Certification Test

Lab 1

Welcome!

By the time you have opened this file, you should have a running copy of ThinManager, activated with a Demo Code and are ready to begin the labs. If you still need to download ThinManager you can do so here https://downloads.thinmanager.com and retrieve a Demo Code from here https://licensing.thinmanager.com/DemoCode/Create to access the components of the ThinManager Program to run the labs.

Also, you should already be registered at https://thinmanager.com/si/ to have your certification program labs graded. If you have not yet registered, please take time to do so now. Do not share ThinManager databases with other trainees. This can corrupt the final file you will submit for certification.

Goal:

These 5 labs lead you through a standard configuration to expand your knowledge of ThinManager by creating a basic thin client deployment for a small factory. Deployment will include:

- ❑ 8 industrial thin clients in 2 lines of 4.
- ❑ 2 Shipping Department thin clients.
- ❑ 2 Boiler Room thin clients.
- ❑ 4 Office thin clients.

Links:

This is an open book test. Feel free to use any resources, including:

ThinManual - https://thinmanager.com/support/manuals/

ThinManager Knowledge Base – https://kb.thinmanager.com/index.php/Main_Page

ThinManager with Relevance User Guide – https://thinmanager.com/support/manuals/

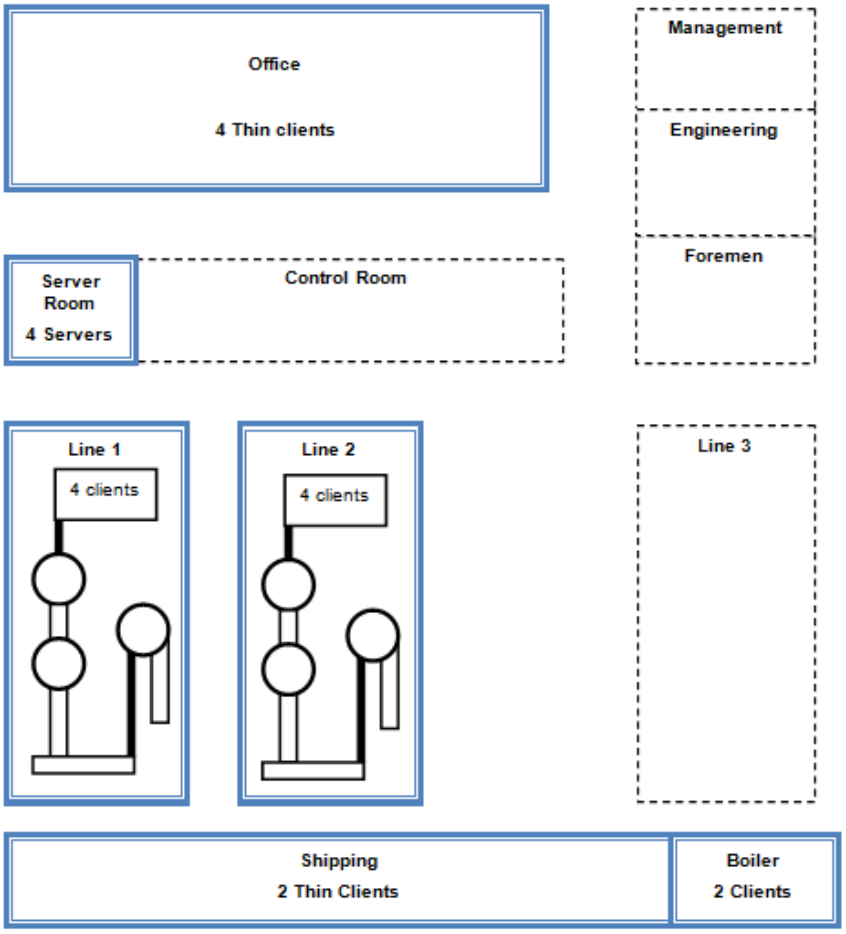
ThinManager Videos – https://thinmanager.com/video/ for ThinManager demonstrations.

ThinManager Training Videos - https://learn.thinmanager.com/ for ThinManager training.

Questions can be sent to certification@thinmanager.com

Note: ThinManager works with a variety of hardware from a number of hardware partners. Although specific makes and models are used in this lab, it is meant as an example and not an endorsement.

Factory Layout for the Lab:



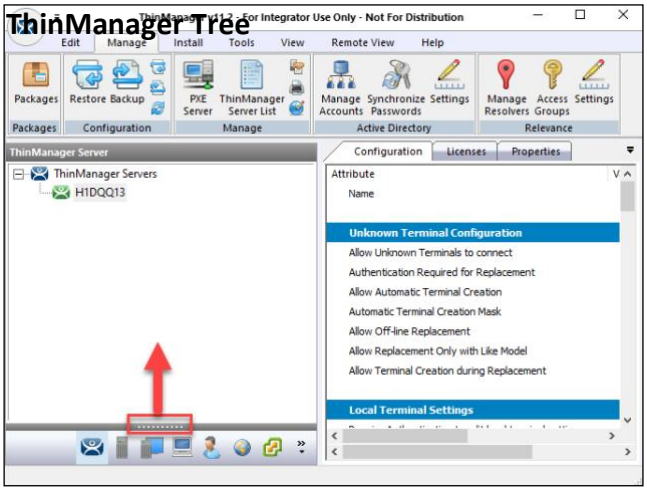
Note: This lab uses simplistic passwords and local workgroup accounts. A real deployment would use domain accounts and require stronger passwords.

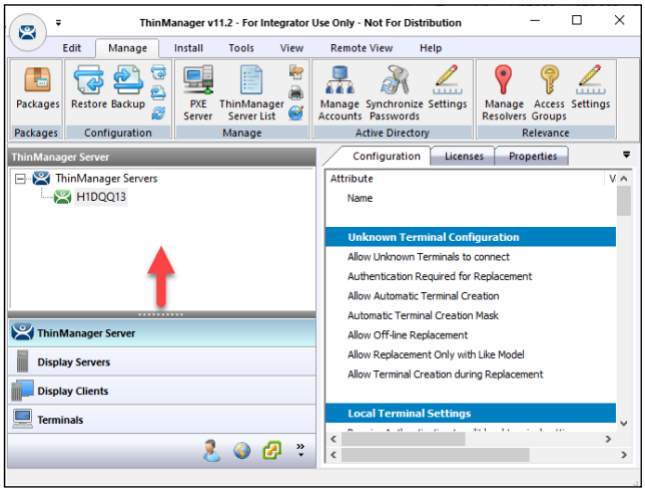
Getting Started:

- ❑ Start with a clean configuration on a non-production server. This can be your individual laptop or desktop. This lab is designed for ThinManager 9.0 or later.
- ❑ Create and configure the ThinManager components as described in this lab.

It is best to build the system from the bottom up, that is define the servers first, then the applications that will run, then the terminals.

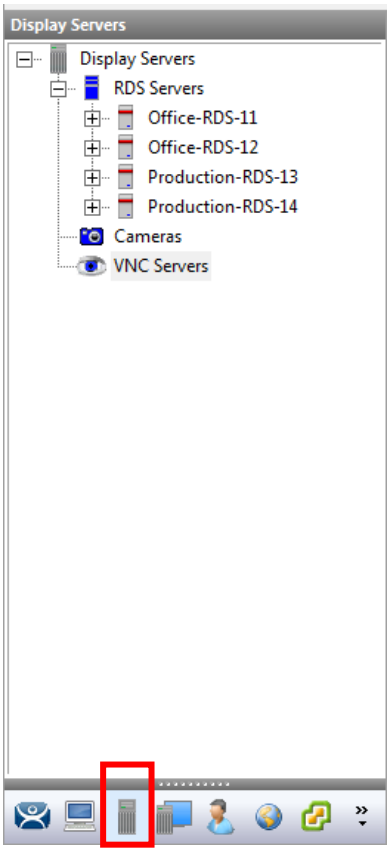
ThinManager Tree





The bottom of the ThinManager tree has icons for the different branches. You can click on the 10 white dots in the dark gray stripe and drag the gray bar towards the top, revealing the names of the icons.

Display Servers:



Define four Remote Desktop Servers. These are where the sessions and applications will run.

Open the Display Server branch of the ThinManager tree by selecting the **Display Server** icon at the bottom of the tree. Right click on the **RDS Server** icon and select ***Add Remote Desktop Server***.

Define this remote desktop server using the defaults except for:

❑ **Office-RDS-11** = 192.168.1.11 with "administrator" as user and "12345" as password*.

Define this remote desktop server using the defaults except for:

❑ **Office-RDS-12** = 192.168.1.12 with "administrator" as user and "12345" as password*.

Define this remote desktop server using the defaults except for:

❑ **Production-RDS-13** = 192.168.1.13 with "administrator" as user and "12345" as password*.

Define this remote desktop server using the defaults except for:

❑ **Production-RDS-14** = 192.168.1.14 with "administrator" as user and "12345" as password*.

*In real world you would use more complex passwords and domain accounts.

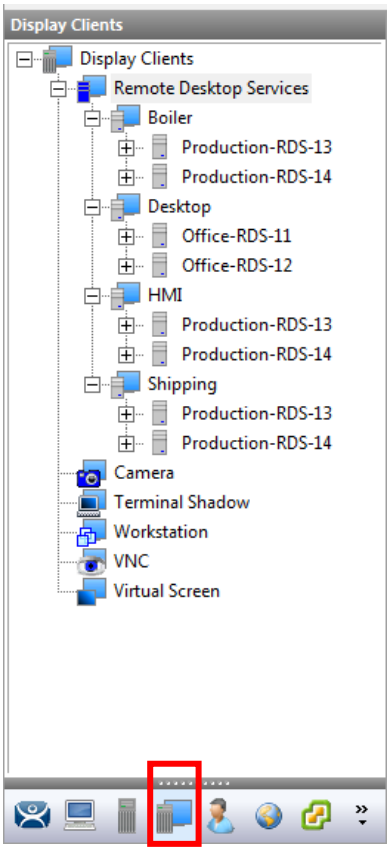
Adding an administrative account to the Remote Desktop Server configuration allows the ThinServer service to gather information about the server. Your icons will show a red stripe because you are not on a live system. In the real world the icons will turn green when the ThinServer service connects to the Remote Desktop Servers. See https://kb.thinmanager.com/index.php/ThinServer_Login for details.

Note: In the real world you need to configure the Microsoft Servers.

Microsoft Remote Desktop configuration includes

1) Adding the Remote Desktop Services Role.
2) Adding a Microsoft License Server and adding either Per Device or Per User Remote Desktop Services Client Access Licenses (RDS CALs).
3) Creating Windows user accounts for each terminal or user. Each terminal and user need a unique account. Apply the desired security and group policies to the user accounts.
4) Microsoft strongly recommends a domain for Server 2012 and later deployments.

Microsoft Server 2012 configuration is covered in the knowledge base at https://kb.thinmanager.com/index.php/Windows_Server_2012_R2_RDS_Role_Installation



Display Clients:

Create four Remote Desktop Services Display Clients to deploy applications.

Open the **Display Client** branch of the ThinManager tree by selecting the **Display Client** icon at the bottom of the tree. Right click on the **Remote Desktop Services** icon and select ***Add Display Client***. Define these display clients:

Note: This lab uses generic program paths to launch hypothetical applications. In real life the configuration of an HMI would require you to use correct path to specify the program files for the application.

Information on specific methods for launching the various HMIs can be found in the Knowledge Base at http://www.thinmanager.com/kb/index.php/Special:AllPages.

Please type the supplied text string into the Path as directed to represent a valid program. These are representative, not actual, so you cannot browse to these executable files.

You can cut and paste from this Lab PDF and paste into the path of your configuration.

Desktop Display Client

- ❑ Create one display client named **Desktop**. Configure using the default settings except:
  - ❑ Uncheck ***Allow Auto-Login*** on the **Remote Desktop and Workstation Options** page. This sets the application so that each user must manually log in. This way each user gets their own desktop configured according to the Group Policy for that user.
  - ❑ Use **Office-RDS-11** and **Office-RDS-12** for the Remote Desktop Servers on the **Display Client Member** page.

Boiler Display Client

- ❑ Create one display client named **Boiler**. Configure using the default settings except:
  - ❑ Check ***Allow Auto-Login, Application Link*** and ***Instant Failover*** on the **Remote Desktop and Workstation Options** page. Instant Failover will launch two sessions, one on each server for immediate failover.
  - ❑ Use **Production-RDS-13** and **Production-RDS-14** for the Remote Desktop Servers on the **Display Client Member** page.
  - ❑ Use ***C:\Program Files\HMI\boiler.exe*** as the *Program Path and Filename* on the **AppLink** page.

HMI Display Client

- ❑ Create one display client named **HMI**. Configure using the default settings except:
  - ❑ Check ***Allow Auto-Login, Application Link*** and ***Enforce Primary*** on the **Remote Desktop and Workstation Options** page. Enforce Primary will make the top server in the list the main server and the session will run there whenever it is available.

- ❑ Use **Production-RDS-13** and **Production-RDS-14** on the **Display Client Member** page.
- ❑ Use ***C:\Program Files\HMI\hmi.exe*** as the *Program Path and Filename* on the **AppLink** page.

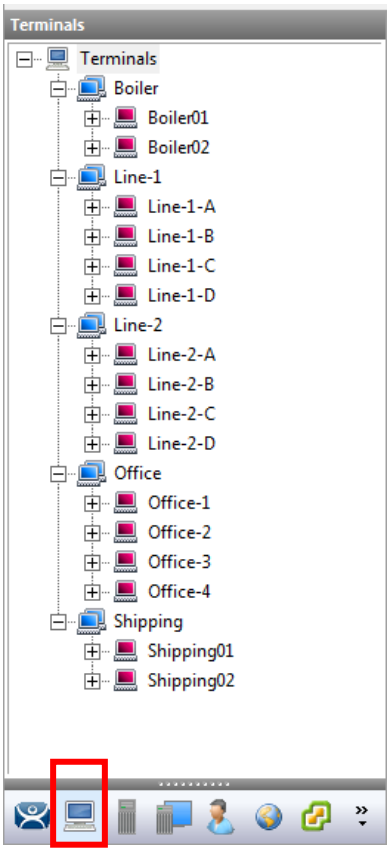
Shipping Display Client

- ❑ Create one display client named **Shipping**. Configure using the default settings except:
  - ❑ Check ***Allow Auto-Login, Application Link*** on the **Remote Desktop and Workstation Options** page.
  - ❑ Use **Production-RDS-13** and **Production-RDS-14** on the **Display Client Member** page.
  - ❑ Use ***C:\Program Files\Apps\ship.exe*** as the *Program Path and Filename* on the **AppLink** page.

Terminals:

Terminals can be created in Terminal Groups. In addition to acting as folders the ***Group Setting*** checkbox will speed configuration by using the **Group Setting** for all terminals added to the group.

Create Terminal Groups



❑ Open the **Terminals** branch of the ThinManager tree by selecting the **Terminal** icon at the bottom of the tree. Right click on the **Terminal** icon and select ***Add Group***.

❑ Define these Terminal Groups:

❑ **Office**. This group will have 4 thin clients.

❑ **Line1**. This group will have 4 thin clients.

❑ **Line2**. This group will have 4 thin clients.

❑ **Boiler**. This group will have 2 thin clients.

❑ **Shipping**. This group will have 2 thin clients.

You can use the groups as simple folders or use them to speed configuration with ***Group Settings***.

Note: Checking the ***Group Setting*** on any setting in the wizard will apply that setting to any member of the group, speeding configuration.

The configuration needed is covered in the Terminals sections below.

The first terminal can be created by right clicking on the **Terminals** icon or **Terminal Group** icon and selecting the ***Add Terminal*** command. Right clicking on this terminal and selecting the ***Copy*** command will allow you to configure the remaining terminals quickly. **You will need to check the user account as each terminal needs a unique login account.**

Terminal Configuration:

Office Group:

Right click on the **Office** icon and select ***Add Terminal.***

- ❑ Create one terminal named **Office-1**. Configure using the default settings except:
  - ***Generic: PXE*** for make and model on the **Terminal Hardware** page.
  - ***Terminal Options>Allow terminal to be shadow*** set to ***Ask***. This means an administrator cannot shadow without a user granting permission.
  - ***Desktop*** as the display client on the **Display Client Selection** page.
  - Leave the Login blank on the **Log In Information** page so each user manually logs in. to get their own desktop based on group policy.
  - Video Resolution is 1920x1080.
- ❑ Right click on the **Office-1** icon and select ***Copy.***
  - Enter **Office-2** as the name.
  - There is no Windows user account used so no changes are needed.
- ❑ Right click on the **Office-1** icon and select ***Copy.***
  - Enter **Office-3** as the name.
  - There is no Windows user account used so no changes are needed.
- ❑ Right click on the **Office-1** icon and select ***Copy.***
  - Enter **Office-4** as the name.
  - There is no Windows user account used so no changes are needed.

