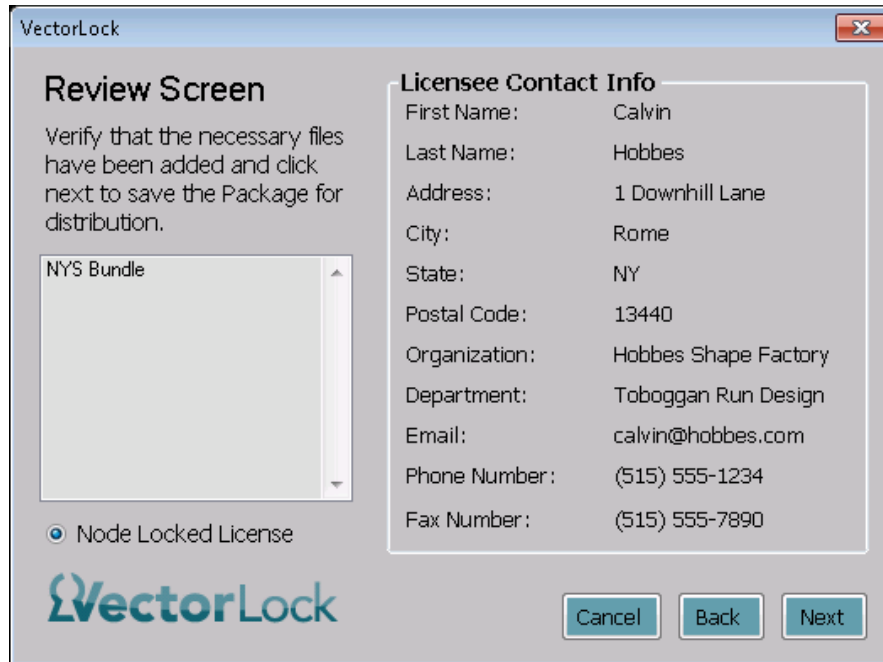


Figure 65 – Review Screen

The Browse For Folder window will open. Navigate to the desired location and save the package for distribution (Figure 66).

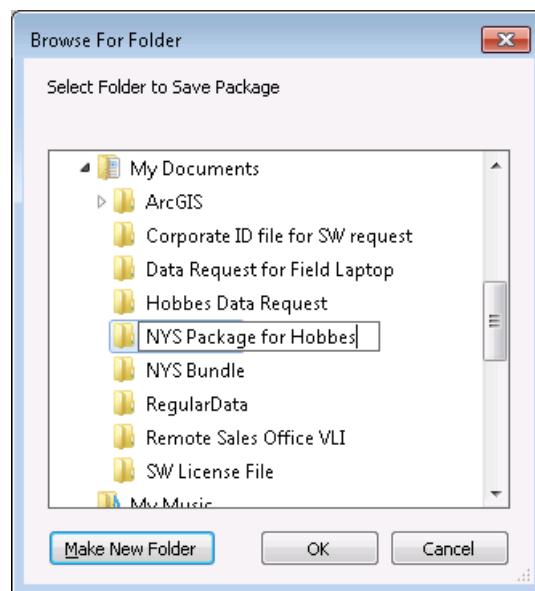


Figure 66 – Save Package

7.4 Editing a Package

Click the Go button in the Edit a Package region of the Data Administrator Tool switchboard (Figure 67).

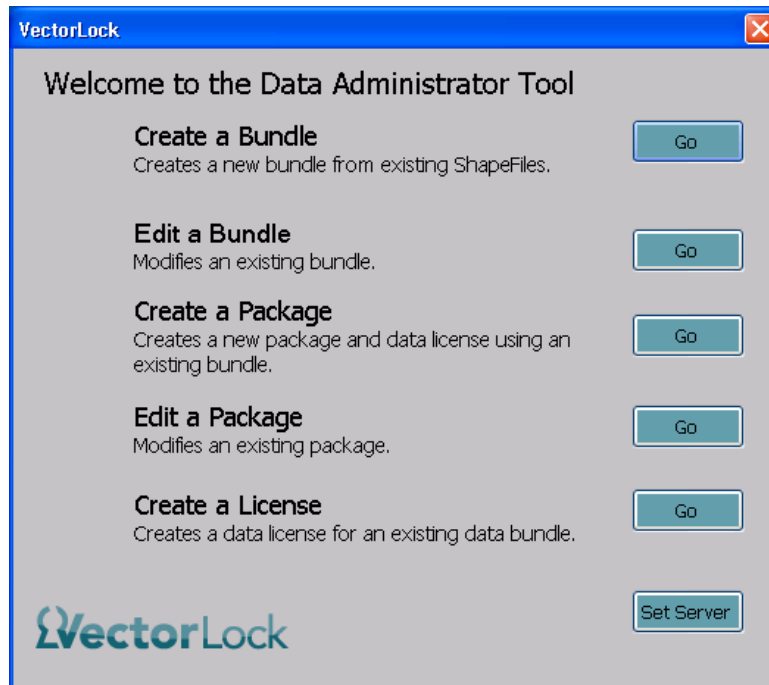


Figure 67 – Admin Welcome Screen

Browse for the folder (Figure 68) that contains the Package to be edited. And click Ok.

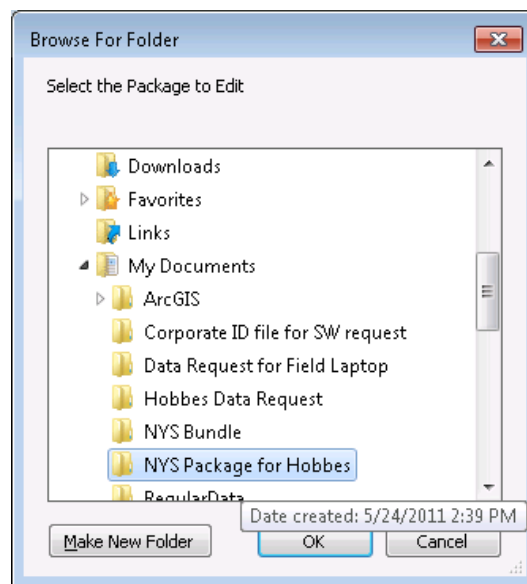


Figure 68 – Browse for a Folder

The Requester Identity screen will open to display the Licensee Contact Information, as depicted in Figure 69.



Requester Identity Screen

Load a valid user identity from a provided .vli

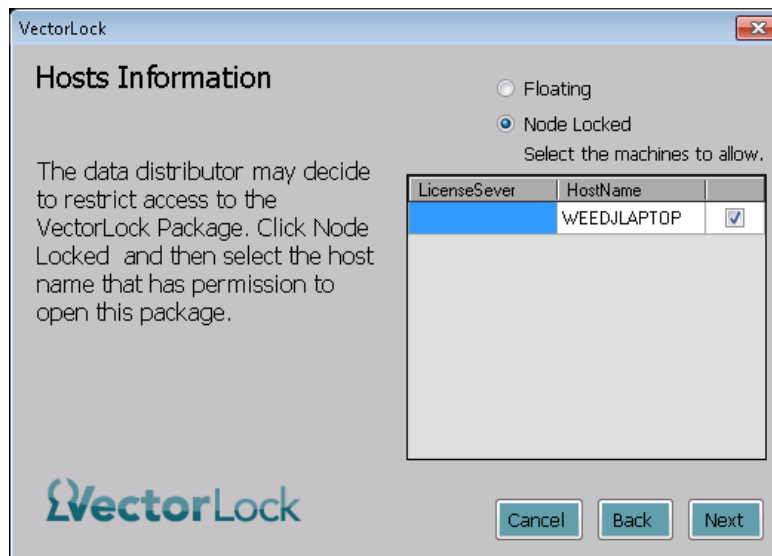
Licensee Contact Info

First Name: Calvin
Last Name: Hobbes
Address: 1 Downhill Lane
City: Rome
State: NY
Postal Code: 13440
Organization: Hobbes Shape Factory
Department: Toboggan Run Design
Email: calvin@hobbes.com
Phone Number: (515) 555-1234
Fax Number: (515) 555-7890

Load Back Next

Figure 69 – Review and Edit Identity Screen

Click load to open a file browser and choose another .vli file to apply to the Package. Click Next to review and edit host information, as shown in Figure 70.



Hosts Information

The data distributor may decide to restrict access to the VectorLock Package. Click Node Locked and then select the host name that has permission to open this package.

Floating
 Node Locked

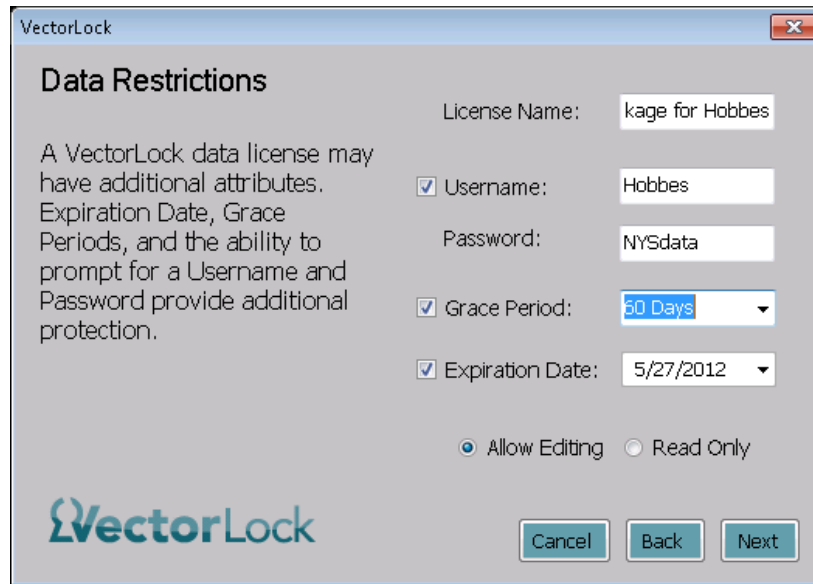
Select the machines to allow.

