

# ThinManager<sup>™</sup> Basic – Cloud – 2019



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ATTENTION

Identifies information about practices or circumstances that can lead to personal injury or death, property damage, or economic loss. Attentions help you:



identify a hazard

- avoid a hazard
- recognize the consequence

SHOCK HAZARD

Labels may be located on or inside the drive to alert people that dangerous voltage may be present.



BURN HAZARD

Labels may be located on or inside the drive to alert people that surfaces may be dangerous temperatures.

# ThinManager All in One Lab

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## Before you begin

ThinManager is a centralized content delivery and device management platform designed for the plant floor. While the most common type of content delivered by ThinManager is Windows based applications via Microsoft's Remote Desktop Services (RDS), other content sources are supported as well including VNC Servers, IP Cameras and Terminal to Terminal Shadowing. Instead of maintaining multiple plant floor PCs, each with their own operating systems, applications and anti-virus requirements, migrating the plant floor applications to a Remote Desktop Server architecture can greatly simplify the deployment and maintenance of the system. In addition to content delivery, ThinManager enables central management of the devices to which the content will be delivered. In addition to thin/zero clients, ThinManager supports mobile devices like smartphones and tablets, as well as even PCs. All of these different device types can be managed under one umbrella, and managed in exactly the same way, regardless of the device type. If a virtualized desktop infrastructure (VDI) is preferred over Remote Desktop Services, ThinManager supports this architecture as well, or even a combination of both RDS and VDI. As this lab will demonstrate, ThinManager is a solution that IT departments can embrace, but does not require them to deploy or support, allowing Engineering and Maintenance to maintain the critical plant floor content.

In the event of being prompted for logins, please use the following:

- If the Log On To Windows dialog is active, use the username 'tmlab\labuser' and 'rw' for the password.
- Use the same login information if prompted to log on to FactoryTalk Directory.

#### About this lab

In this lab, you will complete an example deployment utilizing FactoryTalk View with ThinManager. Keep in mind that while this lab will focus on FactoryTalk content types, just about any Windows based application could be delivered using ThinManager. The thin clients and content delivered to them will be managed using ThinManager. Along the way, you will have an opportunity to work with some of the unique capabilities of ThinManager. The basic architecture being utilized is shown in the figure below:



This lab utilizes 6 different VMWare images running in the Amazon Elastic Cloud (EC2) and will require you to perform tasks on RDS1, RDS2, DC and the two Virtual Thin Clients. An Active Directory domain was created named TMLAB.LOC. Each of the Windows-based images have been pre-joined to the domain. The four images are:

- 1. Domain Controller Windows Server 2012 R2 fully qualified hostname = DC.TMLAB.LOC
- 2. HMI Server Windows Server 2016 fully qualified hostname = HMI.TMLAB.LOC
- 3. ThinManager/Primary RDS Server Windows Server 2016 fully qualified hostname = RDS1.TMLAB.LOC
- 4. Secondary RDS Server Windows Server 2016 fully qualified hostname = RDS2.TMLAB.LOC
- 5. Virtual Thin Client 1 (Thin01 running inside of RDS1)
- 6. Virtual Thin Client 2 (Thin02 running inside of RDS2)

The HMI server and applications for this lab are pre-built for your convenience and should not require any modifications. An ME Runtime exists on the HMI server as well, just to demonstrate VNC Server connectivity (basically emulating a PanelView Plus for the purposes of the lab).

The RDS1 image is a fresh Server 2016 build, with only a few items pre-installed. The lab will walk you through the installation of the Remote Desktop Services role, the FactoryTalk View SE Client and ThinManager.

RDS2 already has the Remote Desktop Services role, FactoryTalk View SE Client and ThinManager installed to save time. It will be used to demonstrate ThinManager Redundancy.

This lab will be performed by utilizing 2 virtualized thin clients and an Android Tablet. A virtual thin client can be created with VMWare Player or Workstation by just creating a new virtual machine without installing an Operating System (OS) on it, which is the essence of a zero client – no OS stored at the client, making it easier to manage. These virtual thin clients will then receive the ThinManager firmware utilizing PXE (<u>P</u>re-Boot E<u>x</u>ecution <u>E</u>nvironment). While a virtual thin client may not be very useful in a production environment, it is ideal for demonstration and training purposes.

This lab is broken up into 7 separate sections. In this lab, you will specifically gain experience with the following topics:

- Section 1: Defining ThinManager Display Servers, Display Clients and Terminals
- Section 2: Configuring ThinManager Application Link and Failover for FactoryTalk View SE
- Section 3: Terminal Replacement in Under 2 Minutes
- Section 4: Deploying Additional Content Using MultiSession and Tiling
- Section 5: MultiMonitor, Virtual Screens and Session Scaling
- Section 6: Relevance User Services User Based Content Delivery
- Section 7: Relevance Location Services Location Based Content Delivery

#### Tools & prerequisites

A ControlLogix processor may be used in place of the Logix Emulate 5000 instance running on the HMI image, which is used to drive the FactoryTalk View SE and ME demo applications.

#### Software

- FactoryTalk Services Platform v6.11.00 (CPR 9 SR 11)
- FactoryTalk View Site Edition v11.00.00 (CPR 9 SR 11)
- FactoryTalk View ME Runtime v11.00.00 (CPR 9 SR 11)
- FactoryTalk Linx v6.11.00 (CPR 9 SR 11)
- FactoryTalk Alarms and Events v6.11.00 (CPR 9 SR 11)
- FactoryTalk Diagnostics v6.11.00 (CPR 9 SR 11)
- FactoryTalk Activation Manager v4.03.03
- RSLinx Classic v3.90.00 (CPR 9 SR 9)
- Studio 5000 Logix Designer v30.01.00 (CPR 9 SR 9)
- RSLogix Emulate 5000 v30.01.00 (CPR 9 SR 9)
- Internet Explorer 11
- Adobe Reader XI
- ThinManager v11 SP1
- TightVNC v2.8.5

#### **Operating Systems**

- Windows Server 2016
- Android 6.0 or Later

#### Additional References

For additional information on FactoryTalk View Site Edition and Remote Desktop Services, you can review the following Rockwell Automation Knowledge Base article:

AID 554813 - Using FactoryTalk View SE with Remote Desktop Services - References TOC.

For additional information on Remote Desktop Services and its various components, you can review the following:

Microsoft TechNet Windows Server site for Remote Desktop Services

Remote Desktop Services Component Architecture Poster

For a comprehensive directory of Rockwell Automation Knowledge Base articles subject to ThinManager, refer to the following:

AID 1081869 - ThinManager TOC

For the ThinManager and FactoryTalk View SE Deployment Guide:

AID 1085134 - Deploying FactoryTalk View SE with ThinManager

## Section 1: Defining ThinManager Display Servers, Display Clients and Terminals

#### Overview

In this section, you will create the 3 primary building blocks of ThinManager:

- 1. Display Servers
- 2. Display Clients
- 3. Terminals

In ThinManager, **Display Servers** are the server sources of content that you want to deliver to your devices. A **Display Server** is typically a Remote Desktop Server, but can also be an IP/USB Camera or a VNC Server (like a PanelView Plus or a MacBook Pro).

**Display Clients**, not to be confused with the FactoryTalk View SE executable DisplayClient.exe, represent the actual content you will be delivering to your devices, which are referred to as **Terminals** in ThinManager. There are 6 types of **Display Clients** supported in ThinManager: (1) Remote Desktop Services, (2) Camera, (3) Terminal Shadow, (4) Workstation, (5) VNC and (6) Virtual Screen. Within this lab, you will have an opportunity to create several of these Display Client types.

You will use **Display Servers** and **Display Clients** to setup the content you want to deliver to the devices managed by ThinManager. This content can be assigned and delivered in 3 ways with ThinManager:

- 1. By Device
- 2. By User
- 3. By Location

While you will experience all 3 content type delivery methods in this lab, you will start with the first one, By Device, in this section. By Device allows you to assign content to the Terminal Profile, representing the default content that will be delivered to a device when it is powered on. Terminals are the thin or zero clients, mobile devices and/or PCs that you will be managing with ThinManager. Each device will have a unique Terminal Profile in ThinManager.

A zero client may look very similar to a thin client physically, but it does not have an operating system. A thin client, on the other hand, has an operating system - maybe a scaled down version of Linux capable of connecting to a Remote Desktop Server, or maybe even Windows Embedded. ThinManager treats each of these device types in much the same way in that the same ThinManager firmware is delivered to either device type. The ThinManager firmware should be viewed as the operating system for ThinManager thin or zero clients. So, if a device has no operating system like a zero client, or has an operating system like a thin client, it will receive the ThinManager firmware when it boots up and boot from it. We will refer to the virtual thin client(s) as a thin client often but it is actually a zero client, since it does not have local storage and therefore no Operating System.

ThinManager supports 2 types of thin or zero clients:

- ThinManager Ready
- ThinManager Compatible

ThinManager Ready terminals have the ThinManager BIOS extension image embedded in them by the manufacturer. When these terminals are powered on, they know how to find a ThinManager Server right out of the box. Once found, the ThinServer service delivers the terminal's firmware and configuration.

ThinManager Compatible terminals do <u>not</u> have the ThinManager BIOS extension image. However, the ThinManager firmware is hardware compatible with the majority of thin clients on the market. This is because the ThinManager firmware is compiled for the x86 platform, and the majority of thin clients are x86-based. In order to deliver the ThinManager firmware to these devices, PXE is utilized. <u>P</u>reboot e<u>X</u>ecution <u>E</u>nvironment (PXE) is an Intel standard whereby an operating system can be delivered over the network. The virtual thin clients used in this Cloud Lab are examples of ThinManager Compatible terminals.

Functionally, there is no real difference between a ThinManager Ready terminal and a ThinManager compatible terminal.

In this section, you will register your **RDS1** virtual machine as a Display Server within ThinManager. With this Display Server created, you will create a **Display Client** to deliver a Windows desktop session from **RDS1**. You will then create a **Terminal Profile** to which you will assign the newly created **Display Client**. Lastly, you will start the virtual thin client and assign the new terminal profile to it in order to see the results. To do this, you will be performing the following tasks:

- 1. Create Display Servers
- 2. Create a Display Client
- 3. Create a Terminal Profile
- 4. Configure PXE Server
- 5. Assign the Terminal Profile to a Thin Client
- 6. Shadow Terminal from ThinManager

ThinManager is primarily composed of 2 components – the ThinServer service and the ThinManager administrative console (admin console).

The ThinServer service is a Windows based service that is the engine of ThinManager. It delivers the terminal's firmware and configuration, and therefore is essential in order for a terminal to boot.

The ThinManager admin console, on the other hand, is not licensed, and is the interface from which you manage the entire ThinManager environment.

While these 2 components do not have to be co-located or installed on a Remote Desktop Server, they often are due to the benefits of the Remote Desktop Services architecture.

#### **Create Display Servers**

Register **RDS1** and **RDS2** as Display Servers in ThinManager.

1. Launch the ThinManager user interface from the desktop of **RDS1**.



2. Click the **Display Servers** icon *in the ThinManager tree selector*.

The tree selector can be expanded or collapsed using the bar above directly above it.



3. From the **Display Servers** tree, right click the **RDS Servers** branch and select **Add Remote Desktop Server**. This will launch the Remote Desktop Server Wizard.

<b>2</b> •						
	Edit Manage	Install	Tools	View	Remote Viev	v He
	Restore Backup	ि Restore Bio È Backup Bio Ø Synchroniz	ometric Da ometric Da :e	tabase tabase	PXE ThinMa Server Serve	anager 🧉
Packages		Configuration				M
Display Ser	Display Servers Status Summary Even					
Display Servers				_		
	Cameras	2 Add Remo	te Deskto	p Server		]
	VNC Servers	Add Virtua	I Remote	Desktop	Server	
		Add Remo	te Deskto	p Server (	Group	
		Edit Remo	te Desktoj	p Server L	.ist	
						-

- 4. From the Introduction page of the Remote Desktop Server Wizard, click the Next button.
- 5. From the **Remote Desktop Server Name** page of the wizard, type *RDS1* in the **Name** field.
- 6. Click the **Discover** button. If the name is successfully resolved, the IP address of **RDS1** should be filled in automatically.
- 7. Type *tmservice@tmlab.loc* in the **User Name** field.
- 8. Type *rw* in the **Password** field.
- 9. Click the Verify button which should confirm that the credentials entered are valid, followed by the OK button.

#### 10. Click the **Finish** button.

8	Remote Desktop Server Wizard		
Remote Desktop Server Name Enter the Remote Desktop Server Name and Log In information.			
Remote De	sktop Server This will show your student number.		
Name	1 RDS1		
IP Address	2 10 . 6 . 10 . 51 Discover		
	Change Group		
Log In Infor	mation		
User Name	3 tmservice@tmlab.loc Search		
Password			
Domain	Venfy		
	Password Options		
	Schedule		
	A		
< Back	Next > Finish Cancel Help		

- 11. **RDS1** should now be added to the Remote Desktop Servers group. You may have to click the Display Servers branch to refresh the Remote Desktop Servers group.
- 12. Repeat steps 3 through 11, but this time register RDS2.

8	Remote Desktop Server Wizard			
	Remote Desktop Server Name Enter the Remote Desktop Server Name and Log In information.			
	Remote Desktop Server This will show your student number.			
	Name (1) RDS2			
	IP Address 2 10 . 6 . 10 . 52 Discover			
	Change Group			
	Log In Information			
	User Name 3 Imservice@tmlab.loc Search			
	Password 4			
	Domain Verify Password Options			
	Schedule			
	6			
	< Back Next > Finish Cancel Help			

13. If not already selected, click the RDS Servers branch and note the status of RDS1 and RDS2 on the right-hand side. It should indicate a Value of OK for each (it may take RDS2 a few seconds to change to OK). This indicates that the IP address and credentials provided for the Remote Desktop Servers are in fact valid.



The credentials entered when configuring a Remote Desktop Server must have Administrative rights on the Remote Desktop Server. This is required for SmartSession and to populate the User, Sessions and Process tabs of the details pane, which are available when you click on the Remote Desktop Server of interest. SmartSession is ThinManager's load balancing solution. With SmartSession, Remote Desktop Server sessions will be started on the least loaded Remote Desktop Server based on CPU Utilization, RAM Utilization and Number of Sessions. Once a session is started on a Remote Desktop Server, the session will not be moved dynamically. You can learn more about SmartSession in <u>Section 15</u>.

In order for ThinManager to connect to a Remote Desktop Server (like RDS1 in the example above), the provided Administrative credentials for that Remote Desktop Server in ThinManager should also be used as the ThinServer service credentials. The ThinServer service credentials on RDS1 are in fact configured as tmservice@tmlab.loc with password of rw, which are the same credentials entered for the RDS1 Remote Desktop Server. This domain user also has local Administrator permissions on RDS2.

### **Create a Display Client**

1. Click the **Display Clients** icon from the ThinManager tree selector.



2. From the **Display Clients** tree, right click the **Remote Desktop Services** branch and select **Add Display Client**. This will launch the **Display Client Wizard**.



3. Type Desktop as the Client Name on the Client Name page of the wizard. Click the Next button.

🕿 Display Client Wizard	×
Client Name Enter the Display Client name.	st
Display Client Name Client Name Desktop 1 Set a Display Name	
Type of Display Client       Remote Desktop Services       Display Client Group	
Change Group Permissions	
2	
< Back Next > Finish Cancel He	lp

The **Set a Display Name** checkbox is new for ThinManager 11 and provides the ability to assign an Alias to a Display Client that will be shown at the Terminal in the Display Client Selector instead of the **Client Name** entered. This feature requires firmware package 8.2 or newer. Firmware packages will be explained in the Advanced Lab.

- 4. Click the Next button on the Display Client Options page of the wizard.
- 5. Click the Next button on the Remote Desktop Services and Workstation Options page of the wizard.
- 6. Click the Next button on the Screen Resolution / Scaling Options page of the wizard.
- Select RDS1 from the Available Remote Desktop Servers list and click the Right Arrow button to move it to the Selected Remote Desktop Servers list. This is the Remote Desktop Server on which this Display Client will run. Click the Finish button.

8	Display Client Wizard	
Dis	play Client Members Select the Remote Desktop Servers for this Display Client.	
Av.	ailable Remote Desktop Servers S2 (10.6.10.52) 2 Edit Server List	
	<back next=""> Finish Cancel Help</back>	_

8. You should see the **Desktop** Display Client under the **Remote Desktop Services** branch. You may have to click the **Display Clients** node for the branch to refresh.



New in ThinManager 11, you can now create **Display Client Groups**. **Display Client Groups** provide the ability to better organize large quantities of content. You can create **Display Client Groups** much like folders in Windows Explorer, and then add **Display Clients** to the **Display Client Group**. Nested **Display Client Groups** are supported as well.

#### Create a Terminal Profile

As previously mentioned, each device that you will be managing (thin clients, zero clients, tablets, smart phones or PCs) will have a unique Terminal Profile created in ThinManager like the one you are about to create.

1. For this Cloud lab, we will be running **firmware package 8.1** for our virtual thin client(s). However, in ThinManager v11, the default firmware package for **PXE** clients is **8.2**. The next couple of steps will enable us to change the package on a terminal by terminal basis. Select the **Manage** ribbon followed by the **Packages** icon.



 The Package Manager window enables firmware packages to be assigned in 2 different ways – by terminal model or on a terminal by terminal basis. We are going to utilize the latter. To enable this capability, check the Allow the setting of the Package in Terminal Configuration checkbox. Click the OK button.

Package Manager	×		
Model Specific Default Package			
Manufacturer	ACP		
Model	DC-30-100		
Package	Termcap Model Default		
Allow Chain Loader	<b>v</b>		
Allow the setting of the Package in Terminal Configuration			
Install Package	2		
Edit Packages	OK Cancel		

3. Click the **Terminals** icon from the ThinManager tree selector.



4. From the **Terminals** tree, right click the **Terminals** node and select **Add Terminal**. This will launch the **Terminal Configuration Wizard**.



5. Type VersaView5200 as the Terminal Name on the Terminal Name page of the wizard. Click the Next button.

🕿 Terminal Configuration Wizard	×
Terminal Name Enter the name for this terminal, select the terminal group to which this termin choose to copy the configuration from another terminal.	nal belongs, or
┌─ Terminal Name	
Versa View 5200	Description
This must be a unique name using letters, numbers, hyphens (-), and underscores (_) only.	
Terminal Group	
	Change Group
Copy Settings	
Copy Settings from another Terminal	Copy From
Pemissions	
2	
< <u>Back</u> Finish	Cancel Help

Clicking the Description button on the **Terminal Name** page of the wizard will not only allow you to enter a Description for the terminal, but also allow you to create **Custom Variables** for the terminal. **Custom Variables** were added in ThinManager 8.1. The **Custom Variable** can be used in the **Display Client** command line or by the **TermMon ActiveX**. This would allow you to create a single **Display Client** in ThinManager that utilizes a **Custom Variable** and it would direct that **Display Client** to different content based on the terminal to which it was assigned. For instance, if you have several FactoryTalk View SE Client configuration files (CLIs) that you need to deploy, you could create a **Custom Variable** on each terminal that would include the name of the CLI file to deliver to it. You would then create a single **Display Client** line. In addition to **Terminals**, **Custom Variables** can also be created and assigned to **Relevance Users** and **Locations**.

6. Accept the defaults of Generic / PXE from the Make / OEM and Model drop down lists, respectively. Select 8.1 from the Terminal Firmware Package drop down list. Click the Next button.

🕿 Terminal Configuration Wizard	×
Terminal Hardware Select the manufacturer and model of this terminal.	$\aleph$
Use this to configure the type of hardware for this terminal.	
Make / OEM OGENERIC	•
Model 2 PXE	-
OEM Model PXE	
Video Chipset Unknown	
Terminal Firmware Package	•
Terminal ID and IP Address	
Terminal ID None	
4	
< Back Next > Finish Cancel	Help

- 7. Click the **Next** button on the **Terminal Options** page of the wizard.
- 8. Click the Next button on the Terminal Mode Selection page of the wizard.
- 9. Select **Desktop** from the **Available Display Clients** list and click the **Right Arrow** button to move it to the **Selected Display Clients** list. This is the **Display Client** that will be delivered to this **Terminal**. Click the **Finish** button.

🕿 Terminal Configuration Wizard	×
Display Client Selection Select the Display Clients to use on this terminal	$\approx$
Available Display Clients	Selected Display Clients
Edit Display Clients	Override
< Back Next >	Finish Cancel Help

10. You should see the VersaView5200 terminal under the Terminals node.



You can also create **Terminal Groups** in ThinManager. **Terminal Groups** provide 2 key capabilities: (1) terminal organization and (2) property inheritance. With terminal organization, you can create **Terminal Groups** much like folders in Windows Explorer, and then add **Terminals** to the **Terminal Group**. The other key benefit of **Terminal Groups** is that you can assign **Terminal** properties at the **Terminal Group** level and choose to make these settings a **Group Setting**. By doing so, each **Terminal** member of the **Terminal Group** would receive that setting as defined in the **Terminal Group**. In both cases, nested **Terminal Groups** are support as well. You will learn more about **Terminal Groups** in <u>Section 13</u>.

Even though you will be using virtual thin clients for this Cloud based training, this hands on lab was based on the ThinManager MR Demo Kit which includes a VersaView 5200 Dual HD (Catalog #: 6200T-NA) industrial grade thin client. In addition to the 6200T-NA, the **VersaView 5200** family includes four additional models. The **VersaView5200 Single HD Display** (Catalog #: 6200T-BA) which has a smaller form factor and provides a single **HD Display** output. The **VersaView Dual 4K Display** (Catalog #: 6200T-KB) has the same form factor as the 6200T-NA but provides two 4K video outputs (one HDMI and one DisplayPort). For Control Room applications, the **VersaView 5200 Multi 4K Display** (Catalog #: 6200T-RC or 6200T-RE) is available. The 6200T-RC provides three **4K** outputs (all DisplayPort), while the 6200T-RE provides **seven 4K** outputs (3 DisplayPort and 4 mini-DisplayPort).

#### **Configure PXE Server**

Since this Cloud lab is utilizing virtual thin clients, we will need to boot them using PXE; therefore, the ThinManager PXE Server must be configured.

