

Propalms TSE Deployment Guide

Version 6.5

Propalms Ltd.
Published February 2011

Terminal
Services
Edition



Overview

This guide provides instructions for deploying Propalms TSE in a production environment running Windows Server®2003, 2008, 2008 R2 operating systems. It is intended for information technology (IT) professionals who want to implement an end-to-end, Propalms TSE solution for application delivery using RDP protocol. This guide gives step by step information on setting up a functional Propalms TSE team.

Propalms TSE

Microsoft Remote Desktop Services (also known as Terminal Services or Thin Client architecture) is the most cost effective method of application delivery for small-medium sized businesses up to Enterprise Level organizations. Propalms TSE is designed to make the most of your Windows® Remote Desktop Services deployment by leveraging the most recent enhancements to the Microsoft® Remote Desktop Protocol (RDP). Propalms TSE adds indispensable management capabilities and scales to accommodate growing numbers of users, applications and servers, securely, reliably, and cost-effectively.

About this guide

This guide is intended for use by system administrators and system engineers. It provides detailed guidance for deploying a Propalms TSE server based computing solution for seamless application delivery to end users.

This guide provides steps for deploying the following Propalms TSE team designs:

- 1) Propalms TSE Unibox set up (WorkGroup install)
- 2) Propalms TSE Server Team (Domain Install)
- 3) Propalms TSE Server Team with Relay (Domain install with secure External/Remote access)

Propalms TSE Unibox Setup (WorkGroup install)

This is a single server deployment of Propalms TSE. The server may not be a member of any domain and can be a part of a workgroup. This deployment should be used when there is no AD environment available and the applications to be published to users are all locally installed on the server.

Propalms TSE Server Team (Domain Install)

This is multi server deployment of Propalms TSE. All servers which are part of the deployment should be members of the same domain. This deployment is used in an AD based infrastructure where applications will be published to Domain Users, Groups, and OU's. A team of servers can host a complete set of applications to be made available to domain users.

Propalms TSE Server Team with Relay (Domain install with secure External/Remote access)

This is similar to Propalms TSE Server Domain install with an addition that this design also allows external/remote users to access Propalms TSE published applications over a secured (SSL) relay connection.

Planning to Deploy Propalms TSE team

After you collect information about your environment and you decide on a Propalms TSE team design, you can begin to plan the deployment of your organization's Propalms TSE team.

Propalms TSE Server supports Windows Server 2003, 2008, 2008 R2 (x32 and x64)

There are certain Windows pre-requisites before you begin the install process. These quick start guides walk you through these pre-requisites for installing Propalms TSE server.

Installing on Windows 2003:

http://www.propalms.com/download/documentation/tse65/TSE65QuickStartGuide_Win2003.pdf

Installing on Windows 2008:

http://www.propalms.com/download/documentation/tse65/TSE65QuickStartGuide_Win2008.pdf

Installing on Windows 2008:

http://www.propalms.com/download/documentation/tse65/TSE65QuickStartGuide_Win2008R2.pdf

Once the pre-requisites are taken care of you may start the Propalms TSE installation process.

Refer to the install guide for help completing the install process.