LicenseServer	HostName	
	WEEDJLAPTOP	<input checked="" type="checkbox"/>

Cancel Back Next

Figure 70 – Review and Edit Host Information

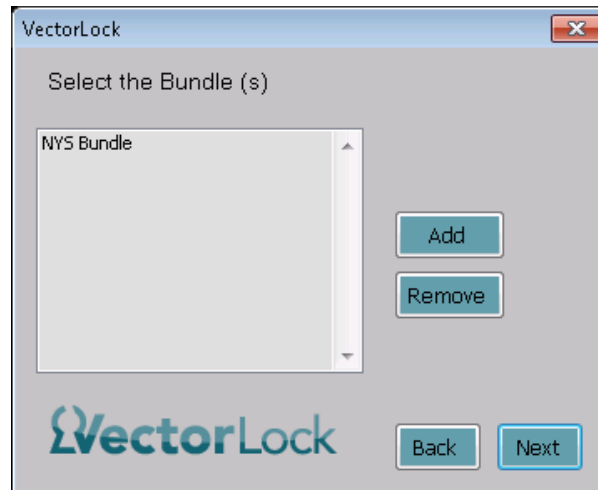
Click Next to review or edit the data restrictions applied to the Package (Figure 71). Note that in this example the Grace Period was changed from 30 days to 60 days.



The screenshot shows a dialog box titled "VectorLock" with a close button in the top right corner. The main heading is "Data Restrictions". Below the heading is a paragraph: "A VectorLock data license may have additional attributes. Expiration Date, Grace Periods, and the ability to prompt for a Username and Password provide additional protection." To the right of this text are several input fields: "License Name:" with the value "kage for Hobbes"; "Username:" with a checked checkbox and the value "Hobbes"; "Password:" with the value "NYSdata"; "Grace Period:" with a checked checkbox and a dropdown menu showing "30 Days"; and "Expiration Date:" with a checked checkbox and a dropdown menu showing "5/27/2012". Below these fields are two radio buttons: "Allow Editing" (selected) and "Read Only". At the bottom left is the VectorLock logo. At the bottom right are three buttons: "Cancel", "Back", and "Next".

Figure 71 – Review Data Restrictions

Click next to review and edit the Bundles included in the Package (Figure 72).



The screenshot shows a dialog box titled "VectorLock" with a close button in the top right corner. The main heading is "Select the Bundle (s)". Below the heading is a list box containing the text "NYS Bundle". To the right of the list box are two buttons: "Add" and "Remove". At the bottom left is the VectorLock logo. At the bottom right are two buttons: "Back" and "Next".

Figure 72 – Review and Edit Bundles

Click next to review the Package details, as depicted in Figure 73.

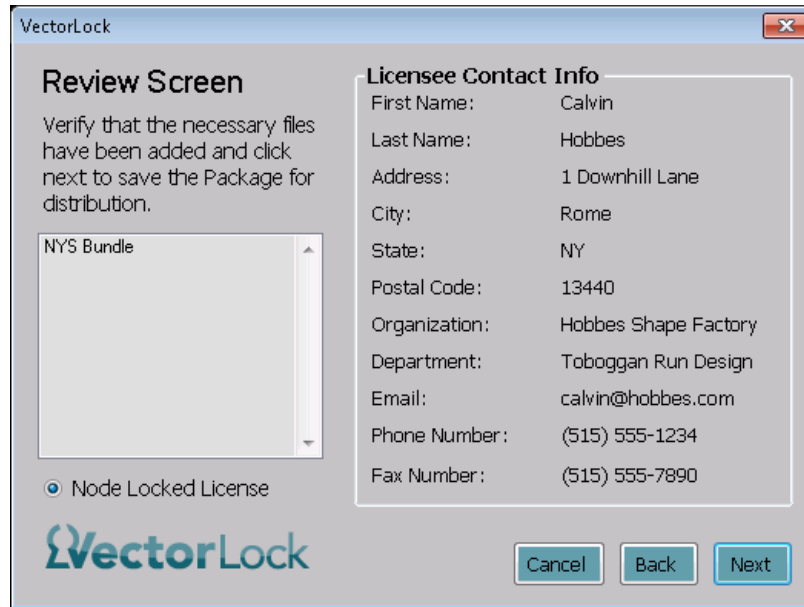


Figure 73 – Review Package Details

Click Next to open the Browse for Folder interface (Figure 74) and save the revised Package.

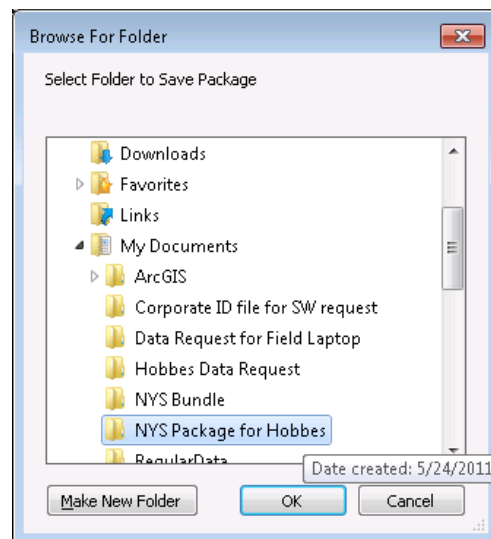


Figure 74 – Save the Revised Package

Select the folder or create a new one, and click Ok. A confirmation message will appear to verify that the user does want to replace the edited package file, shown in Figure 75.

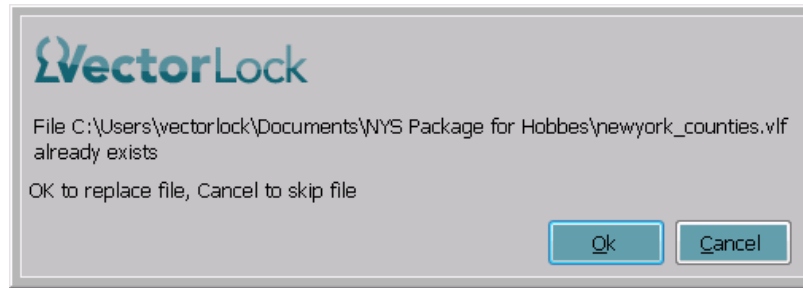


Figure 75 – Confirmation Dialogue

7.5 Create a New Data License

After a package has been distributed to a data consumer, the data distributor made find it necessary to create additional data license files for that data. For example, a data consumer may make changes to .vlf files and be required to send those files to an additional data consumer. The data in this scenario still belongs to the original data distributor. The data distributor may use this interface to load the additional data consumer's .vli file and create a data license associated with the bundle, without re-creating the bundle.

Click Go in the Create a License region of the Data Administration Tool switchboard, shown in Figure 76.

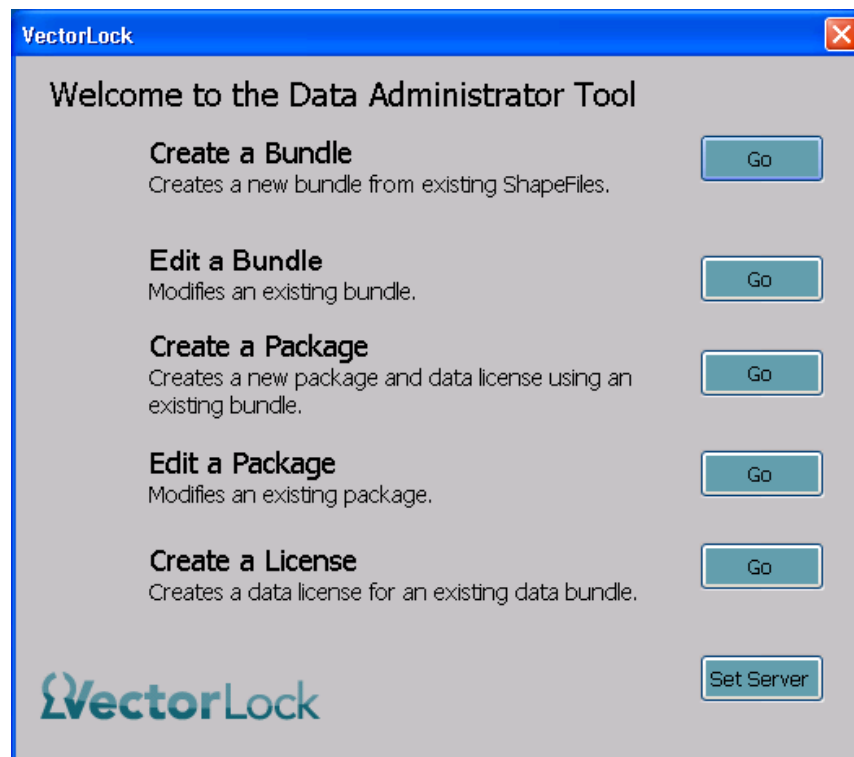
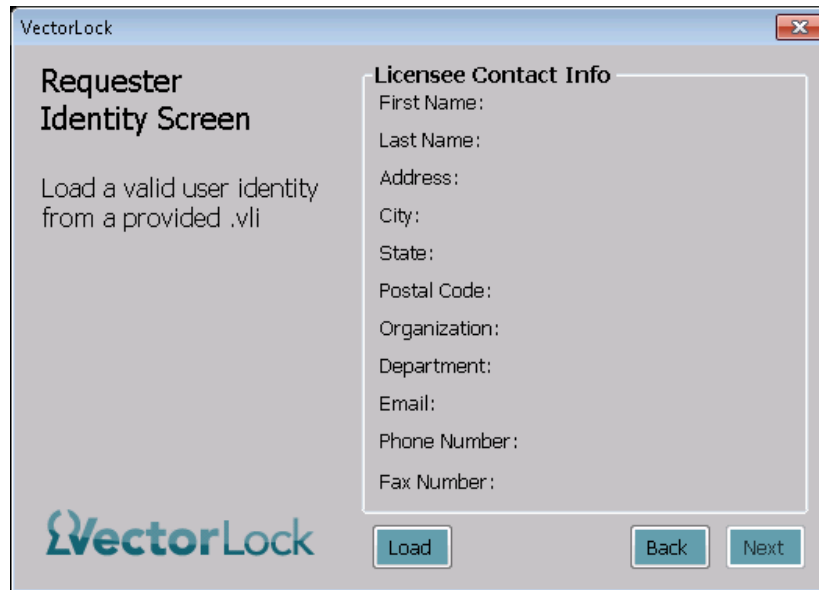


Figure 76 – Data Administrator Tool Switchboard

The Requestor Identity screen will appear as depicted in Figure 77.