These terminals will have a desktop on an Office Remote Desktop Server. The user will log in manually so that each person gets their own unique desktop.

Line-1 Group:

Right click on the **Line-1** icon and select ***Add Terminal.***

- ❑ Create one terminal named **Line-1-A**. Configure using the default settings except:
  - Use ***OnLogic : TM100*** for make and model on the **Terminal Hardware** page. Older versions of the Terminal Capability database will list ***Logic Supply*** as the Make.
  - On ***Terminal Options>Allow terminal to be shadow*** set to ***Warn***. This allows an administrator to shadow the terminal but lets the local user know they will be shadowed.
  - Use ***HMI*** as the display client on the **Display Client Selection** page.
  - Use ***Operator01*** with a password of ***12345*** on the **Log In Information** page so that the terminal automatically logs in. In the real world you would use a more complicated password.
  - On **Video Resolution** is 1024x768, 64K colors, 60 Hz. The Rotation drop-down allows the monitor to be set to Portrait Mode.
  - Add the **USB Touch Screen Driver** module with these settings that allows an operator to start calibration by holding the touch screen for 10 seconds.
    - Hold Down Time (milliseconds) = 2000
    - Hold Down Action = RightClick

        - Calibration Hold Down Time (seconds) = 10
    - Add the **Key Block Module** with the default settings to block ***CTL+ALT+DEL*.** This prevents the launching of Task Manager.
    - Select **Finish** to complete the configuration.

- ❑ Right click on the **Line-1-A** icon and select ***Copy.***
    - Enter **Line-1-B** as the terminal name.
    - Navigate to the **Log In Information** window and change the username to **Operator02**, with a password of ***12345***, so that the terminal has a unique Windows account.

- ❑ Right click on the **Line-1-A** icon and select ***Copy.***
    - Enter **Line-1-C** as the terminal name.
    - Navigate to the **Log In Information** window and change the username to **Operator03**, with a password of ***12345***, so that the terminal has a unique Windows account.

- ❑ Right click on the **Line-1-A** icon and select ***Copy.***
    - Enter **Line-1-D** as the terminal name.
    - Navigate to the **Log In Information** window and change the username to **Operator04**, with a password of ***12345***, so that the terminal has a unique Windows account.

This will create four terminals with touch screens that automatically log in and run an HMI.

Line-2 Group:

Right click on the **Line-2** icon and select ***Add Terminal.***

- ❑ Create one terminal named **Line-2-A**. Configure using the default settings except:
    - Use ***Contec: BX-220*** for make and model on the **Terminal Hardware** page.
    - On ***Terminal Options>Allow terminal to be shadow*** set to ***Warn***. This allows an administrator to shadow the terminal but lets the local user know they will be shadowed.
    - Use ***HMI*** as the display client on the **Display Client Selection** page.
    - Use ***Operator05*** with a password of ***12345*** on the **Log In Information** page so that the terminal automatically logs in. In the real world you would use a more complicated password.
    - On **Video Resolution** is 1024x768, 64K colors, 60 Hz. The Rotation drop-down allows the monitor to be set to Portrait Mode.
    - Add the **USB Touch Screen Driver** module with these settings that allows an operator to start calibration by holding the touch screen for 10 seconds.
        - Hold Down Time (milliseconds) = 2000
        - Hold Down Action = RightClick
        - Calibration Hold Down Time (seconds) = 10
    - Add the **Key Block Module** with the default settings to block ***CTL+ALT+DEL*.** This prevents the launching of Task Manager.
    - Select **Finish** to complete the configuration.

- ❑ Right click on the **Line-2-A** icon and select ***Copy.***
    - Enter **Line-2-B** as the terminal name.

- Navigate to the **Log In Information** window and change the username to **Operator06**, with a password of ***12345***, so that the terminal has a unique Windows account.

❑ Right click on the **Line-2-A** icon and select ***Copy.***

- Enter **Line-2-C** as the terminal name.
- Navigate to the **Log In Information** window and change the username to **Operator07**, with a password of ***12345***, so that the terminal has a unique Windows account.

❑ Right click on the **Line-2-A** icon and select ***Copy.***

- Enter **Line-2-D** as the terminal name.
- Navigate to the **Log In Information** window and change the username to **Operator08**, with a password of ***12345***, so that the terminal has a unique Windows account.

This will create four terminals with touch screens that automatically log in and run an HMI.

Note: Make sure that you go into each terminal configuration and set the User account to a unique account. Microsoft will only allow one login per user. If you forget and use the same user account for multiple terminals you will get one session created that gets bounced from terminal to terminal.

Boiler Group:

Right click on the **Boiler** icon and select ***Add Terminal.***

❑ Create one terminal named **Boiler01**, use the defaults except for:

- Use ***American Industrial Systems: IPC-TCND0U-15AX-A00C*** for make and model on the **Terminal Hardware** page.
- On ***Terminal Options>Allow terminal to be shadow*** set to ***Warn***.
- Use ***Boiler*** as the display client on the **Display Client Selection** page.
- Use ***Operator09*** with a password of ***12345*** on the **Log In Information** page so that the terminal automatically logs in. In the real world you would use a domain account and more complex password.
- Set the **Video Resolution** to 1024x768, 64K colors, 60 Hz. The **Rotation** drop-down allows the monitor to be set to Portrait Mode.
- Add the USB Touch Screen Driver with these settings that allows an operator to start calibration by holding the touch screen for 10 seconds:
  - Hold Down Time (milliseconds) = 2000
  - Hold Down Action = RightClick
  - Calibration Hold Down Time (seconds) = 10
- Add the Key Block Module with the default settings to block ***CTL+ALT+DEL***.

❑ Right click on the **Boiler01** icon and select ***Copy.***

- Enter **Boiler02** as the name.
- Navigate to the **Log In Information** window and change the username to **Operator10** so that the terminal has a unique Windows account.

This puts two Class 1, Div 2 thin clients in the boiler room for safety. They have touch screens and will automatically log in and use Instant Failover to keep a session always visible.

Shipping Group:

Right click on the **Shipping** icon and select ***Add Terminal.***

- ❑ Create one terminal named **Shipping01**, use the defaults except for:
  - Use ***Arista: 7824B-B01*** for make and model on the **Terminal Hardware** page.
  - Use ***Terminal Options>Allow terminal to be shadow*** set to ***Ask***.
  - Use ***Shipping*** as the display client on the **Display Client Selection** page.
  - Leave the ***Username*** blank on the **Log In Information** page so each user manually logs in.
  - Set the **Video Resolution** to *1920x1080.*
  - Add the **Key Block Module** with the default settings to block ***CTL+ALT+DEL*** to prevent the launching of Task Manager.
- ❑ Right click on the **Shipping01** icon and select ***Copy.***
  - Enter **Shipping02** as the name.
  - There is no Windows user account used so no changes are needed.

This puts the Shipping application on the terminals, but they won't be revealed until an authorized user logs in to the terminal.

PXE Server:

The PXE Server in ThinManager needs to be configured since the Office and Shipping terminals are generic PXE thin clients. If you have an existing DHCP server all you need to do to configure the PXE server is:

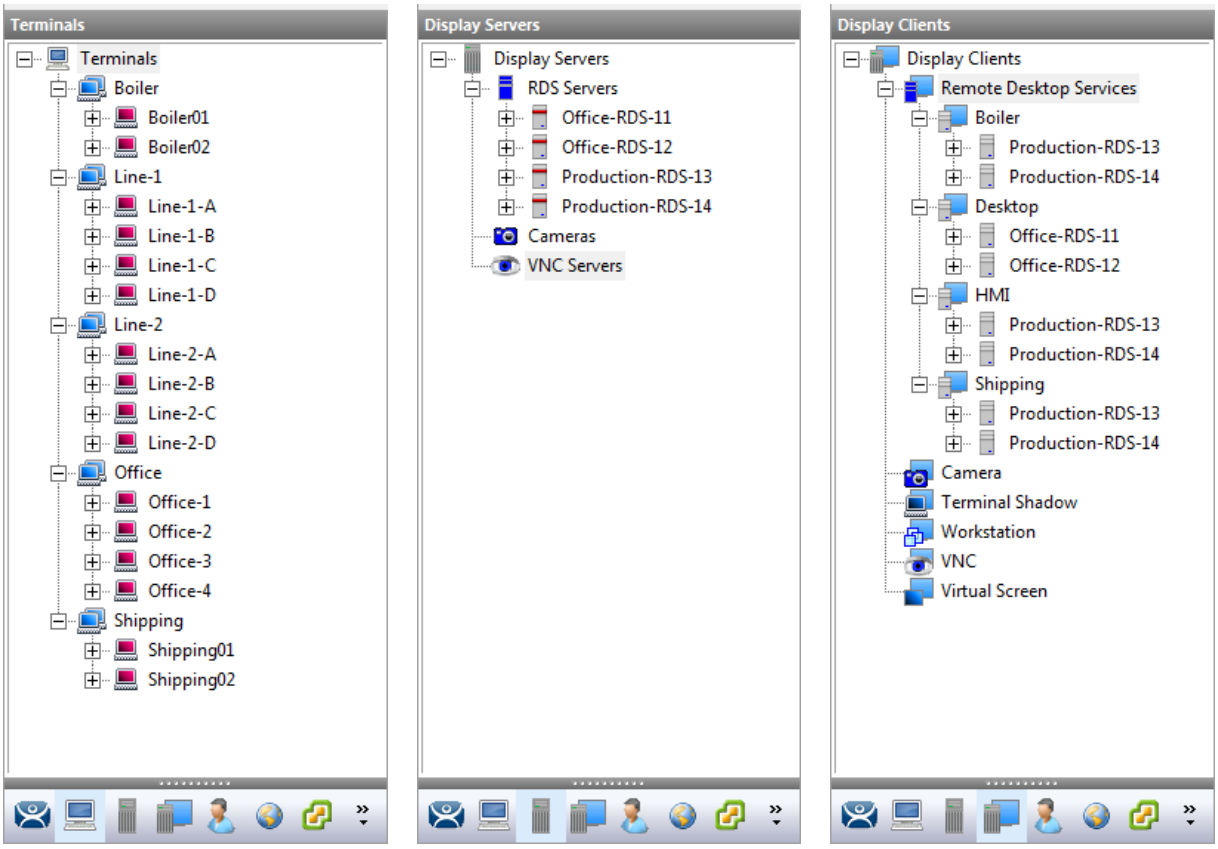
- ❑ Select ***Manage > PXE Server*** from the ThinManager menu bar and check the ***Enable PXE Server*** checkbox.
- ❑ Select the ***Using standard DHCP server*** radio button. This will provide the PXE configuration if you have a DHCP server configured already.

If you don't have a DHCP server, you would select the *Not Using Standard DHCP server* on the **Network Interface Configuration** page. You would then add a range on **the IP Address Range Configuration** page of the **PXE Server Wizard**.

Note: PXE is a broadcast and doesn't route across subnets. If the thin clients are on a different subnet you have to configure IP helpers and port forwarders on the switches.

Results:

Your ThinManager tree should look like this:



Note: The Terminals and RDS servers will show a red icon because ThinManager is not connecting to actual equipment. If it had a valid connection in a real system, the icon would show the green icon.

- ❑ Once you have completed Lab 1, please backup your ThinManager configuration by selecting ***Manage > Backup*** from the ThinManager menu bar. You will be asked to enter a password for the backup.

Use a blank password by leaving the Password fields blank. Any other password will prevent your file from being accessible for review.

- ❑ Name the configuration "**FirstnameLastnameLab01.db**" so you will have a backup of the latest lab you have completed.
- ❑ You may begin the next lab immediately. Each lab builds on the configuration created in the previous lab. Start the new lab using the previous lab configuration.

Lab 2

Goal:

The goal is to create a Control Room with ThinManager features. This lab will:

- ❑ Deploy two Quad Monitor thin clients.
- ❑ Deploy two Dual Monitor thin clients.
- ❑ Create three Terminal Shadow Display Clients to shadow existing terminals.
- ❑ Create two additional Remote Desktop Services Display Clients for the MultiMonitor display.

The *Why*:

This lab was chosen to represent the deployment of a Control Room in a ThinManager system. There will be two MultiMonitor thin clients with four monitors and two MultiMonitor thin clients with two monitors.

Control01_Quad and **Control02_Quad** are set up with four monitors in a square.

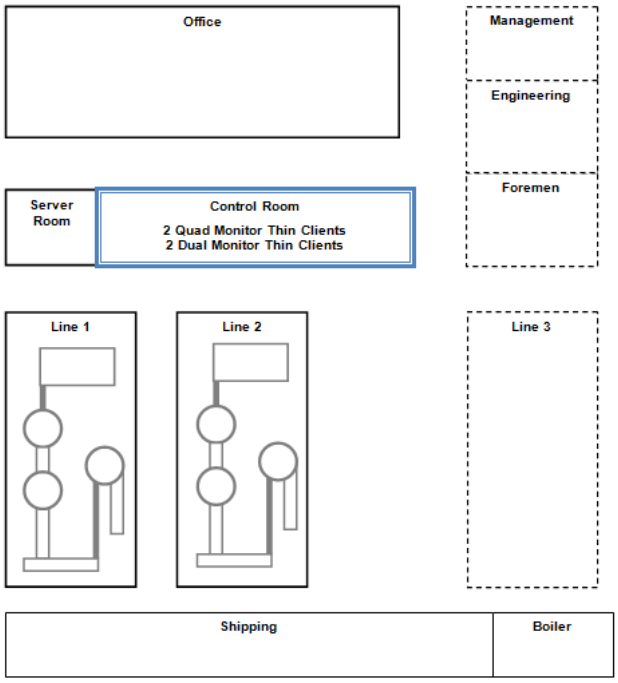
- ❑ The upper left monitor displays **Alarms**. It is configured so that it cannot be moved or covered, keeping it always visible for the control room staff.
- ❑ **HMIs** are placed on the bottom left and right monitors for visibility. These will need different accounts using the Override feature.
- ❑ The upper right has auxiliary applications, the Shadow display clients and a desktop to be available as needed.
- ❑ The **Shadow_Line1** and **Shadow_Line2** display clients allow interactive shadow since the control room staff is responsible for the production on those lines.

Control03_Dual and **Control04_Dual** are set up with side-by-side monitors.

- ❑ The left monitor is configured to display the HMI.
- ❑ The right monitor is configured to show the auxiliary applications like the **Alarms**, a **Desktop**, and **Shadow** sessions.

Note: This lab uses simplistic passwords. A real deployment would require stronger passwords.

Factory Layout for the Lab:

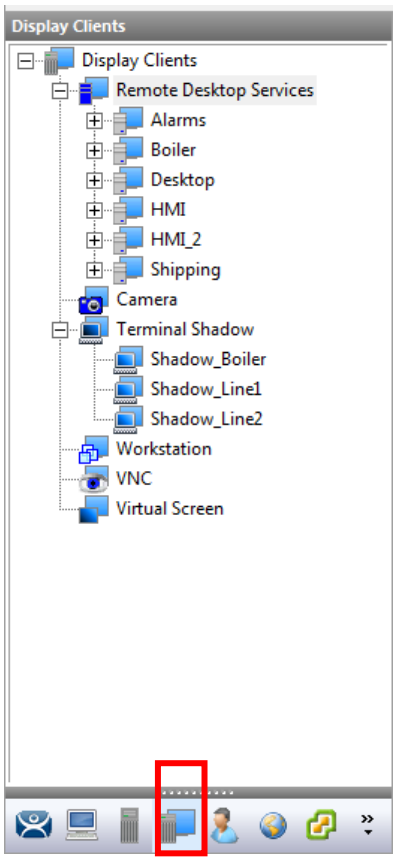


Note: This lab uses simplistic passwords and local workgroup accounts. A real deployment would use domain accounts and require stronger passwords.

The How - Configuration Steps:

Display Servers:

No additional Remote Desktop Servers are needed for the control room. The servers deployed in Lab 1 have enough resources to support this deployment.



Display Clients:

Open the **Display Client** branch of the ThinManager tree by selecting the **Display Client** icon at the bottom of the tree. Right click on the **Remote Desktop Services** icon and select ***Add Display Client***. Define these display clients:

Create two Remote Desktop Services Display Clients

- ❑ Create one display client named **Alarms**. Configure using the default settings except:
  - Check ***Allow Auto-Login, Application Link*** and ***Instant Failover*** on the **Remote Desktop and Workstation Options** page. The Instant Failover provides high availability.
  - Select ***Don't Use Screen Resolution*** on the **Session Resolution/Scaling Options** page. Set the resolution to 1024x768. This represents an application developed for 1024x768 that may be displayed on a larger monitor.
  - Use **Production -RDS-13** and **Production -RDS-14** on the **Display Client Member** page.
  - Use ***C:\Program Files\HMI\alarms.exe*** as the Program Path on the **AppLink** page. This is a representative program, not actual program, so you cannot browse to these executable files. You can cut and paste from here.
- ❑ Create one display client named **HMI_2**. Configure using the default settings except:
  - Check ***Application Link*** and ***Enforce Primary*** on the **Remote Desktop and Workstation Options** page.
  - Add **Production -RDS-14** and **Production -RDS-13** to the Selected Display Client list on the **Display Client Member** page. This will make **Production -RDS-14** the Primary Remote Desktop Server.
  - Use ***C:\Program Files\HMI\hmi.exe*** as the Program Path on the **AppLink** page. This is a representative program, not actual program, so you cannot browse to these executable files. You can cut and paste from here.