<http://www.propalms.com/download/documentation/tse65/InstallGuide.pdf>

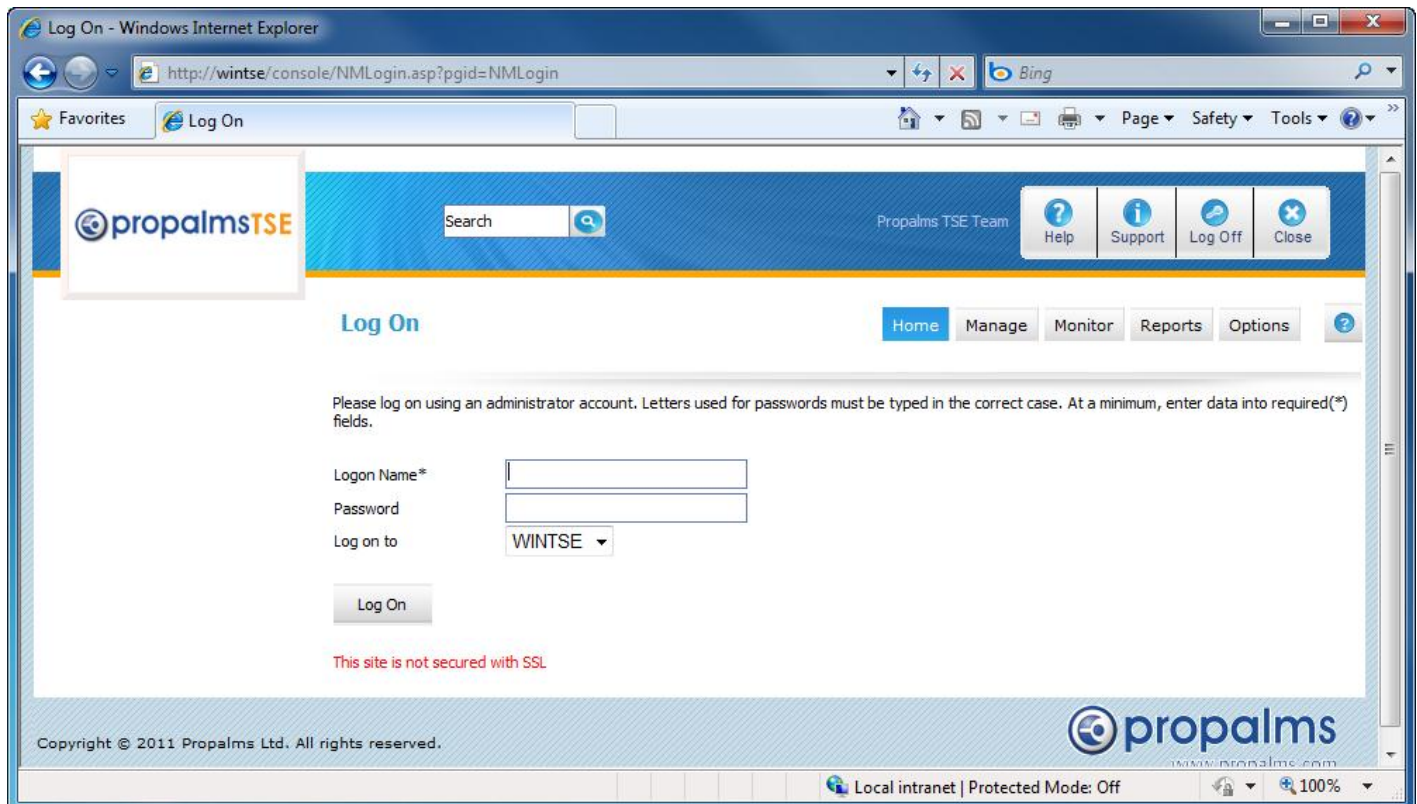
What next after the 1st Propalms TSE server is successfully installed?

Once the install has finished and the server has been restarted, we need to start configuring, adding and managing the various options within the Propalms TSE system. The first Propalms Server installed, by default also becomes the Propalms TSE Web server or the Propalms TSE server with the WEB role. Propalms TSE Web role provides the Web based Admin and User interface for Propalms TSE.

To login to the Propalms Admin User Interface or in Propalms terminology referred to as Propalms Management Console, open a IE browser windows and type>

Http://<Propalms ServerName or IPaddr>/Console

The '/Console' directs the browser to open the Management Console.



The screenshot shows a Windows Internet Explorer browser window displaying the Propalms TSE Management Console login page. The browser's address bar shows the URL: `http://wintse/console/NMLogin.asp?pgid=NMLogin`. The page features the Propalms TSE logo on the left and a search bar on the right. Below the logo, there is a 'Log On' section with a heading and a sub-heading: 'Please log on using an administrator account. Letters used for passwords must be typed in the correct case. At a minimum, enter data into required(*) fields.' The login form includes three input fields: 'Logon Name*', 'Password', and 'Log on to' (with a dropdown menu currently set to 'WINTSE'). A 'Log On' button is positioned below the fields. At the bottom of the page, there is a copyright notice: 'Copyright © 2011 Propalms Ltd. All rights reserved.' and the Propalms logo with the website URL 'www.propalms.com'. The browser's status bar at the bottom indicates 'Local intranet | Protected Mode: Off' and '100%' zoom level.

In the example above, **wintse** is the hostname of 1st Propalms server. You can equally use the IP address of the server also. To login into Propalms TSE Console, enter a username that is member of the Propalms TSE Admin group. Propalms TSE Admin group is the AD or local group that was specified during Propalms Installation as the TSE Admin group. Refer to the TSE Install guide for more details.