The image shows a software window titled "VectorLock" with a close button in the top right corner. The window is divided into two main sections. On the left, under the heading "Requester Identity Screen", there is a text prompt: "Load a valid user identity from a provided .vli". At the bottom left of this section is the VectorLock logo. On the right, under the heading "Licensee Contact Info", there is a form with the following fields: "First Name:", "Last Name:", "Address:", "City:", "State:", "Postal Code:", "Organization:", "Department:", "Email:", "Phone Number:", and "Fax Number:". At the bottom of the window, there are three buttons: "Load", "Back", and "Next".

Figure 77 – Requester Identity Screen

Click Load (Figure 78) to load the data license file that should be edited, and select the license file within the Open dialogue.

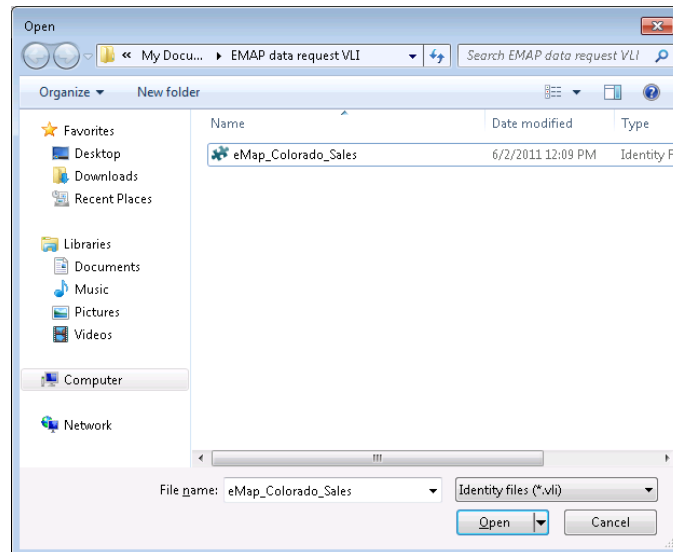


Figure 78 – Select an Identity File

This will open the Requester Identity Screen as shown in Figure 79.

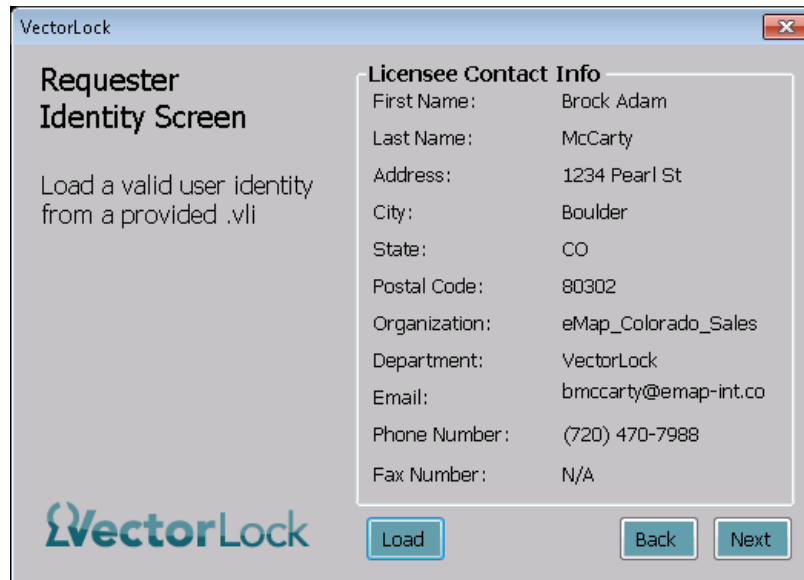


Figure 79 – Loaded .vli File

Click Next to advance to the Host information screen, depicted in Figure 80.

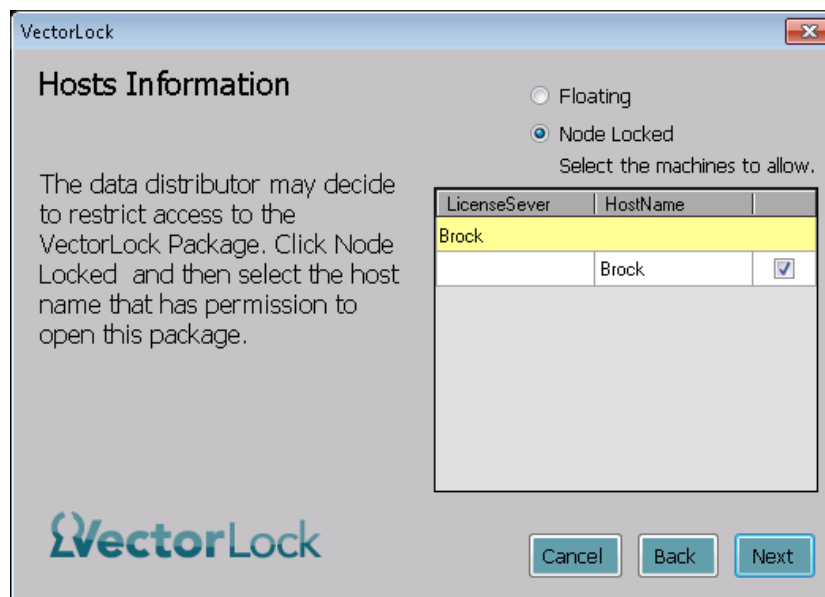


Figure 80 – Host Information

Select the hosts that will be allowed access to the data and click Next to open the Data Restrictions interface as depicted in Figure 81.

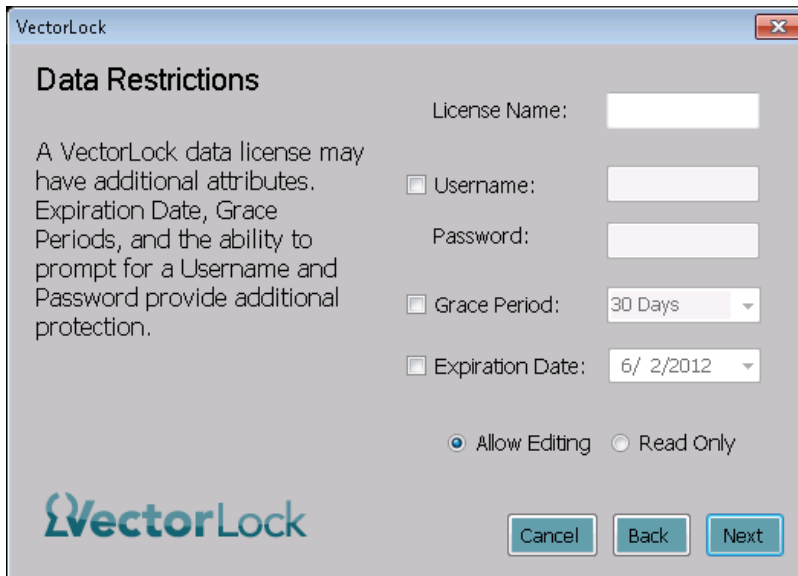


Figure 81 – Data Restrictions

Enter the License Name, Username, Password, Grace Period, Expiration Date and editing restriction as shown in Figure 82.

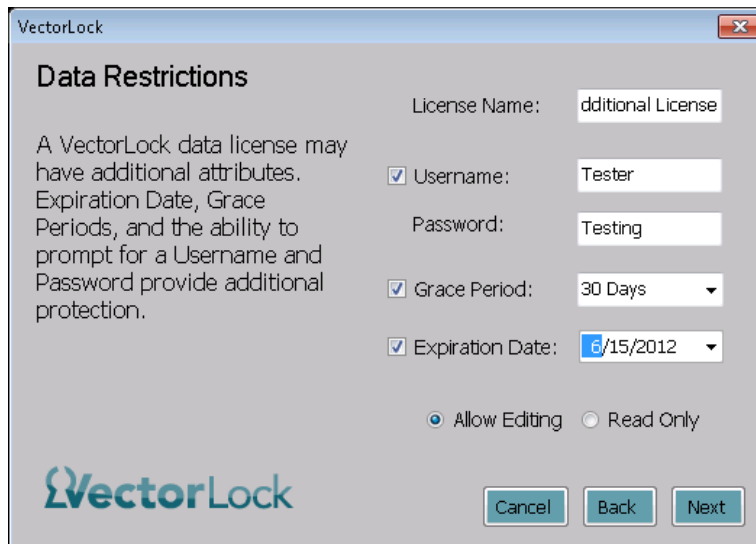


Figure 82 – Data Restrictions entered

Associate the applicable bundles for the data license that is being created (Figure 83) and click Next.