Create three Terminal Shadow Display Clients to shadow the two production lines and the boiler.

- ❑ Create one Terminal Shadow display client named **Shadow_Line1**. Configure using the default settings except:
  - Uncheck ***All Terminals Available***.
  - Select the ***Add*** button and select the ***Line-1*** group.
- ❑ Create one Terminal Shadow display client named **Shadow_Line2**. Configure using the default settings except:

- Uncheck ***All Terminals Available***.
- Select the ***Add*** button and select the ***Line-2*** group.

❑ Create one Terminal Shadow display client named **Shadow_Boiler**. Configure using the default settings except:

- Uncheck ***All Terminals Available***.
- Select the ***Add*** button and select the ***Boiler*** group.
- Uncheck the ***Interactive Shadow*** checkbox.
  This prevents control from outside the boiler room. If the boiler needs to be controlled remotely, as in an emergency, an administrator can shadow it from the ThinManager console and have interactive privileges.

Shadow_Boiler is set for non-interactive, "look but don't touch" shadow. This is because the boiler shouldn't be control by someone who isn't in the room observing it. If the boiler needs to be controlled remotely, as in an emergency, an administrator can shadow it from the ThinManager console and have interactive privileges.

Shadow_Line1 and **Shadow_Line2** are interactive to allow the foremen to interact as needed.

Terminals:

Note: This lab creates MultiMonitor terminals. The configuration changed in ThinManager version 11.1. This lab will list two methods, new method for ThinManager 11.1 and later, and the original method for ThinManager version 11 and earlier.

ThinManager 11.1 and later (New Current Method)

- ❑ Open the **Terminals** branch of the ThinManager tree by selecting the **Terminal** icon at the bottom of the tree. Right click on the **Terminals** icon and select ***Add Group***.
- ❑ Create a group called **Control-Room.** Close the wizard.

Note: ThinManager works with a variety of hardware from a number of ACP hardware partners. Although specific makes and models are used in this lab, it is mean as an example and not an endorsement.

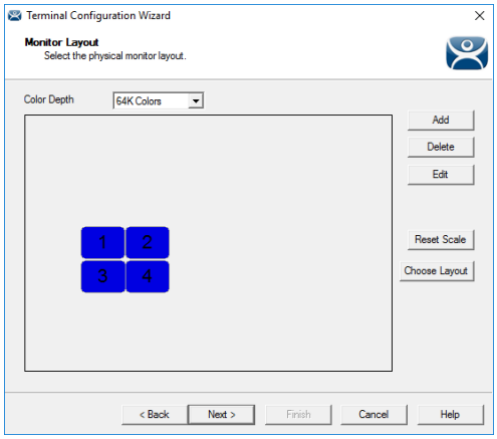
Create four **Control-Room** terminals:

Right click on the **Control-Room** icon and select ***Add Terminal.***

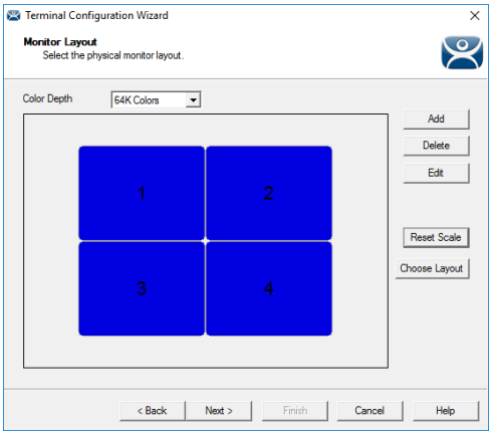
- ❑ Create one terminal named **Control01-Quad**. Configure using the default settings except:
  - Use ***Arista : BoxPC240*** for make and model on the **Terminal Hardware** page.
  - On ***Terminal Options>Allow terminal to be shadow*** set to ***Warn***.
  - Check the ***Enable MultiMonitor*** checkbox on the **Terminal Mode Selection** page.
  - The **Monitor Layout** page will show 2 monitors. Highlight the first monitor and select *Edit*. Change the resolution to 1024x768.
  - Highlight the second monitor and select *Edit*. Change the resolution to 1024x768.
  - Select the ***Add*** button to add a third monitor, selecting 1024x768 as the resolution.
  - Select the ***Add*** button to add a fourth monitor, selecting 1024x768 as the resolution.
  - **Drag the monitors** on the **Monitor Layout** page until you have a **2x2** monitor square.

Note: Dragging the monitors into a new position is a new feature.The method for changing monitor letters and and adding display clients is also new.

  - Select the *Reset Scale* button to enlarge the monitors, changing the scale in the window.

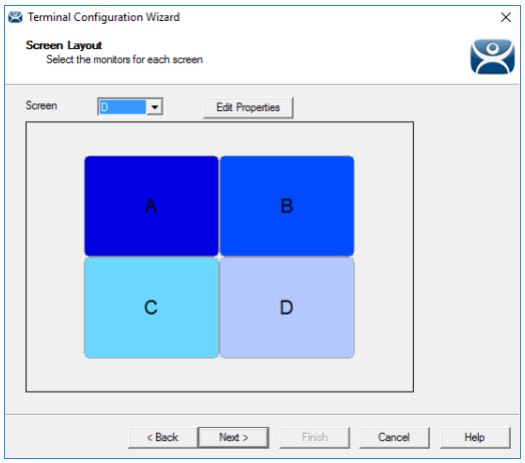


Original Scale



Reset Scale

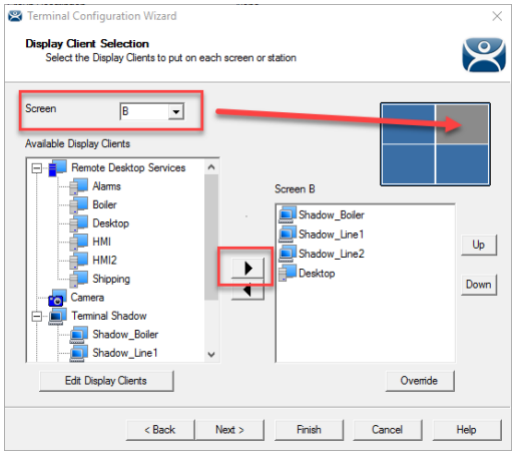
- ❑ Navigate to the **Screen Layout** page. All four monitors will be set to “A”, making them screened, or one big desktop.
  - Select “B” in the screen drop-down and select the upper right monitor to set it to Screen B.
  - Select “C” in the screen drop-down and select the lower left monitor to set it to Screen C.
  - Select “D” in the screen drop-down and select the lower right monitor to set it to Screen D.



Each monitor will have its own letter, allowing each monitor to have unique display clients.

Note: Assigning the letter to the monitor takes some practice in the new method of dragable monitor configuration.

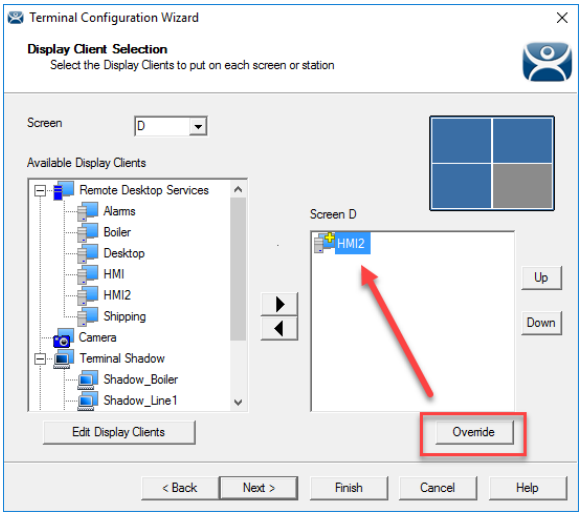
- ❑ Navigate to the **Display Client Selection** page. Only the "A" allows you to add a display client.
  - Expand the Remote Desktop Services branch in the Available Display Clients tree.
  - Double click on **Alarms** or highlight **Alarms** and use the arrow to move **Alarms** into the Screen A list.
- ❑ Select "B" from the Screen drop-down. The screen icon will change to gray to show you which monitor you are configuring.



  - On **Screen B** add four display clients on the **Display Client Selection** page.
    - ***Shadow_Line1***
    - ***Shadow_Line2***
    - ***Shadow_Boiler***
    - ***Desktop***

- ❑ Select "C" from the Screen drop-down.
    - On **Screen C** add ***HMI*** as the display client on the **Display Client Selection** page.
- ❑ Select "D" from the Screen drop-down.
    - On **Screen D** add ***HMI_2*** as the display client on the **Display Client Selection** page.

Note: HMI and HMI_2 have the same executable and can't run at the same time with the same user. One of the display clients needs to be associated with a different user account. Otherwise one session will be created and it will bounce, or ping-pong, between monitors.



- Select *D* in the **Screen** drop-down.
- Highlight the **HMI_2** display client and select the ***Override*** button.
- Check the ***Windows Login Override*** checkbox and enter **Control01B** with a password of **12345** as the Username and password.
- The display client will show a yellow Plus icon to indicate the override.

- Select the ***Enable Instant Failover Hotkey*** on the **Hotkey Configuration** page.
- Use **Control01A** with a password of ***12345*** on the **Log In Information** page so that the terminal automatically logs in with the **Control01A** account. The **Control01B** account will launch the overridden session..
- Add the **Key Block Module** with the default settings.
- Add the **Locate Pointer Module** with a Locator Inactivity Time (seconds) of 30.

Right click on the **Control-Room** icon and select ***Add Terminal.***

- ❑ Create one terminal named **Control02-Quad**. Configure it the same as **Control01_Quad** except :
    - Use **Control02B** with a password of **12345** as the **Overrride** username for the HMI_2 display client.
    - Use **Control02A** with a password of ***12345*** on the **Log In Information** page so that the terminal automatically logs in.

Right click on the **Control-Room** icon and select ***Add Terminal.***

- ❑ Create one terminal named **Control03-Dual**. Configure using the default settings except:

- Use ***Advantech : Uno-3073G*** for make and model on the **Terminal Hardware** page.
- Use ***Terminal Options>Allow terminal to be shadow*** set to ***Warn***.
- Check the ***Enable MultiMonitor*** checkbox on the **Terminal Mode Selection** page.
- The Monitor Layout page will show two monitors, side-by-side. Select monitor 1, select the ***Edit*** button, and change the Resolution to 1024x768, 60Hz on the **Monitor Properties** window**.**
- Repeat with monitor 2 by highlighting monitor 2, selecting the Edit button, and changing the Resolution to 1024x768, 60Hz on the **Monitor Properties window.**
- Drag monitor 2 until it is next to monitor 1, eliminating the gap created when the monitor resolution was changed.
- Navigate to the **Screen Layout** page. Both monitors will be set to "A", making them screened.
- Select "B" in the screen drop-down and select the right monitor to set it to Screen B.
- Navigate to the **Display Client Selection** page. Only the "A" allows you to add a display client.
- Expand the Remote Desktop Services branch in the Available Display Clients tree. Double click on ***HMI*** or highlight ***HMI*** and use the arrow to move ***HMI*** into the Screen A list.
- Select "B" from the Screen drop-down. The screen icon will change to gray to show you which monitor you are configuring. On **Screen B** add four display clients on the **Display Client Selection** page.
  - **Alarms**
  - **Shadow_Line1**
  - **Shadow_Boiler**
  - **Desktop**
- Select the ***Enable Instant Failover Hotkey*** on the **Hotkey Configuration** page.
- Use **Control03** with a password of ***12345*** on the **Log In Information** page so that the terminal automatically logs in.
- Add the **Key Block Module** with the default settings.
- Add the **Locate Pointer Module** with a Locator Inactivity Time (seconds) of 30.

Right click on the **Control-Room** icon and select ***Add Terminal.***

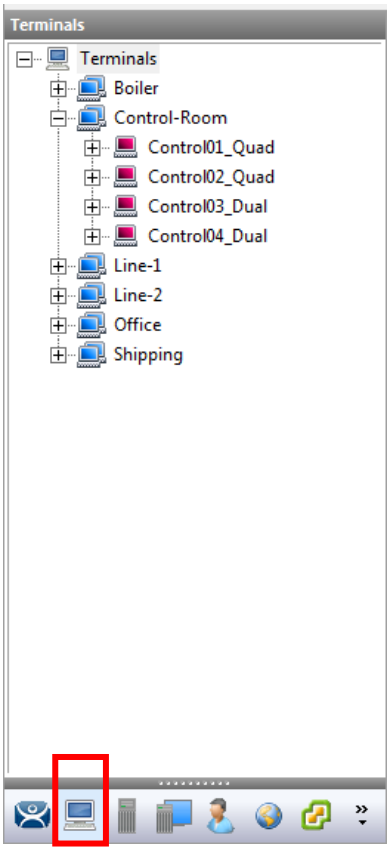
- ☐ Create one terminal named **Control04-Dual**. Configure just like **Control3_Dual** except:
  - On **Screen A** add ***HMI_2*** instead of ***HMI*** as the display client on the **Display Client Selection** page.
  - On **Screen B** add the **Shadow_Line2** display client instead of **Shadow_Line1** on the **Display Client Selection** page.
  - Use **Control04** with a password of ***12345*** on the **Log In Information** page so that the terminal automatically logs in.

ThinManager 11.0 and earlier (Original Legacy Method)

- ☐ Open the **Terminals** branch of the ThinManager tree by selecting the **Terminal** icon at the bottom of the tree. Right click on the **Terminal** icon and select ***Add Group***.
- ☐ Create a group called **Control-Room.**

Note: ThinManager works with a variety of hardware from a number of ACP hardware partners. Although specific makes and models are used in this lab, it is mean as an example and not an endorsement.

Create four **Control-Room** terminals:



Right click on the **Control-Room** icon and select ***Add Terminal.***

❑ Create one terminal named **Control01-Quad**. Configure using the default settings except:

- Use ***Arista : BoxPC240*** for make and model on the **Terminal Hardware** page.
- Use ***Terminal Options>Allow terminal to be shadow*** set to ***Warn***.
- Check the ***Enable MultiMonitor*** checkbox on the **Terminal Mode Selection** page.
- Select **4** (four) as the number of monitors, each 1024x768, 60Hz on the **MultiMonitor Video Setting** page.
- Set the monitor layout to a **2x2 square** with **4** separate screens on the **Monitor Layout** page.
- On **Screen A** add ***Alarm*** as the display client on the **Display Client Selection** page.
- On **Screen B** add four display clients on the **Display Client Selection** page.
  - ***Shadow_Line1***
  - ***Shadow_Line2***
  - ***Shadow_Boiler***
  - ***Desktop***
- On **Screen C** add ***HMI*** as the display client on the **Display Client Selection** page.
- On **Screen D** add ***HMI_2*** as the display client on the **Display Client Selection** page.

Note: HMI and HMI_2 have the same executable and can't run at the same time with the same user. One of the display clients needs to be associated with a different user account.

- **Override User Account**
  - Highlight the **HMI_2** display client and select the ***Override*** button.
  - Check the ***Windows Login Override*** checkbox and enter **Control01B** with a password of **12345** as the Username.
- **Screen A *Screen Options***
  - Make sure ***Allow Display Clients to move to/from screen*** is **unchecked** so that the Alarm screen can't be moved or covered.
- **Screen B *Screen Options***
  - Check the ***Allow Display Clients to move to/from screen*** so that the display clients can be moved among **Screen B, C**, and **D**.
  - Check **Enable Tiling** so that the four display clients are visible under normal conditions.
  - Check ***Tile Display Clients at startup*** on the **Tile Options** page.

- **Screen C** ***Screen Options***
  - Check the ***Allow Display Clients to move to/from screen*** so that the display clients can be moved among **Screen B, C**, and **D**.
- **Screen D** ***Screen Options***
  - Check the ***Allow Display Clients to move to/from screen*** so that the display clients can be moved among **Screen B, C**, and **D**.
- Select the ***Enable Instant Failover Hotkey*** on the **Hotkey Configuration** page.
- Use **Control01A** with a password of ***12345*** on the **Log In Information** page so that the terminal automatically logs in.
- Add the **Key Block Module** with the default settings.
- Add the **Locate Pointer Module** with a Locator Inactivity Time (seconds) of 30.