On successful login, it should bring up the TSE Admin Dashboard page

TSE Dashboard

Welcome. This page shows a graphical snapshot of the "Propalms TSE Team". You can use this to monitor and navigate to the most common areas of the system.

License Usage

Active / Disconnected Sessions

Master Load Balancer : WINTSE

Master Load Balancer

Top Application Usage

- NotePad (3)
- WordPad (1)

Status Monitor

- Load Balancer
- SPR
- Web Server
- VD Server
- Application Server
- DB Connection
- Scheduled Tasks
- Jobs

Objects

- Users
- Applications
- Groups
- OUs
- Servers
- Client Groups
- Content
- Virtual Desktops

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Navigate to the Manage-Server page

Servers

From this page you can add, update, or remove a server. You can also diagnose, update server roles, update server status or select applications for a server. To sort the table, click on a column heading.

Server Name Find

Page: [1]

| Server Name | Description | Running Status | Install Status | Status | Web Server Role | Load Balancer Role | Application Server Role | VD Server Role | Relay Server Role | DMZ Relay Server Role |
|-------------|--------------------|----------------|----------------|---------|-----------------|--------------------|-------------------------|----------------|-------------------|-----------------------|
| WINTSE | Propalms TSE Setup | Online | Installed | Enabled | ● | ● | | | | |

As can be seen we have the WEB and LB role installed by default on the 1st Propalms TSE server.

Note that if Terminal Services or now referred to as Remote Desktop services in 2008 R2, were to be already configured on the server, the App role would also be installed by default on it. In this case it was not as we did not have TS installed on it.

For a Unibox set up you can have the APP role installed on the same server to make it available to host applications. Here, we have already configured TS on it and now shall add the app role.

propalmsTSE Search Propalms TSE Team Help Support Log Off Close

Servers Home Manage Monitor Reports Options

From this page you can add, update, or remove a server. You can also diagnose, update server roles, update server status or select applications for a server. To sort the table, click on a column heading.

Server Name Find

Page: [1]

| Server Name | Description | Running Status | Install Status | Status | Web Server Role | Load Balancer Role | Application Server Role | VD Server Role | Relay Server Role | DMZ Relay Server Role |
|-------------|--------------------|----------------|----------------|---------|-----------------|--------------------|-------------------------|----------------|-------------------|-----------------------|
| WINTSE | Propalms TSE Setup | Online | Installed | Enabled | ● | ● | | | | |

Select the APP role

Add Roles

Home Manage Monitor Reports Options ?

A server role is a set of components that enable a server to act in some capacity. Each server role must be present on one or more servers in the team for Propalms TSE to operate correctly. Propalms TSE will automatically push out roles to servers as selected.

Select the roles for the server WINTSE and click Next.

< Back Next > Cancel

| Role | Requirements |
|--|---|
| <input checked="" type="checkbox"/> Load Balancer Server | Requires: Windows 2003 Server or higher. |
| <input checked="" type="checkbox"/> Application Server | Requires: Windows 2003 Server with Terminal Server Role. The Application Server will reboot automatically after installation. |
| <input checked="" type="checkbox"/> Web Server | Requires: Windows 2003 Server or higher with IIS, .net framework 2.0 and above. |
| <input type="checkbox"/> Relay Server | Requires: Windows 2003 Server or higher. |
| <input type="checkbox"/> VD Server | Requires: Windows 2003 Server or higher. |

Go through the sequence of screens and follow the instructions on them, you can keep the default settings or change them.

The settings can be changed at will, at a later time too, after the App role has been installed. Once you finish the ADD role sequence, a silent install of the APP role will be started. On completion, the server will auto restart. After reboot login to the Management Console.

propalmsTSE Search Propalms TSE Team Help Support Log Off Close

Servers Home Manage Monitor Reports Options ?

From this page you can add, update, or remove a server. You can also diagnose, update server roles, update server status or select applications for a server. To sort the table, click on a column heading.