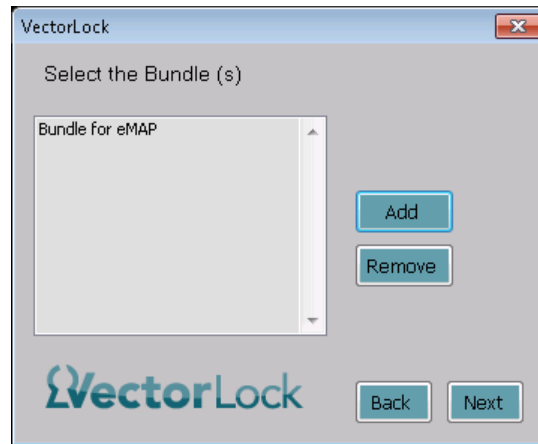


Figure 83 – Associated Bundles

Verify the data consumer's identifying information and the bundles associated with the data license on the Review Screen depicted in Figure 84.

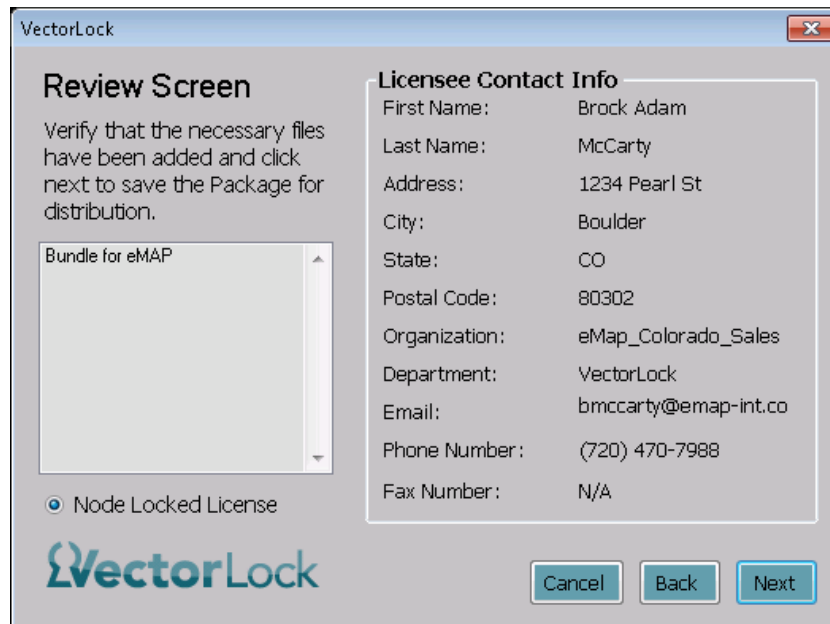


Figure 84 – Verify Review Screen

If necessary, create a new folder to house the additional .vll file in the directory structure (Figure 85).

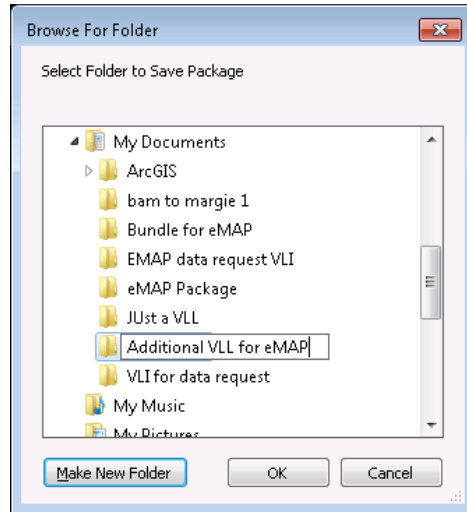


Figure 85 – Save the Additional Data License File

When the .vll is created the user will be returned to the Data Administrator Tool switchboard.

8 LOADING DATA

Note: when the user opens ArcMap to view or edit VectorLock files the VectorLock toolbar must first be toggled on. Open the ArcMap application, as depicted in Figure 86, and click the puzzle piece icon on the toolbar. This toggle activates VectorLock, but at the same time disables some ArcMap functionality that allows files to be exported. If the file that the user loading is a VectorLock file and the output is not a Shapefile, then no output will be generated for any Arc Toolbox functions. When the VectorLock Toolbar is in use export functionality can only be applied by toggling off the VectorLock Toolbar.

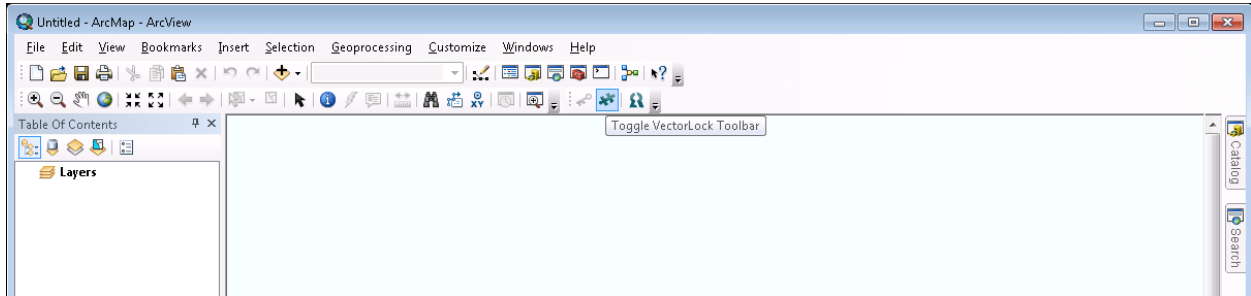


Figure 86 – Toggle VectorLock on

When VectorLock has been toggled on, the key icon will be activated on the ArcGIS toolbar as depicted in Figure 87.



Figure 87 – Activated Key Icon

Click on the Key icon to open the file navigation window, as depicted in Figure 88.

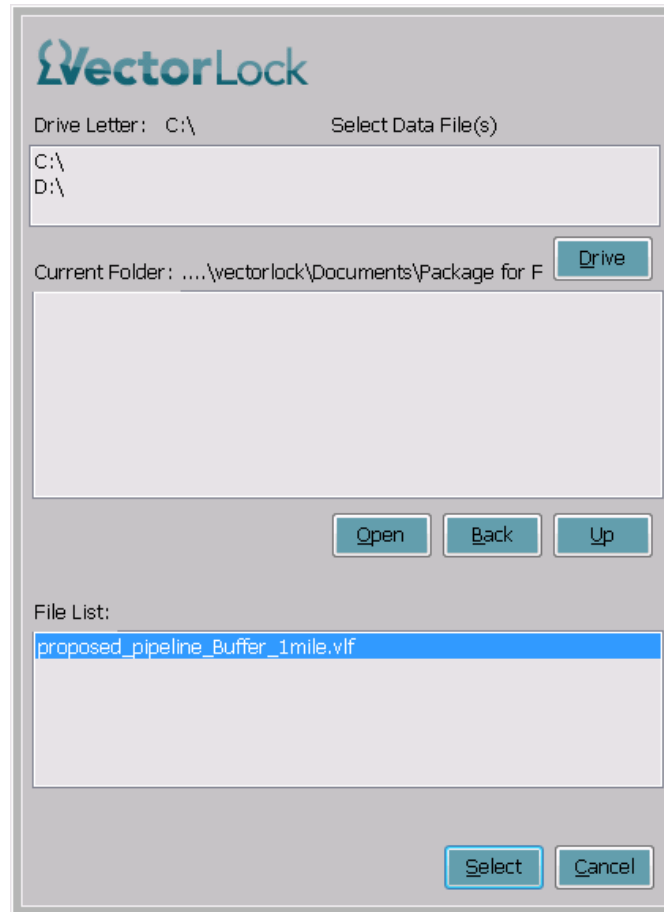


Figure 88 – File Navigation

Navigate to the VectorLock file to be opened and click select. If a username and password has been applied, enter this information and click Ok (Figure 89). Note that the data provider will assign and communicate the username and password to the user. If no username and password have been applied, click Ok.

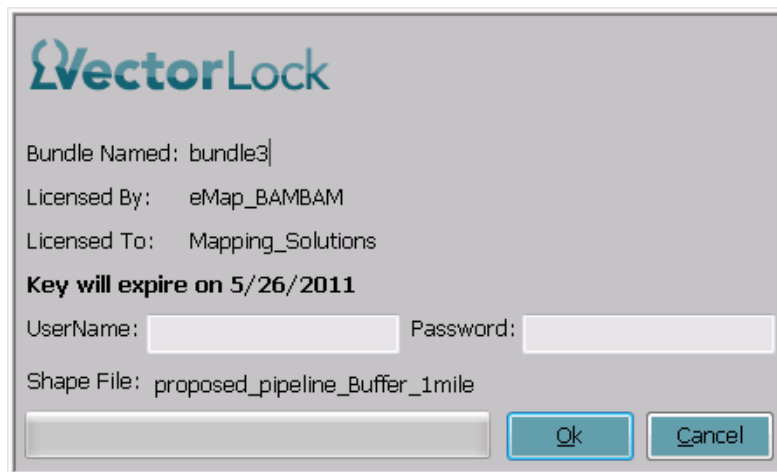


Figure 89 – Username and Password Entry

The file will be added to ArcMap. Right click the file name in the Layers region and click Zoom to Layer; the VectorLock file will become visible (Figure 90).