1. From the ThinManager Admin Console, select the Manage ribbon, followed by the PXE Server icon.



2. From the **PXE Server Configuration** page of the wizard, check the **Enable PXE Server** checkbox.



 From the Network Interface Configuration page of the wizard, make sue VMWare Virtual Ethernet Adapter for VMNet8 is selected from the Select Interface to Configure drop down list, and Using standard DHCP server is selected from the PXE Server Mode list. Click the Finish button.

🕿 PXE Server Wizard 🛛 🗙
Network Interface Configuration Select the settings for each network interface
Select Interface to Configure
VMware Virtual Ethernet Adapter for VMnet8
Interface Primary IP Address PXE Server Mode O O O Using standard DHCP server
C Using standard DHCP server on this machine
C Using standard DHCP server with Boot Options (PXE Disabled)
C Not using standard DHCP server
IP Address Conflict Detection
ARP
C None
Allow New PXE clients
< Back Next > Finish Cancel Help

Some notes when configuring this page in your own deployments. Make sure you have selected the correct network interface in the **Select Interface to Configure** drop down list. In other words, on which network adapter should ThinManager listen for PXE requests. The **PXE Server Mode** selection is not as obvious. PXE, by definition, requires a DHCP Server. This setting basically tells ThinManager about the DHCP Server to be used for PXE requests. When a PXE client is booted, it not only needs an IP Address, but it also needs an IP address for its boot server, as well as a boot filename.

Here is a quick summary of the options:

- Using standard DHCP server choose this when you have an existing DHCP server that you want to use for PXE, but you want ThinManager to provide the additional boot details, like the IP addresses of the ThinManager Server(s) and the name of the boot file. This is the preferred choice if you are using an existing DHCP server.
- 2. Using standard DHCP server on this machine similar to the first option, except the actual DHCP server is located on the same machine as ThinManager.
- Using standard DHCP server with Boot Options (PXE Disabled) choose this when you have an existing DHCP server that you want to use, but you do not want ThinManager to provide the additional boot details. Instead, you will need to specify Option 66 and Option 67 in your DHCP Server to specify these details.
- <u>Not using standard DHCP server</u> choose this when you want ThinManager to provide everything the client IP address, the boot server IP address(es) and the boot filename. ThinManager will only respond to DHCP requests associated with PXE, not to standard DHCP requests.

If you will be using Legacy PXE clients and UEFI PXE clients with your ThinManager deployment, it is important to note that they require different boot files. This is automatically handled by ThinManager if you choose options 1, 2 or 4 above. However, if you choose option 3, you will need to apply Vendor Classes in your DHCP Server for Option 67 in order to deliver the correct boot filename based on the type of thin client requesting it. Legacy PXE clients use a boot filename of **acpboot.bin**, while UEFI PXE clients use **tmboot32.bin** for x86 UEFI and **tmboot64.bin** for x64 UEFI.

Through the majority of this Cloud lab, we will be using the **PXE Server Mode** configured above – namely, **Using standard DHCP server**. Again, this means we have an existing DHCP Server that will supply the IP address to our PXE client, and ThinManager will provide the additional details needed to boot it (i.e.: boot server IP address(es) and boot filename). In this configuration, we will depend on VMWare Player, which will host our virtual thin client(s) to provide a **NAT'd** (**Network Address Translation**) IP address. This mode proved to be the most reliable for the virtual thin client(s).

#### Assign the Terminal Profile to a Thin Client

1. Minimize the **ThinManager Admin Console**, and double click the **Thin01** virtual machine shortcut on the desktop. It may take a minute or so to initially launch since your Cloud lab image does not have full connectivity to the Internet.



**<u>NOTE</u>**: Do not use the **VMWare Full Screen** option, as it has proven to be somewhat unstable in the cloud. It is ok to maximize the window.

Upon starting, the virtual thin client will recognize that it has no operating system installed and will therefore attempt to contact a **PXE Server**. The **ThinManager PXE Server** will respond to the **PXE** request and deliver the ThinManager firmware via **TFTP**.

Since VMWare Tools cannot be installed within the virtual thin clients, the mouse pointer will get locked within each virtual machine when one of the virtual thin clients is active. To return the mouse pointer to the host, hit the CTRL+ALT key sequence.

2. If you receive a message box asking if you moved or copied the virtual machine, click the I Moved It button.



You may notice that the virtual thin client receives an IP address in the 192.168.x.y subnet. This is because we have it configured for NAT at this point in the lab.

3. Once the Thin01 has received the ThinManager firmware, it will communicate with the ThinManager Server, asking for a Terminal Profile. ThinManager identifies terminals by their MAC address. Since we have not previously assigned a Terminal Profile to the MAC address of this terminal, ThinManager will ask which profile to assign to it. Hit the down arrow key to select the VersaView5200 profile we created previously and hit the Enter key.

This Terminal is Undefined on Server RDS1 Choose the Terminal to Replace or Action		
: Name	Туре	
Create new Terminal		
VersaV1ew5200	Terminal	

If the **Create new Terminal** option was selected above, the **Terminal Configuration Wizard** would be launched within ThinManager that would facilitate the creation of a new Terminal Profile that would then be assigned to the terminal being booted.

Additionally, you can control whether a Terminal Profile becomes available in this selection list. By default, a Terminal Profile becomes available for assignment when its associated terminal is offline. The Allow replacement at terminal if off line setting can be found on the Terminal Options page of the Terminal Configuration Wizard.

If your mouse gets locked inside the virtual machine, you can hit the **CTRL-ALT** keys on your keyboard to release it. This is happening because we have not (and cannot) installed VMWare Tools inside our virtual machine.

4. The VersaView5200 Terminal Profile will now be delivered to the Thin01, and any default content (Display Clients) assigned to the VersaView5200 Terminal Profile will be delivered. Since we are starting with a Desktop session and we have not configured Auto Login, you will be prompted with a login dialog box to start the Windows Remote Desktop session on RDS1. Enter *tmlab\thin01* as the username and *rw* as the password. Once authenticated, you should be presented with a Windows Desktop Session on RDS1.

Enter your Windows credentials to connect to RDS1
Username
1 tmlabithin01

#### Shadow Thin Client from ThinManager

- 1. Return to the **RDS1** lab image, and click the **Terminals** icon from the ThinManager tree selector.
- 2. Expand the **Terminals** node in the **Terminals** tree and select the **VersaView5200** terminal.
- Select the Shadow tab from the Details Pane. You should see a shadow of the terminal from within ThinManager. Notice that the shadow is fully interactive. Also notice that the VersaView5200 terminal icon is green indicating that it is powered up and ThinManager has connectivity to it. Click the Configuration tab when finished shadowing.



Each ThinManager terminal has a shadowing setting that determines if the terminal can be shadowed or not. This setting is available by double clicking the terminal to open the **Terminal Configuration Wizard** and navigating to the **Terminal Options** page of the wizard. The available shadowing options are Yes, No, Ask, Warn, and a checkbox for enabling Interactive Shadow or not. If you choose to experiment with these settings, remember that a terminal must be restarted for configuration changes to be applied to it. To perform a terminal restart, right click the terminal and select **Restart Terminal**.

This completes the section **Defining ThinManager Display Servers**, **Display Clients and Terminals** of the lab. Continue on to deliver a FactoryTalk View SE application without a Windows desktop and implement automatic Remote Desktop Server failover.

## Section 2: Configuring ThinManager Application Link and Failover for FactoryTalk View SE

#### Overview

In the last lab section, you successfully delivered a Windows Desktop to the a virtual thin client using ThinManager. Typically, we go through great lengths to actually prevent access to the Windows Desktop on the plant floor, which is one reason why VDI is not always the best option for plant floor deployments – since delivering desktops is one of the strengths of VDI. This section will use ThinManager Application Link to deliver the FactoryTalk View SE Cookie Factory demo to the virtual thin client without a desktop. In addition, this section will demonstrate how easy it is to configure automatic Remote Desktop Server failover for your ThinManager terminals. To do this, you will be performing the following tasks:

- 1. Add Terminal Names to FactoryTalk Directory
- 2. Add Windows Linked User Group to FactoryTalk Directory
- 3. Create a RemoteApp for FactoryTalk View SE
- 4. Create a New ThinManager Display Client with Application Link
- 5. Apply New Display Client to Terminal
- 6. Add Automatic Remote Desktop Server Failover
- 7. Allow Remote Start of Unlisted Programs

#### Add Terminal Names to FactoryTalk Directory

By default, every Computer connecting to the FactoryTalk Directory must be added as a Computer Account – ThinManager terminals are no different. This section will add the ThinManager terminal names to the FactoryTalk Directory as Computer Accounts.

1. Click the **Windows Start** button from the **RDS1** host image – <u>NOT the shadowed Desktop delivered to the thin client or the thin client itself.</u>



2. On the Select FactoryTalk Directory dialog, make sure Network is selected and click the OK button.

Select FactoryTalk Directory	x
1 ct the directory you want to use.	
Network OK Cancel Help	<b>~</b>

3. In the Explorer view, browse to Network (THIS COMPUTER) → System → Computers and Groups → Computers, right click Computers and select New Computer... from the menu.



4. In the **Computer** textbox, enter *VersaView5200* and click the **OK** button.

New Compute	r	×
General Polic	zy Setting	
Computer:	Versa View 5200 (1)	
Description:		
Member of:		_
	<u>A</u> dd <u>R</u> emove.	
	2	
	OK Cancel Help	

5. Repeat the previous 2 steps but this time add *ZENPAD*. When finished, you should have **ZENPAD** and **VersaView5200** added to the **Computers** folder.



6. Keep the FactoryTalk Administration Console open for the next section.

#### Add Windows Linked User Group to FactoryTalk Directory

In addition to adding the terminal name as a Computer Account to the FactoryTalk Directory, you will typically have to add the Windows user account that is assigned to the terminal, and therefore launching the session, to the FactoryTalk Directory as well. In this section, you will add a Windows Linked Group to the TMLAB\Domain Users group.

1. In the Explorer view, browse to Network (THIS COMPUTER) →System→Users and Groups→User Groups, right click User Groups and select New | Windows-Linked User Group... from the menu.



2. From the New Windows-Linked User Group popup, click the Add button.

New Windows-Linked User Group	x
General	
Click the Add button to select one or more Windows user groups. When you click the Create button, a new linked user account will be created for each Windows user group you have selected.	
Add Remove	
OK Cancel Help	

3. By default, this dialog box will show the local computer's user and groups, but we want to browse the **TMLAB** domain. From the **Select Groups** window, click the **Locations**... button.

Select Groups	x
Select this object type: Groups or Built-in security principals	Object Types
From this location: RDS1	Locations
Enter the object names to select ( <u>examples</u> ):	Check Names
Advanced OK	Cancel

4. From the Locations selection box, expand the Entire Directory item and select the tmlab.loc item. Click the OK button.

Locations	x
Select the location you want to search.	
Location: RDS1 Entire Directory Itmlab Joc	
2	
OK	el ad

5. Back at the **Select Groups** window, enter *Domain Users* in the text box and click the **OK** button.

Select Groups	x
Select this object type:	
Groups	Object Types
From this location:	
tmlab.loc	Locations
Enter the object names to select ( <u>examples</u> ):	
1 Domain Users	Check Names
2	
Advanced OK	Cancel

6. From the New Windows-Linked User Group window, you should now have TMLAB\DOMAIN USERS listed. Click the OK button.

New Windows-Linked User Group
General
Click the Add button to select one or more Windows user groups. When you click the Create button, a new linked user account will be created for each Windows user group you have selected.
TMLAB\DOMAIN USERS
< III >
Add Remove
OK Cancel Help

7. Close the FactoryTalk Administration Console.

In your deployments, you will most likely want to be more selective with which Windows user groups to link and to which FactoryTalk group to assign them. This section utilized the entire Domain Users group to simplify the lab going forward.
## Create a RemoteApp for FactoryTalk View SE

Remote Desktop Services considers any program configured to run initially - like the one you are about to configure with ThinManager ApplicationLink in this section - an "Initial Program." By default, Windows Server 2008R2 and later Remote Desktop Services requires that each Initial Program be added to the published RemoteApp list, or you will receive an Access Denied message when the Display Client attempts to launch.

While it is recommended that this default security measure be maintained, it can also be disabled through Local or Group Policy (from the Group Policy Editor: Default Domain Policy | Computer Configuration | Policies | Administrative Templates | Windows Components | Remote Desktop Services | Remote Desktop Session Host | Connections | Allow remote start of unlisted programs).

With Windows Server 2012 or newer, the RemoteApp list is managed through Session Collections for domain deployments. In this lab we will maintain the default security behavior and maintain the RemoteApp list. A number of RemoteApps have already been added. In this section, you will add a new one for the FactoryTalk View SE Client application.

- 1. From the **RDS1** image, launch **Server Manager** by clicking the **Server Manager** icon from the **Windows** taskbar. <u>MAKE SURE YOU CLICK THE SERVER MANAGER ICON ON THE RDS1 IMAGE AND NOT THE SHADOW OF</u> <u>THE THIN CLIENT.</u>
- 2. From Server Manager, select the Remote Desktop Services panel item, followed by the TMLabApps panel item (under Collections).
- 3. Click the **Tasks** dropdown list in the **RemoteApp Programs** frame, followed by the **Publish RemoteApp Programs** item.

🚡 Serve	r Manager			
€	Server N	lanager • Remote Desktop Services • Collections • TMLabApps		
■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■	Overview Servers Collections 2 TMLabApps	Properties of the collection Properties of the collection Collection Type Session Resources Remote Desktop User Group TMLAB\Domain Users	TASKS V	CONNECTIONS Last refreshed on 4/11/2019 1 Filter RDS1.tmlab.loc TMLABV.lab RDS1.tmlab.loc TMLABV.lab RDS1.tmlab.loc TMLABV.hab
		REMOTEAPP PROGRAMS Published RemoteApp programs   0 total Remote Desktop is published for the users of the collection. Publish RemoteApp programs Publishing RemoteApp programs will unpublish the Remote Desktop.	TASKS Publish Ren Unpublish F	noteApp Programs RemoteApp Programs

4. From the **Publish RemoteApp Programs** dialog, scroll down and check the **FactoryTalk View Site Edition Client** list item, followed by **Next>**.

🚡 Publish RemoteApp Programs		– 🗆 X
Select RemoteApp RemoteApp Programs Confirmation	<b>Drograms</b> Select the RemoteApp programs to publish to the TM program to the list, click Add.	LabApps collection. To add a RemoteApp
Publishing Completion	The RemoteApp programs are populated from RDS1.1 RemoteApp Program FactoryTalk Administration Console FactoryTalk Diagnostics Counter Monitor FactoryTalk Directory Configuration Wizard FactoryTalk Live Data Test Client FactoryTalk View SE Cache File Management FactoryTalk View Site Edition Client FFAE Database Utility FFAE Database View Construction	IMLAB.LOC.
	Add Verify that the program is installed on all the RD Sessi	%SYSTEMDRIVE%\Program Files (x86)\Cc         %SYSTEMDRIVE%\Windows\system32\in         %SYSTEMDRIVE%\Windows\system32\is         on Host servers in the collection.         2         Next >       Publish         Cancel

- 5. Click the **Publish** button on the **Confirmation** page.
- 6. Once **Status** changes to **Published**, click the **Close** button.

Server	Manager		
$\mathbf{E}$	●  Server Ma	nager 🕨 Remot	e Desktop Services • Collections • TMLabA
	Overview	PROPERTIES Properties of the co	lection
i.	Servers	Collection Type	Session
Ξ.	Collections	Resources	RemoteApp Programs
	TMLabApps	User Group	TMLAB\Domain Users
Ø			
⊗ ⊳			
		REMOTEAPP PROGRA	MS
		Last refreshed on 4/11/2019	9 11:43:12 AM   Published RemoteApp programs   1 total
		Filter	► (R) ► (E)
		RemoteApp Program Nam	e Alias Visible in RD Web Access
	(	FactoryTalk View Site Edition	on Client DisplayClient Yes
			2 Lait rightings

7. Right click the newly listed **RemoteApp** and select **Edit Properties**.

8. Select the **Parameters** panel item and then select the **Allow any command-line parameters** option. Click the **OK** button and the close **Server Manager**.

L	Properties – 🗖 🗙
FactoryTalk View S Show All General + Parameters - User Assignment + File Type Associati +	Properties       Image: Comparison of the parameters         Site Edition Client (RDS1 Collection)         Command-line Parameters         O Do not allow any command-line parameters         Image: Allow any command-line parameters <t< td=""></t<>
	Always use the following command-line parameters
	OK Cancel Apply

If your RemoteApp requires command line parameters, then selecting Allow any command-line parameters is less than secure than selecting Always use the following command-line parameters. We have chosen the less secure option for this lab as you will be creating several ThinManager Display Clients, each of which will launch a separate FactoryTalk View SE Client configuration file, and therefore require a different command-line. This option was chosen simply to save time in the lab.

#### Create a New ThinManager Display Client with Application Link

1. Return to ThinManager and click the **Display Clients** icon **International From the ThinManager tree selector**.



2. From the **Display Clients** tree, right click the **Remote Desktop Services** branch and select **Add Display Client**. This will launch the **Display Client Wizard**.



3. Type *FTV\_CookieDemo* as the **Client Name** on the **Client Name** page of the wizard. Click the **Next** button.

🕿 Display Client Wizard	×
Client Name Enter the Display Client name.	$\otimes$
Display Client Name Client Name 1 FTV_CookieDemo Set a Display Name	
Type of Display Client       Remote Desktop Services       Display Client Group	
	Change Group Permissions
2 < <u>B</u> ack Next > Finish	Cancel Help

- 4. Click the Next button on the Display Client Options page of the wizard.
- 5. Check the **Application Link** checkbox on the **Remote Desktop Services and Workstation Options** page of the wizard. Click the **Next** button.

🖾 Display Client Wizard 🗙	
Remote Desktop Services and Workstation Options Select the options for this Display Client	
Connection Options Allow Auto-Login C Application Link SmartSession Enforce Primary Instant Failover	
< Back Next > Finish Cancel Help	

6. From the Screen Resolution / Scaling Options page of the wizard, check the box for Don't Use Screen Resolution, and select 1280x1024 from the Resolution drop down list. Click the Next button.

🗳 Display Client Wizard	
Session Resolution / Scaling Options Enter scaling options and session resolution if desired setting is different from the screen.	
Session Scaling Options Maintain Aspect Ratio Scale Down Only	
Session Resolution Options       Image: Construction Option Resolution       Resolution Image: Construction Resolution	
< Back	

By default, Remote Desktop Services sessions are started using the screen resolution of the Terminal Profile where the Display Client is assigned. This setting overrides that behavior for this Display Client. So even if the screen resolution of the terminal is different, this Display Client will start with a resolution of 1280x1024, and ThinManager will automatically scale it to fit the screen resolution of the physical display where it is delivered.

 Select RDS1 from the Available Remote Desktop Servers list and click the Right Arrow button to move it to the Selected Remote Desktop Servers list. This is the Remote Desktop Server on which this Display Client will run. Click the Next button.

8	Display Client Wizard	X
Disp	<b>Jay Client Members</b> Select the Remote Desktop Servers for this Display Client.	$\aleph$
Ava	ilable Remote Desktop Selected Remote Desktop Serve	rs
,	Edit Server List	
<	Back Next> Finish Cancel	Help

 From the AppLink page of the wizard, enter the following path for the Program Path and Filename field and Command Line Options field (you can also copy and paste these paths from the LabPaths.txt file by right clicking the Notepad icon pinned to the start bar and selecting LabPaths.txt):

#### Program Path and Filename:

C:\Program Files (x86)\Rockwell Software\RSView Enterprise\DisplayClient.exe

#### Command Line Options:

"C:\Lab Files\CookieDemo1280.cli"

9. Make sure to enclose the **Command Line Options** path in double quotes. Click the **Finish** button.

🞇 Display Client Wizard	×
AppLink Enter the linked application path.	$\aleph$
AppLink Path	
Im Files (x86)\Rockwell Software\RSView Enterprise\DisplayClient.exe	
Browse	1
Command Line Options	
2 C:\Lab Files\CookieDemo1280.cli	
Browse Browse	
Browse	
Be sure to enclose with double quotes.	
3	
< Back Next > Finish Cancel	Help

#### Apply New Display Client to Terminal

1. Click the **Terminals** icon From the ThinManager tree selector.



2. From the Terminals tree, double click the VersaView5200 terminal to launch the Terminal Configuration Wizard.



- 3. Click the Next button on the Terminal Name page of the wizard.
- 4. Click the **Next** button on the **Terminal Hardware** page of the wizard.
- 5. Click the Next button on the Terminal Options page of the wizard.
- 6. Click the **Next** button on the **Terminal Mode Selection** page of the wizard.
- Select FTV\_CookieDemo from the Available Display Clients list and click the Right Arrow button to move it to the Selected Display Clients list. Select Desktop from the Selected Display Clients list and click the Left Arrow button to move it to the Available Display Clients list. Click the Next button.



- 8. Click the **Next** button on the **Terminal Interface Options** page of the wizard.
- 9. Click the Next button on the Hotkey Configuration page of the wizard.
- 10. On the Log In Information page of the wizard, enter thin01@tmlab.loc as the Username and rw as the Password. The terminal will use these credentials to login to the Remote Desktop Server for those Display Clients applied to it that have the Allow Auto Login property enabled. Click the Verify button which should confirm that the credentials entered are valid. Click the Next button.

8	Terminal Configuration Wizard	¢
Log In Infe Enter th informat	ormation ne log in information to log in automatically. Leave the log in tion blank or fill only some of the fields to force manual log in.	
Windows	Log In Information	
Usemame	1 thin01@tmlab.loc Search	
Password	2 ** Password Options	
Domain	Verify	
<	Back Next > Finish Cancel Help	]

11. From the Video Resolution screen of the wizard, select 1920x1080 as the Screen Resolution, 64K Colors as the Color Depth and 60Hz as the Refresh Rate. Click the Next button.

8	Terminal Configuration Wizard
١	Video Resolution           Select the video resolution for this terminal.
ſ	Select Video Resolution
	These are the resolutions supported by the Thin Client model you selected.
	1     Resolution     2     Color Depth     3     Refresh Rate       1920x1080     •     64K Colors     •     60Hz     •
	4
	< Back Next> Finish Cancel Help

- 12. Click the Next button on the Module Selection page of the Terminal Configuration Wizard.
- 13. Click the Next button on the ThinManager Server Monitor List page of the Terminal Configuration Wizard.