Server Name Find

Page: [1]

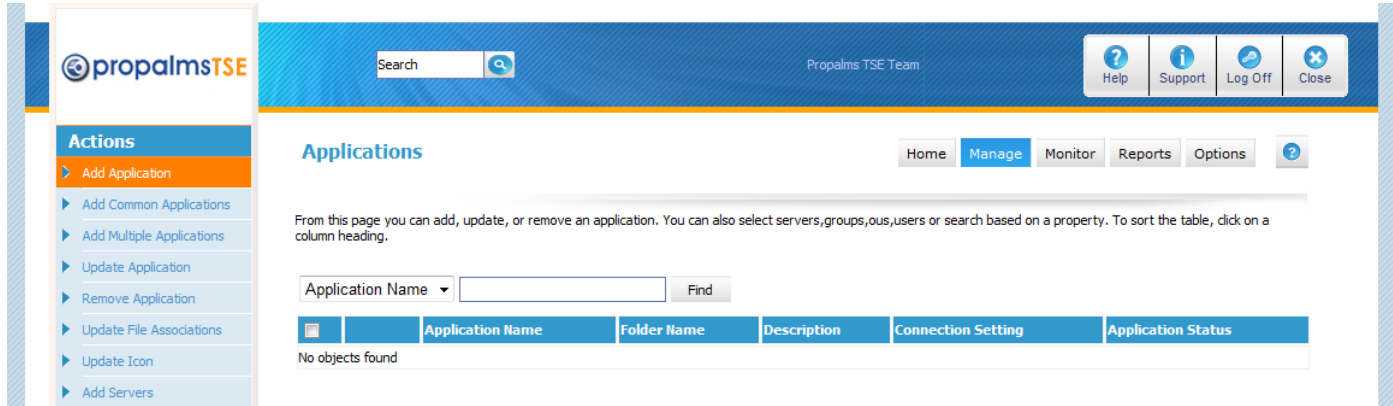
| Server Name | Description | Running Status | Install Status | Status | Web Server Role | Load Balancer Role | Application Server Role | VD Server Role | Relay Server Role | DMZ Relay Server Role |
|-------------|--------------------|----------------|----------------|---------|-----------------|--------------------|-------------------------|----------------|-------------------|-----------------------|
| WINTSE | Propalms TSE Setup | Online | Installed | Enabled | ● | ● | ● | | | |

Adding an Application to Propalms TSE team

At this stage you have a set up that is ready to ADD Applications, Publish them to Users and Users can start launching them. For a functional TSE Team, at-least one instance of the WEB, LoadBalancer (LB) and Application role is required.

From here you can either start adding additional servers to make part of your Propalms TSE team or start adding applications to publish to users. We will now add an Application and then show how a user can access the published application launch it.

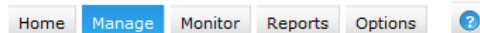
Navigate to Manage–Applications page, click on Add Application



Click on the start menu to pull up the list of available applications on the server. (If this is the first time you have accessed this screen from this browser you will be prompted to install a start menu ActiveX control). Select the appropriate app server from the drop down list before clicking on the start menu. The application details will be automatically populated.

NB: some applications may not be available through the start menu if those applications do not create shortcuts in the ALL USERS –Program list. In that case, the admin needs to manually enter the application name and path.

Add Application



Enter information about your application. Please select the Application Type. Use the start menu browser or enter the information directly.

| Application Type | |
|----------------------------------|-----------------|
| <input type="radio"/> | Windows Desktop |
| <input checked="" type="radio"/> | Application |

Browse Start on WINTSE

| | | |
|--|---------------------------|---------------------------|
| Application | Accessories | Calculator |
| Application | Administrative Tools | displayswitch |
| Description | Microsoft SQL Server 2005 | Paint |
| Application Path* | | Remote Desktop Connection |
| Working Directory | | System Tools |
| Command Line Parameters | | Windows PowerShell |
| Start Menu Location (Start\Programs)\... | | Wordpad |
| Application Status | Enabled | |

Next > Cancel

The other options on the Add Application page that an admin may wish to set are choosing the Connection Setting to associate with the App, set a limit of concurrent sessions of the App per server or in total, creating an App folder to organize similar apps in a single folder, enabling desktop and start menu shortcuts for this app on client desktops etc. They can be set now or altered later.

Folder Information

Create new

or select from

Launch Settings

Connection Setting

Limit Total Concurrent Sessions

Limit Concurrent Sessions Per Server

Limit single instance per user

Application Defaults

Favorites

Start Menu Shortcut

Desktop Shortcut

File Association

If the requirement is to publish a Windows Desktop (Remote Desktop), simply choose the radio button shown below. The details will be auto populated.