Right click on the **Control-Room** icon and select ***Add Terminal.***

- ❑ Create one terminal named **Control02-Quad**. Configure it the same as **Control01_Quad** except :
  - Use **Control02B** with a password of **12345** as the **Overrride** username for the HMI_2 display client.
  - Use **Control02A** with a password of ***12345*** on the **Log In Information** page so that the terminal automatically logs in.

Right click on the **Control-Room** icon and select ***Add Terminal.***

- ❑ Create one terminal named **Control03-Dual**. Configure using the default settings except:
  - ***Advantech : Uno-3073G*** for make and model on the **Terminal Hardware** page.
  - ***Terminal Options>Allow terminal to be shadow*** set to ***Warn***.
  - Check the ***Enable MultiMonitor*** checkbox on the **Terminal Mode Selection** page.
  - Select **2** (two) as the number of monitors, each 1024x768, 60Hz on the **MultiMonitor Video Setting** page.
  - Set the monitor layout to **1x2 side-by-side** with **2** separate screens on the **Monitor Layout** page.
  - On **Screen A** add ***HMI*** as the display client on the **Display Client Selection** page.
  - On **Screen B** add four display clients on the **Display Client Selection** page.
    - **Alarms**
    - **Shadow_Line1**
    - **Shadow_Boiler**
    - **Desktop**
  - **Screen A** ***Screen Options***
    - Check the ***Allow Display Clients to move to/from screen*** so that the display clients can be moved between screens.
    - Uncheck the ***Auto-Hide Selector*** under **Selector Options**.
  - **Screen B** ***Screen Options***
    - Check the ***Allow Display Clients to move to/from screen*** so that the display clients can be moved between screens.
    - Check **Enable Tiling** so that the four display clients are visible under normal conditions.

- Check ***Tile Display Clients at startup*** on the **Tile Options** page.
- Uncheck the ***Auto-Hide Selector*** under **Selector Options**.

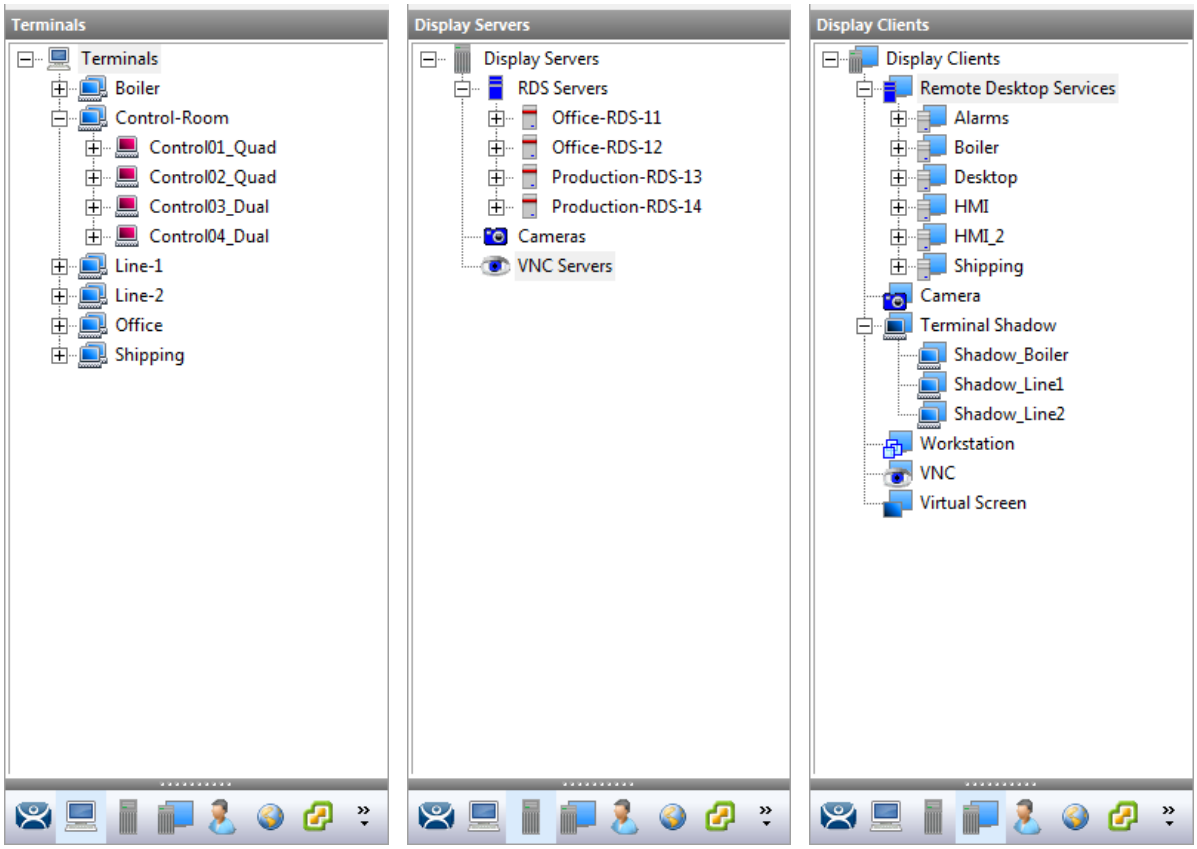
- Select the ***Enable Instant Failover Hotkey*** on the **Hotkey Configuration** page.
- Use **Control03** with a password of ***12345*** on the **Log In Information** page so that the terminal automatically logs in.
- Add the **Key Block Module** with the default settings.
- Add the **Locate Pointer Module** with a Locator Inactivity Time (seconds) of 30.

Right click on the **Control-Room** icon and select ***Add Terminal.***

- ❑ Create one terminal named **Control04-Dual**. Configure just like **Control3_Dual** except:
  - On **Screen A** add ***HMI_2*** instead of ***HMI*** as the display client on the **Display Client Selection** page.
  - On **Screen B** add the **Shadow_Line2** display client instead of **Shadow_Line1** on the **Display Client Selection** page.
  - Use **Control04** with a password of ***12345*** on the **Log In Information** page so that the terminal automatically logs in.

Results:

Your ThinManager tree should look like this:



Note: The terminals and RDS servers will show a red icon because ThinManager is not connecting to actual devices. If it had a valid connection the icon would show the green icon.

- ❑ Once you have completed Lab 2, please backup your ThinManager configuration by selecting ***Manage > Backup*** from the ThinManager menu bar. You will be asked to enter a password for the backup.

Use a blank password by leaving the Password fields blank. Any other password will prevent your file from being accessible for review.

- ❑ Name the configuration "**FirstnameLastnameLab02.db**" so you will have a backup of the latest lab you have completed.
- ❑ You may begin the next lab immediately. Each lab builds on the configuration created in the previous lab. Start the new lab using the previous lab configuration.

Lab 3

Goal:

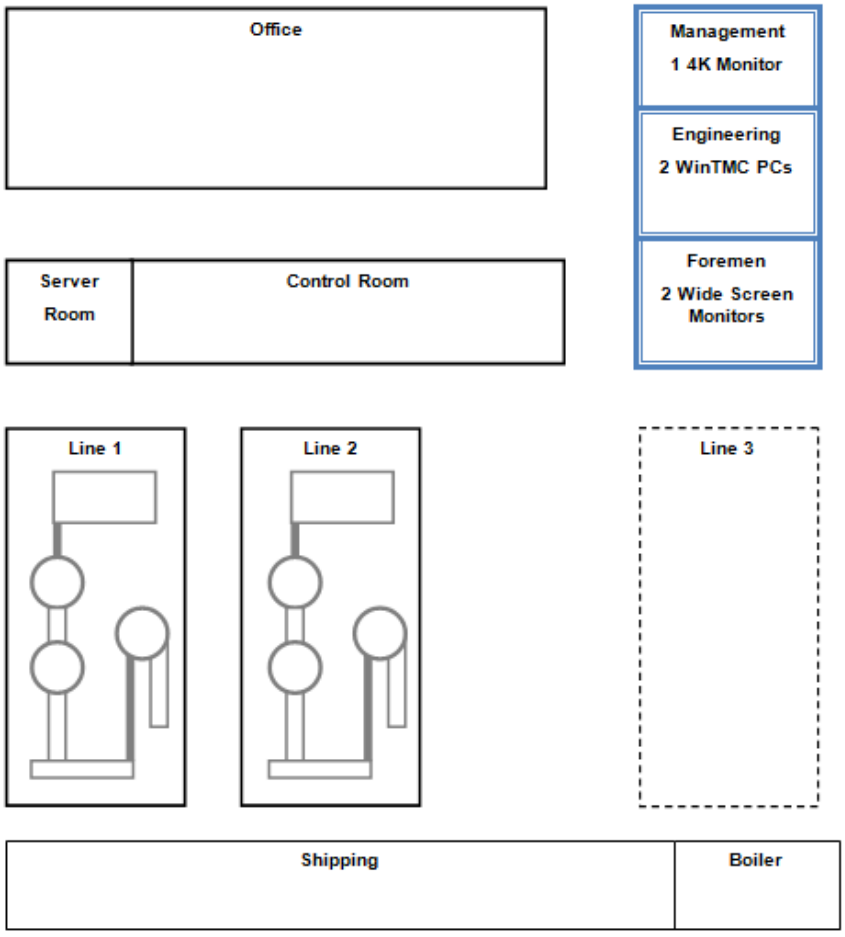
The goal is to expand the functionality of ThinManager by deploying some new features. This will include:

- ❑ Configuring IP cameras and Camera display clients.
- ❑ Configuring a Foreman's office with Virtual Screens.
- ❑ Install a 4K monitor in the boss's office.
- ❑ Deploy Office applications to an Engineer office with WinTMC.

The *Why*:

- The Foreman Office has 16:9 wide screen monitors but the HMI is designed in the 4:3 format. Virtual Screens allow the wide screen desktop to be partitioned into one large and three small 4:3 thumbnail display client overlays. Swapping is enabled so that a right click on a thumbnail screen will swap it to the main area for a larger display. The three thumbnail overlays are active, and the operator can observe changes in them when they are in the thumbnail mode.
- The foremen will need to shadow their production zones to monitor production when in their office so Shadow display clients are setup.
- The plant manager wants the latest 4K monitor but it was found that the large resolution made it too hard to see the details. This desktop could easily be set to four 1920x1080 overlays with a Virtual Screen template. However, since the HMI and other important programs weren't written in a 16:9 resolution this didn't do much for the manager. A custom layout was created giving him a 'double wide' desktop at the bottom of the screen and three 4:3 overlays on top so he can keep a constant eye on production and plant operations from his desk. Swapping was not turned on as he has enough real estate to see the HMIs in a 1:1 format.
- The engineers are not good candidates for thin clients because they need high powered PCs for development, coding, compiling, and CAD. They can use the WinTMC client to deliver the Office Suite to their PCs, though. If WinTMC is installed on their PCs, they can connect to an Office server through ThinManager to simplify the maintenance and management of their office suite.

Factory Layout for the Lab:

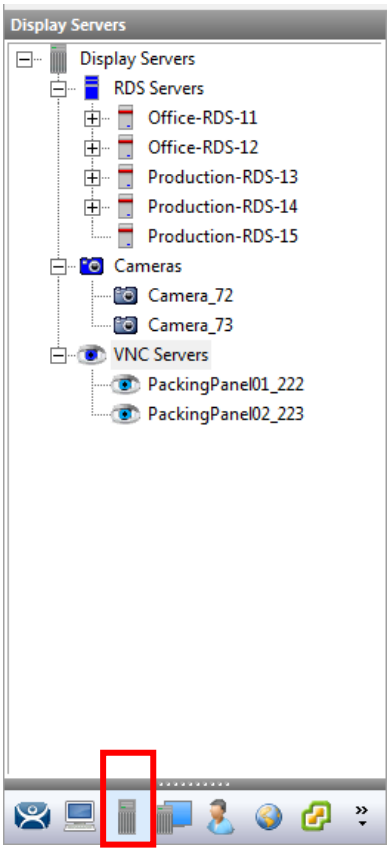


Note: This lab uses simplistic passwords and local workgroup accounts. A real deployment would use domain accounts and require stronger passwords.

The *How- Configuration Steps*:

- ❑ Add an additional Remote Desktop Server.
- ❑ Add two IP cameras.
- ❑ Create a Camera display client.
- ❑ Define and deploy a VNC shadow display client.
- ❑ Deploy Virtual Screen display clients, in both the foremen's office and plant manager office.
- ❑ Deploy three Terminal Groups and terminals.
    - Foremen with 2 wide screen monitors
    - Engineering with two WinTMC clients
    - Management with one 4 K monitor.

Display Servers:



Remote Desktop Server

❑ Open the Display Server branch of the ThinManager tree by selecting the **Display Server** icon at the bottom of the tree. Right click on the **RDS Servers** icon and select ***Add Remote Desktop Server***.

❑ Add a new Remote Desktop Server **Production-RDS-15** with an IP address of ***192.168.1.15***, "***administrator***" as the user and "***12345***" as password.

Note: It is assumed that this Remote Desktop Server has been properly configured with the Remote Desktop role added, user accounts created and added to the Remote Desktop User Group, and group policies applied.

See https://kb.thinmanager.com/images/d/d3/2012_ServerR2_Domain.pdf.

Cameras

❑ Open the Display Server branch of the ThinManager tree by selecting the **Display Server** icon at the bottom of the tree.

❑ Right click on the **Cameras** icon and select ***Add Camera***.

❑ Add **Camera_72** with an IP address of ***192.168.1.72*** using the ***RTSP-TCP*** streaming protocol.

- Use ***Admin*** as the Username and ***12345*** as the password.
- Use ***access-media/media.amp*** as the Custom URL. Each make and model of camera has its own URL provided by the manufacturer.

❑ Right click on the **Cameras** icon and select ***Add Camera***.

❑ Add **Camera_73** with an IP address of 192.168.1.73 using the RTSP-TCP streaming protocol.

- Use ***Admin*** as the Username and ***12345*** as the password.
- Use **access-media/media.amp** as the Custom URL.

These cameras will be used in a camera display client.

VNC Servers

❑ Open the Display Server branch of the ThinManager tree by selecting the **Display Server** icon at the bottom of the tree.

❑ Right click on the **VNC Servers** icon and select ***Add VNC Server***.

❑ Add a VNC Server called **PackingPanel01_222** with a VNC Server IP Address of **192.168.1.222** and a password of ***12345***.

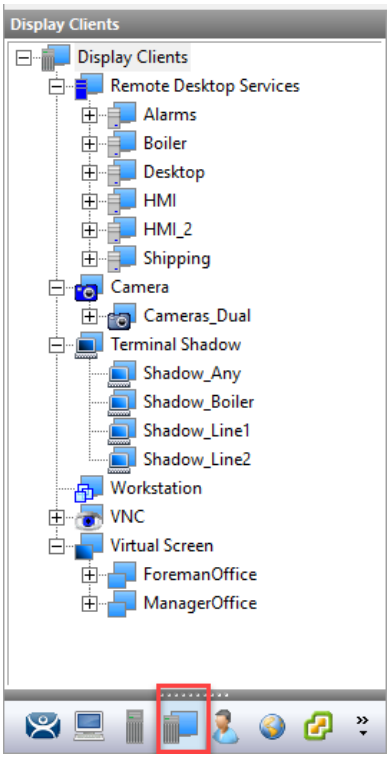
❑ Right click on the **VNC Servers** icon and select ***Add VNC Server***.

❑ Add a VNC Server called **PackingPanel02_223** with a VNC Server IP Address of **192.168.1.223** and a password of ***12345***.

These are panels provided by the packing line OEM. This will enable them to be shadowed remotely.

Note: In real life the VNC Server would need to be turned on in these panels. They also would need a stronger password.

Display Clients:



Camera

❑ Open the **Display Client** branch of the ThinManager tree by selecting the **Display Client** icon at the bottom of the tree.

❑ Right click on the **Camera** icon and select ***Add Display Client***. Define these display clients:

❑ Create a Camera Display Client called **Cameras_Dual**. Use the defaults except:

- Choose **2x1** in the ***Choose Camera Overlay*** drop-down on the **Overlay Layout** page.
- Uncheck ***All Cameras Available*** for **Overlay_0** on the **Overlay Camera** page and add **Camera_72.**
- Uncheck ***All Cameras Available*** for **Overlay_1** on the **Overlay Camera** page and add **Camera_73.**

This will create a display client that shows both cameras at once.

Terminal Shadow

❑ Right click on the **Terminal Shadow** icon and select ***Add Display Client***.

❑ Name the Shadow Display Client **Shadow_Any**.
Use the defaults except:

- Keep the ***All Terminals Available*** checkbox selected. This will allow you to select any terminal to shadow.
- Uncheck the ***Interactive Shadow*** checkbox. This allows you to see the display but not make changes unless you are at the machine.

VNC

❑ Open the **Display Client** branch of the ThinManager tree by selecting the **Display Client** icon at the bottom of the tree. Right click on the **VNC** icon and select ***Add Display Client***.