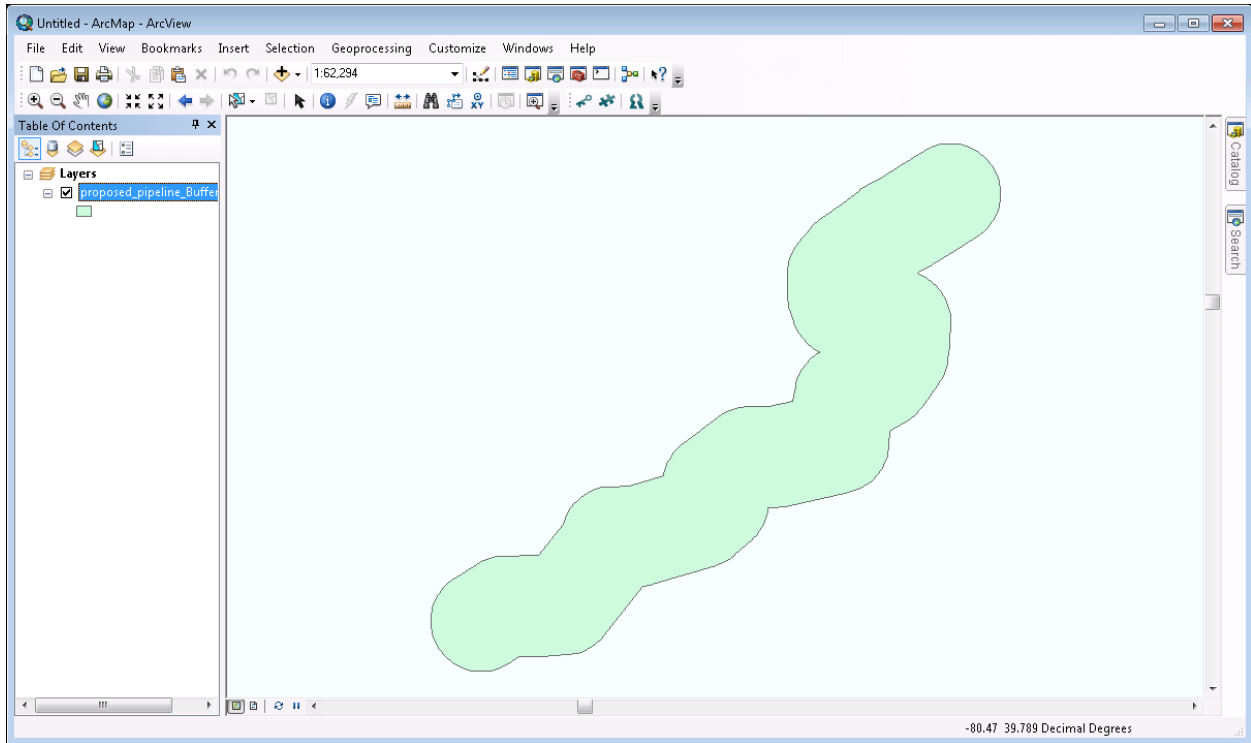


Figure 90 – VectorLock File in ArcMap

If the user has been given edit privileges, and has a licensed Advanced Toolbar, the file may be changed.

APPENDIX A GLOSSARY OF COMMON TERMS

Term	Definition
.vlf File	The file created by shapefile encryption in the VectorLock system. (The VectorLock File)
.vli File	The file created by the Identity Manager (System Administrator) to establish and share the corporate identity
.vll File	The data license file bundled with VLF files that allow the user receiving protected files the ability to open the protected Shape Files.
.vls File	The software license file created by the Vendor (eMap) to run the system. User keeps, it can be updated
Administrator Program	Allows the data distributor to create, manage and export VectorLock files.
License Administrator	Maintains the License Server for the corporate identity manager at remote sites
Advanced Toolbar	Allows the user to edit VectorLock files
Bundle	A set of one or more VectorLock files.
Data	Shapefiles that are being opened and distributed with VectorLock.
Data Distributor /Supplier	Someone that sends vlf files to other users; distributors can be anyone who sends/shares data externally.
Fixed Seat	One user per license scenario
Floating Seat	Seats reserved on a server with a defined number of concurrent users.
Host Name	The name of the system on the network.
Identity Manager	Maintains the organization's identity
Node Lock	Tied to a particular system (based on CPUid, BIOSid or MAC Address).
Package	Data Bundles and the associated .vll files.
Software Vendor	The Company that Licenses VectorLock to the User (eMap)
Standard Toolbar	Allows the user to view VectorLock Files

APPENDIX B FREQUENTLY ASKED QUESTIONS

How do I start the Vector Lock License Server manually?

If the VectorLock License Server is not running, the user may take the following steps to manually re-start the program:

1. Go to the Windows Start Menu (Figure 91)

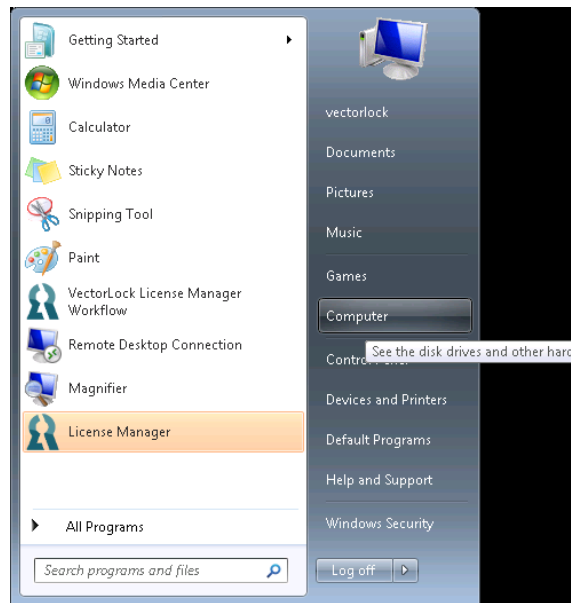


Figure 91 – Windows Start Menu

2. Right click on Computer or My Computer and click on *Manager*

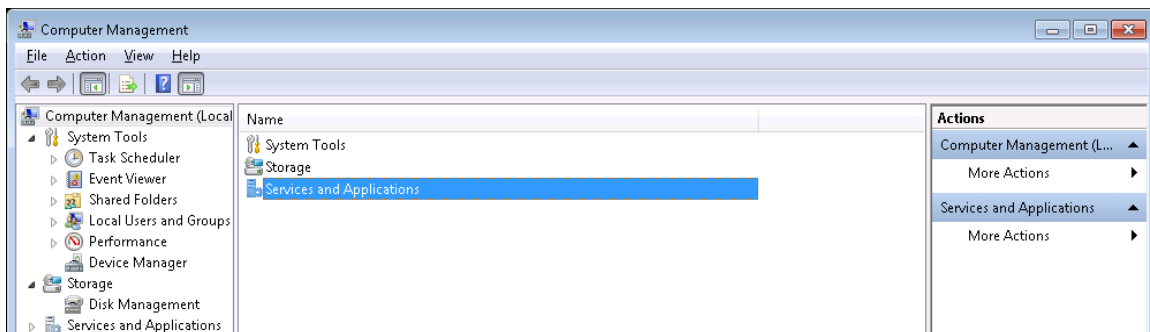


Figure 92 – Services and Applications

3. Click on *Services and Applications*

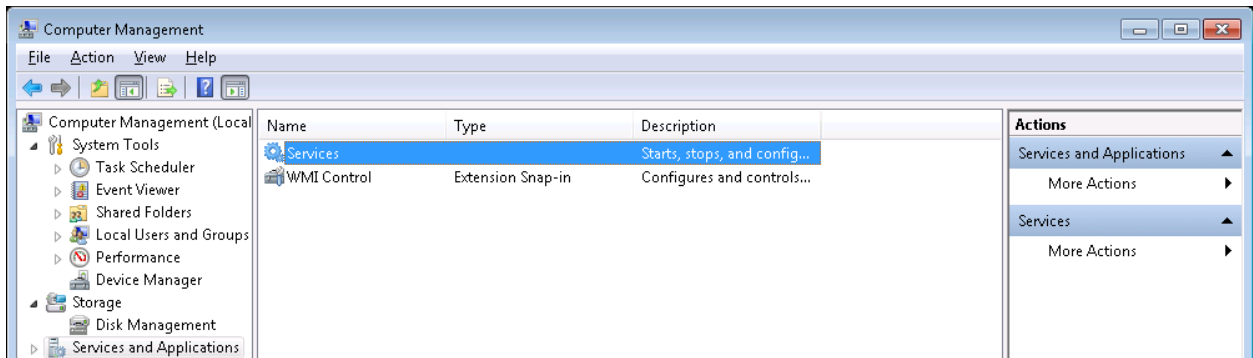


Figure 93 - Services

4. Click on *Services*

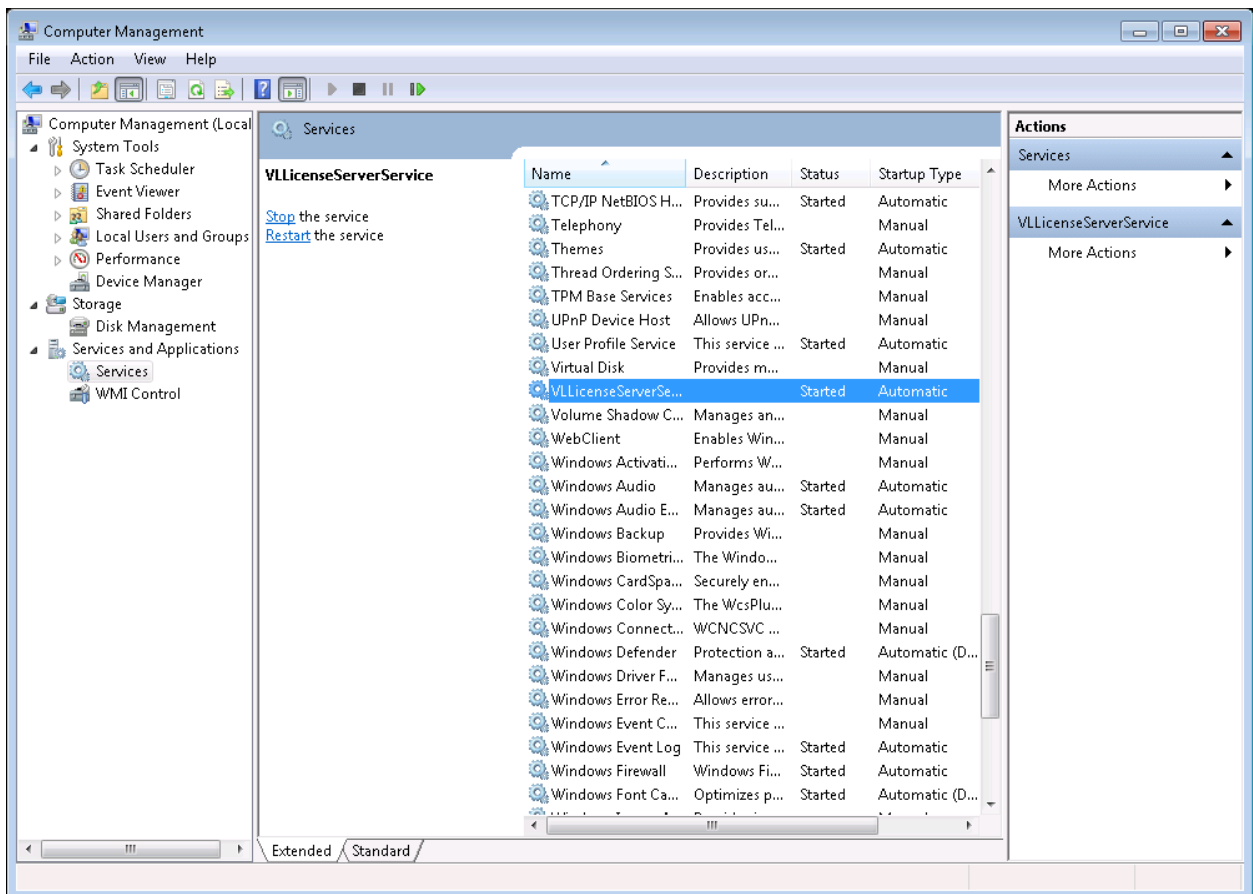


Figure 94 - VLLicenseServerService

5. Right click on VLLicenseServerService and click on *Start*

How can I add the VectorLock Toolbar if it does not appear in the list of available toolbars?

Right click on the tool bar and select Customize to open the Customize Interface (Figure 95) in ArcGIS.

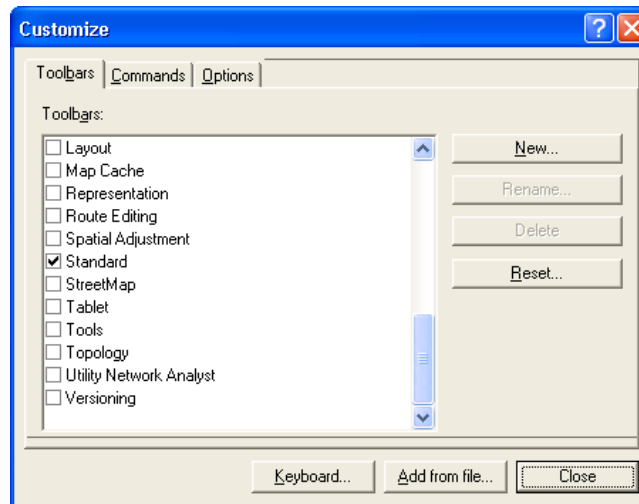


Figure 95 – ArcMap Customize Interface

Click Add from File to open a file browser. Navigate to VectorLock folder by entering the Program Files Directory, the PAR folder and then the VectorLock Toolbar folder; select the Vectorlock.tlb file as depicted in Figure 96.

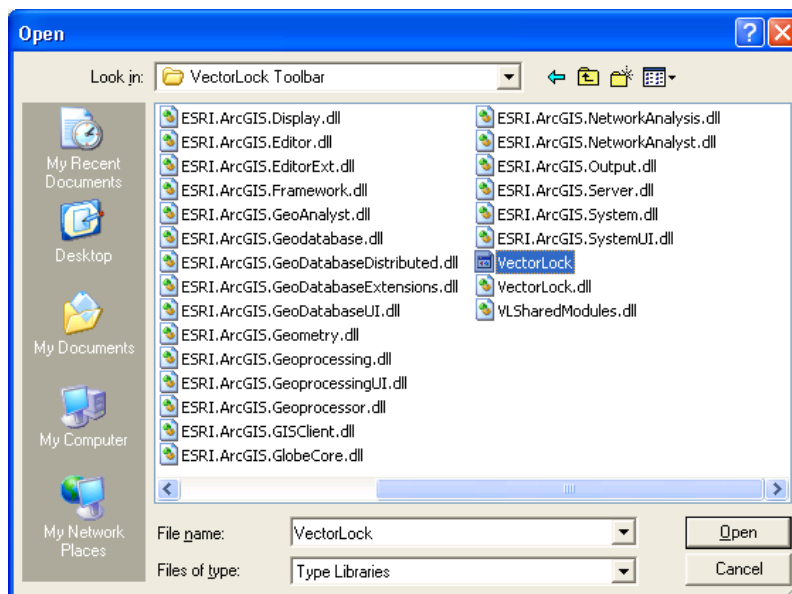


Figure 96 – VectorLock .tlb File

The Added Objects list will appear (Figure 97), click Ok.

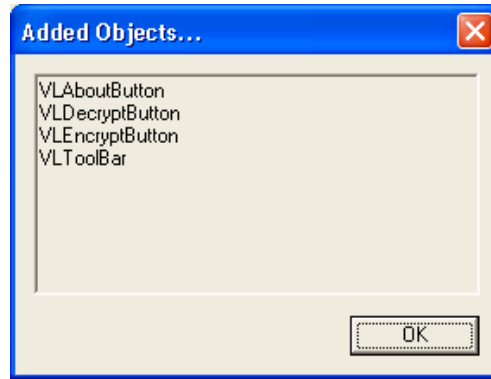


Figure 97 – Added Objects

VectorLock will appear in the toolbar listing, select it and click Close (Figure 98).

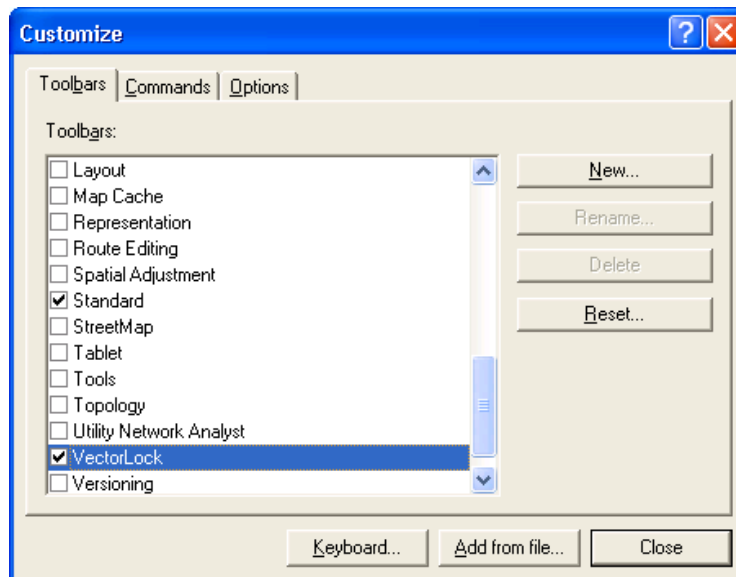


Figure 98 – Customize Interface

How can I manually register the VectorLock Toolbar?

If the toolbar does not register in ArcMap, this can be done manually by navigating to VectorLock in the start menu and selecting Register Toolbar as depicted in Figure 99.

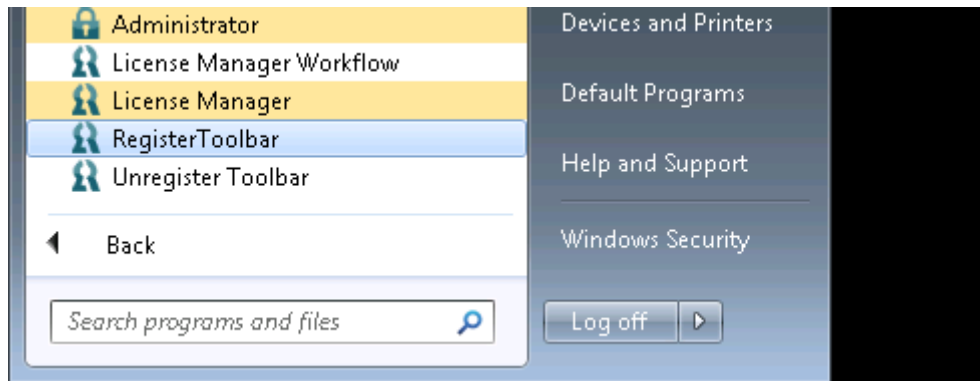


Figure 99 – Manual Toolbar Registration

How do I create a firewall exception?

The firewall exception is only necessary on a computer that the VectorLock License Manager/License Server is installed on, which manages the software licenses for additional networked systems running the VectorLock Toolbar or Data Administrator Programs. Windows 7 and Windows XP have different procedures for allowing firewall exceptions.

Firewall Exception in Windows 7

To set a firewall exception in Windows 7, open the Control Panel (accessible from the Start Menu) and click System and Security, shown in Figure 100.