Add Application

[Home](#) [Manage](#) [Monitor](#) [Reports](#) [Options](#) [?](#)

Enter information about your application. Please select the Application Type. Use the start menu browser or enter the information directly.

| Application Type | |
|----------------------------------|-----------------|
| <input checked="" type="radio"/> | Windows Desktop |
| <input type="radio"/> | Application |

Browse on

Application Information

Application Name*

Description

Application Path*

Working Directory

On the **Select Servers** page, select the server/s where the application will be hosted from. In the screen shot, so far we have added only one TSE server, hence only one is available. In a production environment, where there would be more than 1 TSE App server, Admin can select multiple servers to publish the app on. NB: If publishing apps on more than one server ensure that the app is installed in the same directory and location on each App server.

Select Servers

[Home](#) [Manage](#) [Monitor](#) [Reports](#) [Options](#) [?](#)

Select the Application Servers on which the applications are to be hosted and click Next. If you do not select a server at this time, Propalms TSE will use a generic icon for the application and no file associations will be created.

| <input type="checkbox"/> | Application Server | Description | Published Address |
|-------------------------------------|--------------------|--------------------|-------------------|
| <input checked="" type="checkbox"/> | WINTSE | Propalms TSE Setup | |

Select the AD groups for assigning the apps. If the desired group is not shown, you may later add it after adding the group to Propalms TSE system.

Select Groups

Select the groups to which the application will be available and click Next.

< Back Next > Cancel

| <input type="checkbox"/> | Group Name | Domain Name |
|--------------------------|----------------|-------------|
| <input type="checkbox"/> | Administrators | WINTSE |

< Back Next > Cancel

At this point, we have a summary of the application to be added before submitting it. If any changes need to be made, use the Back option to navigate. Clicking the ADD button will submit the ADD JOB to Propalms system. Every task performed within Propalms TSE such as Adding, Removing Apps, Users, and Groups is treated as a JOB which is audited and logged. So all changes made to the Propalms TSE system can be reviewed and tracked.

On successful adding of the application, the application should be listed under the Applications page.

Applications

From this page you can add, update, or remove an application. You can also select servers, groups, users or search based on a property. To sort the table, click on a column heading.

Application Name Find

Page: [1]

| <input type="checkbox"/> | Application Name | Folder Name | Description | Connection Setting | Application Status |
|--------------------------|---------------------------------|-------------|---|---------------------------------|--------------------|
| <input type="checkbox"/> | Windows Desktop | None | Allows user to remotely connect to a computer. | Windows Desktop | Enabled |
| <input type="checkbox"/> | Wordpad | None | Creates and edits text documents with complex formatting. | Unspecified | Enabled |

After adding the app, if any changes need to be done, they can be done using the UPDATE APPLICATION option under the Actions list.

Propalms TSE Team

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Actions

- ▶ Add Application
- ▶ Add Common Applications
- ▶ Add Multiple Applications
- ▶ Update Application
- ▶ Remove Application
- ▶ Update File Associations
- ▶ Update Icon
- ▶ Add Servers
- ▶ Remove Servers
- ▶ Add Groups

Applications

Home Manage Monitor Reports Options ?

From this page you can add, update, or remove an application. You can also select servers, groups, users or search based on a property. To sort the table, click on a column heading.

Application Name Find

Page: [1]

| <input type="checkbox"/> | Application Name | Folder Name | Description | Connection Setting | Application Status |
|-------------------------------------|---------------------------------|-------------|---|---------------------------------|--------------------|
| <input type="checkbox"/> | Windows Desktop | None | Allows user to remotely connect to a computer. | Windows Desktop | Enabled |
| <input checked="" type="checkbox"/> | Wordpad | None | Creates and edits text documents with complex formatting. | Unspecified | Enabled |


Launching the published APP

The first step in getting the users to connect to Propalms published apps is installing the Propalms Windows client. An admin can pre-install the client for users or the users can be directed to the Propalms WEB server Launchpad site. [Http://PropalmsWEBServer/launchpad](http://PropalmsWEBServer/launchpad)

The Launchpad page runs an Activex control that checks if the Propalms client is installed. If it is installed it will start it or else it will redirect user to the Download Client page. It is also necessary to connect to the Launchpad page to create the Propalms Web server settings. The settings are stored in the users hkey_current_user hive. On the next startup or logon Propalms Client will read the settings and auto create the application list for users. User will not be required to connect to the Launchpad web page to get the app list.

Download Client

Click on the link below to download the client software.

Download Now 

Propalms TSE client software is required to launch applications. For more information about the client software click Help.