14. From the **Monitoring Configuration** page of the wizard, select the **Custom** radio button within the **Monitor Interval**. Keep the defaults for **Monitor Interval**, **Monitor Timeout** and **Monitor Retry**. Enter a value of 1 for the **Primary Up Delay Multiplier**. This will speed up the Remote Desktop Server failover time in a later section. Click the **Finish** button.

Terminal Configuration Wizard
Monitoring Configuration Select the setting for how often the Remote Desktop Server status is monitored by this terminal.
Connection Monitor Settings         Pre-set Monitor Intervals       1       Custom       Image: Custom state         Monitor Interval       5       5       Seconds         Monitor Timeout       1       2       Seconds         Monitor Retry       3       1       1         Primary Up Delay Multiplier       2       1       1         Primary Up Delay       5       5       5         Connection Timeout       10       1       1
< Back     Next >     Finish     Cancel     Help

15. Right click the VersaView5200 terminal from the Terminals tree and select Restart Terminal to apply the changes. Click Yes to restart the terminal.



You may notice a small red exclamation icon appear in the bottom of the terminal icon. This indicates that a change has been made to the terminal's configuration that has not been published to the terminal yet. Restarting the terminal will republish the terminal's configuration, including any recent changes.

If you need to apply a change to a terminal's configuration, simply right click the terminal of interest from the Terminals tree and select **Restart Terminal**. Restarting a terminal simply reapplies the terminal's configuration – unless ThinManager automatically detects a configuration change that requires a terminal reboot, in which case a reboot is performed. **Reboot Terminal**, available from the **Tools** ribbon bar, is equivalent to cycling power to the terminal, and therefore resends the firmware as well as the configuration. It is important to note that in both of these cases the sessions running on the Remote Desktop Servers are not restarted by default. You need to perform a **Reset Session** in this case. To reset a session, return to the **Display Servers** tree segment, and select the Remote Desktop Server on which the session of interest is running. Select the **Sessions** tab from the **Details Pane**. A list of all of the sessions running on the selected Remote Desktop Server will be displayed. Right click the session desired and select **Reset Session**.

16. With the VersaView5200 terminal still selected, click on the Shadow tab in the Details Pane of ThinManager. If the Shadow does not start, click the Configuration tab, then the Shadow tab to reactivate the shadow. The CookieDemo application utilized was developed as a 1280x1024 application, yet we are delivering it to a 1920x1080 display. While it appears to be stretched, this is due to the fact that we are going from a 4x3 aspect ratio to a 16x9 ratio, but ThinManager's new session scaling delivers the 1280x1024 session without bars to a 1920x1080 display.



17. If you click the red "X" in the top right corner of FactoryTalk View SE application (either from the Shadow or at the virtual thin client), it will close, leaving an empty black screen **without** a desktop.

Once the application closes, you will see the desktop background with no Start menu bar for about 30 seconds before you are automatically logged out. When using AppLink, the user does not have access to any other programs or the desktop when connecting and once that application terminates, the user is automatically logged off. The logoff delay is due to the FactoryTalk View Site Edition client continuing to shut down in the background after the display is closed.

If you hit the CTRL+ALT+DEL keyboard sequence from the virtual thin client (by clicking the icon in the taskbar of VMWare Player) while the empty black screen is active, you will be presented with the Task Manager, from which Windows File Explorer could certainly be launched. With ThinManager, this is easily rectified by adding the Key Block Module to your terminal(s), which is a simple way to block common keyboard sequences like CTRL+ALT+DEL, CTRL+ESC, etc. You will use the Key Block Module in <u>Section</u> 12.

A module is a small driver that can be applied to a terminal to provide additional capabilities. For example, ThinManager includes 15 unique Touch Screen Modules, a Redundant Ethernet Module for thin clients with dual Ethernet ports (provides automatic failover of network interfaces connected to the thin client) as well as a MultiSession Screen Saver Module (each Display Client applied to a thin client is automatically cycled on a configurable time basis as a screen saver) – just to name a few. Modules are added to a terminal using the Terminal Configuration Wizard and will be explored in more detail, as mentioned above, in <u>Section 12</u>.

#### Add Automatic Remote Desktop Server Failover

1. From the **RDS1** image, select the **Terminals** tree, expand the **VersaView5200** terminal. Double click the **FTV\_CookieDemo** Display Client under the **VersaView5200** terminal to launch the **Display Client Wizard**.



- 2. Click the **Next** button on the **Client Name** page of the wizard.
- 3. Click the Next button on the Display Client Options page of the wizard.
- 4. Check the Enforce Primary checkbox on the Remote Desktop Services and Workstation Options page of the wizard. Click the Next button.

🛱 Display Client Wizard	x
Remote Desktop Services and Workstation Options Select the options for this Display Client	$\aleph$
Connection Options Allow Auto-Login Application Link SmartSession Finforce Primary Instant Failover	
2 < Back Next > Finish Cancel	Help

5. Click the Next button on the Screen Resolution / Scaling Options page of the wizard.

6. Select RDS2 from the Available Remote Desktop Servers list and click the Right Arrow button to move it to the Selected Remote Desktop Servers list. Click the Finish button.

8	Display	Client Wizard	x
Dis	olay Client Members Select the Remote Desktop Serve	ers for this Display Client.	$\mathfrak{C}$
Ava	ilable Remote Desktop	Selected Remote Desktop Serve	irs
	S2 (10.6.10.52)	RDS1 (10.6.10.51)	
	•		•
,	Edit Server List	,	
		3	
<	Back Next >	Finish Cancel	Help

By adding more than 1 Remote Desktop Server to the **Selected Remote Desktop Servers** list, you have added automatic Remote Desktop Server failover for this Display Client. The order of the servers listed determines the order of failover. In this case, **RDS1** would be the primary and **RDS2** would be the secondary. There is no limit to how many Remote Desktop Servers you can add, the terminal will just keep failing to the next available server in the list.

7. Right click the VersaView5200 terminal and select Restart Terminal to apply the changes. Click Yes on the confirmation dialog box. If you expand the VersaView5200 terminal, and then expand the FTV\_CookieDemo Display Client, you will now see both RDS1 and RDS2 are listed. The green lightning bolt next to RDS1 indicates that the session being delivered to the terminal is running on RDS1. Notice that RDS2 has a red lightning bolt next to it.



To force a failover to occur, we can manually disable the RDS1 Remote Desktop Server from ThinManager. This will disconnect all Remote Desktop Server sessions connected to RDS1. From the Terminals tree, expand the VersaView5200 terminal, and then expand the FTV\_CookieDemo Display Client. Select the RDS1 Remote Desktop Server under the FTV\_CookieDemo Display Client. With RDS1 selected, click the Tools ribbon, followed by the Disable icon.



9. If you quickly shadow VersaView5200 (or look at your demo kit) you will see the new FactoryTalk View SE session launching on RDS2. To shadow, simply select VersaView5200 from the Terminals tree and then click the Shadow tab from the Details Pane. With the RDS1 Remote Desktop Server disabled, its icon has changed from a green lightning bolt to a red lightning bolt with an X, while the RDS2 Remote Desktop Server has changed from a red lightning bolt to green.



 To re-enable RDS1, select RDS1 from the Terminals tree and then click the Enable button in the Tools ribbon. Notice that the green lightning bolt returns to RDS1, while RDS2 returns to red. The active session on the terminal has returned to the primary, RDS1. This is because we checked the Enforce Primary option of the Display Client Wizard in a previous step.



There are actually 2 types of automatic Remote Desktop Server failover supported by ThinManager. The one demonstrated above is called **Standard Failover**. With **Standard Failover**, the failover session is started on-demand. The other type is called **Instant Failover**, which differs by keeping sessions running on each Remote Desktop Server – the active one, and a hot standby one. **Instant Failover** is a great option for deployments that cannot be without visualization for any length of time. Otherwise, **Standard Failover** is perfectly suitable. To enable **Instant Failover** in our example above, we would have additionally checked the **Instant Failover** checkbox in Step 4 above.

### Allow Remote Start of Unlisted Programs

As described previously, Remote Desktop Services considers any program configured to run initially - like the ones used with ThinManager **ApplicationLink** - an "Initial Program." By default, Windows Server 2008R2 and later Remote Desktop Services requires that each Initial Program be added to the published **RemoteApp** list, or you will receive an Access Denied message when the **Display Client** attempts to launch. Previously in this section, the **FactoryTalk View SE Client** was added to the **RemoteApp** list. In this lab, we are going to disable this default behavior via **Group Policy**, resulting in the ability to launch any initial program through Remote Desktop Services without having to maintain the **RemoteApp** list. Through **Group Policy**, we can make this change on the **Domain Controller** and update both **RDS1** and **RDS2** to receive the policy change.

1. Minimize the **ThinManager Admin Console** if it is maximized and double click the **dc.tmlab.loc** shortcut on the desktop to launch a remote desktop session on the **DC** virtual image.



2. If you are prompted to enter login credentials, make sure the username is *tmlab\labuser* and enter a password of *rw*.

Windows Security	×
Enter your credentials	
These credentials will be used to connect to dc.tmlab.loc.	
labuser	
•	
tmlab\labuser	
Remember me	
More choice 2	
OK Cancel	

- 3. Click the **Windows Start** button.
- 4. From the Windows Start Menu, click the Group Policy Management icon.



5. From the Group Policy Editor, right click the Default Domain Policy item and click Edit...



6. From the Group Policy Management Editor, navigate to Default Domain Policy [DC.TMLAB.LOC] Policy → Computer Configuration → Policies → Administrative Templates → Windows Components → Remote Desktop Services → Remote Desktop Session Host → Connections. Double click the Allow remote start of unlisted programs setting on the right-hand side.

Group Policy Management Editor			_ 🗆 X
File Action View Help			
Come Furtherer			
Game Explorer	Connections		
homeoloop	Allow remote start of unlisted	Setting State Com	ment
Internet Information Services	programs	Automatic reconnection Not configured N	•
Incenter monitation services		Allow users to connect remotely by using Remote Desktop S Not configured N	•
Maintenance Scheduler	Edit policy setting	Deny logoff of an administrator logged in to the console ses Not configured N	0
NetMeeting	Requirements:	Configure keep-alive connection interval Not configured N	0
Network Access Protection	At least Windows Server 2008	Limit number of connections Not configured N	0
Network Projector		Suspend user sign-in to complete app registration Not configured N	0
OneDrive	Description:	Set rules for remote control of Remote Desktop Services use Not configured N	0
Online Assistance	This policy setting allows you to	Select network detection on the server Not configured N	0
Password Synchronization	start any program on the RD	Select RDP transport protocols Not configured N	0
Portable Operating System	Session Host server when they	Restrict Remote Desktop Services users to a single Remote D., Not configured N	0
Presentation Settings	start a Remote Desktop Services	Allow remote start of unlisted programs Not configured N	0
A 📑 Remote Desktop Services	session, or whether they can only	Turn off Fair Share CPU Scheduling Not configured N	0
RD Licensing	the RemoteApp programs list.		
Remote Desktop Connection Client			
a 🚞 Remote Desktop Session Host	You can control which programs		
Application Compatibility	on an RD Session Host server can		
Connections	RemoteAnn Manager on Windows		
Device and Resource Redirection	Server 2008 R2 and Windows		
Licensing	Server 2008. If you are using		
Printer Redirection	Windows Server 2012 R2, you can		
Profiles	configure this in the Collection		
RD Connection Broker	Manager.		
Remote Session Environment			
Security	By default, only programs in the		
Session Time Limits	RemoteApp Programs list can be		
Temporary folders	started when a user starts a Remote Derkton Servicer rerrion		
RSS Feeds	Remote Desktop Services session.		
Security Center	If you enable this policy setting,		
Server for NIS	remote users can start any		
Shutdown Options	program on the RD Session Host		
Smart Card	Deskton Services session		
Sound Recorder	For example, a remote user can do		
Sync your settings	this by specifying the program's		
Tablet PC	executable path at connection		
Task Scheduler	time by using the Remote Desktop		
< III >	Extended Standard		

7. From the ensuing policy setting dialog box, click the **Enabled** option button followed by the **OK** button. Close the **Group Policy Management Editor** and the **Group Policy Management** window.

٠	A	Illow remote start of unlisted programs
Allow remote star	t of unlisted prog	Previous Setting Next Setting
<ul> <li>Not Configured</li> <li>Enabled</li> </ul>	Comment:	
<ul> <li>Disabled</li> </ul>	Supported on:	At least Windows Server 2008
Options:		Help:
		This policy setting allows you to specify whether remote users can start any program on the RD Session Host server when they start a Remote Desktop Services session, or whether they can only start programs that are listed in the RemoteApp programs list.         You can control which programs on an RD Session Host server can be started remotely by using the RemoteApp Manager on Windows Server 2008 R2 and Windows Server 2008. If you are using Windows Server 2012 R2, you can configure this in the Collection properties sheet by using Server Manager.         By default, only programs in the RemoteApp Programs list can be started when a user starts a Remote Desktop Services session.         If you enable this policy setting, remote users can start any program on the RD Session Host server when they start a Remote Desktop Services session.         For example, a remote user can do this by specifying the program's executable path at connection time by using the Remote Desktop Connection client.
		OK Cancel Apply

8. Close the remote desktop session on dc.tmlab.loc. Click OK to the confirmation dialog box.



The Group Policy does not take effect immediately on the member Remote Desktop Servers. The final steps of this section will force the update to occur. To apply the change to RDS2, double click the rds2.tmlab.loc shortcut on the RDS1 desktop.



10. If you are presented with a login dialog box, make sure the username is *tmlab\labuser* and enter a password of *rw*.

Windows Security		
Enter your credentials		
These credentials will be used	to connect to rds2.tmlab.loc.	
labuser		
•		
tmlab\labuser		
Remember me		
More choice 2		
ОК	Cancel	

11. From RDS2, right click the Windows Start Button and click Command Prompt (Admin).



12. From the Administrator: Command Prompt window, enter gpupdate /force followed by the ENTER key.



13. Once the updated policy has been applied, close the Administrator: Command Prompt window.



11. Close the remote desktop session on rds2.tmlab.loc. Click the OK button if you receive a confirmation dialog box.



12. Repeat steps 7 – 11 from above on **RDS1**.

This completes the section **Configuring ThinManager Application Link and Failover for FactoryTalk View SE** of the lab. Continue on to see how easy it is to replace a failed terminal with ThinManager.

# Section 3: Terminal Replacement in under 2 Minutes

## Overview

While industrial grade terminals like the **VersaView 5200** do not fail often (since it has no moving parts), it can be replaced in under 2 minutes when it does. Replacement starts by disconnecting the failed terminal and connecting the new terminal in its place. When the new terminal is powered up for the 1<sup>st</sup> time, ThinManager will recognize that it has not been associated with a ThinManager **Terminal Profile** previously and prompt you to assign one to it. One of the available terminal configurations will be the configuration for the failed terminal, since it is no longer in service. Once that terminal configuration is selected, ThinManager will create an association between the **Terminal and Terminal Profile** based on the **MAC address** of the terminal, and will therefore not prompt for this assignment on subsequent reboots of the terminal. Once assigned, the new terminal will essentially assume the identity of the failed terminal and even reconnect to the failed terminal's sessions (Remote Desktop Server, VDI, etc.), which typically are configured to run uninterrupted on the server during this process.

This lab section is composed of the following tasks:

- 1. Power Down the Virtual Thin Client
- 2. Reassign the VersaView5200 Terminal Profile

## Power Down the Virtual Thin Client

- 1. Click the **Terminals** icon **First** from the ThinManager tree selector.
- 2. Under the **Terminals** node, select the **VersaView5200** terminal.
- 3. Select the **Tools** ribbon, and then click the **Power Off** icon. Click the **Yes** button on the confirmation dialog box. This will remotely power down the virtual thin client.



4. To confirm, the **VersaView5200** terminal icon in the **Terminals** tree should be **Red** before continuing. The **Thin01** virtual thin client will automatically close upon powering off.



# Reassign the VersaView5200 Terminal Profile

1. Double click the **Thin02** shortcut from the **RDS1** desktop. Since we are using virtual thin clients, you should think of this step as removing a failed physical thin client with a replacement thin client – as the



2. If you receive a message box asking if you moved or copied the virtual machine, click the I Moved It button.

🆓 Thin01 - VMware Workstation 12 Player (Non-commercial use only)	—	$\times$
<u>P</u> layer ▼   ▶ ▼ 🖶 🛱 🏹		*
Thin01 - VMware Workstation 12 Player       ×         Image: State of the state of		
I Moved It I Cogied It Cancel		

3. Upon powering up, the ThinManager firmware should get delivered to the replacement terminal. Because ThinManager does not have an existing terminal configuration that matches the MAC address of the replacement unit, you will be prompted to either Create new Terminal or select an existing terminal configuration that is currently not active, VersaView5200. Select VersaView5200 from the list using the Down Arrow of your keyboard and hit Enter.

	This Terminal is Undefined on Server RDS1 — Choose the Terminal to Replace or Action –		
tatus :	Name	Туре	
	Create new Terminal		
	VersaView5200	Terminal	

If this was an actual **ThinManager Ready** terminal, like the **VersaView 5200**, you would have the option of assigning a static IP address to the terminal (or using **DHCP**). **ThinManager Compatible** terminals use **PXE** which is inherently dependent on **DHCP**.

4. You have now successfully replaced your thin client. Notice when the replacement unit received the VersaView5200 terminal profile it was automatically reconnected to the Remote Desktop Server sessions that were being delivered to the replacement unit – literally, a bumpless transfer.



This completes the section **Terminal Replacement in Under 2 Minutes** of the lab. Continue on to deliver additional content and visualize it using tiling mode.

# Section 4: Deploying Additional Content Using MultiSession and Tiling

# Overview

To this point, we have only delivered a single ThinManager Display Client to **VersaView5200**. First, the **Desktop** Display Client, then the **FTV\_CookieDemo** Display Client. This lab will focus on applying multiple Display Clients as well as the options to visualize and switch between them from a ThinManager-managed Terminal. When more than one Display Client is applied to a terminal, it is referred to as **MultiSession**. The Display Clients applied to a terminal can be run from the same Remote Desktop Server, or from multiple Remote Desktop Servers – even on different networks. In addition to Remote Desktop Services Display Clients, IP Cameras, VNC and Terminal Shadow Display Clients can be delivered with **MultiSession**. This makes it possible to deliver a very diverse set of content to a single terminal, creating composite applications. The Display Clients can be visualized as tiles on a display so that multiple Display Clients can be monitored at the same time and/or spread out across multiple monitors – or a combination. This lab section is composed of the following tasks:

- 1. Create InstantFizz Remote Desktop Services Display Client
- 2. Create Excel Remote Desktop Services Display Client
- 3. Create SuperJuice VNC Display Client
- 4. Create Camera Display Client
- 5. Apply Display Clients to Terminal and Enable Tiling
- 6. FactoryTalk View SE Client Licensing Benefits
- 7. Remove Tiled Display Clients

## Create InstantFizz Remote Desktop Services Display Client

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We are going to copy the **FTV\_CookieDemo** Display Client to create another View SE Display Client, but this time to launch a different View SE application. We won't need Automatic Remote Desktop Failover, so we will disable this from the copied terminal profile.

- 1. From ThinManager, click the **Display Clients** icon from the ThinManager tree selector.
- 2. From the **Display Clients** tree, expand the **Remote Desktop Services** branch and right click the **FTV\_CookieDemo** item and select **Copy**.



3. Type FTV\_InstantFizz in the Enter new Display Client Name text box and click the OK button.



4. Double click the FTV\_InstantFizz Display Client item.



- 5. From the **Client Name** page of the wizard, click the **Next** button.
- 6. From the **Display Client Options** page of the wizard, click the **Next** button.
- 7. From the **Remote Desktop Services and Workstation Options** page of the wizard, uncheck the **Enforce Primary** checkbox and click the **Next** button.

🛱 Display Client Wizard	x
Remote Desktop Services and Workstation Options Select the options for this Display Client	$\aleph$
Connection Options Allow Auto-Login Application Link SmartSession Friforce Primary Instant Failover	
2       < Back	Help

8. From the Screen Resolution / Scaling Options page of the wizard, change the Resolution to 1920x1080 and click the Next button.

Display Client Wizard	x
Session Resolution / Scaling Options Enter scaling options and session resolution if desired setting is different from the screen.	$\aleph$
Session Scaling Options	7
Maintain Aspect Ratio	
C Scale Down Only	
Session Resolution Options          Image: Don't Use Screen Resolution         Resolution         11920x1080         X	
2       < Back	lelp

9. From the **Display Client Members** page of the wizard, select **RDS2** from the **Selected** list and click the **Left** arrow button to remove it. Click the **Next** button.

8	Display Client Wizard	x
Di	splay Client Members Select the Remote Desktop Servers for this Display Client.	$\approx$
Av	vailable Remote Desktop Selected Remote Desktop Servers  RDS1 (10.6.10.51)  RDS2 (10.6.10.52)  2	
	Edit Server List	
	3 K Rext > Finish Cancel Help	

10. From the **AppLink** page of the wizard, replace **CookieDemo1280** in the **Command Line Options** path with *InstantFizz1920* like below (you can also copy and paste this path from the **LabPaths.txt** file by right clicking the **Notepad** icon pinned to the start bar and selecting **LabPaths.txt**):

📱 Display Client Wizard	×
AppLink Enter the linked application path.	$\mathfrak{>}$
AppLink Path	
Frogram Fath and Filename	miss Display Client ave
JIM Files (x86) (Nockwell Software (NS view Ente	erprise \DisplayClient.exe
	Browse
Command Line Options	
1 C:\Lab Files\InstantFizz1920.cli	
	Browse
art in the following folder	
	Browse
Be sure to enclose with double of	quotes.
0	
< <u>B</u> ack <u>N</u> ext> Finish	Cancel Help

"C:\Lab Files\InstantFizz1920.cli"

11. Click the **Finish** button.

Notice that we did not have to publish another Remote Desktop Services RemoteApp for this Display Client since we selected the option for allowing any command line parameters when we published the FactoryTalk View SE RemoteApp in <u>Section 5</u>.