❑ Create a VNC Display Client called **Packing_Machines**. Use the defaults, including the ***All VNC Servers Available*** checked but uncheck the ***Interactive Shadow*** checkbox. This allows you to see the display but not make changes unless you are at the machine.

Virtual Screen Display Client:

The Foremen Office has 16:9 wide screen monitors but the HMIs are written for a 4:3 resolution. Virtual Screens will allow the foremen to use all the space of the wide screen desktop without distorting the HMI image.

The plant manager wants a 4K monitor but the 3840x2160 resolution is too hard to see. A Virtual Screen can be created to divide the 4K monitor into four 1920x1080 desktops. Since four desktops have limited functions, he will get a custom configuration with more useful display clients

Foreman HMI Virtual Screen:

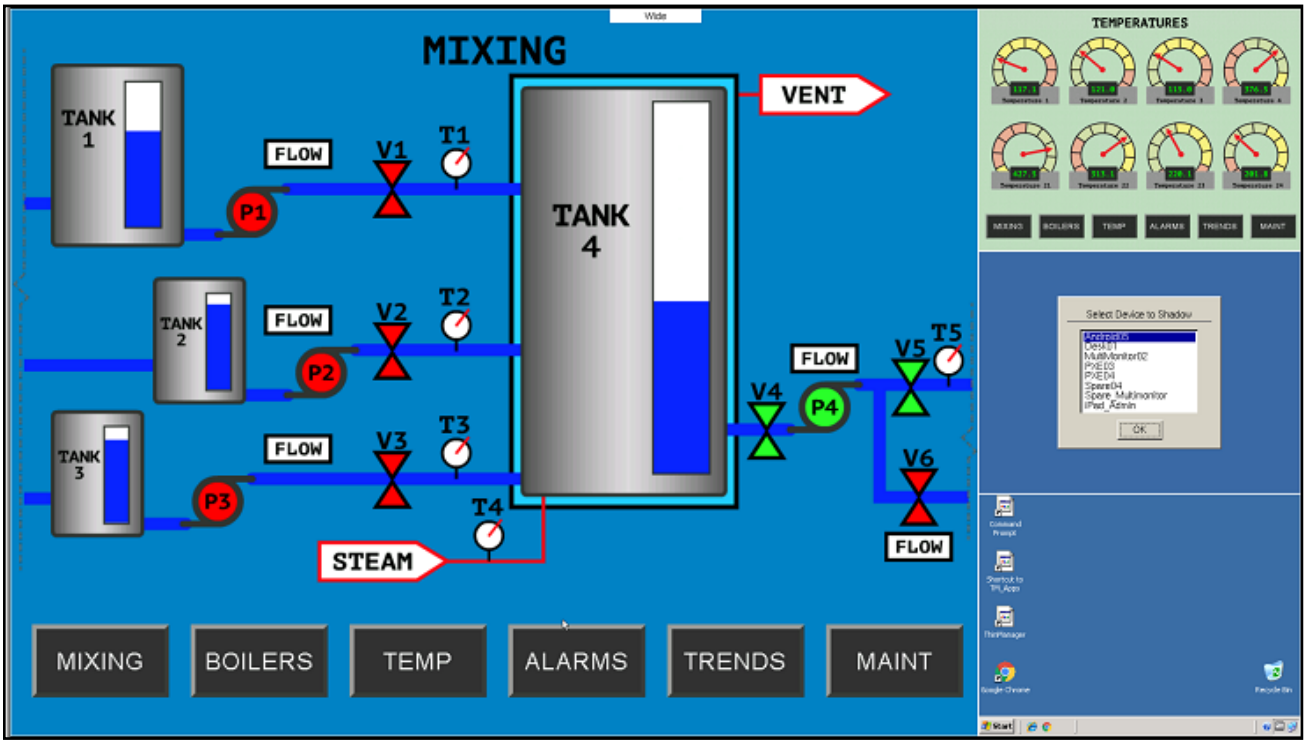
- ❑ Open the **Display Client** branch of the ThinManager tree by selecting the **Display Client** icon at the bottom of the tree. Right click on the **Virtual Screen** icon and select ***Add Display Client***.
- ❑ Create a virtual screen called **ForemanOffice**. Use the defaults except:
- ❑ On the **Select or Create the Virtual Screen Layout** page.
    - Use ***Custom*** in the ***Choose Layout*** drop-down
    - Use 1***920x1080*** as the ***Screen Resolution***
    - Use the ***Add*** button and add four overlays with these settings***:***

Name	Left	Top	Width	Height
Main	0	0	1440	1080
Side01	1440	0	480	360
Side02	1440	360	480	360
Side03	1440	720	480	360

Add the following display clients to the overlays

- ❑ **Main** = ***HMI*** – Use the defaults except:
    - Select the ***Screen Options*** button to launch the **Virtual Screen Options** page.
    - Check ***Allow Display Clients to move to/from screen on the screen***.
- ❑ **Side01** = ***Alarms*** – Use the defaults except:
    - Select the ***Screen Options*** button to launch the **Virtual Screen Options** page.
    - Check ***Allow Display Clients to move to/from screen on the screen***.
    - Check the **Virtual Screen Specific Mouse Button Mapping** checkbox.
    - Select the ***Mouse Button Mapping*** button and set ***Button 3 (Right Mouse)*** to ***Swap***.
    - Set the ***Swap Destination*** to ***Main***.
- ❑ **Side02** = ***Shadow_Any*** – Use the defaults except:
    - Select the ***Screen Options*** button to launch the **Virtual Screen Options** page.
    - Check ***Allow Display Clients to move to/from screen on the screen***.
    - Check the **Virtual Screen Specific Mouse Button Mapping** checkbox.
    - Select the ***Mouse Button Mapping*** button and set ***Button 3 (Right Mouse)*** to ***Swap***.
    - Set the ***Swap Destination*** to ***Main***.
- ❑ **Side03** = **Desktop** – Use the defaults except:
    - Select the ***Screen Options*** button to launch the **Virtual Screen Options** page.
    - Check ***Allow Display Clients to move to/from screen on the screen***.
    - Check the **Virtual Screen Specific Mouse Button Mapping** checkbox.
    - Select the ***Mouse Button Mapping*** button and set ***Button 3 (Right Mouse)*** to ***Swap***.

- Set the ***Swap Destination*** to ***Main***.



This will create a configuration for a 16:9 wide screen that shows 4:3 sections with various applications. Right clicking on a thumbnail will swap it to the large main screen.

Make sure you set the Swap Destination to Main for each side screen.

Manager's 4K Virtual Screen:

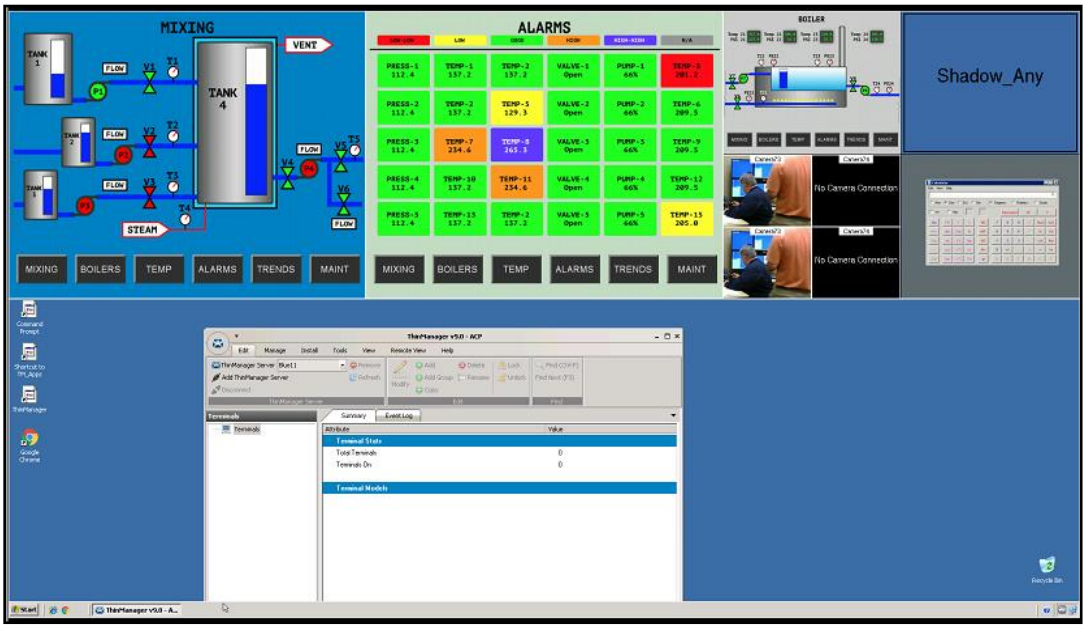
- ❑ Right click on the Virtual Screen branch of the Display Clients tree and name the virtual screen **ManagerOffice**. Use the defaults except:
- ❑ On the **Select or Create the Virtual Screen Layout** page.
  - Use ***Custom*** in the ***Choose Layout*** drop-down
  - Use **3840x2160** as the ***Screen Resolution***
  - Use the ***Add*** button and add four overlays with these settings***:***

Name	Left	Top	Width	Height
TopLeft	0	0	1280	1024
Center	1280	0	1280	1024
TopRight	2560	0	1280	1024
Bottom	0	1024	3840	1136

- ❑ **TopLeft** = ***Alarms*** – Use the defaults except:
  - Select the ***Screen Options*** button to launch the **Virtual Screen Options** page.

- Uncheck ***Allow Display Clients to move to/from screen on the screen*** so that the ***Alarms*** will always be visible.

- **Center** = ***HMI*** – Use the defaults except:
  - Select the ***Screen Options*** button to launch the **Virtual Screen Options** page.
  - Check ***Allow Display Clients to move to/from screen on the screen***.
- **TopRight** = ***HMI_2***, ***Shadow_Any***, ***Camera_Dual***, and ***Packing_Machines*** – Use the defaults except:
  - Select the ***Screen Options*** button to launch the **Virtual Screen Options** page.
  - Check ***Allow Display Clients to move to/from screen on the screen***.
  - Select the ***Selector Options*** button and uncheck the ***Auto-hide Selector***.
  - Check the ***Enable Tiling*** checkbox.
  - Select the ***Tiling Options*** button and check ***Tile Display Clients at Startup***.
- **Bottom** = **Desktop**
  - Use the defaults.



This will create a configuration for a 4K (3840x2160) wide screen monitor. The top row shows 4:3 sections with various applications. The bottom section is a 3840x1080 desktop.

Session Scaling:

ThinManager added session scaling in ThinManager 9. This can be used to deliver applications written for one resolution to be displayed properly on another.

These labs are based on HMI applications developed for 1024x768. The display on different resolutions can be enhanced by setting the scaling settings.

Open the **Display Client** branch of the ThinManager tree by selecting the **Display Client** icon at the bottom of the tree.

- **Alarms** Display Client
  - Right click on the **Alarms** display client and navigate to the **Session Resolution/Scaling Options** page.
  - Check the ***Don't Use Screen Resolution*** checkbox and select ***1024x768*** as the resolution.
- **Boiler** Display Client

- Right click on the **Boiler** display client and navigate to the **Session Resolution/Scaling Options** page.
- Check the ***Don't Use Screen Resolution*** checkbox and select ***1024x768*** as the resolution.

❑ **HMI** Display Client

- Right click on the **HMI** display client and navigate to the **Session Resolution/Scaling Options** page.
- Check the ***Don't Use Screen Resolution*** checkbox and select ***1024x768*** as the resolution.

❑ **HMI_2** Display Client

- Right click on the **HMI_2** display client and navigate to the **Session Resolution/Scaling Options** page.
- Check the ***Don't Use Screen Resolution*** checkbox and select ***1024x768*** as the resolution.

Terminals:

❑ Open the **Terminals** branch of the ThinManager tree by selecting the **Terminal** icon at the bottom of the tree. Right click on the **Terminal** icon and select ***Add Group***.

❑ Define these three Terminal Groups:

- **ForemenOffice.** This group will have 2 thin clients.
- **Engineering.** This group will have 2 thin clients.
- **Management**. This group will have 1 thin client.

Note: ThinManager works with a variety of hardware from a number of ACP hardware partners. Although specific makes and models are used in this lab, it is mean as an example and not an endorsement.

ForemenOffice:

Right click on the **ForemenOffice** group icon and select ***Add Terminal.***

❑ Create one terminal named **Foreman-1**. Configure using the default settings except:

- ***Dynics : BTM*** for make and model on the **Terminal Hardware** page.
- ***Terminal Options>Allow terminal to be shadow*** set to ***Ask***.
- ***ForemanOffice*** as the display client on the **Display Client Selection** page.
- Login blank on the **Log In Information** page so each user manually logs in.
- Video Resolution is 1920x1080.
- Add the **Key Block Module** with the defaults on the **Modules** page.

Right click on the **ForemenOffice** group icon and select ***Add Terminal.***

❑ Create one terminal named **Foreman-2**. Configure using the settings as **Foreman-1**.

These terminals will have a manual login so that each user gets their own personal desktop.

Engineering:

The engineers are not good candidates for thin clients because they need high powered PCs for development, coding, compiling, and CAD. They can use the WinTMC client to deliver the Office Suite to their PCs, though.

❑ Right click on the **Engineering** group icon and select ***Add Terminal.***

❑ Create one terminal named **Engineer-1**. Configure using the default settings except:

- ***Generic: WinTMC*** for make and model on the **Terminal Hardware** page.
- ***Terminal Options>Allow terminal to be shadow*** set to ***Ask***.

- ***Desktop*** as the display client on the **Display Client Selection** page.
- Login blank on the **Log In Information** page so each user manually logs in.
- **Video Resolution** is 1920x1080.
- Select the five ***Redirect*** check boxes on the **WinTMC Setting** page to allow them to access their local resources.

- ❑ Right click on the **Engineering** group icon and select ***Add Terminal.***
- ❑ Create one terminal named **Engineer-2**. Configure using the settings as **Engineer-1**.

These terminals will have a manual login so that each user gets their own personal desktop.

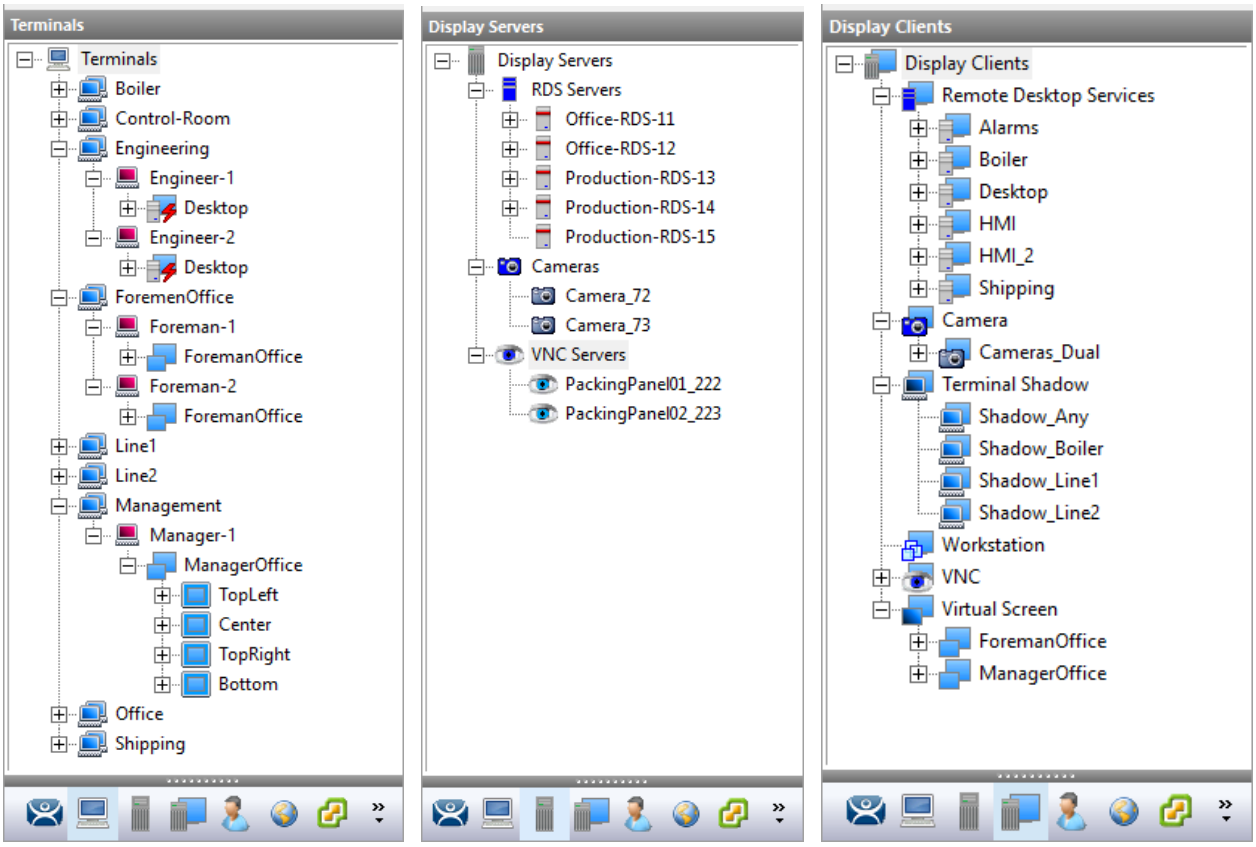
Management:

- ❑ Right click on the **Management** group icon and select ***Add Terminal.***
- ❑ Create one terminal named **Manager-1**. Configure using the default settings except:
  - ***Advantech: DS862*** for make and model on the **Terminal Hardware** page.
  - ***Terminal Options>Allow terminal to be shadow*** set to ***Ask***.
  - ***ManagerOffice*** as the display client on the **Display Client Selection** page.
  - Login blank on the **Log In Information** page so each user manually logs in.
  - **Video Resolution** is 3840x2160.