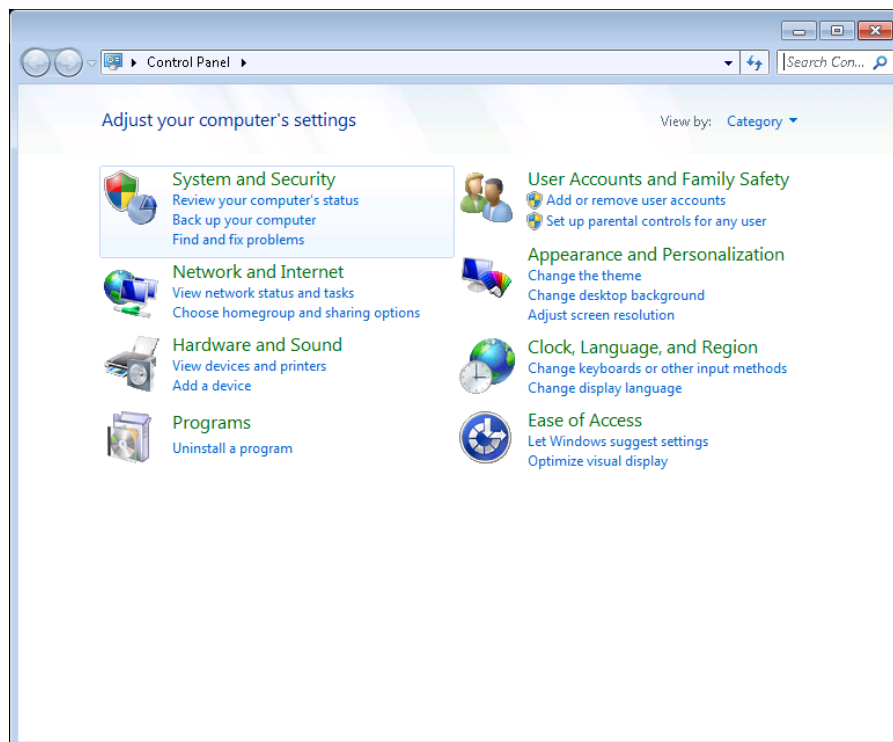


Figure 100 – Windows 7 Control Panel

In the Windows Firewall area, click Allow a Program through Windows Firewall, as shown in Figure 101.

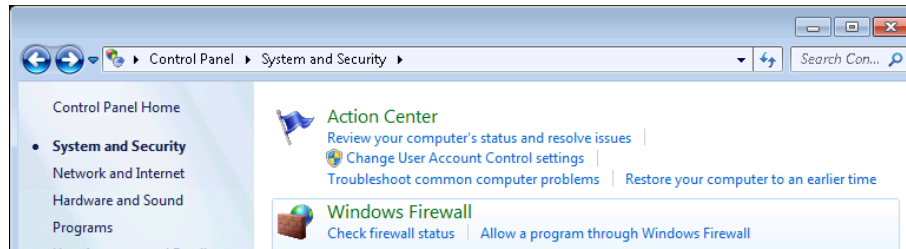


Figure 101 – Allow a Program Through the Windows Firewall

Click the Change Settings button as shown in Figure 102.

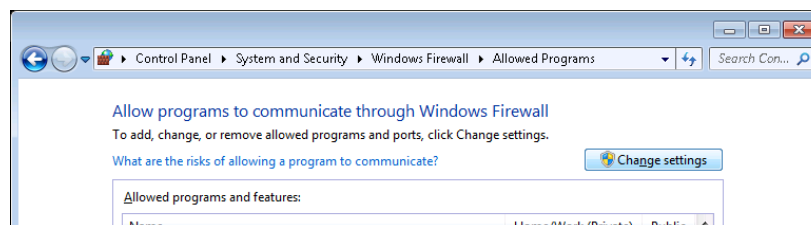


Figure 102 – Change Settings Button

Click Allow another Program, as depicted in Figure 103.

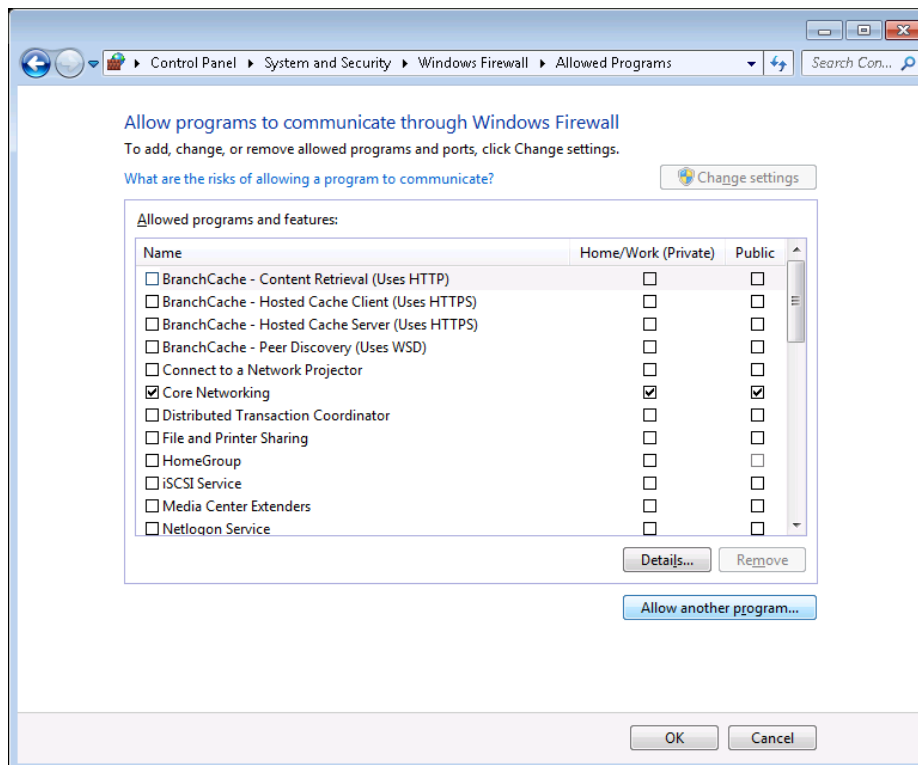


Figure 103 – Allow Another Program

The Add a Program window will appear, as shown in Figure 104.

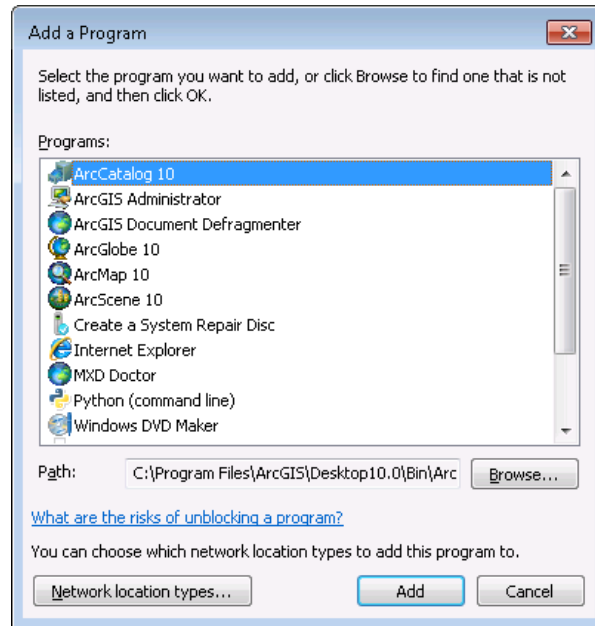


Figure 104 – Add a Program

If the default installation path was selected when VectorLock was installed, navigate to the following location: C:\Program Files\PAR\VectorLock License Manager and select the VLLicenseServerService Application to add the VLLicenseServerService to the list of Programs, as depicted in Figure 105.

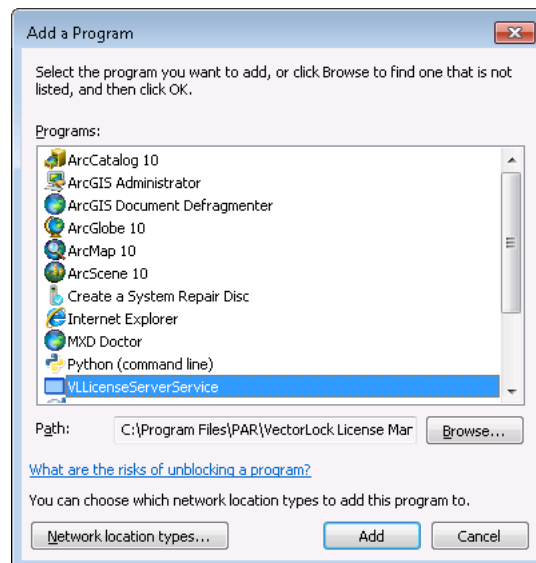


Figure 105 – Add the VLLicenseServerService

Click Add to add the application to the Firewall list shown in Figure 106.

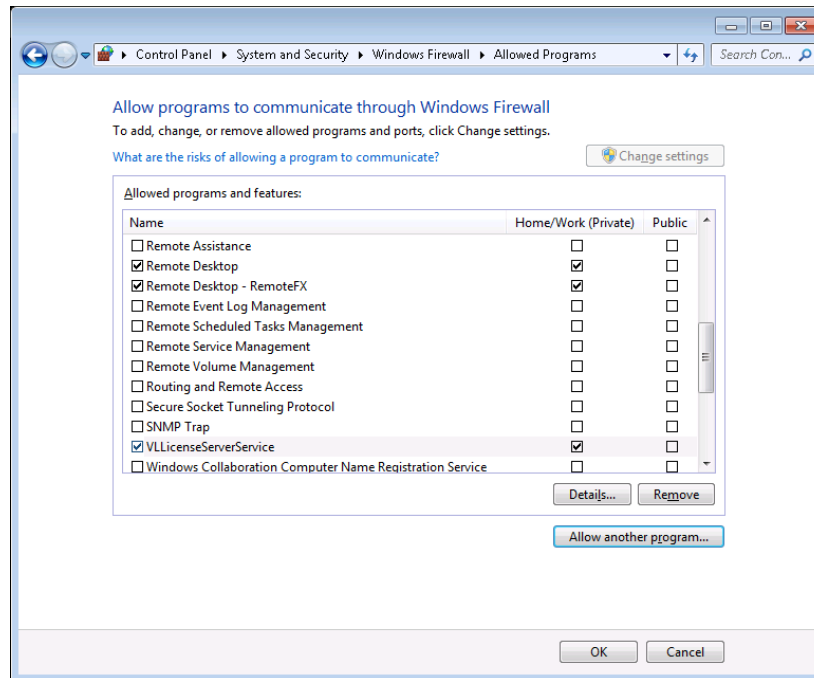


Figure 106 - License Sever Service Added

Click OK and exit the Windows Firewall Exception interface.