## Create Excel Remote Desktop Services Display Client

We are going to copy the FTV\_InstantFizz Display Client to create another Remote Desktop Services Display Client.

1. From the **Display Clients** tree, expand the **Remote Desktop Services** branch and right click the **FTV\_InstantFizz** item and select **Copy**.



2. Type EXC\_OEECalc in the Enter new Display Client Name text box and click the OK button.



3. Double click the EXC\_OEECalc Display Client item.



- 4. From the **Client Name** page of the wizard, click the **Next** button.
- 5. From the **Display Client Options** page of the wizard, click the **Next** button.
- 6. From the **Remote Desktop Services and Workstation Options** page of the wizard, click the **Next** button.
- 7. From the Screen Resolution / Scaling Options page of the wizard, change the Resolution from 1920x1080 to 1280x800 and click the Next button.

🗳 Display Client Wizard
Session Resolution / Scaling Options Enter scaling options and session resolution if desired setting is different from the screen.
Session Scaling Options
Maintain Aspect Ratio
Cale Down Only
Session Resolution Options
✓ Don't Use Screen Resolution
Resolution 1 1280x800 - X
< Back Next > Finish Cancel Help
- 8. From the **Display Client Members** page of the wizard, click the **Next** button.
- 9. From the AppLink page of the wizard, replace the Program Path and Filename and the Command Line Options paths with the ones below (you can also copy and paste this path from the LabPaths.txt file by right clicking the Notepad icon pinned to the start bar and selecting LabPaths.txt):

#### Program Path and Filename:

C:\Program Files (x86)\Microsoft Office\Office16\EXCEL.EXE

#### Command Line Options:

"C:\Lab Files\OEECalc.xls"

🙄 Display Client Wizard	×				
AppLink Enter the linked application path.	$\mathfrak{C}$				
AppLink Path Program Path and Filename					
Im Files (x86)\Microsoft Office\Office16\EXCEL.EXE	-				
Browse					
Command Line Options					
C:\Lab Files\OEECalc.xls	_				
art in the following folder					
Browse					
Be sure to enclose with double quotes.					
2					
<back< td=""><td>Help</td></back<>	Help				

10. Click the **Finish** button.

## Create SuperJuice VNC Display Client

An instance of the FactoryTalk View ME Runtime is running on the HMI image. In addition, a VNC Server was installed and running. Together, they will simulate a PanelView Plus for the purposes of this lab. As a sidebar, only one instance of the ME Runtime can be hosted on a single machine, even if it is a Remote Desktop Server.

1. Click the **Display Servers** icon in the ThinManager tree selector.



2. From the **Display Servers** tree, right click the **VNC Servers** branch and select **Add VNC Server**. This will launch the **VNC Server Configuration Wizard**.



3. From the VNC Server Name page of the wizard, enter *HMI* in the VNC Server Name text box. Enter *10.6.10.50* in the VNC Server IP Address text box. Keep **5900** as the Port, and enter *rw* in the Password field. Click the Finish button.

8	VNC Server Configuration Wizard	
v	NC Server Name Enter Name and Network Configuration	
	VNC Server Name VNC Server Name HMI Change Group	
	Network Config	
	VNC Server IP Addres 2 10 . 6 . 10 . 50 Port 3 5900	
	Password 4	
	< Back Next > Finish Cancel Help	
Click	the <b>Display Clients</b> icon from the ThinManager tree sele	cto
	💻 📊 🔁 🥥 🖉 🎽	

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5. Expand the **Display Clients** tree, right click the **VNC** branch and select **Add Display Client**.



6. From the **Client Name** page of the wizard, enter *FTV\_SuperJuice* as the **Client Name**. Click the **Next** button.

🙄 Display Client Wizard		×
Client Name Enter the Display Client name.		$temp{}$
Display Client Name Client Name <b>1</b> FTV_SuperJuice Set a Display Name		
Type of Display Client		
	Change Gr	quo
	Permis	ssions
2	1	1
< <u>B</u> ack <u>N</u> ext > Finish	Cancel	Help

- 7. From the **Display Client Options** page of the wizard, click the **Next** button.
- 8. From the VNC Display Client page of the wizard, <u>un</u>check the All VNC Servers Available checkbox and then click Add button.

8	Display Client Wizard	x
VNC D Se	Display Client lect the VNC Servers to be included	$\aleph$
	t VNC Servers	
	Display Client Options Interactive Shadow	,
< Ba	ack Next > Finish Cancel He	lp

9. Select **HMI** from the **Terminals** tree and click the **OK** button.



10. Back on the VNC Display Client page, keep the check for Interactive Shadow and click the Finish button.

8	Display Client Wizard
V	VC Display Client Select the VNC Servers to be included
	Select VNC Servers
	< Back Next > Finish Cancel Help

## **Create Camera Display Client**

We will now configure a Display Client to access the IP Camera's video stream located at your lab station using Real Time Steaming Protocol (RTSP).

1. Click the **Display Servers** icon in the ThinManager tree selector.

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2. From the **Display Servers** tree, right click the **Cameras** branch and select **Add Camera**. This will launch the **Camera Configuration Wizard**.



- 3. From the **Camera Name** page of the wizard, enter/select the following and then click the **Next** button.
  - Camera Name = Axis
  - **IP Address** = *131.173.8.23*
  - **Port** = 80
  - **Streaming Protocol** = Legacy Motion JPEG
  - Make = Generic
  - Model = Default

🞇 Camera Configuration Wizard	$\times$
Camera Name Enter the camera name and network location	lpha
Camera Name Camera Name Camera Name Camera Group Change Group	
Camera Network Setup Type IP Camera  IP Address Port B Address B	
Camera Connection Streaming Protocol Make Model Model Make 6 Default	
7           < Back	lp

This is a public facing IP camera located at Osnabrück University in Lower Saxony, Germany. The camera is focused on a Foucault pendulum, a device named after the French physicist Léon Foucault. It was created to demonstrate the Earth's rotation. While the camera performs reasonably well over the Internet, it will be a bit sluggish in our virtual thin client, but still effectively shows the concept.

4. From the Camera Authentication page of the wizard, leave the Camera Authentication frame blank and enter *mjpg/video.mjpg* in the **Custom URL** field (or copy and paste from the **LabPaths** shortcut on your Desktop) and click the Finish button.

8	Camera Configuration Wizard
	Camera Authentication Enter the camera usemame and password
	Camera Authentication
	Usemame
	Password
	Verify Password
	Custom URL
	http://131.173.8.23:80/
	1 mjpg/video.mjpg
	2
	< Back         Mext >         Finish         Cancel         Help
C	lick the <b>Display Clients</b> icon from the ThinManager tree select
6	🖴 📃 📗 💼 🤱 🕥 🖉 🐐

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e

6. Expand the **Display Clients** tree, right click the **Camera** branch and select **Add Display Client**.



7. From the **Client Name** page of the wizard, enter *IPC\_Video* as the **Client Name**. Click the **Next** button.

🕿 Display Client Wizard			×
Client Name Enterthe Display Client name.			$\mathfrak{>}$
Display Client Name Client Name			
Type of Display Client	Ţ		
Display Client Group		Change	Group
Create at least one camera overlay		Pen	nissions
< <u>B</u> ack <u>N</u> ext >	Finish	Cancel	Help

- 8. From the **Display Client Options** page of the wizard, click the **Next** button.
- 9. From the **Overlay Layout** page of the wizard, select **1x1** from the **Choose Camera Layout** drop down list and select **1920x1080** from the **Display Size** drop down list. Click the **Next** button.

×	Display Client Wizard
	Overlay Layout Select the size and location of the camera overlays
	Choose Camera Layout
	Add Overlay Remove Overlay
	Display Size 1920x1080 💽 🔁
	Create at least one camera overlay
	< Back Next > Finish Cancel Help

10. From the **Overlay Cameras** page of the wizard, <u>un</u>-check the **All Cameras Available** checkbox and click the **Add** button.

8	Display	/ Client Wiz	ard 🛛 🗙
Overlay Camera Select the ca	<b>as</b> meras available in	the overlay	times
O∨erlay Name	Overlay_1		
Position / Size – Left 0	Top 0	Width 1920	Height 1080
Cameras to show	v Available		
			Delete Set Initial Camera
			Overlay Options
< Back	Next>	Finish	Cancel Help

11. From the Select Camera or Group window, select the Axis item and click the OK button.



12. Back at the **Overlay Cameras** page of the wizard, click the **Overlay Options** button.

8	Display	Client Wiz	ard X
Overlay Camer Select the ca	<b>as</b> ameras available in	the overlay	times
Overlay Name	Overlay_1		
Position / Size			
Left	Тор	Width	Height
0	0	1920	1080
Cameras to sho	w 8 Available		
Axis			Add
			Delete
			Set Initial Camera
			Overlay Options
< Back	Next >	Finish	Cancel Help

13. From the Overlay Options window, check the Scale checkbox and click the OK button followed by the Finish button.

O'	verlay Options
General Options C Enable Overlay C Interactive Crop Show Complete I Border Size	Camera Name
Title Options Title Position Title Size	Top  Normal
Cycling Options	0

ThinManager also supports USB Cameras as sources of content. A camera's video stream can be delivered as its own Display Client, or as an overlay to an existing Display Client. ThinManager supports real time streaming protocols (RTSP) like H.264. RTSP can be decoded by the terminal's CPU or for certain Intel graphics chipsets, by the on-board graphics, reducing the load on the terminal's CPU. The **VersaView 5200** supports RTSP decoding by the on-board graphics chipset.

## Apply Display Clients to Terminal and Enable Tiling

- Click the Terminals icon from the ThinManager tree selector.
   Click the Terminals icon reaction in the ThinManager tree selector.
- 2. From the Terminals tree, double click the VersaView5200 terminal to launch the Terminal Configuration Wizard.
- 3. Click the Next button on the Terminal Name page of the wizard.
- 4. Click the **Next** button on the **Terminal Hardware** page of the wizard.
- 5. Click the Next button on the Terminal Options page of the wizard.
- 6. Click the Next button on the Terminal Mode Selection page of the wizard.
- 7. Select FTV\_InstantFizz from the Available Display Clients list and click the Right Arrow button to move it to the Selected Display Clients list.

🕿 Terminal Configuration Wizard	×
Display Client Selection Select the Display Clients to use on this terminal	$\approx$
Available Display Clients Select Remote Desktop Services Desktop EXC_OEECalc FTV_CookieDemo FTV_InstantFizz Camera Terminal Shadow Workstation Workstation VNC Vitual Screen	ed Display Clients
Edit Display Clients	Override
< Back Next >	Finish Cancel Help

8. Repeat the previous step for the FTV\_SuperJuice, EXC\_OEECalc, IPC\_Video and Desktop Display Clients. Click the Next button.

🕿 Terminal Configuration Wizard	×
Display Client Selection Select the Display Clients to use on this terminal	se
Available Display Clients           Desktop <ul> <li>EXC_OEECalc</li> <li>FTV_CookieDemo</li> <li>FTV_InstantFizz</li> <li>IPC_Video</li> <li>IPC_Video</li> <li>Terminal Shadow</li> <li>Workstation</li> <li>VNC</li> <li>FTV_SuperJuice</li> <li>Edt Display Clients</li> </ul>	Selected Display Clients
< Back	Tinish Cancel Help

9. On the **Terminal Interface Options** page of the wizard, make sure **Show Selector on Terminal, Enable Tiling and Screen Edge Display Client Selection** are checked. Click the **Selector Options** button.

3	Terminal Config	guration Wizard
Terminal I Select on the	nterface Options the display client selector and ma terminal.	in menu options that will be available
Display Cl	ient Selection Options	4
🚺 🗖 sh	ow Selector on Terminal	Selector Options
2 🔽 En	able Tiling	Tiling Options
3 🔽 So	reen Edge Display Client Selectio	n
	ow Display Clients to move to/from	n screen
- PIN Pad (	Dptions	PIN Pad Options

10. Click on the Selector Options button. <u>Un</u>check Auto-hide Selector and click the OK button.



11. Back on the Terminal Interface Options page of the wizard, click the Tiling Options button.

8	Terminal Configuration Wizard	x
T	erminal Interface Options Select the display client selector and main menu options that will be available on the terminal.	~
ſ	Display Client Selection Options	-1°
	Show Selector on Terminal Selector Options	
	✓ Enable Tiling Options	
	✓ Screen Edge Display Client Selection	
	Allow Display Clients to move to/from screen	
	PIN Pad Options PIN Pad Options	
	< Back Next > Finish Cancel Help	

12. Make sure Show Grid is checked, and also check Tile Display Clients at startup. Click the OK button.



13. Click the Next button when you return to the Terminal Interface Options page of the wizard.

14. From the Hotkey Configuration page of the wizard, make sure Enable Display Client Hotkeys and Enable Tiling Hotkey are both checked. Click the Mouse Button Mapping button.

Sector Terminal Configu	uration Wizard
Hotkey Configuration Configure the hotkeys to apply to this term	inal 😫
- Teminal Hotkeys	
🔲 Enable Instant Failover Hotkey	Change Hotkey
I Enable Display Client Hotkeys	Change Hotkeys
I Enable Tiling Hotkey	Change Hotkey
Enable Swap Hotkey	Change Hotkey
Enable Fullscreen Hotkey	Change Hotkey
	Mouse Button Mapping
< Back Next >	Finish Cancel Help

15. From the **Mouse Button Mapping** dialog box, select **Tile** from the **Button 3 (Right Mouse)** drop down list. Click the **OK** button followed by the **Next** button.

Mouse Bu	utton Mapping	x	
Mouse Button Action			
Button 1 (Left Mouse)	Default 💌	^	
Button 2 (Middle Mouse)	Default 💌		
Button 3 (Right Mouse)	Tile		
Button 4 (Scroll Wheel Up)	Default 🔹	≡	
Button 5 (Scroll Wheel Down)	Default 💌		
Button 6	Default 💌		
Button 7	Default 💌		
Button 8	Default 💌		
Button 9	Default		
	2 Car	cel	

ThinManager 9 introduced more mouse button mapping options, including all mouse button types to a number of new mouse button actions like Swap and Full Screen, both of which are applicable to Virtual Screens, which will be introduced in the next section.

- 16. From the Log In Information page of the wizard, click the Next button.
- 17. From the Video Resolution page of the wizard, click the Next button.
- 18. From the **Module Selection** page of the wizard, click the **Add**... button.

8	Terminal Configuration Wizard	x
N	Module Selection Select the modules that load on this terminal at boot up.	$temp{}$
	Installed Modules	
	Module	
	Move Un Move I	)own
	increase increase	
IΓ	Add Configure Remo	ove
	< Back Next > Finish Cancel	Help

19. From the Attach Module to Terminal dialog box, scroll down and select the RDP Experience Module and click the OK button.

Attach	Module to Terminal	x
Module Type	All Modules Show Advanced Modules	-
Key Block Module         Key Block Single Key Module         Keyboard Configuration Module         Local Printer Module         Locate Pointer Module         MicroTouch Touch Screen Driver         Monitor Configuration Module         MultiSession Screen Saver Module         Screen Keyboard Configuration Module         11 St TouchSet Touch Screen Driver		
RDP Experience Mo	DK Cancel	<ul><li></li></ul>

20. Back on the **Module Selection** page of the wizard, select the **RDP Experience Module** and click the **Configure** button.

Sector Terminal Configuration Wizard
Module Selection Select the modules that load on this terminal at boot up.
Installed Modules
RDP Experience Module
Move Up Move Down
Add Configure Remove
< Back Next > Finish Cancel Help

21. From the **Module Properties** dialog box, select **3** from the **Duplicate Server Connect Delay (seconds)**. Click the **Done** button.

հ	Module Properties
Ĭ	Allow Desktop Background YES
	Show Window Contents While Dragging YES
	Allow Menu and Window Animation YES
	Allow Themes YES
	Allow Font Smoothing ND
	Duplicate Server Connect Delay (seconds) 3 🖃 🚺
	Enable Network Level Authentication YES
	Use Hardware Scaling When Available YES
	Set to Default Done Cancel

22. Back on the Module Selection page of the wizard, click the Finish button.

8	Terminal Configuration Wizard
Mo	dule Selection Select the modules that load on this terminal at boot up.
	Installed Modules
N	Iodule
	Move Up Move Down
	Add Configure Remove
	< Back Next > Finish Cancel Help

The RDP Experience Module enables configuration of how the RDP session is rendered at the terminal, including if the Desktop Background or Themes are delivered, if Network Level Authentication (NLA) is enabled, etc. It is typically used with MultiSession because it also staggers the starting of the sessions on the Remote Desktop Server. Without staggering the starting of the sessions, the Remote Desktop Server can respond with a warning message that it is busy.

- 23. Right click the VersaView5200 terminal from the Terminals tree and select Restart Terminal to apply the changes. Click Yes to the confirmation dialog.
- 24. Shadowing the VersaView5200 should show the 6 Display Clients in a 2x3 grid referred to as Tile Mode. If you see an Activation window in Microsoft Excel, just ignore it.



In addition to using **Tile Mode** to switch between the **Display Clients**, the **Display Client Selector** at the top of the terminal can be used. To use the **Display Client Selector**, click and hold the selector to expand the menu. While still holding the mouse button, point to the desired **Display Client** and release the mouse button to select it. You can also return to **Tile Mode** from the **Display Client Selector**.

You may also notice when dragging your mouse back to the lab manual that the **Display Client** will change. This is due to the **Screen Edge Selection** feature that we enabled. Dragging the mouse to either edge of the screen will select the next **Display Client** automatically.

25. By default, the hotkeys **CTRL-PAGE UP** and **CTRL-PAGE DOWN** will also cycle through the Display Clients. We also enabled the **Screen Edge Selector** which allows you to move the pointer to the edge of the screen and shift the next **Display Client** into view. Experiment with each of these. Similarly, the hotkey **CTRL-t** will return to **Tile Mode**.

You can deploy up to 25 (a 5x5 Grid) **Display Clients** using **Tiling Mode** to a single monitor. If you are not using **Tiling Mode**, there is no limit to the number of **Display Clients** that can be applied to a single monitor. All of the processing required for this content is not occurring at the terminal, but at the server.

## FactoryTalk View SE Client Licensing Benefits

The FactoryTalk View Site Edition Client consumes one SE Client license for each unique session running on a Remote Desktop Server that launches **DisplayClient.exe** in a distributed architecture. With the release of ThinManager 11.0 and FactoryTalk View SE 11.0, a single FactoryTalk View SE Client license is all that is required per ThinManager-managed Terminal. This enables you to deliver an unlimited number of sessions (either for ThinManager MultiSession and/or Failover) and consume only 1 SE Client license. The required versions of software for this to work are FactoryTalk View SE Client 11.00.00 or higher and ThinManager 11.0 or higher. This functionally also requires ThinManager to be at Firmware Package 8.1.11 or higher.

The **VersaView5200** terminal is currently hosting (6) different pieces of content, utilizing the Tiling and MultiSession features. Two of the sessions are unique FactoryTalk View SE Client sessions – FTV\_CookieDemo and FTV\_InstantFizz. FTV\_CookieDemo is configured for Failover, so at most, we could launch up to 3 FactoryTalk View SE client sessions for this one terminal. We will open the FactoryTalk Activation Manager to review how the terminal only requires (1) FT View SE Client license for the (2) FT View SE Client sessions.



1. From the Start Menu click the FactoryTalk Activation Manager icon.

2. Once it launches, click the **Find Available Activations** button.

FactoryTalk Activation Manager	_		$\times$
Sectory Talk     Activation Manager	Help		About
Home Manage Activations Advanced			
Welcome to FactoryTalk Activation!			
You are steps away from using your Rockwell Automation product. do is activate your Rockwell product using FactoryTalk Activation.	All you hav	e to	
Ready to get started?     Want to learn more       To activate your Rockwell product, click one of the following buttons:     To learn more about Activation before you started, click the foll	≆? FactoryTalk ⊨get owing	ç	
Find Available Activations	<b>.</b>		
Get New Activations			
Rockwell Automation			

3. Here you will see all the FactoryTalk Activations for the local server. Find the FactoryTalk View SE Client item in the list and notice that only 1 of the 10 SE Client licenses is currently in use despite running 2 separate sessions of the FactoryTalk View SE Client on the virtual thin client.

🚰 FactoryTalk Activation Manager										– 🗆 🗙
Sectory Talk     Activation M	lanager									Help   About
Home Manage Activations Advanced										
S	Select the location that will provide you	ir activations	or add a nev	vactivation location:					Update Act	ivation Search Path
Find Available Activations	Path to Activations	- la call Acatana								
Get New Activations	C. tosers in abilit (bocaments into	CKWell Autom	ationvactivat	lons						
Borrow Activations										
Return Activations										
Pahost Activations										
A contraction of the contraction	Available activations:									
Renew Activations	Product	Serial #	Expires	Activation	Feature Version	Location	Total	In Use	Borrowed	Product Version
	FT V Studio for FTV Enterprise	2529J00933	5/4/2020	RSV.STUDIO	1.00	RDS1	1	0	0	11.00.00
	FT V Studio for FTV Enterprise	2529J00934	5/4/2020	RSV.STUDIO	1.00	RDS1	1	0	0	11.00.00
	FT View SE Client	2524J00645	5/4/2020	RSVSECLI.RW	1.00	RDS1	10	1	0	11.00.00
	RSLogix 5000 Pro (English)	2022J04203	5/4/2020	RS5K_700.EXE	1.00	RDS1	6	0	0	32.00.00
_	ThinManager	3959J00028	5/4/2020	TM.FTA.1	11.00	RDS1	1	0	0	11.00.00
	ThinManager Client License	3959J00028	5/4/2020	TM.CLI.XLR.RED	11.00	RDS1	10	0	0	11.00.00
Learn more										
<b>Rockwell Automation</b>	Refresh Activations									

4. Close out of the FactoryTalk Activation Manager.

#### Remove Tiled Display Clients

- 1. Click the **Terminals** icon From the ThinManager tree selector.
- 2. From the Terminals tree, double click the VersaView5200 terminal to launch the Terminal Configuration Wizard.
- 3. Click the **Next** button on the **Terminal Name** page of the wizard.
- 4. Click the **Next** button on the **Terminal Hardware** page of the wizard.
- 5. Click the Next button on the Terminal Options page of the wizard.
- 6. Click the **Next** button on the **Terminal Mode Selection** page of the wizard.
- Remove the FTV\_InstantFizz, FTV\_SuperJuice, EXC\_OEECalc, IPC\_Video and Desktop Display Clients from the Selected Display Clients list. The FTV\_CookieDemo should be the only Selected Display Client. Click the Finish button.