This terminal will have a manual login so that each user gets their own personal desktop.

Results:

Your ThinManager tree should look like this:



Note: The Terminals and RDS servers will show a red icon because ThinManager is not connecting to actual equipment. If it had a valid connection the icon would show the green icon.

- ❑ Once you have completed Lab 3, please backup your ThinManager configuration by selecting ***Manage > Backup*** from the ThinManager menu bar. You will be asked to enter a password for the backup.

Use a blank password by leaving the Password fields blank. Any other password will prevent your file from being accessible for review.

- ❑ Name the configuration "**FirstnameLastnameLab03.db**" so you will have a backup of the latest lab you have completed.
- ❑ You may begin the next lab immediately. Each lab builds on the configuration created in the previous lab. Start the new lab using the previous lab configuration.

Lab 4

Goal:

The goal of this lab is to use ThinManager Relevance User Services to control access to certain applications and to allow for roaming applications to be tied to a user

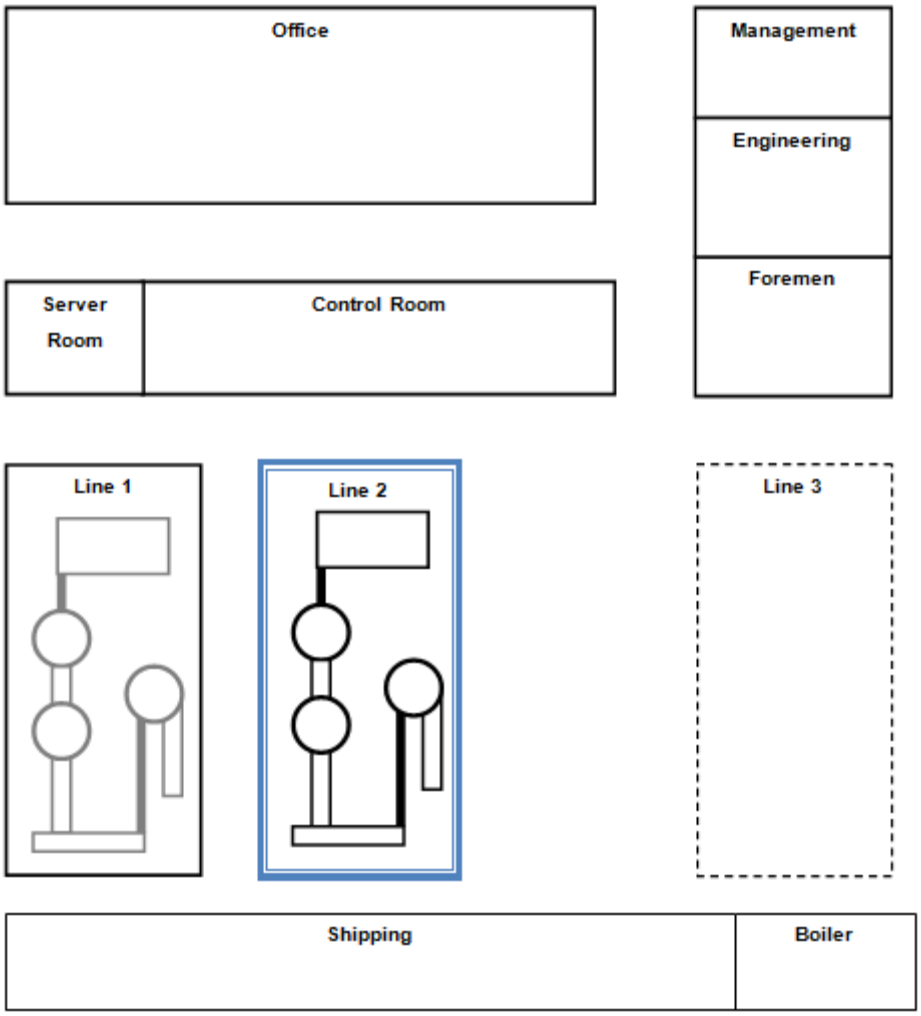
- ❑ Create a **Foreman** Access Group and add it to a new **Controller** display client.
- ❑ Create a Relevance User with **Foreman** permissions to access the **Controller** application.
- ❑ Create a **Report** display client and assign it to a Relevance User.
- ❑ Create a Workstation display client and assign it to a Relevance User. This will demonstrate the ability to deploy a Windows workstation using Remote Desktop Services.

The Why:

Security is important in a plant. There are applications that are needed for production that you want to limit availability to specific users. Using Relevance User Services and Permissions accomplishes this goal. This is demonstrated with the Controller display client.

Other people have applications that they need to access wherever they roam. Relevance User Services can assign an application to a user and they can access it at any terminal with Relevance User Services turned on. This is demonstrated with a Windows 7 workstation with a PLC program and a Quality Report.

Factory Layout for the Lab:



Note: This lab uses simplistic passwords and local workgroup accounts. A real deployment would use domain accounts and require stronger passwords.

The *How – Configuration Steps*:

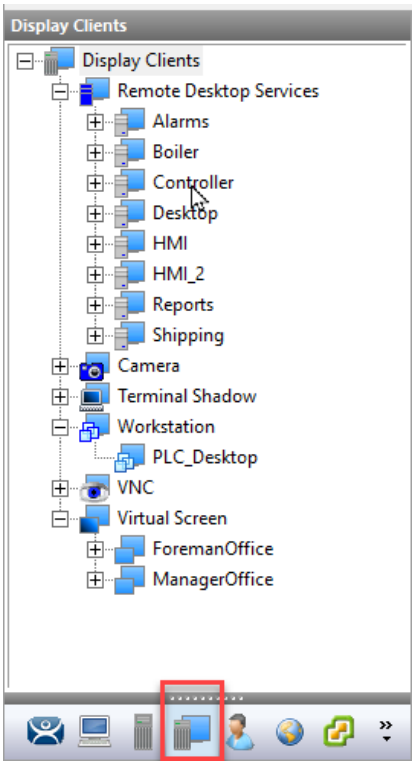
- ❑ An **Access Group** needs to be created and then added to a Display Client as a Permission.
- ❑ This Display Client is added to a terminal where it will remain hidden until a user with the matching permission logs in. The terminal is configured to use tiling to show the Relevance User login screen and to switch between applications.
- ❑ A **Relevance User** is created, and the Access Group is added as the Permission.
- ❑ Other Relevance Users are created with user-specific applications assigned to them. These are accessible from any terminal with Relevance User Services enabled.

Access Groups

- ❑ Select ***Manage > Access Groups*** from the ThinManager menu bar to launch the Access Groups window.
- ❑ Select the ***Add*** button and add "***Foreman***" as an Access Group by entering it in the **Enter Group Name** field and selecting the ***OK*** button.

Display Clients:

Note: This lab uses generic program paths to launch hypothetical applications. In real life the configuration of an HMI would require you to use a method to specify the program files for the application.
Information on specific methods for launching the various HMIs can be found in the Knowledge Base at https://kb.thinmanager.com/index.php/Main_Page.



Controller:

❑ Open the **Display Client** branch of the ThinManager tree by selecting the Display Client icon at the bottom of the tree. Right click on the **Remote Desktop Services** icon and select ***Add Display Client***. Define this display clients:

❑ Create a Remote Desktop Server Display Client called **Controller**. Use the defaults except:

❑ Select the ***Permissions*** button on the **Client Name** page.

- ○ Remove "***Unrestricted***" from the ***Member Of*** list.
- ○ Move "***Foreman***" to the ***Member Of*** list.

❑ Check ***Allow Auto-Login*** and ***Application Link*** on the **Remote Desktop Services and Workstation Options** page.

❑ Set the ***Screen Resolution Options*** to ***800x600*** on the **Session Resolution/Scaling Options** page.

❑ Add **Production-RDS-15** to the ***Selected Remote Desktop Servers*** column.

❑ Enter ***C:\Program Files (x86)\CalibrateInc\controller.exe*** as the ***Program Path and Filename*** on the **AppLink** page.

Reports:

- ❑ Open the **Display Client** branch of the ThinManager tree by selecting the Display Client icon at the bottom of the tree. Right click on the **Remote Desktop Services** icon and select ***Add Display Client***. Define this display clients:
- ❑ Create a Remote Desktop Server Display Client called **Reports**. Use the defaults except:
- ❑ Select the ***Permissions*** button on the **Client Name** page.
    - Remove "***Unrestricted***" from the ***Member Of*** list.
    - Move "***Foreman***" to the ***Member Of*** list.
- ❑ Check ***Allow Auto-Login*** and ***Application Link*** on the **Remote Desktop Services and Workstation Options** page.
- ❑ Set the ***Screen Resolution Options*** to ***1280x1024*** on the **Session Resolution/Scaling Options** page.
- ❑ Add **Production-RDS-15** to the ***Selected Remote Desktop Servers*** column.
- ❑ Enter ***C:\Program Files\Microsoft Office\Office14\excel.exe*** as the ***Program Path and Filename*** and ***C:\QualityReports\Line2.XLS*** as the ***Command Line Options*** on the **AppLink** page.

This will launch **Excel** and load the ***Line2.xls*** file.

Note: Windows Servers 2012 and later prevent initial programs like AppLink by default. You must whitelist the applications to run. This is covered in pages 11 through 15 of https://kb.thinmanager.com/images/d/d3/2012_ServerR2_Domain.pdf. You must also allow Command Line Parameters as shown on page 15. The server will need to be rebooted for changes to take effect.

You can also edit the security policy for all applications. An example is

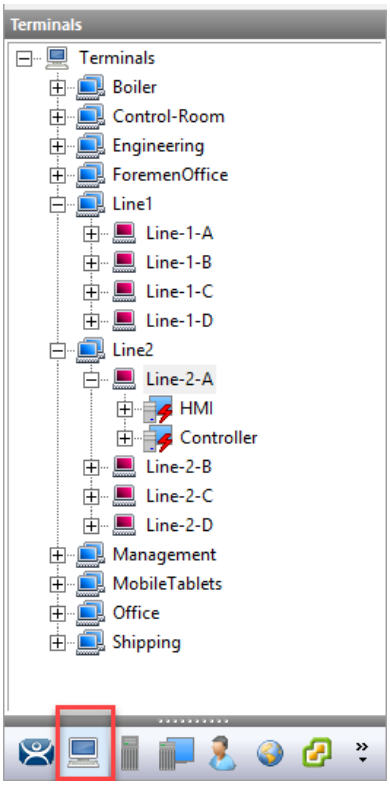
Computer Configuration --> Administrative Templates --> Windows Components --> Remote Desktop Services --> Remote Desktop Session Host --> Connections and set the ***Allow remote start of unlisted programs*** to *E**nabled.***

This location can vary based on the server version but is representative.

PLC Workstation:

- ❑ Open the **Display Client** branch of the ThinManager tree by selecting the Display Client icon at the bottom of the tree. Right click on the **Workstation** icon and select ***Add Display Client***. Define this display client:
- ❑ Create a Workstation Display Client called **PLC_Desktop**. Use the defaults except:
- ❑ Check the ***Start Virtual Machine if necessary,*** on the **Display Client Options** page.
- ❑ Do not use ***Application Link*** on the **Remote Desktop Services and Workstation Options** page. AppLink works with XP workstations but was disabled in latter Microsoft desktops.
- ❑ Select ***Finish*** when done to close the wizard.

Terminals:



Line-2-A – Modify the Line-2 terminals from Lab 1. You can change 4 individual terminals or modify the group and have the change passed to all 4 terminals. This shows the group method.

Open the **Group Configuration Wizard** by double clicking on the group icon.

Use the defaults and existing settings except:

❑ Check the ***Enable Relevance User Services*** and the ***Group Settings*** on the **Terminal Mode Selection** page.

❑ Add ***HMI*** and ***Controller*** to the ***Selected Display Client*** list on the **Display Client Selection** page. Check the ***Group Settings*** checkbox.

❑ Check ***Enable Tiling*** on the **Terminal Interface Options** page.

❑ Select the ***Tiling Options*** button on the **Terminal Interface Options** page to launch the **Tiling Options** page.

- Check the ***Include Main Menu as tile*** checkbox and select ***OK***.

❑ Select the ***Main Menu Options*** button on the **Terminal Interface Options** page to launch the **Main Menu Options** page.

- Check the ***Show Virtual Keyboard*** checkbox and select ***OK***.
- Select the ***Group Settings*** checkbox for ***Main Menu Options.***

❑ Select the ***Mouse Button Mapping*** button on the **Hotkey Configuration** page.

- Set the **Button 3 (Right Mouse)** to ***Tile***.
- Select the ***Group Settings*** checkbox for ***Terminal Hotkeys.***

❑ Add the **USB Touch Screen Driver** module on the **Module Selection** page and select the ***Configure*** button.

- Set the ***Hold Down Time (Milliseconds)*** to ***3000***
- Set the ***Hold Down Action*** to ***Right Click***.
- Select ***Done*** to save and close.

If you use the **Group Settings** checkbox the changes will be applied to all members of the group. If not you need to run the wizard for all 4 terminals and configure the settings individually.

The terminals now have two applications, ***HMI*** and ***Controller***, on the terminal. The ***Controller*** program is hidden from view until a person with the ***Foreman*** permissions logs in.

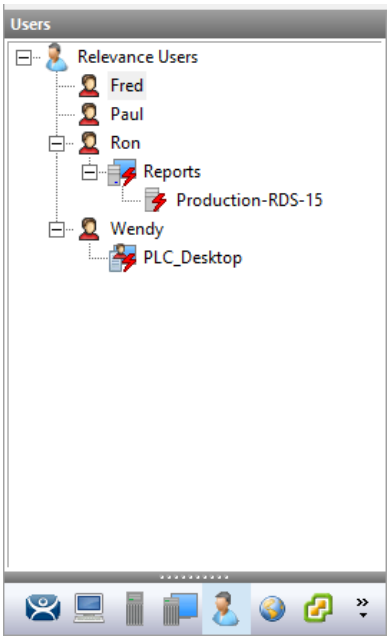
Touching and holding a finger for more than three seconds will tile the display clients, allowing the ***Foreman*** to touch the one that was hidden and bring it to the front.

Relevance Users:

This lab will create 3 Relevance Users.

- **Fred** – Create and assign the Foremen Access Group
- **Yourself** – Create and assign the Foremen Access Group
- **Ron** – Create and assign the Reports display client
- **Wendy** – Create and assign the **PLC_Desktop** Workstation display client

Note: This lab uses simplistic passwords. A real deployment would require stronger passwords.



Fred

Use the default settings except as noted:

❑ Go to the **Relevance User** branch of ThinManager by selecting the **User** icon at the bottom of the tree. Right click on **Relevance Users** and select ***Add User***.

❑ Enter "***Fred***" as the ***User Name*** with a password of "***12345***" on the **Relevance User Information** page. The password would be more complex in a real deployment.

❑ Select the ***Permissions*** button and move the **Foreman** group into the ***Member Of*** list.

❑ Select the ***Finish*** button to create and close the wizard.

This creates a user account with the ***Foreman*** permission set.

"Yourself"

Use the default settings except as noted:

❑ Go to the **Relevance User** branch of ThinManager by selecting the **User** icon at the bottom of the tree. Right click on **Relevance Users** and select ***Add User***.

❑ Enter **your own name** as the ***User Name*** with a password of "***12345***" on the **Relevance User Information** page. ***Paul*** is used in this example. The password would be more complex in a real deployment.

❑ Select the ***Permissions*** button and move the **Foreman** group into the ***Member Of*** list.

❑ Select the ***Finish*** button to create and close the wizard.

This creates a user account with the ***Foreman*** permission set.

Ron

Use the default settings except as noted:

❑ Go to the **Relevance User** branch of ThinManager by selecting the **User** icon at the bottom of the tree. Right click on **Relevance Users** and select ***Add User***.