Firewall Exception in Windows XP

To set a firewall exception in Windows XP, access the Control Panel from the Start menu and click Security Center, as depicted in Figure 107.

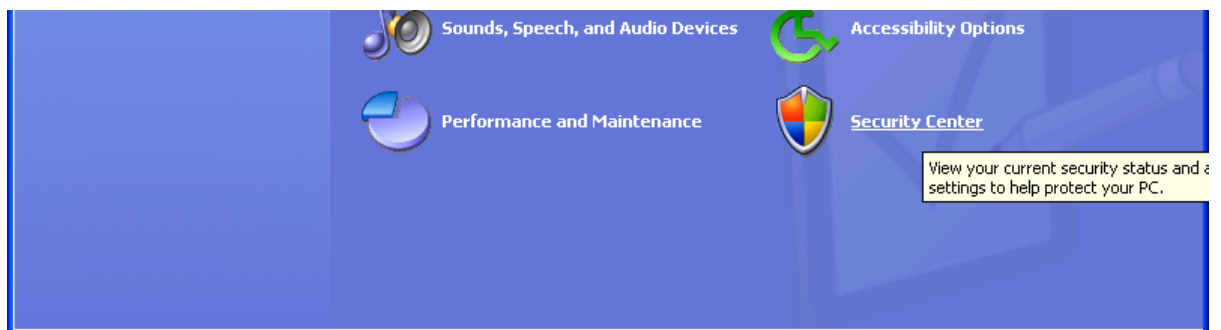


Figure 107 - Windows XP Control Panel

Click on Windows Firewall as depicted in Figure 108.

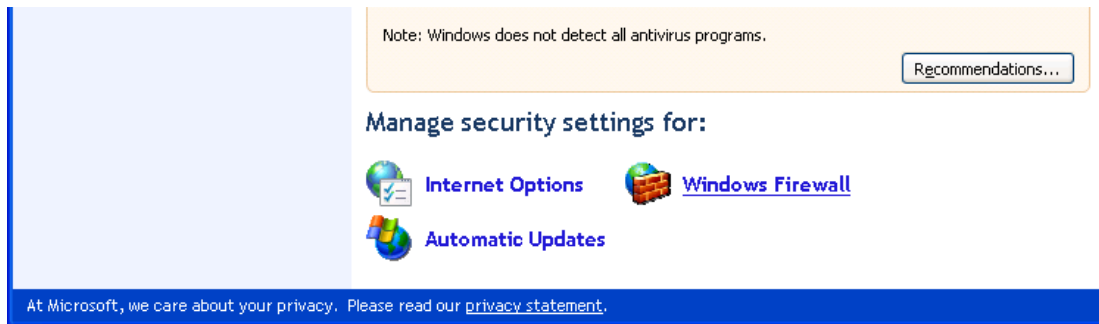


Figure 108 - Manager Security Settings for Windows Firewall

Select the Exception tab on the Windows Firewall window and click Add Program, as depicted in Figure 109.

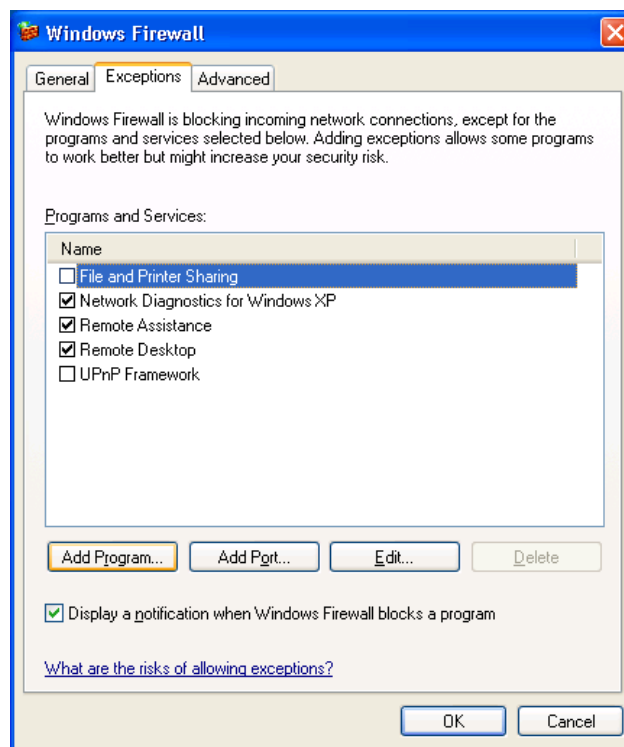


Figure 109 - Add Program

When the Add a Program window opens, click Browse to add the VectorLock License Sever to the list of programs. Navigate to the VectorLock License Manager folder as shown in Figure 110. If the default installation path was selected when VectorLock was installed, navigate to the following location: C:\Program Files\PAR\VectorLock License Manager. Select the VLLicenseServerService file and click Open.

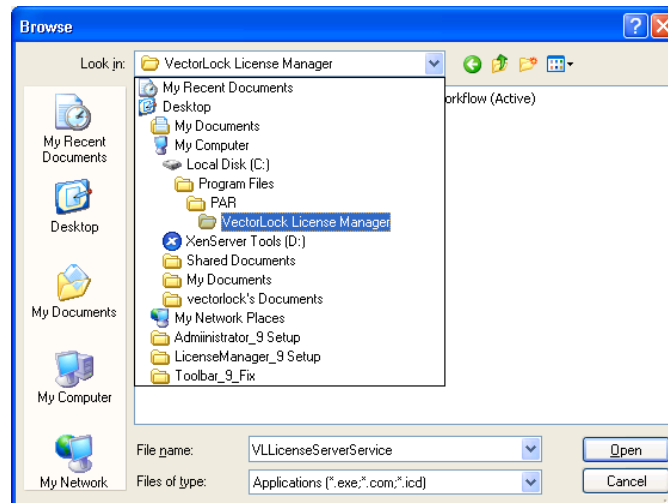


Figure 110 - Adding the License Server Program

Select the VLLicenseServerService from the list of programs on the Add a Program window and click OK, as shown in Figure 111.

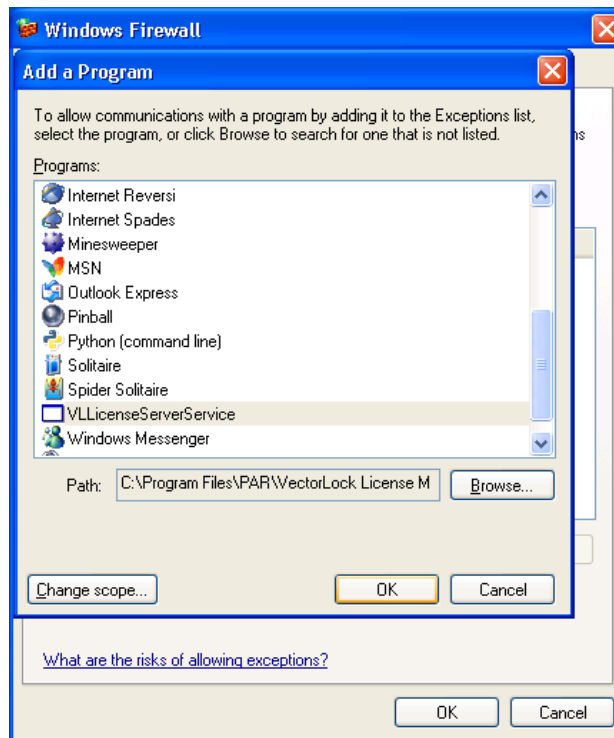


Figure 111 – Add the License Server Program

When the user has confirmed that the VLLicenseServerService has been added to the Windows Firewall Exceptions list, click OK to create the exception (Figure 112).

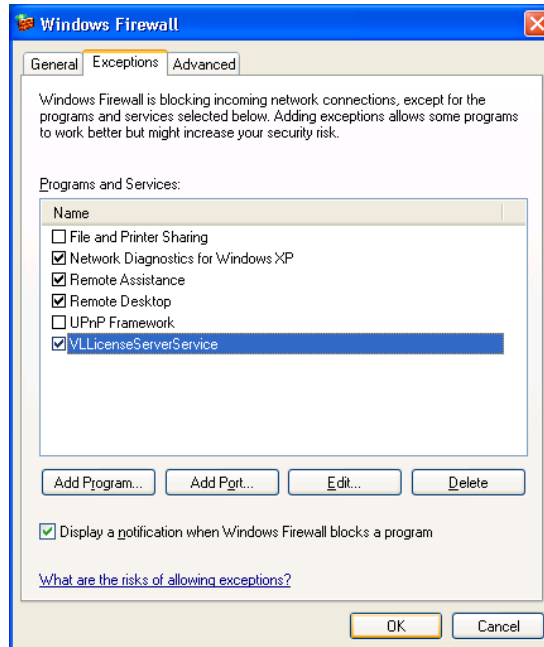


Figure 112 – Adding the Firewall Exception