🕿 Terminal Configuration Wizard	×
Display Client Selection Select the Display Clients to use on this terminal	$temp{}$
Available Display Clients   Remote Desktop Services  Camera  Terminal Shadow  Workstation  VNC  Virtual Screen    Selected Display Clients	•
Edit Display Clients Override	
< Back Next > Finish Cancel	Help

8. Right click the **VersaView5200** terminal from the **Terminals** tree and select **Restart Terminal** to apply the changes. Click **Yes** to the confirmation dialog.

This completes the section **Deploying Additional Content Using MultiSesion and Tiling** of the lab. Continue on to explore MultiMonitor and its evolution, Virtual Screening.

# Section 5: MultiMonitor, Virtual Screens and Session Scaling

## Overview

ThinManager v11 supports up to 7 physical displays connected to a single ThinManager-managed thin client. In addition, ThinManager v9 introduced the concept of a **Virtual Screen Display Client**. The **Virtual Screen Display Client** is similar to the **Tiling** concept but enables you to determine the layout of the content in completely configurable areas, to which you can assign **Display Clients**. You can also overlay **Virtual Screens** to create a picture-in-picture effect with the ability to swap content in/out. Prior to ThinManager 9, the concept of overlays was supported, but only for IP cameras. Now, any type of **Display Client** can be applied to a **Virtual Screen**, and it can be automatically scaled to the size of the **Virtual Screen**. This section will introduce you to **MultiMonitor** and **Virtual Screens** and will be composed of the following tasks:

- 1. Split Content across Multiple Monitors
- 2. Create Virtual Screen Display Client
- 3. Apply Virtual Screen to Terminal
- 4. Add Virtual Screen Swapping

## Split Content across Multiple Monitors

Instead of applying multiple **Display Clients** to a single monitor, we will split the content across 2 monitors using **ThinManager's MultiMonitor**.

- 1. If not already there, return to **ThinManager** on **RDS1**.
- 2. Click the Terminals tree selector icon.



3. From the Terminals tree, double click the VersaView5200 terminal to launch the Terminal Configuration Wizard.



- 4. Click the Next button on the Terminal Name page of the wizard.
- 5. Click the **Next** button on the **Terminal Hardware** page of the wizard.
- 6. Click the Next button on the Terminal Options page of the wizard.

7. From the Terminal Mode Selection page of the wizard, check Enable MultiMonitor. Click the Next button.

🕿 Terminal Configuration Wizard	×
Terminal Mode Selection Select the operating modes for this terminal	$\mathfrak{>}$
- Terminal Mode	
Enable Relevance User Services     Enable Relevance Location Services     Enable MultiMonitor     Enable MultiStation	
Z       < Back	Help

 From the MultiMonitor Video Settings page of the wizard, make sure the following is selected: 2 Monitors radio button, 64K Colors Color Depth, 1920x1080 Resolution for each monitor, 60Hz Refresh Rate for each monitor, Video Port 1 for Monitor 1, and Video Port 2 for Monitor 2. Click the Next button.

🞇 Terminal Configuration Wizard	×
MultiMonitor Video Settings Select the number of monitors and a video mo	de for each monitor.
Number of Monitors	
Color Depth 64K Colors 👻	
Monitor 1 1 1920x1080 Monitor 2 1920x1080	Refresh Rate Port
Use Session Size Limits for Server 2012 Main Menu	▼ Options
< Back <u>Next &gt;</u>	Finish Cancel Help

The **Use Session Size Limits for** drop down list allows you to specify either **Server 2012** or **Server 2008 R2** session size limits. Prior to Windows Server 2012, the maximum screen resolution for an RDP session was 4096 x 2048. Windows Server 2012 has increased this maximum to 8192 x 8192.

9. From the **Monitor Layout** wizard, accept the defaults. This is where you tell ThinManager how your monitors are physically oriented via the **Monitor Layout** section, as well as how to treat each individual monitor via the **Screen Layout** section. Click the **Next** button.

Screens are treated individually by default, which is referred to as **Screening**. Or the screens can be combined logically, which is referred to as **Spanning**.

🕿 Terminal Configuration Wizard	×
Monitor Layout Select the physical monitor layout and the layout of the terminal server sessions.	$temp{}$
Choose your monitor layout	
Main Monitor	
Choose your screen layout	
Relevance User Initial Screen	
Location Initial Screen	
< <u>B</u> ack Next > Finish Cancel	Help

10. Select FTV\_CookieDemo from the Available Display Clients list and click the Right Arrow button for Screen A to move it to the Selected Display Clients list. Repeat this step to move the FTV\_InstantFizz Display Client to Screen A as well. Select FTV\_SuperJuice from the Available Display Clients list and click the Right Arrow button for Screen B to move it to the Selected Display Clients list. Repeat this step to move the IPC\_Video Display Client to Screen B as well. Click the Next button.

🕿 Terminal Configuration Wizard		×
Display Client Selection Select the Display Clients to put on each	screen or station	$\aleph$
A B Available Display Clients Available Display Clients Remote Desktop Services Camera Camera Camera Vorkstation VNC VNC Edit Display Clients Edit Display Clients	Screen A	Up Down
< <u>B</u> ack	lext > Finish Cancel	Help

11. On the Screen Options page of the wizard, click the Screen Options button for Screen A.

🕿 Terminal Configuration Wizard 🛛 🗙 🗙								
Screen Options Set the option	Screen Options Set the options for each screen or station.							
-Screen A Options								
	Main Monitor	1	•	Screen Options				
Screen B Options								
	Main Monitor	2	•	Screen Options				
	< <u>B</u> ack	1	<u>N</u> ext >	Finish Cancel	Help			

12. Make sure Show Display Client Selector, Enable Tiling, Allow Display Clients to move to/from screen and Screen Specific Mouse Button Mapping checkboxes are checked. Click the Selector Options button.

Screen Options		×
Display Clients to move to/from screen     Or 2 w Display Client Selector     Sole Tiling	5 Selector Options Tiling Options	OK Cancel
🔽 4 en Specific Mouse Button Mapping	Mouse Button Mappin	g
🔲 Use Microsoft Extended Desktop		
Main Desktop Monitor	-	
MultiStation Options		
🗹 Station has a keyboard		
🗹 Station has a mouse		
Screen Edge Display Client Selection	)	

13. From the Display Client Selector Options popup, uncheck Auto-hide Selector and click the OK button.

Display Client Selector Options	<b>2</b> ×
	ОК
Tile on Selector activation	Cancel
Selector Menu Size Normal 💌	

14. Back on the Screen Options popup, now click the Tiling Options button.

Screen Options		×
✓ Allow Display Clients to move to/from screen		ОК
✓ Show Display Client Selector	Selector Options	Cancel
✓ Enable Tiling	Tiling Options	
Screen Specific Mouse Button Mapping	Mouse Button Mappir	Ig
🔲 Use Microsoft Extended Desktop		
Main Desktop Monitor	-	
MultiStation Options		
🗹 Station has a keyboard		
🔽 Station has a mouse		
Screen Edge Display Client Selection	1	

15. From the **Tile Options** popup, check the **Tile Display Clients and startup** check box. Click the **OK** button on the **Tile Options** popup.



16. Click the **Mouse Button Mapping** button on the **Screen Options** popup.



17. From the **Mouse Button Mapping** dialog box, select **Tile** from the **Button 3 (Right Mouse)** drop down list. Click the **OK** button.

Ν	louse Button Mapping				$\times$
	Mouse Button Action				
	Button 1 (Left Mouse)		Default	•	^
	Button 2 (Middle Mouse)		Default	•	
	Button 3 (Right Mouse)	1	Tile	•	
	Button 4 (Scroll Wheel Up)	-	Default	•	
	Button 5 (Scroll Wheel Down)		Default	•	
	Button 6		Default	•	
	Button 7		Default	•	
	Button 8		Default	•	
	Button 9		Default	-	
			С СК	Cano	:el

- 18. Click the **OK** button on the **Screen Options** popup.
- 19. Back on the Screen Options page of the wizard, click the Screen Options button for Screen B.

😤 Terminal Configu	uration Wizard				×
Screen Options Set the options	s for each screen	or station.			$\mathfrak{C}$
Screen A Options					
1	Main Monitor	1	Screen Op	tions	
Screen B Options -					
1	Main Monitor	2 💌	Screen Op	tions	
	< <u>B</u> ack	<u>N</u> ext >	Finish	Cancel	Help

20. Make sure Show Screen Specific Mouse Button Mapping checkboxes are checked. Click the Selector Options button.

Screen Options		×
Display Clients to move to/from screen     2 w Display Client Selector     3 de Tiling	5 Selector Options	OK Cancel
	Mouse Button Mapping	
Main Desktop Monitor	<b>-</b>	
<ul> <li>✓ Station has a keyboard</li> <li>✓ Station has a mouse</li> <li>✓ Screen Edge Display Client Selection</li> </ul>	1	

21. From the **Display Client Selector Options** popup, uncheck **Auto-hide Selector** and click the **OK** button.

Display Client Selector Options	<b>2</b> ×
	ОК
Tile on Selector activation	Cancel
Selector Menu Size Normal	

22. Back on the Screen Options popup, now click the Tiling Options button.



23. From the **Tile Options** popup, check the **Tile Display Clients and startup** check box. Click the **OK** button on the **Tile Options** popup.



24. Click the Mouse Button Mapping button on the Screen Options popup.



25. From the **Mouse Button Mapping** dialog box, select **Tile** from the **Button 3 (Right Mouse)** drop down list. Click the **OK** button.

Mouse Button Mapping				
Mouse Button Action				
Button 1 (Left Mouse)	Default	▼ ^		
Button 2 (Middle Mouse)	Default	•		
Button 3 (Right Mouse)		•		
Button 4 (Scroll Wheel Up)	Default	•		
Button 5 (Scroll Wheel Down)	Default	•		
Button 6	Default	<b>v</b>		
Button 7	Default	<b>•</b>		
Button 8	Default	<b>•</b>		
Button 9	Default	<b>•</b>		
1	2			
	ОК	Cancel		

- 26. Click the **OK** button on the **Screen Options** popup.
- 27. Click the **Finish** button.
- 28. Right click the **VersaView5200** terminal from the **Terminals** tree and select **Restart Terminal** to apply the changes. Click **Yes** to the confirmation dialog.
- 29. To see the results, select the VersaView5200 terminal and then click the Shadow tab in the Details Pane.



- 30. Experiment with the **Display Client Selector** of each monitor while **Shadowing**. You can move **Display Clients** from one monitor to the other and back again. This behavior is fully configurable.
- 31. You can also shadow an individual monitor, as opposed to both at the same time. Expand the VersaViewV5200 terminal and select Screen A. Now click the Shadow tab in the Details Pane to shadow just Screen A.



**MultiMonitor** combined with **Tiling** and/or **Virtual Screens** are extremely powerful tools that really elevate the user experience at the terminal. They are especially valuable in **Control Room** settings, or anywhere centralized monitoring is desired. As previously mentioned, some thin clients can support up to 7 monitors. **ThinManager** also includes a **Shared Keyboard** and **Mouse Module** that can be applied to a group of thin clients. The **Shared Keyboard** and **Mouse Module** allows you to control several thin clients using a single keyboard and mouse. As an example, you could have three 7 monitor thin clients in your **Control Room** driving a total of 21 displays all being controlled by a single keyboard and mouse. The **Virtual Screen** section will show you an evolution of this **MultiMonitor** concept and really take content visualization to the next level.

### **Create Virtual Screen Display Client**

1. Click the **Display Clients** icon from the ThinManager tree selector.



2. Right click the Virtual Screen branch and select the Add Display Client item.



3. From the Client Name page of the wizard, enter Overview as the Client Name. Click the Next button.

🕿 Display Client Wizard	×
Client Name Enter the Display Client name.	$\mathfrak{S}$
Display Client Name Client Name Overview	
Type of Display Client	×
- Display Client Group	Change Group
	Permissions
< <u>B</u> ack <u>N</u> ext > F	Finish Cancel Help
- 4. From the **Display Client Options** page of the wizard, click the **Next** button.
- 5. From the Select or Create the Virtual Screen Layout page of the wizard, select 1920x1080 from the Screen Resolution drop down list and then click the Add button.

🗳 Display Client Wizard	x
Select or Create the Virtual Screen Layout Select a pre-configured virtual screen layout or create a custom layout	
Choose Layout Custom  Screen Resolution	
<back next=""> Finish Cancel Help</back>	]

6. From the **Custom Overlay** dialog box, enter *Main* as the **Overlay Name**, keep 0 in the **Left** field, keep 0 in the **Top** field, *1280* in the **Width** field and *1080* in the **Height** field. Click the **OK** button.

	Custor	n Overlay	4 ×
0 verlay Name	1 Main		OK Cancel
Position / Size- Left 0	Top D	Width 2 1280	Height 3 1080

7. Back at the **Select or Create the Virtual Screen Layout** page of the wizard, click the **Add** button again to add another overlay.

8	Display Client Wizard
Select or Create th Select a pre-confi layout	e Virtual Screen Layout gured virtual screen layout or create a custom
Choose Layout	Custom
Screen Resolution	1920x1080
	Add Remove Set Order
< Back Ne	xt > Finish Cancel Help

8. From the **Custom Overlay** dialog box, enter *Side1* as the **Overlay Name**, *1280* in the **Left** field, *0* in the **Top** field, *640* in the **Width** field and *360* in the **Height** field. Click the **OK** button.



9. Back at the **Select or Create the Virtual Screen Layout** page of the wizard, click the **Add** button again to add another overlay.

8	Display Client Wizard			
Select or Create t Select a pre∘con layout	Select or Create the Virtual Screen Layout Select a pre-configured virtual screen layout or create a custom layout			
Choose Layout	Custom			
Screen Resolution	1920x1080 💌			
	Remove Set Order			
< Back N	ext > Finish Cancel Help			

10. From the **Custom Overlay** dialog box, enter *Side2* as the **Overlay Name**, *1280* in the **Left** field, *360* in the **Top** field, *640* in the **Width** field and *360* in the **Height** field. Click the **OK** button.



11. Back at the **Select or Create the Virtual Screen Layout** page of the wizard, click the **Add** button again to add another overlay.

8	Display Client Wizard 🗙 🗙
Select or Create t Select a pre-con layout	he Virtual Screen Layout figured virtual screen layout or create a custom
Choose Layout	Custom
Screen Resolution	1920x1080
	Add       Remove       Set Order
< Back N	lext > Finish Cancel Help

12. From the **Custom Overlay** dialog box, enter *Side3* as the **Overlay Name**, *1280* in the **Left** field, *720* in the **Top** field, *640* in the **Width** field and *360* in the **Height** field. Click the **OK** button, followed by the **Next** button.

	Custon	n Overlay	6 ×
Overlay Name	1 Side3		Cancel
Position 2ize Left 1280	Тор <b>3</b> 720	Width 4	Height 5 360

13. We will now assign content to each of the Virtual Screens created, starting with the **Main** Virtual Screen. Click the **Add** button in the **Selected Display Clients** frame.

8	Displa	ay Client Wiz	zard	x
Virtual Screen Select the op	Configuration tions for this Virtu	al Screen		$\aleph$
Virtual Screen	Main			
Position / Size	<b>T</b>	100-00-	11-1-1-1	-
		1280	1080	
Selected Disels	- Cliente	J		
	y Clients		Add	
			Terminal Overrid	•
			Screen Options	
< Back	Next >	Finish	Cancel	Help

14. Select the **FTV\_CookieDemo** item from the list and click the **OK** button.



15. Back at the Virtual Screen Configuration page of the wizard, click the Next button.

8	Display	Client Wiza	ard X
Virtual Screen Select the opt	Configuration tions for this Virtual	Screen	$\cong$
Virtual Screen	Overview		
Left	Top	Width	Height
Selected Display	/ Clients		
FTV_Cool	kieDemo		Add
			Delete
<u>.</u>			Screen Options
< Back	Next >	Finish	Cancel Help

16. Now for the Side1 Virtual Screen, click the Add button.

8	Displ	lay Client Wiza	ard	X
Virtual Screen Select the op	Configuration tions for this Vir	tual Screen		$\mathfrak{S}$
Virtual Screen	Side1			
Position / Size - Left 1280	Top 0	Width 640	Height 360	_
Selected Display	y Clients		Add	.e
			Screen Opti	ons
< Back	Next >	Finish	Cancel	Help

17. Select the **FTV\_InstantFizz** item from the list and click the **OK** button.



18. Back at the Virtual Screen Configuration page of the wizard, click the Next button.

8	Display Client W	lizard X
Virtual Screen Select the op	Configuration tions for this Virtual Screen	$\mathfrak{S}$
Virtual Screen	Side 1	
Left 1280	Top Width 0 640	Height 360
Selected Displa	y Clients antFizz	Add Delete
		Screen Options
< Back	Next > Finish	Cancel Help

19. Now for the **Side2** Virtual Screen, click the **Add** button.

8	Display	Client Wiza	ard	x
Virtual Screen Select the op	Configuration tions for this Virtua	I Screen		$\mathfrak{S}$
Virtual Screen	Side2			
Position / Size -	Top	Width	Height	7
1280	360	640	360	
Selected Displa	y Clients		Add	
			Screen Options	
< Back	Next >	Finish	Cancel H	lelp

20. Select the FTV\_SuperJuice item from the list and click the OK button.



21. Back at the Virtual Screen Configuration page of the wizard, click the Next button.

2	Display (	Client Wizar	rd 🗙
Virtual Screen ( Select the opt	Configuration ions for this Virtual S	icreen	$\otimes$
Virtual Screen	Side2		
Left [1280	Top  360	Width 640	Height 360
Selected Display	Clients		
TTV_Supe	erJuice		Add
			Delete
			Screen Options
< Back	Next >	Finish	Cancel Help

22. Now for the Side3 Virtual Screen, click the Add button.

8	Displa	ay Client Wiza	ard X
Virtual Screen Select the opt	Configuration tions for this Virtu	al Screen	times
Virtual Screen	Side3		
Position / Size -	Top	Width	Height
1280	720	640	360
Selected Display	/ Clients		Add Delete
			Screen Options
< Back	Next>	Finish	Cancel Help

23. Select the IPC\_Video item from the list and click the OK button.

Select Display Client		×
Remote Desktop So Camera Camera IPC_Video Terminal Shadow Workstation	ervices	
	2 ОК	Cancel

24. Back at the Virtual Screen Configuration page of the wizard, click the Finish button.

8	Display Client	Wizard
Virtual Screen Select the op	Configuration bitions for this Virtual Screen	times
Virtual Screen	Side3	
Left 1280	Top Wid 720 640	th Height 360
Selected Displa	y Clients	
IPC_Vide	10	Add Delete
		Screen Options
< Back	Next > Finish	Cancel Help

# **Apply Virtual Screen to Terminal**

1. Click the **Terminals** tree selector icon.



2. Double click the VersaView5200 terminal.



- 3. Click the Next button on the Terminal Name page of the wizard.
- 4. Click the **Next** button on the **Terminal Hardware** page of the wizard.
- 5. Click the Next button on the Terminal Options page of the wizard.
- 6. From the Terminal Mode Selection page of the wizard, <u>un</u>-check Enable MultiMonitor.



7. From the **Display Client Selection** page of wizard, remove all of the **Display Clients** from the **Selected Display Clients** list. Select the **Overview Display Client** from the **Available Display Clients** list and click the **Right Arrow** button to move it to the **Selected Display Clients** list. Click the **Finish** button.

🕿 Terminal Configuration Wizard		×
Display Client Selection Select the Display Clients to use on this terminal	×	K
Available Display Clients	Selected Display Clients	
Edit Display Clients	Override	
< Back Next >	Cancel Help	

8. Right click the VersaView5200 terminal and select the Restart Terminal item. Click the Yes button to confirm.

Like **MultiMonitor Display Clients**, **Virtual Screen Display Clients** can be configured to be moveable from one **Virtual Screen** to another. You can also enable **Tiling** within a **Virtual Screen**. In addition, you can select any of the **Virtual Screens** to go **Full Screen** from their respective **Display Client Selector**, and then return to **Virtual Screen** mode. **Virtual Screening** allows you to take the concept of digital signage to the plant floor and deliver a wide range of content in virtually an unlimited number of ways.

ThinManager 8.1 added support for 4K monitors. For thin clients with the graphics horsepower to drive a 4K display (3840x2160), you can, for example, carve up the 4K display into 4 separate 1920x1080 quadrants and treat them as individual displays within **ThinManager using Virtual Screening**.

### Add Virtual Screen Swapping

1. From the **Terminals** tree, expand the **VersaView5200** terminal and then double click the **Overview Virtual Screen Display Client** to launch the **Display Client Wizard**.



- 2. From the **Client Name** page of the wizard, click the **Next** button.
- 3. From the **Display Client Options** page of the wizard, click the **Next** button.
- 4. From the Select or Create the Virtual Screen Layout page of the wizard, click the Next button.
- 5. From the Main Virtual Screen Configuration page of the wizard, click the Next button.
- 6. From the Side1 Virtual Screen Configuration page of the wizard, click the Screen Options button.

2	Display	Client Wiza	rd 🗙
Virtual Screen Select the op	Configuration otions for this Virtual	Screen	$\mathfrak{a}$
Virtual Screen	Side1		
Position / Size			
Left	Тор	Width	Height
1280	0	640	360
- Selected Displa	v Cliente		
Sciected Dispid	-		
FIV_Inst	antFizz		Add
			Delete
			Terminal Override
			Screen Options
< Back	Next >	Finish	Cancel Help

7. From the Virtual Screen Options dialog, check the Virtual Screen Specific Mouse Button Mapping checkbox, and select Main from the Swap Destination drop down list. Click the Mouse Button Mapping button.