❑ Enter "***Ron***" as the ***User Name*** with a password of "***12345***" on the **Relevance User Information** page. The password would be more complex in a real deployment.

❑ Add ***Reports*** to the ***Selected Display C***lient list on the **Display Client Specification** page.

❑ Leave the ***Username*** and ***Password*** blank on the **Windows Log In** page. This will require **Ron** to log in with his Windows account at the terminal when logging on with Relevance User Services. If a valid Windows account

was entered on this page, then the **Relevance User Services** login would pass the Windows credentials, logging him in.

- ❑ Check the ***Activate Display Client*** at **Log in on the User Options** page. This will bring ***Reports*** to the forefront when Ron logs in.

This creates a user account with the ***Reports*** display client. He can access his session from any terminal that has Relevance User Services enabled.

Wendy

Use the default settings except as noted:

- ❑ Go to the **Relevance User** branch of ThinManager by selecting the **User** icon at the bottom of the tree. Right click on **Relevance Users** and select ***Add User***.
- ❑ Enter "***Wendy***" as the ***User Name*** with a password of "***12345***" on the **Relevance User Information** page. The password would be more complex in a real deployment.
- ❑ Add ***PLC_Desktop*** to the ***Selected Display Client*** list on the **Display Client Specification** page.
- ❑ Select the ***Add Workstation*** button on the **Complete the Workstation Display Client Configuration** page.
    - Enter a ***Workstation IP Address*** of ***192.168.1.203*** and a ***Workstation Display Name*** of ***Win7_PLC.***

There are four methods a user can log in to a workstation through a Workstation Display Client:

- ***Use Terminal Configuration Login Information*** – This uses the terminal credentials so the session will be different on every station, using the local account and not the user account.
- ***Same as Relevance User username/password*** – This uses the Relevance Username as the Windows credential. This is ideal when using Active Directory to create the users. The Relevance Username must match a Windows account.
- Blank ***Username*** and ***Password*** – This requires that the user manually log in each time they access the application. Good security but slower access.
- Entered ***Username*** and ***Password*** – This lets the session automatically log in but hides it until the user logs in with their Relevance User account. This can alias the user account as they know the Relevance account but not necessarily the Windows account.

This lab will use the entered ***Username*** and ***Password*** method. The session will automatically start but access will be prevented until Wendy logs in with her Relevance account.

- ❑ Continue to the **Windows Log In Information** page
    - Enter a username of "**wsmith**" for the ***Username*** and "qwerty12345" as the ***Password*** on the **Windows Log In Information** page. This will allow **Wendy** to log in with her Relevance User account at any terminal that has Relevance User Services enabled and let her access the session.

Note: Microsoft recommends using a domain with Server 2012 and later. We are not using a domain for Wendy, or any other account as you cannot reach a domain controller in this lab.

- ❑ Check the ***Activate Display Client*** at **Log in on the User Options** page. This will bring the PLC desktop to the front when Wendy logs in.

Results:

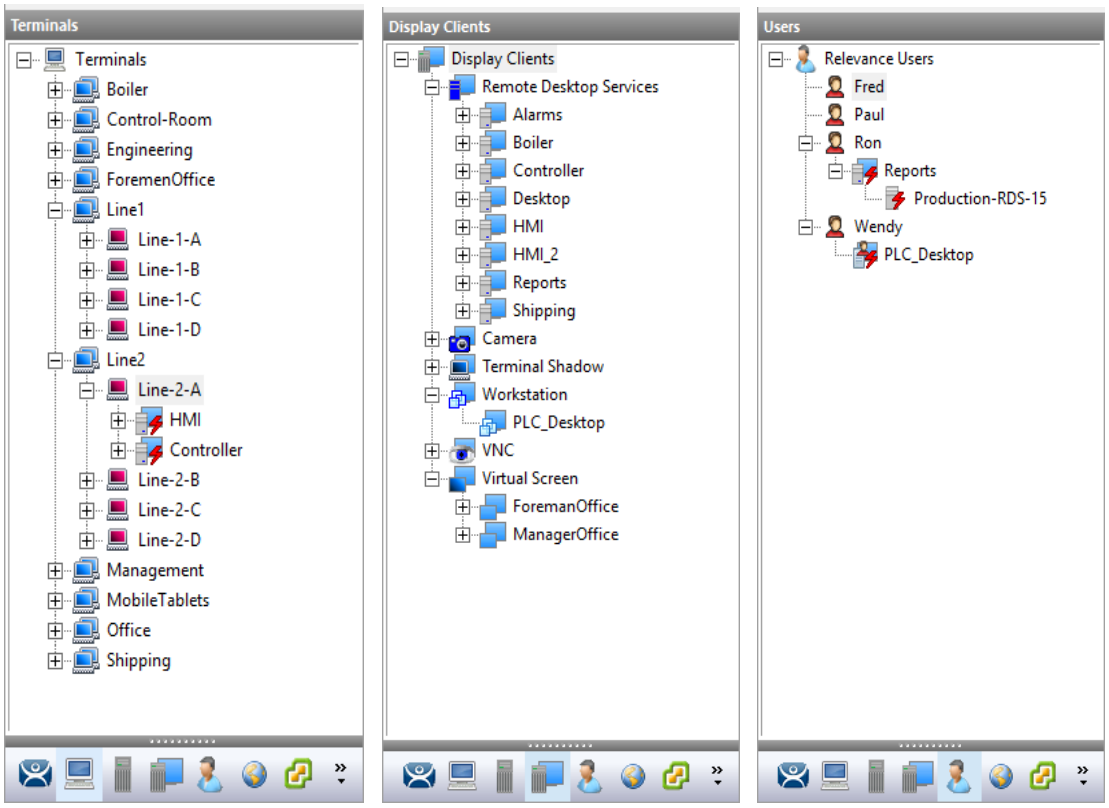
Each of the **Line-2** terminals has **Relevance User Services** enabled and a **Controller** display client added. This display client is hidden from the public because of the Foreman permission being applied to the display client.

If **Fred** or you logs-in to a Line-2 terminal the **Controller** program will open and allow them to use it as needed because of his membership in the **Foreman** access group. When he logs off, or after 2 minutes of idle time, the **Controller** program will close and be hidden again.

The touch screen was modified so that a long touch will tile the display clients on the terminal, allowing the operator to select which display client to view. Additionally, the Relevance User login screen was added as a tile.

Ron and **Wendy** were created and given an application each. If they go to a terminal and log in, they will get their assigned display client. In Ron's case it is a Quality report. In Wendy's case it is a Windows 7 desktop that has a PLC program on it that doesn't run on a Remote Desktop Server.

Your ThinManager tree should look like this:



Note: The Terminals and RDS servers will show a red icon because ThinManager is not connecting to actual hardware. If it had a valid connection the icon would show the green icon.

- ❑ Once you have completed Lab 4, please backup your ThinManager configuration by selecting ***Manage > Backup*** from the ThinManager menu bar. You will be asked to enter a password for the backup.

Use a blank password by leaving the Password fields blank. Any other password will prevent your file from being accessible for review.

- ❑ Name the configuration "**FirstnameLastnameLab04.db**" so you will have a backup of the latest lab you have completed.
- ❑ You may begin the next lab immediately. Each lab builds on the configuration created in the previous lab. Start the new lab using the previous lab configuration.

Lab 5

Goal:

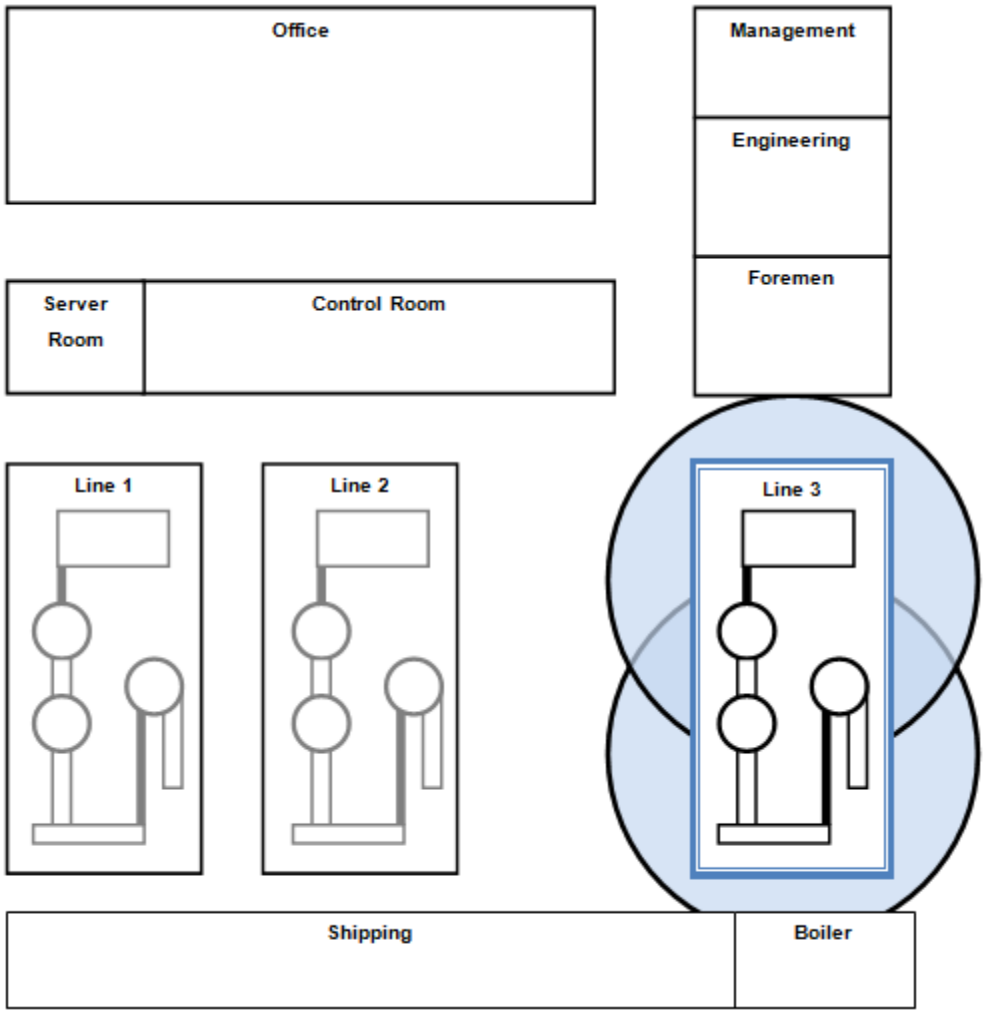
The goal is to deploy a simple Relevance Location Services setup, adding a third production line. This production line will not use wired terminals but will rely on mobile devices as the terminals.

- ❑ Register two Bluetooth and four QR Code resolvers.
- ❑ Create four locations to deploy the HMI.
- ❑ Create a Bluetooth Fence so that the HMIs can only be run at the line.
- ❑ Configure an Android and iPad tablet for remote access.

The *Why*:

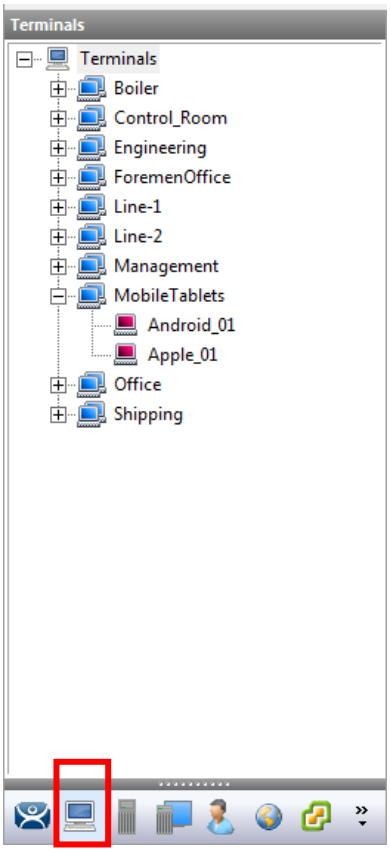
Relevance makes it possible to replace terminals with tablets. Instead of installing an enclosure, one can deliver the applications to a location and access them with a tablet. The use of a Bluetooth fence will prevent the application from running in the wrong place.

Factory Layout for the Lab:



Note: This lab uses simplistic passwords and local workgroup accounts. A real deployment would use domain accounts and require stronger passwords.

The *How - Configuration Steps*:



Mobile Terminal Group:

❑ Open the **Terminals** branch of the ThinManager tree by selecting the **Terminal** icon at the bottom of the tree.

❑ Right click on ***Terminals*** in the **Terminals** branch of ThinManager and select ***Add Group***.

❑ Name the group ***MobileTablets***.

Android_01 – Android

❑ Open the **Terminals** branch of the ThinManager tree by selecting the **Terminal** icon at the bottom of the tree. Right click on the **MobileTablets** group icon and select ***Add Terminal***. Define this terminal.

Use the defaults except:

❑ Name the terminal ***Android_01*** on the **Terminal Name** page.

❑ Set the ***Make/OEM*** and ***Model*** to ***GENERIC - Android Device*** on the **Terminal Hardware** page.

❑ Check the ***Enable Relevance User Services*** and ***Enable Relevance Location Services*** on the **Terminal Mode Selection** page.

❑ Leave the ***Selected Display Client*** list blank on the **Display Client Selection** page. This way the tablet has a blank display until it connects to a Location.

❑ Select the following on the **Relevance Options** page:

- ***Enable QR Code Location Ids***
- ***Enable Bluetooth Locations***

❑ **Login Information** – leave blank as there is no Display Client assigned that requires a login. The tablet will use the user account of the Location.

❑ **Video Resolution** – Set the ***Resolution*** to ***Native*** on the Video Resolution page.

Apple_01 – iPad

❑ Open the **Terminals** branch of the ThinManager tree by selecting the **Terminal** icon at the bottom of the tree. Right click on the **MobileTablets** group icon and select ***Add Terminal***. Define this terminal.

Use the defaults except:

❑ Name the terminal ***Apple_01*** on the **Terminal Name** page.

❑ Set the ***Make/OEM*** and ***Model*** to ***Apple: iOS Device*** on the **Terminal Hardware** page.

❑ Check the ***Enable Relevance User Services*** and ***Enable Relevance Location Services*** on the **Terminal Mode Selection** page.

❑ Leave the ***Selected Display Client*** list blank on the **Display Client Selection** page. This way the tablet has a blank display until it connects to a Location.

❑ Select the following on the **Relevance Options** page:

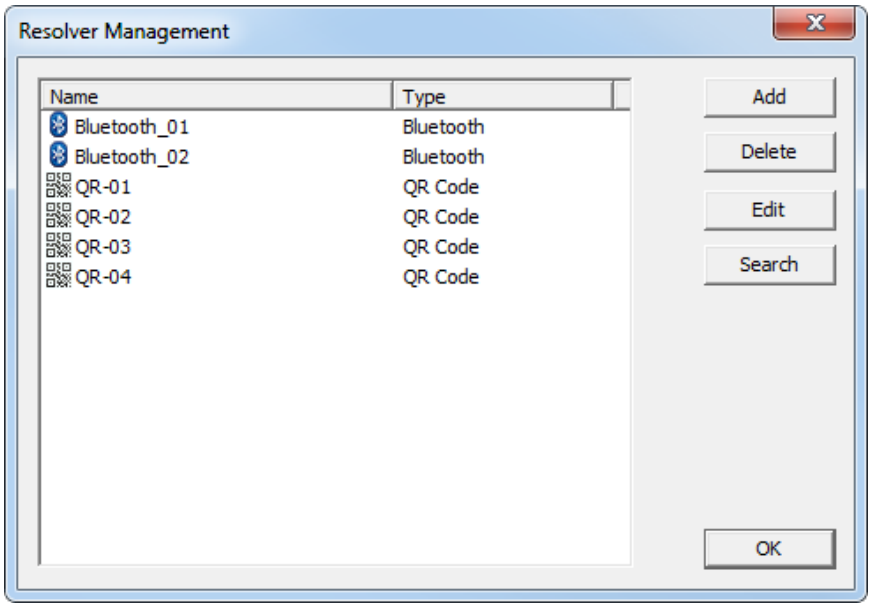
- ***Enable QR Code Location Ids***

- ***Enable Bluetooth Locations***

- ❑ **Login Information** – leave blank as there is no Display Client assigned that requires a login. The tablet will use the user account of the Location.
- ❑ **Video Resolution** – Set the ***Resolution*** to ***Native*** on the Video Resolution page.

Resolvers

Note: Normally a **Resolver** is registered from a tablet when it can read the data from the Resolver. Since this lab doesn't use real equipment, the Resolvers will be created manually, representing the actual process.



Bluetooth_01

Normally a Bluetooth beacon is registered from a tablet when it can read the data from a live Bluetooth beacon. Since this lab doesn't use real equipment, the beacons will be created manually.