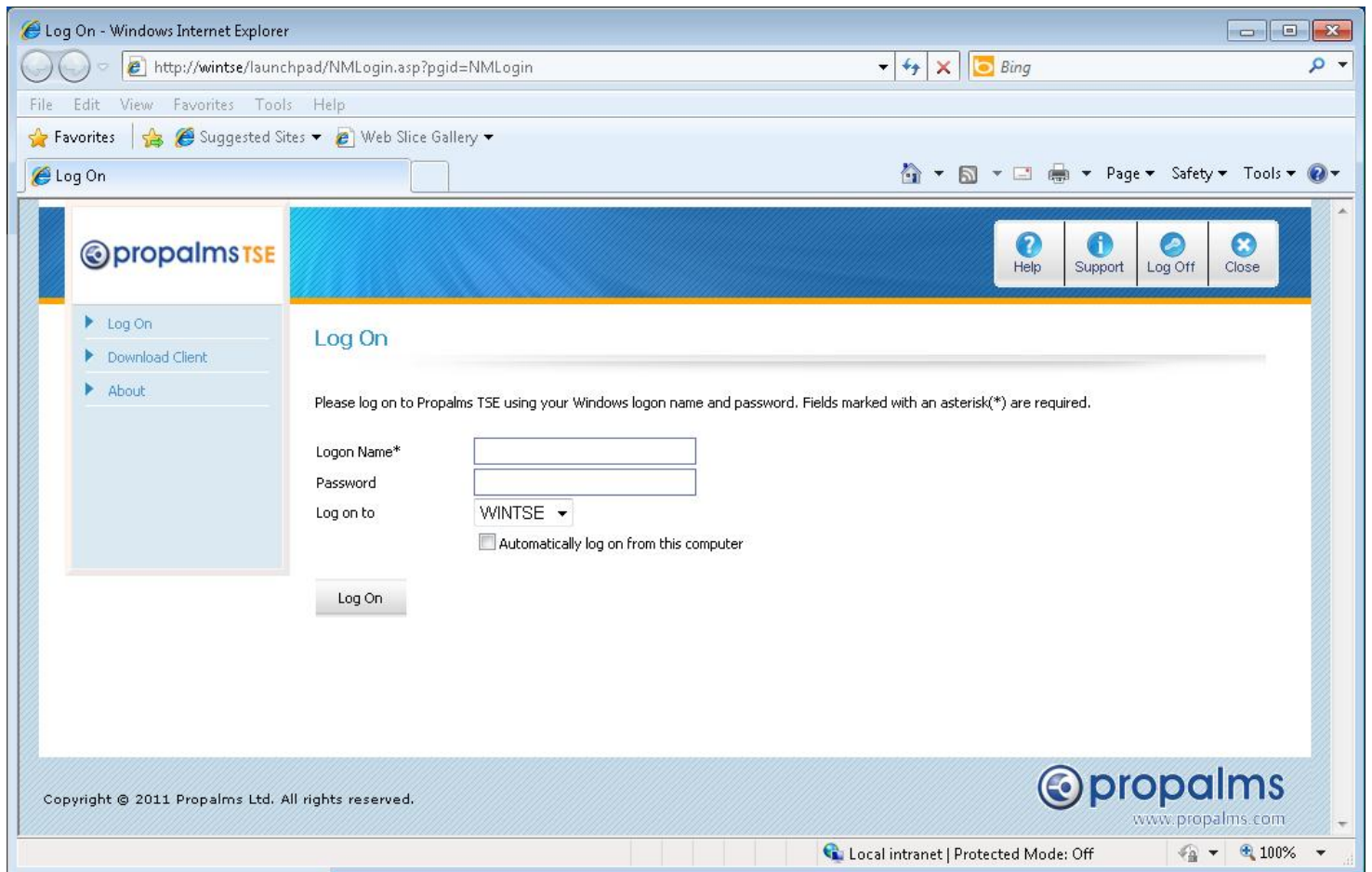
After downloading and installing the client software, click on the link below to return to Launch Pad.

Done 

After installing the client click on the DONE tab and it should take you to the Log On page. If it still redirects to the Download Client page, then either Propalms Activex controls are being blocked by IE security or the client install did not go right. Check and click on the DONE tab again.