Virtual Screen Options	×			
Allow Display Clients to move to/from screen				
✓ Show Display Client Selector	Selector Options			
	Tilin 3 tions			
Virtual Screen Specific Mouse Button Mapping	Mouse Button Mapping			
Virtual Screen Display Options Show Virtual Screen Border Virtual Screen Always Visible Hide Virtual Screen at Startup Virtual Screen is view only Allow Full-screen Show Messages Use Terminal Settin	ng 💌			
Swap Options Swap Destination 2 Main Swap on empty Virtual Screen Show "Swap" in Selector Menu Enable Single-swap mode	<b>_</b>			
0	K Cancel			

8. From the **Mouse Button Mapping** dialog, select **Swap** from the **Button 3 (Right Mouse)** drop down list. Click the **OK** button twice, followed by the **Next** button.

Mouse Button Mapping			
Mouse Button Action			
Button 1 (Left Mouse)	Default 💌	^	
Button 2 (Middle Mouse)	Default 💌		
Button 3 (Right Mouse)	1 Swap 💌		
Button 4 (Scroll Wheel Up)	Default 💌	=	
Button 5 (Scroll Wheel Down)	Default 💌		
Button 6	Default 💌		
Button 7	Default		
Button 8	Default 💌		
Button 9	Default	~	
OK Cancel			

9. Back at the Side 2 Virtual Screen Configuration page of the wizard, click the Screen Options button.

8	Display	Client Wiza	ard 🛛 🗙
Virtual Screen ( Select the opt	Configuration tions for this Virtual	Screen	$\cong$
Virtual Screen	Side2		
Position / Size -	Top	Width	Height
1280	360	640	360
- Selected Display FTV_Supe	Clients		Add Delete Terminal Override
< Back	Next >	Finish	Cancel Help

10. From the Virtual Screen Options dialog, check the Virtual Screen Specific Mouse Button Mapping checkbox, and select Main from the Swap Destination drop down list. Click the Mouse Button Mapping button.

Virtual Screen Options	×			
Allow Display Clients to move to/from screen				
✓ Show Display Client Selector	Selector Options			
	Tilir 3 tions			
Virtual Screen Specific Mouse Button Mapping	Mouse Button Mapping			
Virtual Screen Display Options          Virtual Screen Border         Virtual Screen Always Visible         Hide Virtual Screen at Startup         Virtual Screen is view only         Allow Full-screen         Show Messages				
Swap Options Swap Destination Swap on empty Virtual Screen Show "Swap" in Selector Menu Enable Single-swap mode				
	K Cancel			

11. From the Mouse Button Mapping dialog, select Swap from the Button 3 (Right Mouse) drop down list. Click the OK button twice, followed by the Next button.

	Mouse	Button Mapping	×		
Γ	Mouse Button Action				
	Button 1 (Left Mouse)	Default 💌	^		
	Button 2 (Middle Mouse)	Default			
	Button 3 (Right Mouse)	1 Swap 💌			
	Button 4 (Scroll Wheel Up)	Default 💌	≡		
	Button 5 (Scroll Wheel Down)	Default 💌			
	Button 6	Default 💌			
	Button 7	Default 💌			
	Button 8	Default 💌			
	Button 9	Default 🔹 💌			
	1		ncel		

12. Back at the Side 3 Virtual Screen Configuration page of the wizard, click the Screen Options button.

8	Display	Client Wiza	ard X
Virtual Screen Select the op	Configuration tions for this Virtual S	Screen	lpha
Virtual Screen	Side3		
Position / Size - Left 1280	Тор  720	Width 640	Height 360
Selected Display	y Clients		Add Delete Terminal Override
			Screen Options
< Back	Next>	Finish	Cancel Help

13. From the Virtual Screen Options dialog, check the Virtual Screen Specific Mouse Button Mapping checkbox, and select Main from the Swap Destination drop down list. Click the Mouse Button Mapping button.

Virtual Screen Options	×	
Allow Display Clients to move to/from screen		
Show Display Client Selector Selector Options		
	Tilin 3 tions	
Virtual Screen Specific Mouse Button Mapping	Mouse Button Mapping	
Virtual Screen Display Options Show Virtual Screen Border Virtual Screen Always Visible Hide Virtual Screen at Startup Virtual Screen is view only Allow Full-screen Show Messages Use Terminal Settin	ng 💌	
Swap Options Swap Destination 2 Main Swap on empty Virtual Screen Show "Swap" in Selector Menu Enable Single-swap mode	•	
0	K Cancel	

14. From the Mouse Button Mapping dialog, select Swap from the Button 3 (Right Mouse) drop down list. Click the OK button twice, followed by the Finish button.

Mous	e Button Mapping	x
Mouse Button Action		
Button 1 (Left Mouse)	Default 💌	^
Button 2 (Middle Mouse)	Default 💌	
Button 3 (Right Mouse)	1 Swap 💌	
Button 4 (Scroll Wheel Up)	Default 💌	=
Button 5 (Scroll Wheel Down)	Default 🔹	
Button 6	Default 💌	
Button 7	Default 💌	
Button 8	Default 🔹	
Button 9	Default 🔹 💌	
1	2	×
	ОК Са	ancel

- 15. Right click the **VersaView5200** terminal from the **Terminals** tree and select **Restart Terminal** to apply the changes. Click **Yes** to the confirmation dialog.
- 16. Select the Shadow tab to see the results. Right click on any of the 3 side virtual screens to test the swapping capability.

This completes the section **Virtual Screens and Session Scaling** of the lab. Please continue on to **Relevance User Services** to explore user based content delivery.

# Section 6: Relevance User Services - User Based Content Delivery

### Overview

Up to this point in the lab, you have assigned default content to the **Terminal's Profile**. In other words, the content is owned by the terminal and is the same regardless of who is physically at the terminal. You can control a user's access within each application at the terminal by requiring them to login **within** the application and then customizing their experience there – but this is completely separate from ThinManager. This lab section will demonstrate how you can customize the actual content that a user receives at a **Terminal in addition** to the default content that is assigned to the **Terminal Profile**. For instance, you may want to deliver additional content to a Maintenance user that logs into the terminal using ThinManager security, such as the Maintenance Work Order System, or possibly Logix Designer.

This lab section is composed of the following tasks:

- 1. Create a View Studio Display Client
- 2. Create an Engineer User Group
- 3. Create an Engineer User
- 4. Enable User Services for Terminal
- 5. Login as Engineer User
- 6. Add RF IDeas Badge Reader
- 7. Configure ThinManager to Cache Password
- 8. Add Multifactor Authentication with a PIN and Password Storage
- 9. Authentication Pass Through
- 10. Remove Tiled Display Clients

# **Create View Studio Display Client**

1. From ThinManager, click the **Display Clients** icon **International From the ThinManager tree selector**.



2. From the **Display Clients** tree, expand the **Remote Desktop Services** branch and right click the **FTV\_CookieDemo** item and select **Copy**.



- 3. Type *FTV\_Studio* in the **Enter new Display Client Name** text box and click the **OK** button.
- 4. Double click the new FTV\_Studio Display Client item.
- 5. Click the Next button on the Client Name page of the wizard.
- 6. Click the Next button on the Display Client Options page of the wizard.

7. From the **Remote Desktop Services and Workstation Options** page of the wizard, uncheck the **Enforce Primary** checkbox and click the **Next** button.

8	Display Client Wizard
Re	emote Desktop Services and Workstation Options Select the options for this Display Client
	Connection Options          Image: Application Link         Image: SmartSession         Image: Enforce Primary         Image: Instant Failover
	< Back Next Finish Cancel Help

8. From the Screen Resolution / Scaling Options page of the wizard, change the Resolution to 1280x800. Click the Next button.

Display Client Wizard
Session Resolution / Scaling Options Enter scaling options and session resolution if desired setting is different from the screen.
Session Scaling Options Maintain Aspect Ratio Scale Down Only
Session Resolution Options          Image: Construction Option Construction         Resolution 1280x800
2
< Back Next > Finish Cancel Help

We are assigning the 1280x800 resolution here so that the Display Client will scale nicely on the Asus ZenPad in the next section.

9. From the **Display Client Members** page of the wizard, remove **RDS2** from the **Selected Remote Desktop Servers** list, leaving just **RDS1**, click Next.

🞇 Display Client Wizard	×
Display Client Members Select the Remote Desktop Servers for this Display Client.	$\aleph$
Available Remote Desktop Servers Selected Remote Desktop Server	rs
RDS2 (10.6.10.52)	
	•
Edit Server List	
2	
< Back Next > Finish Cancel	Help

10. From the **AppLink** page of the wizard, replace the **Program Path and Filename** and **Command Line Options** with the ones below (you can also copy and paste this path from the **LabPaths.txt** file by right clicking the **Notepad** icon pinned to the start bar and selecting **LabPaths.txt**):

#### Program Path and Filename:

C:\Program Files (x86)\Rockwell Software\RSView Enterprise\VStudio.exe

#### Command Line Options:

/o /type:sed /app:CookieFactory /lang:1033

Click the **Finish** button.

🙄 Display Client Wizard	×
App Link Enter the linked application path.	$\aleph$
AppLink Path Program Path and Filename	
rogram Files (x86)\Rockwell Software\RSView Enterprise\VStudio.exe	
Browse	
Command Line Options	
2 /o /type:sed /app:CookieFactory /lang:1033	
Browse	
Start in the following folder	
Browse	
3	
< Back Next > Finish Cancel	Help

# Create an Engineer User Group

1. Click the **Users** icon <sup>1</sup> in the ThinManager tree selector.



2. From the **Relevance Users** tree, right click the **Relevance Users** node and select **Add User Group**. This will launch the **Relevance User Configuration Wizard**.



3. From the **Relevance User Group Information** page of the wizard, enter *Engineer* as the **User Name** in the **Group Name** frame. Click the **Next** button.

Relevance User Configuration Wizard
Relevance User Group Information Enter the Relevance User Group name.
AD Synchronization Group Group Name User Name Password
Customize Password Options Group Setting Group
Permissions 2    

ThinManager 8 included much tighter integration with Active Directory. For example, a Relevance User Group can be automatically synchronized with an Active Directory group. In doing so, ThinManager would automatically create Relevance Users for each member of the synchronized Active Directory group. It should be noted that only 1 AD Security Group can be used to synchronize with Active Directory in ThinManager. This limitation is because an Active Directory user can be a member of multiple Active Directory groups, but ThinManager does not support this membership model (i.e.: a Relevance User can only belong to one Relevance User Group). ThinManager can also synchronize with an Organizational Unit and automatically create the associated Relevance users. 4. From the **Display Client Selection** page of the wizard, check the **Group Setting** checkbox. Select **Yes** from the **Add User-specific Display Clients** radio button group. Click the **Next** button.

Relevance User Configuration Wizard	x
Display Client Selection Select "Yes" to specify Display Clients for users in this group.	$\aleph$
Add User-specific Display Clients?	
Answer "Yes" here if you want to select user-specific Display Clients in addition to the Display Clients that are in the terminal configuration. Any user-specific clients will be added to the clients specified in the terminal configuration	
coninguration.	
3	
< Back Next > Finish Cancel	Help

Clicking the Group Setting checkbox will pass the setting onto members of the group.

5. Select **FTV\_Studio** from the **Available Display Clients** list and click the **Right Arrow** button to move it to the **Selected Display Clients** list. Click the **Group Setting** checkbox and then click the **Next** button.

🕿 Relevance User Configuration Wizard		×
Display Client Specification Select the Display Clients to which user	rs in this group can connect.	lpha
Available Display Clients	Group Setting 🔽 Selected Display Clients	2
Remote Desktop Services	FTV_Studio	•
Edit Display Clients	Ovemide	
< <u>B</u> ack	Next > Finish Cancel He	p

- 6. From the **Windows Log In Information** page of the wizard, click the **Next** button.
- 7. From the **Terminal Interface Options** page of the wizard, note that you can override the default **Terminal** settings by making changes here. Leave the default settings in place. Click the **Next** button.
- 8. From the **Terminal Hotkey Options** page of the wizard, click the **Next** button.

9. From the **User Group Options** page of the wizard, click the **Activate Display Client at Log In** checkbox, as well as its **Group Setting** checkbox. This setting will pull the user's configured **Display Clients** to the foreground at the **Terminal** when they login. Click the **Finish** button.

Relevance User Configuration Wizard	x
User Group Options Select options for users in this group	$\aleph$
Log In / Log Out Options Group Setting	
Inactivity Timeout	
Activate Display Client at Log In	
User Schedule Group Setting  Set Schedule Schedule	
Group Setting □ ✓ Enable Terminal Effects	
Group Setting  Group Setting  Allow terminal to be shadowed  YES  Allow Interactive Shadow	
< Back Next > Finish Cancel	Help

# **Create an Engineer User**

- 1. Expand the **Relevance Users** node.
- 2. Right click the newly created **Engineer User Group** and select **Add User**. This will launch the **Relevance User Configuration** wizard.



3. From the **Relevance User Information** page of the wizard, check the **Active Directory User** checkbox if it is not already checked. Click the **Search** button.

Relevance User Configuration Wizard	x
Relevance User Information Enter Relevance username, password and permission information.	$\aleph$
Active Directory User Relevance User Information	
AD User Name	
Customize Password Options	
Group Change Group	
Copy Settings	
Copy Settings from another User Copy From	
Permissions	
< Back Next > Finish Cancel	Help

4. From the **Search for AD User** dialog box, click the **Search** button.

		Search for AD User	x
Filter (	Contains 💌	Recurse Security Groups	Locations
Name	Use	er Principal Name	
			- Creared - 1
		OK	

5. Select **Ed** from the user list and then click the **OK** button.

		Locations
	Recurse I	Search
Filter Contain		
Name	User Principal Name	-
Administrator		
Ed	ed@tmlab.loc	=
krhtat		
labuser	labuser@tmlab.loc	
loc01	loc01@tmlab.loc	
loc02	loc02@tmlab.loc	
loc03	loc03@tmlab.loc	
loc04	loc04@tmlab.loc	
loc05	loc05@tmlab.loc	
Mike	mike@tmlab.loc 69	1

By linking to an Active Directory User, this Relevance user's credentials will reside in Active Directory, not within ThinManager. You can also create non-linked Active Directory users in ThinManager, in which case their credentials would reside in ThinManager.

6. Back at the **Relevance User Information** page of the wizard, click the **Next** button.

🕿 R	elevance User Conf	iguration Wizard	x
Relevance User Information Enter Relevance username, password and permission information.			$\aleph$
✓ Active Directory U Relevance User Inf	Jser omation		
AD User Name	Ed	Search	
Customize	Password Options		
-Group		Change Group	
Copy Settings	from another User	Copy From	
	Permissions		
< Back	Next > Fi	nish Cancel	Help

7. From the Active Directory Password page of the wizard click the Next button.

Note that you can choose to store the Active Directory password for this user within ThinManager. This is sometimes done when using badge readers or fingerprint scanners so the user can either scan his/her badge or scan his/her fingerprint only to login (i.e.: no password entry is required). If the Active Directory password were to change outside of ThinManager, the user would be prompted to enter the new password upon their next login attempt, which would then result in ThinManager storing the updated password.

You can also allow ThinManager to automatically rotate the user's Active Directory password based on predefined criteria, in which case, only ThinManager would know the active password. Many times end users choose to have their terminals automatically login to the Remote Desktop Servers with a service account, and then security is managed within the application delivered. Prior to ThinManager 8, a service account with a nonexpiring password would have to be created in this scenario.

- 8. From the **Card / Badge Information** page of the wizard, click the **Next** button. We will incorporate an RF IDeas badge reader shortly.
- 9. From the **Relevance Resolver Selection** page of the wizard, click the **Next** button.

10. From the **Display Client Selection** page of the wizard, notice that the selection is disabled. This is because we chose **Group Setting** for this setting on the **User Group**. Click the **Next** button.

X	Relevance User Configuration Wizard	x
<b>Displ</b> i S	ay Client Selection elect "Yes" to specify Display Clients for this user.	$\aleph$
Add	User-specific Display Clients?	
Any u config	ser-specific clients will be added to the clients specified in the terminal uration.	
	< Back Finish Cancel	Help

11. From the **Display Client Specification** page of the wizard, notice that the selection is disabled here as well. Click the **Finish** button.

🕿 Relevance User Configuration Wizard		×
Display Client Specification Select the Display Clients to which this user car	n connect.	$\aleph$
Available Display Clients	Selected Display Clients	
Edit Display Clients	Override	
< <u>B</u> ack <u>N</u> ext >	Finish Cancel	Help

### **Enable User Services for Terminal**

Click the **Terminals** icon from the ThinManager tree selector.



- 2. Under the Terminals node, double click the VersaView5200 terminal to launch the Terminal Configuration Wizard.
- 3. Click the Next button on the Terminal Name page of the wizard.
- 4. Click the **Next** button on the **Terminal Hardware** page of the wizard.
- 5. Click the Next button on the Terminal Options page of the wizard.
- 6. From the **Terminal Mode Selection** page of the wizard, check **Enable Relevance User Services**. Click the **Next** button.



7. From the **Display Client Selection** page of the wizard, remove the **Overview Display Client** from the **Select Display Clients** listbox and add the **FTV\_CookieDemo Display Client**.

🕿 Terminal Configuration Wizard		×
Display Client Selection Select the Display Clients to use on t	this terminal	$\aleph$
Available Display Clients Remote Desktop Services Desktop EXC_OEECalc FTV_CookieDemo FTV_InstantFizz FTV_Studio Camera Terminal Shadow	Selected Display Clients	•
Workstation	✓ Ovemide	
< Back	Next > Finish Cancel	Help

8. Right click VersaView5200 and select Restart Terminal to apply the change.

When deploying **Relevance Users** for the first time, Enabling **Relevance User Services** at the **Terminal** is a commonly missed step. Without Enabling **Relevance User Services** at the terminals where you want to enable Relevance User logins, the Login option will not be available from the **Main Menu**. If you would like to Enable **Relevance User Services** for all of your terminals, you can create a **Terminal Group**, enable it there, and check the **Group Setting** checkbox. Each Terminal member of the Terminal Group would then have it enabled. Again, **Terminal Groups** will be explored in <u>Section 13</u>.

## Login as Engineer User

- 1. From the **Terminals** icon in the ThinManager tree selector, select **VersaView5200**.
- 2. Click the **Shadow** tab from the Details Pane.
- 3. Hit CTRL-m to access the Main Menu.
- 4. From the **Main Menu**, click the **Log In** button.



- 5. From the Log In popup, enter *Ed* as the User Name.
- 6. From the **Password** popup, enter *rw* as the **Password**.
- 7. Once logged in, the **View Studio Display Client** should be launched. Notice that there are now 2 **Display Clients** listed under the **VersaView5200 Terminal** in the **Terminals** tree. Also notice that the **VersaView5200 Terminal** label now indicates that (**Ed**) is logged in there.



8. Click and hold the **Display Client Selector** within the **Shadow** and hover over the **FTV\_CookieDemo Display Client** to activate it.



- Click and hold the Display Client Selector again and hover over the FTV\_Studio Display Client to activate it. Tiling is also available. This can be controlled within the VersaView5200 Terminal Profile or overridden through the User Configuration Wizard.
- 10. Click the **Display Client Selector** once more and this time select **Main Menu**.
- 11. From the Main Menu, click the Log Off button. Ed will be logged off, and the FTV\_Studio Display Client will be removed.

There is an Inactivity Timeout setting available either at the User Group level or at the User object itself that will automatically logoff the Relevance User after a period of inactivity. The default is 120 seconds. It can be found on the last page of the User Configuration Wizard.

If Ed were to leave VersaView5200 and log into another Terminal (either thin client, PC or mobile device), his content would follow him. You can control what happens to a Disconnected session with the Session Collection in Windows Server 2012 or newer.

If you would prefer Ed to only receive content at a specific Terminal, you can use ThinManager Access Groups (introduced in <u>Section 10</u>) to apply permissions to specific Display Clients. Access Groups can be configured from the Manage ribbon. Once an Access Group is created, it can then be associated with a Relevance User Group. The same Access Group can then be applied as a Permission on the Display Client(s) that you want to restrict or provide access to. When you apply these restricted Display Clients to a Terminal, they will only become visible when a user assigned to that Access Group logs into the Terminal.

ThinManager ships with the TermMon ActiveX control that can be utilized by any ActiveX container, like FactoryTalk View SE. The ActiveX extends most of the ThinManager feature set to the ActiveX container, so you can then programmatically control many elements of ThinManager right from FactoryTalk View SE. As an example, you can trigger a Touchscreen Calibration to launch from a button within FactoryTalk View SE using the ActiveX control. You can also respond to ThinManager events from within FactoryTalk View SE. You can experience the TermMon ActiveX control in <u>Section 18</u>. More details on the ActiveX control can be found at: <a href="http://www.thinmanager.com/kb/index.php/TermMon ActiveX Control">http://www.thinmanager.com/kb/index.php/TermMon ActiveX Control</a>

# Add RF IDeas Badge Reader

An RF IDeas Badge Reader could be connected to a physical thin client via USB. Since we are using a virtual thin client, we will be unable to test the results of this section, but will still go through the steps to add the module.

- 1. From the **Terminals** icon is in the ThinManager tree selector, double click the **VersaView5200** terminal profile.
- 2. Click the **Next** button on the **Terminal Name** page of the wizard.
- 3. Click the **Next** button on the **Terminal Hardware** page of the wizard.
- 4. Click the Next button on the Terminal Options page of the wizard.
- 5. Click the Next button on the Terminal Mode Selection page of the wizard.
- 6. Click the Next button on the Display Client Selection page of the wizard.
- 7. Click the Next button on the Terminal Interface Options page of the wizard.
- 8. Click the Next button on the Hotkey Configuration page of the wizard.
- 9. Click the Next button from the Log In Information page of the wizard.
- 10. Click the **Next** button from the **Video Resolution** page of the wizard.

11. From the **Module Selection** page of the wizard, click the **Add**... button.

8	Terminal Configuration Wizard		
	Module Selection Select the modules that load on this terminal at boot up.		
Installed Modules			
	Module		
	RDP Experience Module		
	Move Up Move Down		
	Configure Remove		
	< Back Next > Finish Cancel Help		

12. From Attach Module to Terminal dialog box, select the RF Ideas pcProx USB Module and click the OK button.

Attac	h Module to Terminal	x
Module Type	All Modules Show Advanced Module	•
On-Screen Keyboa PanJit TouchSet T PenMount Touch S RDP Experience M RDP Port Module RDP Serial Port Re RDP Session IP M Redundant Etherne RF Ideas pcProx M	ard Configuration Module ouch Screen Driver Screen Driver fodule adirection Module odule fodule	^
RF Ideas pcProx U RFIdeas pcProx So Screen Saver Mod Second Network M	ISB Module	

The release of ThinManager 11 includes the new USB ID Reader Module, which enables ThinManager to support generic Badge Reader modules that act as a keyboard emulator.