- ❑ Select ***Manage > Manage Resolvers*** from the ThinManager menu bar.
- ❑ Select the ***Add*** button to launch the ***Add New Resolver*** window.
- ❑ Enter ***Bluetooth_01*** as the ***Name*** and ***Bluetooth*** as the ***Type***.
- ❑ Enter ***12345*** as the ***Data***.

Note: Be sure Bluetooth is selected from the ***Type*** drop-down menu.

Bluetooth_02

Create using the same method as Bluetooth_01.

- ❑ Select ***Manage > Manage Resolvers*** from the ThinManager menu bar.
- ❑ Select the ***Add*** button to launch the ***Add New Resolver*** window.
- ❑ Enter ***Bluetooth_02*** as the ***Name*** and ***Bluetooth*** as the ***Type***.
- ❑ Enter ***67890*** as the ***Data***.

QR-01

Normally a QR Code is registered from a tablet when it can read the data from an actual QR code. Since this lab doesn't use real equipment, the codes will be registered manually.

Note: You must select from the ***Type*** drop-down for the resolver to be displayed.

- ❑ Select ***Manage > Manage Resolvers*** from the ThinManager menu bar.
- ❑ Select the ***Add*** button to launch the ***Add New Resolver*** window.
- ❑ Enter ***QR-01*** as the ***Name*** and ***QR Code*** as the ***Type***.
- ❑ Enter ***Station01*** as the ***Data***.

QR-02

- ❑ Select ***Manage > Manage Resolvers*** from the ThinManager menu bar.
- ❑ Select the ***Add*** button to launch the ***Add New Resolver*** window.
- ❑ Enter ***QR-02*** as the ***Name*** and ***QR Code*** as the ***Type***.
- ❑ Enter ***Station02*** as the ***Data***.

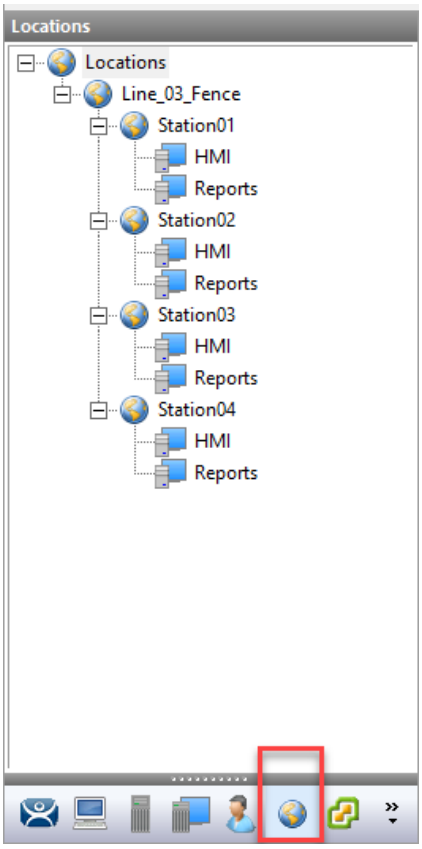
QR-03

- ❑ Select ***Manage > Manage Resolvers*** from the ThinManager menu bar.
- ❑ Select the ***Add*** button to launch the ***Add New Resolver*** window.
- ❑ Enter ***QR-03*** as the ***Name*** and ***QR Code*** as the ***Type***.
- ❑ Enter ***Station03*** as the ***Data***.

QR-04

- ❑ Select ***Manage > Manage Resolvers*** from the ThinManager menu bar.
- ❑ Select the ***Add*** button to launch the ***Add New Resolver*** window.
- ❑ Enter ***QR-04*** as the ***Name*** and ***QR Code*** as the ***Type***.
- ❑ Enter ***Station04*** as the ***Data***.

Locations:



Five Locations need to be created, one for the Fence and four for each for Line 3 locations that match the location where a terminal was placed on Line-1 and Line-2.

Line_03_Fence

❑ Open the **Locations** branch of the ThinManager tree by selecting the **Location** icon at the bottom of the tree.

❑ Right click on the ***Locations*** in the **Location** branch of ThinManager and select ***Add Location***

❑ Enter ***Line_03_Fence*** for the ***Location Name*** on the **Location Name** page.

Use the default settings except:

❑ Select **Enforce Fencing for sub-locations** on the **Location Options** Page.

❑ Uncheck the ***Allow Local Access*** and ***Allow Remote Access*** on the **Location Options** page.

❑ Leave the ***Selected Display Client*** list blank on the **Display Client Selection** page. This way the tablet has a blank display until it connects to a Location.

❑ Leave the ***Username*** and ***Password*** blank on the **Windows Log In Information** page. You don't need a Windows account since no Windows application is being delivered.

❑ Select the ***Add*** button on the **Relevance Resolver Selection** page.

- Select ***Bluetooth_01*** with ***No Action*** from the ***Choose Action*** drop-down.

❑ Select the ***Add*** button on the **Relevance Resolver Selection** page.

- Select ***Bluetooth_02*** with ***No Action*** from the ***Choose Action*** drop-down.

❑ Select ***Finish***.

This creates an area with two Bluetooth beacons. Entering either field will put the mobile device into that location. The ***No Action*** setting will mean that the ***Line_03_Fence*** Location acts to verify that you are inside the Bluetooth zone but doesn't deliver specific content. Therefore, the username can be blank.

Station01

❑ Open the **Locations** branch of the ThinManager tree by selecting the **Location** icon at the bottom of the tree.

❑ Right click on **Line_03_Fence** and select ***Add Location*** to create a sub-location within the **Line_03_Fence**.

❑ Enter ***Station01*** as the ***Location Name*** on the **Location Name** page.

Use the default settings except:

❑ Select ***Inherit from Parent Locations*** on the **Location Options** page.

❑ Uncheck the ***Allow Local Access*** and ***Allow Remote Access*** on the **Location Options** page.

❑ Add ***HMI*** and ***Reports*** to the ***Selected Display Client*** list on the **Display Client Selection** page. This adds the public **HMI** application and allows a ***Foreman*** to log in and access the **Reports** program as in Line02.

❑ Enter ***Operator21*** with a password of ***12345*** on the **Windows Log In Information** page.

- ❑ . Select the ***Add*** button on the **Relevance Resolver Selection** page.
    - Select ***QR-01*** with ***Force Transfer*** from the ***Choose Action*** drop-down and select ***OK***.
- ❑ Select ***Finish***.

This creates a sub-location identified with a QR code. If a mobile device is in the Line_03_Fence area, then the QR code scan will work and deliver the applications. If the QR code is scanned when the mobile device isn't within the Line_03_Fence area, then the scan will fail and not deliver the application.

Station02

- ❑ Open the **Locations** branch of the ThinManager tree by selecting the **Location** icon at the bottom of the tree.
- ❑ Right click on **Line_03_Fence** and select ***Add Location*** to create a sub-location within the **Line_03_Fence**.
- ❑ Enter ***Station02*** as the ***Location Name*** on the **Location Name** page.

Use the default settings except:

- ❑ Select ***Inherit from Parent Locations*** on the **Location Options** page***.***
- ❑ Uncheck the ***Allow Local Access*** and ***Allow Remote Access*** on the **Location Options** page***.***
- ❑ Add ***HMI*** and ***Reports*** to the ***Selected Display Client*** list on the **Display Client Selection** page. This adds the public **HMI** application and allows a ***Foreman*** to log in and access the **Reports** program as in Line02.
- ❑ Enter ***Operator22*** with a password of ***12345*** on the **Windows Log In Information** page.
- ❑ . Select the ***Add*** button on the **Relevance Resolver Selection** page.
    - Select ***QR-02*** with ***Force Transfer*** from the ***Choose Action*** drop-down and select ***OK***.
- ❑ Select ***Finish***.

This creates a sub-location identified with a QR code. If a mobile device is in the Line_03_Fence area, then the QR code scan will work and deliver the applications. If the QR code is scanned when the mobile device isn't within the Line_03_Fence area, then the scan will fail and not deliver the application.

Station03

- ❑ Open the **Locations** branch of the ThinManager tree by selecting the **Location** icon at the bottom of the tree.
- ❑ Right click on **Line_03_Fence** and select ***Add Location*** to create a sub-location within the **Line_03_Fence**.
- ❑ Enter ***Station03*** as the ***Location Name*** on the **Location Name** page.

Use the default settings except:

- ❑ Select ***Inherit from Parent Locations*** on the **Location Options** page***.***
- ❑ Uncheck the ***Allow Local Access*** and ***Allow Remote Access*** on the **Location Options** page***.***
- ❑ Add ***HMI*** and ***Reports*** to the ***Selected Display Client*** list on the **Display Client Selection** page. This adds the public **HMI** application and allows a ***Foreman*** to log in and access the **Reports** program as in Line02.
- ❑ Enter ***Operator23*** with a password of ***12345*** on the **Windows Log In Information** page.
- ❑ . Select the ***Add*** button on the **Relevance Resolver Selection** page.
    - Select ***QR-03*** with ***Force Transfer*** from the ***Choose Action*** drop-down and select ***OK***.
- ❑ Select ***Finish***.

This creates a sub-location identified with a QR code. If a mobile device is in the Line_03_Fence area, then the QR code scan will work and deliver the applications. If the QR code is scanned when the mobile device isn't within the Line_03_Fence area, then the scan will fail and not deliver the application.

Station04

- ❑ Open the **Locations** branch of the ThinManager tree by selecting the **Location** icon at the bottom of the tree.
- ❑ Right click on **Line_03_Fence** and select ***Add Location*** to create a sub-location within the **Line_03_Fence**.
- ❑ Enter ***Station04*** as the ***Location Name*** on the **Location Name** page.

Use the default settings except:

- ❑ Select ***Inherit from Parent Locations*** on the **Location Options** page**.**
- ❑ Uncheck the ***Allow Local Access*** and ***Allow Remote Access*** on the **Location Options** page**.**
- ❑ Add ***HMI*** and ***Reports*** to the ***Selected Display Client*** list on the **Display Client Selection** page. This adds the public **HMI** application and allows a ***Foreman*** to log in and access the **Reports** program as in Line02.
- ❑ Enter ***Operator24*** with a password of ***12345*** on the **Windows Log In Information** page.
- ❑ . Select the ***Add*** button on the **Relevance Resolver Selection** page.
    - Select ***QR-04*** with ***Force Transfer*** from the ***Choose Action*** drop-down and select ***OK***.
- ❑ Select ***Finish***.

This creates a sub-location identified with a QR code. If a mobile device is in the Line_03_Fence area, then the QR code scan will work and deliver the applications. If the QR code is scanned when the mobile device isn't within the Line_03_Fence area, then the scan will fail and not deliver the application.

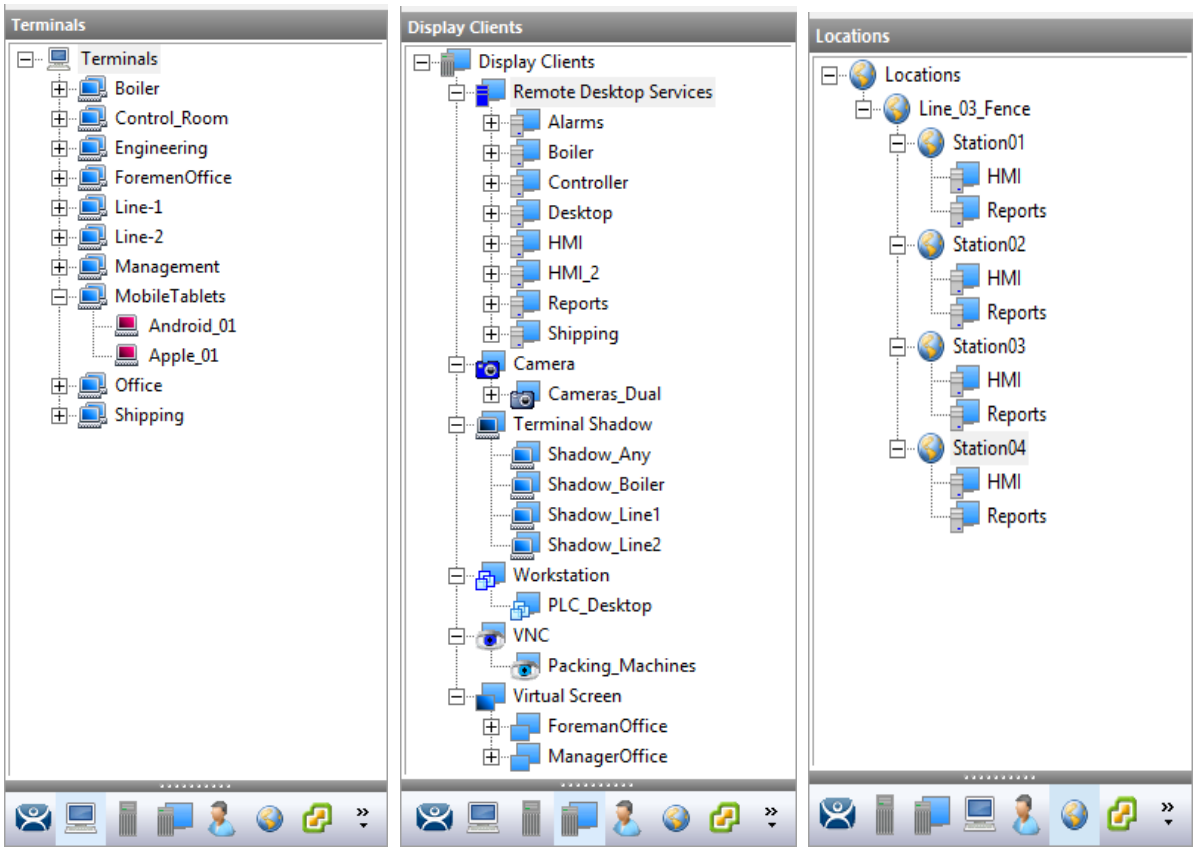
Note: This lab uses generic program paths to launch hypothetical applications. In real life the configuration of an HMI would require you to use a method to specify the program files for the application.

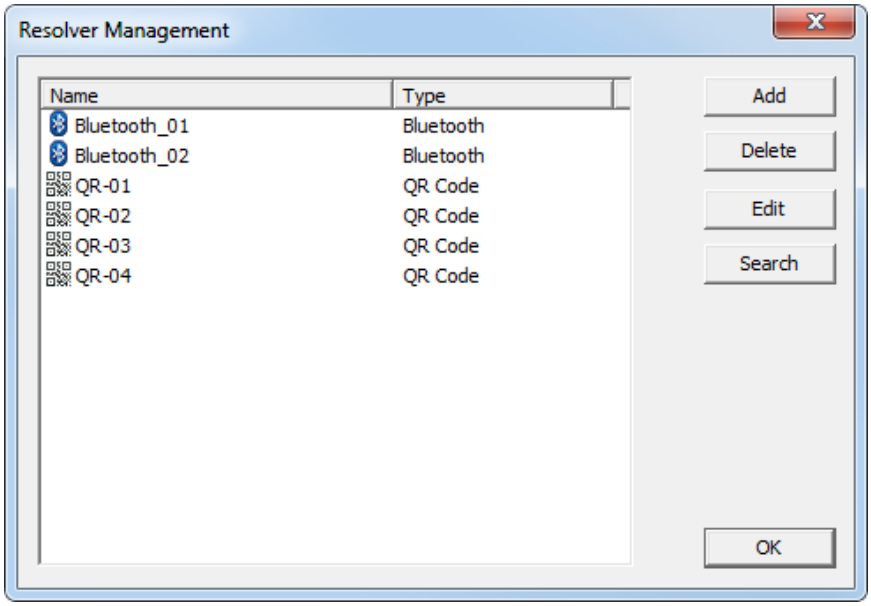
Information on specific methods for launching the various HMIs can be found in the Knowledge Base at https://kb.thinmanager.com/index.php/Main_Page.

Note: This lab uses simplistic passwords. A real deployment would require stronger passwords.

Results:

Your ThinManager tree should look like this:





Note: The RDS servers will show a red icon because ThinManager is not connecting to an actual Remote Desktop Server. If it had a valid connection the icon would show the green icon.

Submission for Certification:

- ❑ Once you have completed Lab 5, please backup your ThinManager configuration by selecting ***Manage > Backup*** from the ThinManager menu bar. You will be asked to enter a password for the backup.

Use a blank password by leaving the Password fields blank. Any other password will prevent your file from being accessible for review.

- ❑ Name the configuration "**FirstnameLastnameLab05.db**" so you will have a backup of the latest lab you have completed. **This will be the file you submit for certification.**
- ❑ Return to the Training control panel at http://www.thinmanager.com/si/instructions.php.
- ❑ Upload your properly named configuration file using the ***Upload My Lab*** button.
- ❑ We will grade your lab and send you an email with the results once completed. Grading is performed in batches as quickly as possible but please allow 10 to 14 business days for the results. Feel free to contact certification@thinmanager.com if you have any concerns.