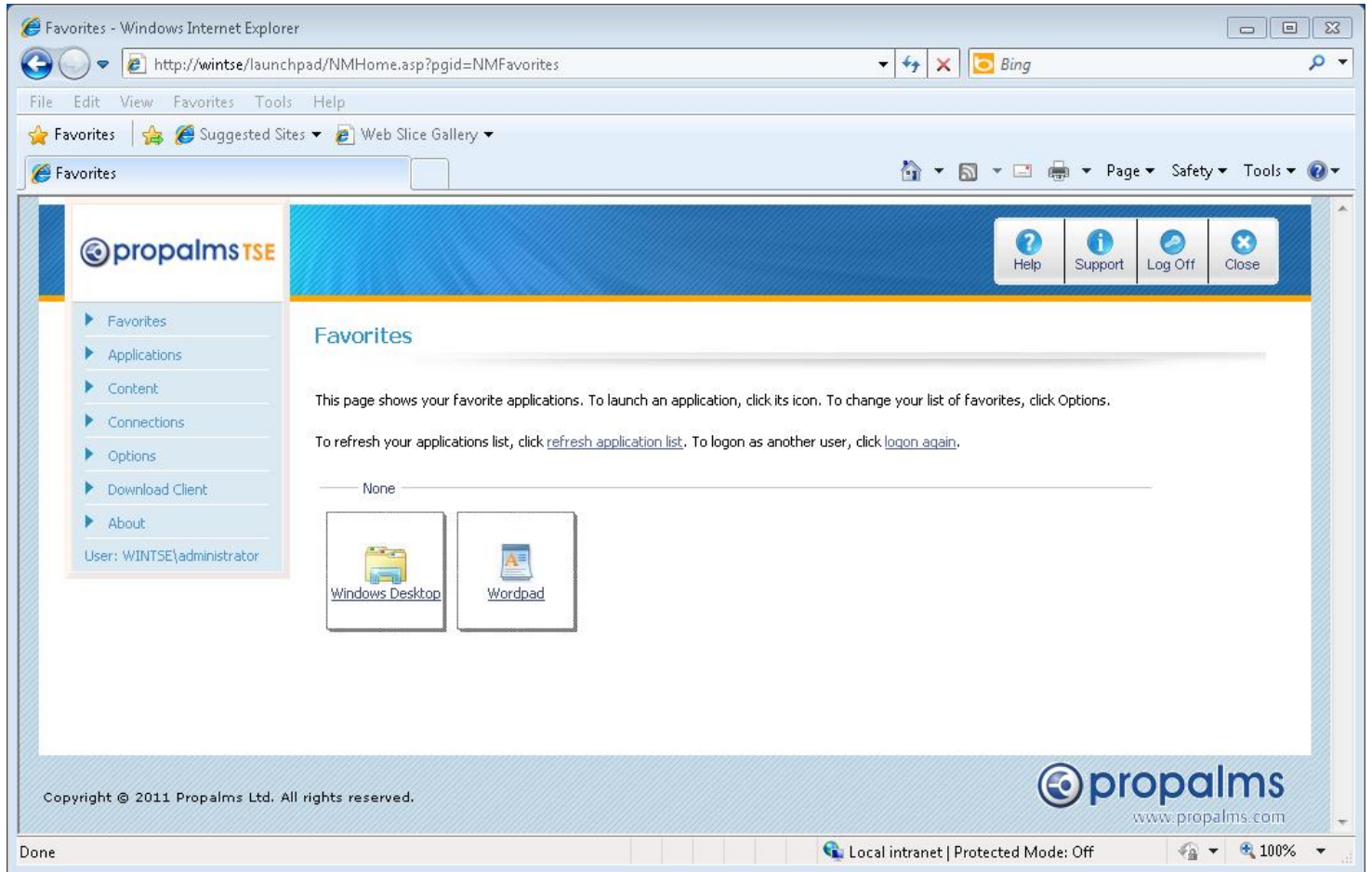
Once at the Web LaunchPad authentication page you can log in using you username and password.

NB: If you have not added any groups to TSE yet you may only log in as a member of the TSE Administrators group.