13. Select the **RF Ideas pcProx USB Module** from the Installed Modules list and click the **Configure** button.

🕿 Terminal Configuration Wizard	×
Module Selection Select the modules that load on this terminal at boot up.	$\mathfrak{S}$
Installed Modules	
Module	
RDP Experience Module	
RF Ideas pcProx USB Module	
Add Remove	Move Down 2 Configure
< <u>B</u> ack <u>N</u> ext > Finish Car	ncel Help

14. From the **Module Properties** dialog box, select **RDR-80582AK0** from the **Model** drop down list and click the **Done** button.

Module Properties		
Model Mode Bits in ID Number (AK0 Only) Bits in Facility Code (AK0 Only) Zero Pad Facility Code and ID (AK0 Only) Allow Manual TermSecure Logon Prompt for TermSecure Password Expose Card ID to TermMon ActiveX Control	RDR-805824K0     Image: Constraint of the secure       TermSecure     Image: Constraint of the secure       16     Image: Constraint of the secure       8     Image: Constraint of the secure       NO     Image: Constraint of the secure       YES     Image: Constraint of the secure       NO     Image: Constraint of the secure       NO     Image: Constraint of the secure       NO     Image: Constraint of the secure	
Set to Default	Done	cel
- 15. Back at the **Module Selection** page of the wizard, click the **Finish** button.
- 16. Right click **VersaView5200** and select **Restart Terminal** to apply the change.
- 17. We want ThinManager to prompt us to assign new badges to users. To enable this option, click the **View** ribbon, followed by the **Options** icon.

-			1			
Edit Manage	Install	Tools	View	Remote View	Help	
Status Bar Show Connected Only	Application	Tabs	Disable Disable	Tab Reordering Tab Tear-Off	Select Reports	Print
Interface			Theme		Reports	Print

18. From the **Options** window, check the **Display "Create New User" dialog for unknown users** and click the **OK** button.

Options	$\times$
General Options ✓ Display "Create New Terminal" dialog for unknown terminals. 1 ✓ Display "Create New User" dialog for unknown users.	
□ Icon Options □ Minimize to the System Tray.	
License Options Warn if license will expire 10 day(s). A value of 0 disables	
Cancel	

19. At this point, if you had a badge reader, you would take the **badge** and tap it on the RF IDeas badge reader.

20. If this was a new badge to ThinManager, you would be presented with the option to assign it to a user. **NOTE:** Since you do not have a badge reader in the Cloud lab, you will not see this window appear.

Relevance User Configuration Wizard	x
User Replacement Assign this card number to an existing user or create a new user	
New Card Number : 54089 Click "Assign Card Number to Existing User" to replace the card number of an existing user. To create a new user click "Next".	
Assign Card Number to Existing User	
TermSecure User to replace:	
< Back Next > Finish Cancel Help	]

### Configure ThinManager to Cache Password

In the next steps you will configure ThinManager to cache Ed's password, so he does not have to enter it for a configurable amount of time after initial login.

1. Click the **Users** icon <sup>1</sup> in the ThinManager tree selector.



2. Expand the **Engineer** group and double click the icon for **Ed**.



3. Click the PIN Options button on the Relevance User Information page of the wizard.

🕿 Relevance User Configuration Wizard	×
Relevance User Information Enter Relevance username, password and permission information.	$temp{}$
Active Directory User	
Relevance User Information	
AD User Name Ed	
Search	
Customize	
Password Options PIN Options	
Group	
Engineer Change Group	
Copy Settings Copy Settings from another User	
Permissions	
< <u>B</u> ack <u>N</u> ext > Finish Cancel	Help

4. From the **PIN Maintenance Options** popup, click the **Change** button next to **Cache authorization is disabled**.

PIN Maintenance Options	×
PIN Options Minimum PIN Length Maximum PIN Length	4
Use a temporary PIN	
Cache authorization is disabled	Change
PIN Maintenance	
Require User to change PIN every	0 days
Require User to change PIN at next login	י 🗆
User PIN	
PIN	
Verify PIN	
	OK Cancel

5. Enable password caching for 1 minute by entering a 1 in the input field next to the **Cache authorization for** item. Click **OK**.

Authorization Cache	×
Cache authorization for	minutes
Clear Authorization Cache for this user	Clear
2 ок	Cancel

6. Click **OK** on the **PIN Maintenance Options** popup, followed by the **Finish** button.

As previously mentioned, you could also configure ThinManager to permanently store a user's password, so that they only provide a single factor (i.e.: badge, fingerprint scan) to authenticate. Furthermore, ThinManager can be configured to automatically rotate the password at a configurable interval to comply with password change policy.

- 7. Return to the shadow of the VersaView5200 terminal, hit CTRL-m on the keyboard to open the Main Menu.
- 8. Click the **Log In** button.
- 9. Enter *ed* as the **User Name** with a **Password** of *rw* as before to login as Ed.
- 10. Hit CTRL-m on the keyboard to open the Main Menu again, and click the Log Off button.
- 11. Once Ed has been logged off, hit CTRL-m on the keyboard one more time to return to the **Main Menu** and click the **Log In** button.
- 12. This time you will notice that you only have to enter *ed* as the username since the password has been cached by ThinManager for 1 minute. Password caching is generally used with badging and/or fingerprint scanning. Log Off Ed.

## Add Multifactor Authentication with a PIN and Password Storage

As part of ThinManager 10, a permanent or temporary PIN can be assigned to Relevance Users as an additional option for authenticating.

In the next steps you will configure ThinManager to store the Active Directory password for Ed so that a password will not be required, and instead you will assign a PIN to Ed's user account and require the PIN to authenticate.

1. Click the **Users** icon <sup>1</sup> in the ThinManager tree selector.



2. Expand the Engineer group and double click the icon for Ed.



3. Click the PIN Options button on the Relevance User Information page of the wizard.

2	Rele	evance User Configuratio	on Wizard 🛛 🗙		
	Relevance User Information Enter Relevance username, password and permission information.				
	✓ Active Directory User ■ Relevance User Information				
	AD User Name	Ed			
		,	Search		
		Customize			
	- Group		Change Group		
	]=3				
	- Copy Settings Copy Setti	ngs from another User	Copy From		
	Permissions				
	< Back	Next > Finish	Cancel Help		

4. Click the **Change** button within the **PIN Options** frame.

PIN Maintenance Options	×
PIN Options Minimum PIN Length Maximum PIN Length	4
Use a temporary PIN	
Cache authorization for 1 minute	Change
PIN Maintenance	
Require User to change PIN every	0 days
Require User to change PIN at next login	
User PIN	
PIN	
Verify PIN	
ſ	OK Cancel

5. Enter a *0* for the **Cache authorization for** textbox and click the **Clear** button next to the **Clear Authorization Cache** for this user to reset the cache. Confirm the **Clear User Authorization Cache** prompt and click **OK**.



6. Enter *1234* in the **PIN** field within the **User PIN** frame and re-enter in the **Verify PIN** field. Click the **OK** button, followed by the **Next** button.

PIN Maintenance Options	×
PIN Options Minimum PIN Length 4 Maximum PIN Length 4	
Use a temporary PIN Cache authorization is disabled	Change
PIN Maintenance Require User to change PIN every 0 Require User to change PIN at next login	days
User PIN PIN Verify PIN 2 **** 3 OK	Cancel

7. From the Active Directory Password page of the wizard, check the Allow ThinManager to store password checkbox, and enter *rw* as the password. Click the Verify button which should confirm that the credentials entered are valid. Click Next.

🕿 Relevance User Configuration Wiza	ard				×
Active Directory Password Password Maintenance Options					$\aleph$
Active Directory Password	word		Re	Verify -Sync Account	
Password Maintenance Allow ThinManager to rotate pa Use System Defaults Minimum Password Length Maximum Password Length Rotate Password every	20 60 0	days			
Authorization Caching Cache authorization is disabled			Change		
< <u>B</u> ack	4 <u>N</u> ext >	Finish	Ca	incel H	lelp

8. On the **Card/Badge Information** page of the wizard, uncheck the **Prompt for Password** checkbox under the **Manual** Login frame, and check the **Prompt for PIN** checkbox. Click the **Finish** button.

🕿 Relevance User Configuration Wizard	×
Card / Badge Information Enter card/badge information if user has one.	$temp{}$
Card / Badge Login	
Prompt for Password     Prompt for PIN	
Biometric Login  Enroll Fingerprint  Prompt for Password  Prompt for PIN	
Manual Login  Prompt for Password  Prompt for PIN	
Sext > Finish Cancel	Help

- 9. Return to the shadow of VersaView5200 and hit CTRL-m again to open the Main Menu.
- 10. Click the **Log In** button.
- 11. Enter *ed* as the **User Name**.
- 12. Using the keyboard, enter Ed's **PIN 1234**, to complete the login process. As before, the **FTV\_Studio Display Client** should be delivered.
- 13. Once finished experimenting Log Off so that Ed is no longer logged in.

In the example above, we set a permanent PIN for Ed. We could have just as easily required a temporary PIN that Ed would create for himself at the terminal. We could also require him to change this PIN on a scheduled interval.

## Authentication Pass Through

With ThinManager 10 and FactoryTalk View 10 or higher, a **Relevance User** login can be automatically passed into running sessions of FactoryTalk View SE. This is accomplished by seamlessly and securely passing a security token from ThinManager to those instances of FactoryTalk View SE being delivered to the ThinManager-managed terminal where the login occurred. There is no longer a need to hard-code passwords and/or write VBA code to pass login credentials from ThinManager to FactoryTalk View SE.

In the next steps you will configure ThinManager to deliver (2) separate FactoryTalk View SE Display Clients to the virtual thin client in tile mode. The **tmlab\thin01** user will automatically establish the two sessions, as this is the domain user that is assigned to the **VersaView5200** terminal profile. Next you will badge in with Ed's badge and see the results of the built-in Authentication Pass Through feature.

1. From the **Terminals** icon in the ThinManager tree selector, double click the **VersaView5200** terminal profile.



- 2. Click the Next button on the Terminal Name page of the wizard.
- 3. Click the **Next** button on the **Terminal Hardware** page of the wizard.
- 4. Click the Next button on the Terminal Options page of the wizard.
- 5. Click the **Next** button on the **Terminal Mode Selection** page of the wizard.

6. From the **Display Client Selection** page of the wizard, select **FTV\_InstantFizz** from the **Available Display Clients** list and click the **Right Arrow** button to move it to the **Selected Display Clients** list, click the **Finish** button.

🕿 Terminal Configuration Wizard	×
Display Client Selection Select the Display Clients to use on this terminal	$\mathfrak{a}$
Available Display Clients   Remote Desktop Services   Remote Desktop  EXC_OEECalc  FTV_CookieDemo  FTV_Instant Fizz  FTV_Studio  Camera  Terminal Shadow  Workstation  VNC	Selected Display Clients  FTV_Cookie Demo FTV_Instant Fizz
Edit Display Clients	Ovemide
< <u>B</u> ack <u>N</u> ext >	Finish Cancel Help

- 7. Right click the **VersaView5200** terminal from the **Terminals** tree and select **Restart Terminal** to apply the changes. Click **Yes** to the confirmation dialog.
- 8. Shadow the **VersaView5200** terminal and confirm that user **tmlab\thin01** is signed-in to both FactoryTalk View SE client sessions.



- 9. From the shadow, hit CTRL-m on the keyboard to open the Main Menu.
- 10. Click the **Log In** button.
- 11. Enter *ed* as the **User Name** and *1234* as the **PIN**. Verify that **tml1ab\ed** user automatically logged into both **FactoryTalk View SE** display clients, and that the **FTV\_Studio** client is delivered in tile mode.



- 12. Hit CTRL-m on the keyboard again to open the Main Menu.
- 13. Click the Log Off button.
- 14. Verify that the **tmlab\thin01** user is logged back into the tiled FactoryTalk View SE display clients.

### Remove Tiled Display Clients

1. Click the **Terminals** icon from the ThinManager tree selector.



- 2. From the Terminals tree, double click the VersaView5200 terminal to launch the Terminal Configuration Wizard.
- 3. Click the Next button on the Terminal Name page of the wizard.
- 4. Click the **Next** button on the **Terminal Hardware** page of the wizard.
- 5. Click the Next button on the Terminal Options page of the wizard.
- 6. Click the Next button on the Terminal Mode Selection page of the wizard.
- 7. Remove the FTV\_InstantFizz Display Client from the Selected Display Clients list. The FTV\_CookieDemo should be the only Selected Display Client. Click the Finish button.

🕿 Terminal Configuration Wizard	×
Display Client Selection Select the Display Clients to use on this terminal	$\approx$
Available Display Clients          Remote Desktop Services         Camera         Terminal Shadow         Workstation         VNC         Vitual Screen	Selected Display Clients
Edit Display Clients          < Back	Override 2 Finish Cancel Help

8. Right click the VersaView5200 terminal from the Terminals tree and select Restart Terminal to apply the changes. Click Yes to the confirmation dialog.

This completes the **User Based Content Delivery** section of the lab. Continue on to deliver location based content with Relevance Location Services.

## Section 7: Relevance Location Services – Location Based Content Delivery

#### Overview

So far we have assigned and delivered content to a terminal, as well as content to a user. The next level of the content delivery model is **Location**. When talking about mobility on the plant floor, providing access anywhere to applications that control moving processes may cause more problems than solve. ThinManager **Relevance** provides the tools to safely provide access to these applications because you can define a **Location** and associate **Display Client**(s) with that **Location**. When a mobile device leaves a specified **Location**, the content associated with that **Location** will be no longer delivered to the mobile device. Different users may receive different content from the same **Location** based on their **Access Groups** in ThinManager.

So how does ThinManager determine a mobile device's location? By using Location Resolver technologies like:

- 1. Quick Response Codes (QR Codes)
- 2. Bluetooth Beacons
- 3. Wireless Access Points
- 4. Global Positioning Systems (GPS)

Relevance supports iOS, Android and Windows mobile devices. For iOS devices, ThinManager offers the iTMC application which is available through the App Store. For Android devices, ThinManager offers the aTMC application which is available through the Google Play Store. And for Windows tablets, ThinManager offers WinTMC, which is a Windows based application that essentially emulates a ThinManager terminal. In order to leverage all of the available Location Resolver technologies on a Windows Tablet, it is recommended that Windows 10 be utilized.

**Location Resolvers** can be easily registered through iTMC, aTMC or WinTMC. In this section you will register a QR Code to represent a location of a Logix PLC.

Once you have registered your **Location Resolvers**, you can then assign them to **Locations** created within ThinManager, and in turn, specific **Display Clients** can be associated with that **Location**.

As an example, let's say we would like to apply laminated QR Codes to all of our process automation assets, so that our Maintenance staff could walk up to an instrument with their mobile device, scan a QR Code, and instantly receive a series of documents and/or or applications that are assigned to that instrument. To do so, we would first need to register each QR Code from the mobile device (using a ThinManager client application). Within ThinManager, we would create the **Display Clients** necessary for the desired documentation. This might include a series of **Display Clients** for Adobe Reader that open specific user manuals and/or standard operating procedures located on a file share. With the **Display Clients** created, we would then create a new **Location** in ThinManager, assign the **Display Clients** to it, and then associate the new QR Code **Resolver** to the **Location**.

We can also assign a default **Location** to a **Terminal**, which would enable a mobile device to interact with that **Terminal** in some very unique ways. Instead of applying **Display Clients** to a **Terminal** like we have throughout the lab so far, we would assign the **Display Client**(s) to the Location and then assign the **Location** to the **Terminal**. This extra level of indirection creates some very interesting possibilities. For instance, we could allow a user to scan a QR Code at the terminal that would actually **Transfer**, or redirect, the content from the terminal to the mobile device. We could also confine access to this content by applying a Bluetooth Beacon to "geo-fence" the user. When the user walks outside of the range established for the Bluetooth Beacon, the content would automatically be removed from the device, as it would be returned to the terminal. In this example, the **Transfer** is considered a **Resolver Action**. ThinManager **Relevance** supports 5 **Resolver Actions**:

- 1. Forced Transfer
- 2. Manual Transfer
- 3. Clone
- 4. View Only Shadow
- 5. Shadow

The Forced Transfer re-directs Display Client(s) from a terminal to a mobile device without requiring approval at the terminal. Manual Transfer, on the other hand, would require a user's acknowledgement at the terminal to approve the Transfer request. Clone would spin up new, independent sessions of the Display Clients assigned to the terminal, while View Only Shadow and Shadow would do just what you would expect. This lab section is composed of the following tasks:

- 1. Install iTMC on Your Mobile Device (iOS Users)
- 2. Install aTMC on Your Mobile Device (Android Users)
- 3. Create Terminal Shadow Display Client
- 4. Create Terminal Profile for Mobile Device
- 5. Assign Terminal Profile to Mobile Device
- 6. Create Public Display Server
- 7. Reassign Display Client to Public Display Server
- 8. Login as Engineer User
- 9. Create Logix Designer Display Client
- 10. Register QR Code Location Resolver from Mobile Device
- 11. Create Engineer Access Group
- 12. Create Relevance Location for Logix PLC
- 13. Resolve to Location from Mobile Device

QR Codes are essentially more robust alphanumeric versions of barcodes. QR Codes can be generated and printed from several websites. Bluetooth Beacons are essentially proximity sensors for mobile devices. They offer a tunable signal strength, and hence range, from 0 to approximately 50 meters. ThinManager 8 introduced support for the iBeacon, which utilizes Apple's Bluetooth beacon protocol. There are numerous iBeacons available in various forms. Wireless Access Points expose a unique identifier called a BSSID which ThinManager can use to determine on which Access Point a mobile device is connected. GPS offers accurate location resolution down to 5 feet, but is only for outdoor applications.

Fencing (or geo-fencing) is defined as combining resolvers to limit access to specific Display Clients based on Location. For instance, a Bluetooth Beacon can be used to geo-fence in a QR Code so that a mobile device must be within range of the Bluetooth Beacon when they scan the QR Code to actually resolve to the associated Location and receive its content. Once the mobile device is outside the range of the Bluetooth Beacon, the Display Clients associated with the Location would not be delivered to the mobile device.

# Install iTMC on Your Mobile Device (iOS Users)

If you will be using an iOS mobile device, you will need to install iTMC in order to complete the mobility portions of this lab. If you have an Android mobile device, you may skip onto the next section.

1. Launch the App Store from your iOS device.



2. In the **Search** field, enter *iTMC* for *ThinManager Platform*. Touch the **Download** icon.



3. Once the download is complete, touch the **OPEN** button.

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4. Launch **iTMC**. If it requests to access to your location while using the app, touch the **Allow** button.



iOS treats Bluetooth beacons as Location Services devices, so if you intend to use beacons with an iOS device, you will need to enable Location Services for iTMC.

5. Enter **the public IP address** of your **RDS1** server and touch the **OK** button.



6. Enter a **Description** for this connection and touch the **Save** button.





### Install aTMC on Your Mobile Device (Android Users)

If you will be using an Android mobile device, you will need to install aTMC in order to complete the mobility portions of this lab.

1. Ensure you mobile device has an Internet connection and open Chrome.



2. From **Chrome**, enter the following **URL**: *downloads.thinmanager.com*. Touch on the **aTMC** download link (1.0.6.apk in the screen shot below, but you may see a newer version which is ok).

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TM 9.0 Service Pack 4	8/15/2017	106 MB - md5: dbe75005ec077745f97246cdbc675a9 Release Note
irmware Packages		
Firmware Package 8.1.4	8/8/2017	termpack-8.1.4.pk 50.9 MB - md5: 604acee592b0484494437273bcd1d4
Firmware Package 8.0.4	7/29/2016	termpack-8.0.4b.pk 50.3 MB - md5: f986eebf561646d8a24754f586c2eb
Firmware Package 7.1.6	4/7/2016	termpack-7.1.6.pk 42.5 MB - md5: bb249601cd68aabadd708fc2f16949
Firmware Package 6.0.16	4/18/2014	termpack-6.0.16.pk 27.2 MB - md5: 8faf47089bc9fe55dcf65a265689af
Firmware Package 5.0.5	3/10/2014	termpack-5.0.5.pl 20.7 MB - md5: 5d6deb9219eb157b2ec293417424a9
ermMon ActiveX Control		
TermMon Demo Application 7.0.5	4/25/2016	TermMon Demo Application 7.0.5.z 122.1 KB - md5: 6a2717etd25aa5350114d862fba35b
·		TermMon 7.3.0.00
TermMon ActiveX Control 7.3.0	4/25/2016	94 KB - md5: a599890b5b67b99777d89f83a89adb Usage Informatio
hinManager Clients		
iTMC 8.0.809	1/31/2017	iTMC 8 on the App Store on iTune
WinTMO 2 1 2 (Windows 2 and Name)	11/4/0016	WinTMC_312_Install.m 25.2 MB - md5: 5931caf0466331d10b4b331a6b08fc
win I MC 3.1.2 (windows 8 and Newer)	11/4/2010	Release Note Prerequisite Informatio
		WinTMC_312_Legacy_Install.m 24.9 MB - md5: 3ffaf6a19b7c9ebe4add296118b1b3
WinTMC 3.1.2 (Windows 7 and Older)	11/4/2016	Release Note Prerequisite Informatio
aTMC 1.0.6	10/26/2016	7.2 MB - md5: 31a8feea aTMC on the Google Play Stor
ermCap Database		
TermCap 9.0.11	8/22/2017	termcap.db.9.0.1 4.4 MB - md5: c78647c5e087ee7ca6e42865915883
ouchscreen Calibration		
Touch Screen Calibration Program	4/5/2007	CalTouchScreen.ex

aTMC can also be downloaded from the Google Play Store.

3. Once **aTMC** is downloaded, install it.



4. Once **aTMC** is installed, launch it. Give this connection a **ThinServer Name** (DemoKit in the screen shot below), and then enter the **public IP address** of your assigned **Cloud** server. You can find the **Public IP Address** of your **RDS1** server on the **Desktop Wallpaper of RDS1** in the top right corner. Touch the **Next** button.

	A							<b>≵</b>	🕒 10:28 AM
aTMC		ADD I		SERVER				ADD 1	HINSERVER
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5. Click the Add button.

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	ADD NEW TH	IINSERVER		
	ThinServer Na	ame		
	DemoKit			
	Primary			
	Secondary			
	Secondary			
	CANCEL			
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### Create Terminal Profile for Mobile Device

- 1. Click the **Terminals** icon **I** from the ThinManager tree selector.
- 2. From the **Terminals** tree, right click the **Terminals** node and select **Add Terminal**. This will launch the **Terminal Configuration Wizard**.



3. Type ZenPad as the Terminal Name on the Terminal Name page of the wizard. Click the Next button.

🞇 Terminal Configuration Wizard		×
Terminal Name Enter the name for this terminal, select the terminal group to which this termin choose to copy the configuration from another terminal.	al belongs, or	$\prec$
- Teminal Name		_
1 ZenPad	Description	
This must be a unique name using letters, numbers, hyphens (·), and underscores (_) only.		
Teminal Group		
	Change Group	
Copy Settings		
Copy Settings from another Terminal	Copy From	
Permissions		
< <u>B</u> ack <u>N</u> ext > Finish C	Cancel Help	

4. Select Generic from the Make/OEM drop down list and Android Device from the Model drop down list. Click the Next button.

🕿 Terminal Configuration Wizard	×
Terminal Hardware Select the manufacturer and model of this terminal.	$temp{}$
Use this to configure the type of hardware for this terminal.	
Make / OEM 1 GENERIC	•
Model 2 Android Device	•
OEM Model Android	
Video Chipset UNKNOWN	
Terminal Firmware Package Model Default	▼ Terminal will run Package 8.2
Terminal ID and IP Address	
Terminal ID None	Clear Edit
< <u>Back</u> Finish	Cancel Help

If you are using an iOS device in the lab, you would select **Apple** as the **Make / OEM** and **iOS Device** as the **Model**.

- 5. Click the **Next** button on the **Terminal Options** page of the wizard.
- 6. Check the Use Display Clients, Enable Relevance User Services, and Enable Relevance Location Services checkboxes on the Terminal Mode Selection page of the wizard. Click the Next button.

8	Terminal Configuration Wizard	
	Terminal Mode Selection Select the operating modes for this terminal	
	Terminal Mode	
	Enable Relevance User Services	
	Z Enable Relevance Location Services	
	Enable MultiMonitor	
	🔲 Enable MultiStation	
	< Back Next > Finish Cancel Help	

- 7. Click the **Next** button from the **Display Client Selection** page of the wizard.
- 8. Click the **Next** button on the **Terminal Interface Options** page of the wizard.
- 9. Check the Enable QR Code Location Ids and Enable Bluetooth Locations checkboxes from the Relevance Options page of the wizard. Click the Next button.

Configuration Wizard	i x			
Relevance Options Select the types of Relevance Resolvers to use on this client. Optionally choose an assigned location for this client				
Assigned Location	Change Clear			
Options Enabled Resolver Types 1 I Finable QR Code Location Ids 2 Finable Bluetooth Locations Enable GPS Locations Enable Wi-Fi Locations				
Use Force Transfer to restore Assigned Location Allow selection of Location manually Enforce fencing on manual Location selection Confirm before entering a location Resolver Update Interval 3000 ms				
3       < Back       Next       Finish       Ca	ncel Help			

10. From the Log In Information page of the wizard, enter *tab01@tmlab.loc* as the Username and *rw* as the Password. Click the Verify button to validate these credentials, and then click the Next button.

Terminal Configuration Wizard
Log In Information Enter the log in information to log in automatically. Leave the log in information blank or fill only some of the fields to force manual log in.
Windows Log In Information
Usemame 1 tab01@tmlab.loc Search
Password 2 - Password Options
Domain 3 Verify
< Back Next > Finish Cancel Help

11. From the **Video Resolution** screen of the wizard, select **1280x800** as the **Resolution**, and keep other default settings. Click the **Finish** button.

8	Terminal Configuration Wizard								
	Video Resolution Select the video resolution for this terminal.								
	Select Video Resolution								
	These are the resolutions supported by the Thin Client model you selected.								
	Resolution Color Depth Refresh Rate								
	< Back Next > Finish Cancel H	lelp							

## Assign Terminal Profile to Mobile Device

Unlike a thin client like the **VersaView 5200**, we are not going to deliver ThinManager firmware to a tablet, which already has its own OS. Instead, we will use the **aTMC** app to essentially emulate a ThinManager thin client.

1. Launch **aTMC** from your mobile device.



2. Touch the DemoKit ThinServer to connect to it.

□ <u>+</u> • □				🖇 🗔 🔞 🖬 3:52 PM
aTMC				
DemoKit				
	5	ά	D	

3. Since we have not assigned a **Terminal Profile** to the **ZenPad** yet, **aTMC** will prompt us to assign one of the available profiles to it. Touch the **ZenPad** profile that we created in the previous steps.

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aTMC						:
Sele 	ect Terminal to Repla Create new Terminal ZenPad	ce:				
			CANCEL			
	Ð		ð			

4. If you receive a prompt to allow **aTMC** access to the device's location, touch the **Allow** button.

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ZenPad									
	0	Allow <b>aTMC</b> to a	ccess this	device's	location	?			
				Deny	Allow	]			
·	-	9							
		5			ð				

5. The **ZenPad Terminal Profile** will be delivered to the tablet. Since we did not assign any **Display Clients** to the terminal profile, we will receive a blank screen.



### **Create Public Display Server**

The Display Servers we created earlier in the lab utilized private IP addresses (10.6.10.51 for RDS1 and 10.6.10.52 for RDS2), which will not be reachable from your remote tablet. Therefore, we will create an additional Display Server that utilizes the public IP address of RDS1 so your tablet can connect to it. This method is fine for testing and lab purposes, but if you need remote access to your Remote Desktop Servers, a Virtual Private Network (VPN) or Remote Desktop Gateway is recommended.

1. Click the **Display Servers** icon **I** in the ThinManager tree selector.

The tree selector can be expanded or collapsed using the bar above directly above it.



2. From the Display Servers tree, expand the RDS Servers branch, right click RDS1 and click Copy.



3. From the **New Display Server** input box, enter *RDS1P* and click the **OK** button.



4. Double click the newly created **Display Server RDS1P**.



- 5. From the **Introduction** page of the wizard, click the **Next** button.
- From the Remote Desktop Server Name page of the wizard, change the IP address from 10.6.10.51 to the public IP address of your RDS1 image. In addition, <u>delete</u> the User Name, Password and Verify Password entries. Click the Finish button.

Remote Desk	top Server Wizard	×
Remote Dest Enter the F	<b>top Server Name</b> Remote Desktop Server Name and Log In information	$\sim$
Remote Desk	top Server Name	
Name	RDS1P	
IP Address	1 N. N. N. N. M.	Discover
		Change Group
Log In Inform	ation	
User Name	2	Search
Password	3	
Verify Passwor	4	
Domain		
		Schedule
	6	

### Reassign Display Client to Public Display Server

When we created the **FTV\_Studio Display Client** in the previous section, we assigned the **RDS1 Display Server** to it, which has a private IP address of 10.6.10.51. This IP address will not be reachable by your remote tablet, so we will temporarily reassign it to **RDS1P**.

1. From ThinManager, click the **Display Clients** icon from the ThinManager tree selector.



2. From the **Display Clients** tree, expand the **Remote Desktop Services** branch and double click the **FTV\_Studio Display Client**.



- 3. Click the Next button from the Client Name page of the wizard.
- 4. Click the Next button from the Display Client Options page of the wizard.
- 5. Click the Next button from the Remote Desktop Services and Workstation Options page of the wizard.
- 6. Click the Next button from the Session Resolution / Scaling Options page of the wizard.

7. From the **Display Client Members** page of the wizard, remote **RDS2** from the **Selected Remote Desktop Servers** list box and add **RDS1P** instead. Click the **Finish** button.

🞇 Display Client Wizard	×				
Display Client Members Select the Remote Desktop Servers for this Display Client.					
Available Remote Desktop Servers Selected Remote Desktop Serve	ers				
RDS1 (10.6.1.51) RDS2 (10.6.1.52)					
	<b>~</b>				
Edit Server List					
2	1				
<pre> &lt; Back Next &gt; Finish Cancel</pre>	Help				
# Login as Engineer User

1. From the **aTMC** application, touch the **LOGIN** button in the top right corner.



2. Enter *ed* as the **username** and touch the **Ok** button.

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Zen	Pad											
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							CANCEL	<mark>2</mark> ок				
	<u>.</u>											
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### 3. Enter *1234* as the **PIN**.

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ZenPad							:
		Enter PIN For Ed					
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Upon successful authentication, you should receive the FTV\_Studio Display Client. This is the same session that
was delivered to the virtual thin client in the previous section. In fact, it is configured to just pick up right where Ed left
off.

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ZenPad FTV_STUDIO				SCANID	SCAN	LOGOFF	:
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Application							
* Din sensice. The server IRA//Bilobal/CoskieFactory/Line1	Data RSLing Enterprise on computer	HMI is now active.	Ceal D	a Al			
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5. If you perform a 3 finger hold down, **aTMC** will go **Full Screen**, and the **FTV\_Studio** session should scale perfectly to the ZenPad display.

Other tablet gestures are supported as well. Pinch and zoom works as expected. Once zoomed in, you can pan around the screen using two fingers on the tablet. You can also perform a 2 finger hold down, which will toggle the on screen keyboard.

## Create Logix Designer Display Client

In these last sections of the lab, we are going to set ThinManager up to deliver **Logix Designer** to the **ZenPad** just by simply scanning a QR Code. The first step is to create the **Display Client** for **Logix Designer**.

1. From ThinManager, click the **Display Clients** icon **International From** the ThinManager tree selector.



2. From the **Display Clients** tree, expand the **Remote Desktop Services** branch and right click the **FTV\_Studio** item and select **Copy**.



3. Type LGX\_CookieDemo in the Enter new Display Client Name text box and click the OK button.

New Display Client	x
Enter new Display Client Name	
LGX_CookieDemo	
Cancel	

4. Double click the new LGX\_CookieDemo Display Client item.



- 5. From the **Client Name** page of the wizard, click the **Next** button.
- 6. From the **Display Client Options** page of the wizard, click the **Next** button.
- 7. From the Remote Desktop Services and Workstation Options page of the wizard, click the Next button.
- 8. From the Screen Resolution / Scaling Options page of the wizard, click the Next button.
- 9. From the **Display Client Members** page of the wizard, click the **Next** button.

10. From the **AppLink** page of the wizard, replace the **Program Path and Filename** and the **Command Line Options** paths with the ones below (you can also copy and paste this path from the **LabPaths.txt** file by right clicking the **Notepad** icon pinned to the start bar and selecting **LabPaths.txt**):

### Program Path and Filename:

C:\Program Files (x86)\Rockwell Software\Studio 5000\Logix Designer\ENU\v30\Bin\LogixDesigner.Exe

#### **Command Line Options:**

"C:\Lab Files\CookieLine V30 Emulate.ACD"

🙄 Display Client Wizard	×
App Link Enter the linked application path.	$\mathfrak{C}$
AppLink Path	
Program Path and Filename	
ftware\Studio 5000\Logix Designer\ENU\v30\Bin\LogixDesigner.E	xe
Browse	
Command Line Options	
C:\Lab Files\CookieLine_V30_Emulate.ACD	-
Browse Browse	
	-
Browse	
Be sure to enclose with double quotes.	
2	
< Back Next > Finish Cancel	Help

11. Click the **Finish** button.

# Register QR Code Location Resolver from Mobile Device

1. From aTMC, touch the **Back** button to return to the aTMC **Main Menu**. Touch **Yes** on the confirmation dialog.

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		SCANID	SCAN	LUGUFF	:
FetoryTak-View Studio - View Ste Edition (Network Distributed) (Demo Mode)     Fla. May: Settiony: Tools: Window: Halo	- 0	×			
The Number of Control Charge           System           System           Type state           System           System           System           System	Der				

2. From the aTMC Main Menu, touch the Settings button (3 vertical dots below the DemoKit button), followed by the Manage ThinServer button.

🖾 🛨 🦷 📾			💲 🗔 🔞 🖬 3:54 PM
aTMC			
DemoKit Manage ThinServer Remove ThinServer			
	Ċ		

3. From the aTMC Settings window, touch the Register QR Code button.

			🎗 🗔 🖬 12:35 PM
Settings			
RELEVANCE RESOLVERS			
Register QR Code			
Register Bluetooth Beacon			
Register WiFi Access Point			
CAMERA			
Set Camera Location			
DEBUGGING			
Debug Logging: Disabled			
	C		

4. If you receive a prompt requesting permission for **aTMC** to take pictures and record video, touch the **Allow** button.

						💲 🖘 🖬 10:30 AM
RELEVANCE RESOLVERS						
Register QR Code						
Register Bluetooth Beacon						
Register WiFi Access Point	-		ta taka niaturaa		and wide a 2	
CAMERA	0	Allow all MC	to take pictures	and rec	ord video?	
Set Camera Location				Deny	Allow	
DEBUGGING						
Debug Logging: Disabled						
		Ð	۲		D	

5. A camera window will appear. Point the Tablet camera at the **QR Code** below.



6. Once the **QR Code** is scanned by aTMC, you must give it a name. Touch the **USE DATA AS NAME** button which will use the data embedded in the **QR Code** as the name of the new **Location Resolver** (**LGX\_CookieDemo**).

🖽 🛓 🤋 (	<b>a</b>	0.0							* ⊑ %	3:55 PM	
aTMC	aTMC ENTER IDENTIFIER NAME										
		Data	: LGX_Co	okieDem	D						
		Enter	Name:								
				CANCEL	USE DATA A	SNAME	ок				
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			$\bigtriangledown$								

- 7. You should receive a successful confirmation dialog. Touch the **OK** button, followed by the **Back** button to return to the **Main Menu.**
- 8. To confirm the creation of the Location Resolver, return to ThinManager on RDS1, click the Manage ribbon, followed by the Manage Resolvers icon. You should see a new QR Code resolver named LGX\_CookieDemo in the Resolver Management window. Click the OK button.

-	Edit	Manage	Install	Tools	View	Remot	e View	Help											
Packages	Restore	Backup	Restore B Backup B Synchron	iometric I iometric I ize	Database Database	PXE T Server	hinManage Server List	😽 DNS Configu 🚔 Configure De r 🮯 Language	rration efault Terminal	Manage Accounts	Synchroniz Password	ze Settings	Manage Resolvers	Access Groups	<u></u> Settings				
Packages		C	onfiguration	n				Manage		A	ctive Direct	ory	F	televance					
Display Cli	ients	_	_	_	Conf	figuration	Server R	ank 🕴 Event Log	2										
🕞 👘 🗖	isplay Cli	ents			Attribute			Va	alue										
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		(C_OEECal	c		Client '	Type			Remote Deskto	p Services									
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<u>ا</u> ٠٠	Virtual	Screen			Discon	ment in the l	γP background		NO			諁 LGX_Co	okieDemo			QR Code		Delete	1
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## Create Engineer Access Group

We would like to restrict access to the new Location Resolver just created and its associated content. To do so, we will create a new Access Group and assign it to a Location in the following steps.

1. Click the Manage ribbon, followed by the Access Groups icon.



2. From the Access Groups popup, click the Add button.

	Access Groups	x
Unrestricted All Users All Terminals All Locations		ок
		Edit
		Add
		Delete
		Calc Permissions

3. Click the Select Windows Security Group button.

	Access Group	x
Enter Group Name	Select Windows Security Group	OK Cancel
		Edit Members

The Select Windows Security Group provides the ability to link an Access Group to a Widows Security Group. Therefore, you could manage access to ThinManager resources (Terminals, Display Clients, etc.) through Windows Security Groups as well. You could also use the TermMon ActiveX within an ActiveX container, like View SE, to detect when a ThinManager logon event occurs and then to determine that user's Windows Security Group membership to determine their appropriate access within the application. You can learn more about the **TermMon ActiveX** in <u>Section 18</u>.

4. From the Select Security Group to Add window, expand the Users item and select the Engineer group.

Select Security Group to Add	x
E. Cart Publishers	^
Cloneable Domain Controllers	
Denied RODC Password Replication Group     DHCP Administrators	_
⊕- DHCP Users     ⊕- DnsAdmins	
⊡· DnsUpdateProxy	=
Domain Computers	
⊡ Domain Controllers ⊡ Domain Guests	
Domain Users	
Enterprise Admins	~
ОК	Cancel

5. From the Access Group window, click the OK button.

	Access Group	x
Enter Group Name	Engineer	OK
	Select Windows Security Group	Cancel
		Edit Members

6. From the Access Groups window, click the OK button.

Access Groups	×
Unrestricted All Users All Terminals All Locations Engineer	<u>OK</u>
	Edit
	Add
	Delete
	Calc Permissions

# Create Relevance Location for Logix PLC

1. Click the Locations icon in the tree selector.



2. From the ensuing Locations tree, right click the Locations tree node and select Add Location.

	Edit Manage	Install	Tools	Vi
	Restore Backup	ন্তি Restore। 🐑 Backup I 🧭 Synchron	Biometric D Biometric Da nize	ataba ataba
Packages		Configuratio	on	
Locations	_	_		/
····· 🌍 Lo	ocations			Att
	4	Add Location		
		Сору		

3. From the Location Name page of the Location Configuration Wizard, enter *LGX\_CookieDemo* as the Location Name. Click the Next button.

8	Location Configuration Wizard	x
ľ	Location Name Enter Name for this location	
	Location Name LGX_CookieDemo This must be a unique name using letters, numbers, hyphens (-), and underscores (_) only.	
	Description	
	Location Group Change Group	
Г	Copy Settings	
	Copy Settings from another Location	
	Permissions 2 4 Back Next > Finish Cancel Help	

- 4. From the **Location Options** page of the wizard, click the **Next** button.
- 5. From the **Display Client Selection** page of the wizard, select the **LGX\_CookieDemo Display Client** and click the **Right** arrow button to move it to the **Selected Display Clients** list, click **Next**.

🕿 Location Configuration Wizard	×
Display Client Selection Select the display clients to use at this location	
Available Display Clients           Remote Desktop Services           Desktop           EXC_OEECalc           FTV_CookieDemo           FTV_InstantFizz           FTV_Studio           LGX_CookieDemo           Camera           Terminal Shadow	Selected Display Clients
Edit Display Cliente	Override
< <u>B</u> ack <u>N</u> ext >	Finish Cancel Help

6. From the **Windows Log In information**, enter *loc01@tmlab.loc* as the **Username** and *rw* as the **Password**. Click the **Verify** button to confirm the credentials are valid. Click the **Next** button.

S Location Configuration Wizard	x
Windows Log In information Enter Windows usemame and password information.	
Windows Log In Information	
Usemame 1 loc01@tmlab.loc Search Password 2	
Domain Verify Password Optio	ns
4	
< Back Next > Finish Cancel	Help

7. From the **Relevance Resolver Location** page of the wizard, click the **Add** button.

8		Location Co	nfiguration	Wizard	x
'	Relevance Resolve Assign Relevance	er Selection Resolvers to this I	ocation		
F	Relevance Resolvers				
[	Name	Туре		Action	
	٢				>
	Add	Delete	Edit		
	< Back	Next >	Finish	Cancel	Help

8. From the **Choose a Relevance Resolver** popup, select **LGX\_CookieDemo** from the **Resolver Name** dropdown list, and **Clone** from the **Choose Action** dropdown list. Click the **Permissions** button.

(	hoose a Relevance Resolver
	Only Show Unassigned Resolvers 🛛
Resolver Name	LGX_CookieDemo
Resolver Description	
Resolver Type	QR Code
Choose Action	2 Clone 🗨
	Settings
	(3) [Permissions]
	OK Cancel

9. From the **Permissions** window, remove **Unrestricted** from the **Member Of** list, and move **Engineer** to the **Member Of** list. Click the **OK** button **twice**, followed by the **Finish** button.

	Permissions			
TermSecure Access Groups				
Available All Terminals All Users Unrestricted	Member Ut			
		<b>2</b>		

## Resolve to Location from Mobile Device

1. Return to **aTMC**. You may have to power the ZenPad back on. If so, you may also have to reconnect **aTMC** to the **DemoKit** server listed.



2. If not already logged in as Ed, touch the LOGIN button and enter a username of ed and a PIN of 1234.

▲ ∅ ◘ ▲				*	🗟 🕇 🖬 9	:41 AM
ZenPad			SCANID	SCAN	LOGIN	E
					Î	
					J	
	No Display C Login usin	na Relevan				
		3				

If aTMC does not show a LOGIN button, please restart the aTMC app.

3. Once logged in as Ed, touch the **SCANID** button in the top right corner.

ZenPad FTV_STUDIO		SCANID	SCAN	LOGOFF	:	
Territor Version Version Version (Version Version Ver	0 ×	Î				
N Dis service. The server RNA//REbal/Coolinfactoryline1 DataRLine Enterprise on computer PMH is now athre.	Cea Cea Al					

There is also a SCAN button available to the right of SCANID that enables the scanning of barcodes within the delivered applications.

4. The camera window will open within aTMC. Scan the QR Code below (this is the same QR Code we registered earlier).



5. Since Ed is a member of the Engineer Security Group, he is permitted to resolve to the location represented by the QR Code above (which could be laminated and placed on the actual PLC panel). As a result, the Logix Designer Display Client should be delivered with the associated ACD file automatically opened. If not automatically activated, touch the LGX\_CookieDemo tab at the top of aTMC.



6. To verify the permissions required, touch the **LEAVE** button followed by the **LOGOFF** button and then attempt to rescan the QR Code above. You should receive the following error message.

					* 🖘	10:3	3 AM
ZenPad					SCAN	LOGIN	:
	Relevance Error						
	Relevance Identifier not ass	sociated with any permit	tted action. ОК				
	5						

This completes the Location Based Content Delivery section of the lab. Please continue on to learn about ThinManager Redundancy