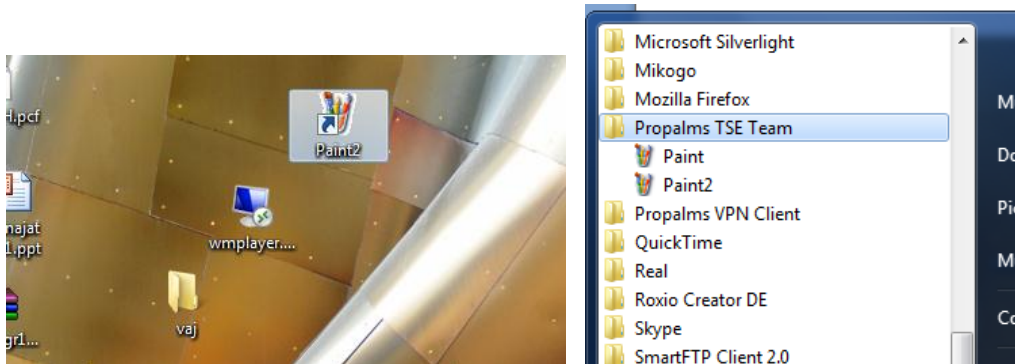
The screenshot shows a Windows Internet Explorer browser window displaying the Propalms TSE Log On page. The address bar shows the URL <http://wintse/launchpad/NMLogin.asp?pgid=NMLogin>. The page features a blue header with the Propalms TSE logo and navigation links for Help, Support, Log Off, and Close. A left sidebar contains links for Log On, Download Client, and About. The main content area is titled "Log On" and includes instructions: "Please log on to Propalms TSE using your Windows logon name and password. Fields marked with an asterisk(*) are required." Below this are input fields for "Logon Name*" and "Password", a "Log on to" dropdown menu set to "WINTSE", and a checkbox for "Automatically log on from this computer". A "Log On" button is positioned at the bottom of the form. The footer contains the copyright notice "Copyright © 2011 Propalms Ltd. All rights reserved." and the Propalms logo with the website URL www.propalms.com. The browser's status bar at the bottom indicates "Local intranet | Protected Mode: Off" and a zoom level of 100%.

On a successful Logon, the user will see the FAVORITES page, with the published apps listed. Click on the application icon to launch the App.



The Propalms client window detailing the launch process will show up and the application will be launched.

Alternate ways to start the published app are via Desktop Shortcuts and Start Menu. The shortcuts will be created only if Admin has enabled them in Application properties and has not set other overwrite policies using Propalms TSE Client Groups.



For making Propalms TSE published applications available to external users, a Public IP or FQDN needs to be routed/mapped to the internal Propalms server. Once a NAT is set up, add the published address in the Published address field for the server in TSE Console-Manage-Servers-Update Server page. Note that the Nating and routing between public and internal IP of Propalms server will have to be configured by the network admin. Specifying the published IP in the server page will only allow/instruct the Propalms client to connect on the external IP and not internal. "Traffic on Published Address is forwarded to this Address" can be left blank if there are not multiple NATS used in redirecting the public interface to the internal IP of the Propalms server.

Update Server(s)

Update the server information for the server WINTSE and click Update.

< Back Update Cancel

| Server Information | |
|---|--------------------------------|
| Server Name | WINTSE |
| Description | Propalms TSE Setup |
| Published Address | External/Public IP is set here |
| Traffic On Published Address is Forwarded to this Address | |
| Server Type | Windows Server 2008 R2 |
| Disable Best Internal Address Discovery | <input type="checkbox"/> |
| TSE HotFix installed | |
| Internal Address to Use | 10.10.1.26 |

In the above scenario the following ports need to be opened on the firewall to enable external users to connect to Propalms TSE and launch applications.

RDP port 3389, Web ports HTTP/s 80 and 443, Propalms IFS port 4660 (needed only if using Propalms TSE printing)

Implementing SPR or DMZ-SPR

On a more security conscious network where this may not be possible and also because of the need for a public IP for each of the App servers in the team Propalms TSE offers a secure access mode using the Single Port Relay (SPR) role or the DMZ-SPR Role. SPR and DMZ-SPR offer the same functionality; the only difference being the choice of where and how they are installed. SPR role can be installed as a TSE role on any existing Propalms server with any role installed whereas DMZ-SPR can only be installed as a stand-alone role with no other Propalms role installed. SPR server should be on the internal network as it is controllable from the TSE Management Console. DMZ-SPR can be located in a real DMZ zone with only the required ports open to the internal network. DMZ-SPR has a separate installation MSI and has limited access with Propalms Servers in the internal network.

Based on network and security needs, either of the two may be installed to enable secure access to Propalms TSE applications over internet.

NB: For those customers who wish to enhance the security and feature set of their remote access solution even further, we have developed Propalms VPN; an easy-to-use, simple application access and security solution (SSL VPN) for enabling high-trust, secure remote access to corporate applications and resources.

For more information go to <http://www.propalms.com>

Adding SPR Role using Add Role option in TSE Console

Add Roles

A server role is a set of components that enable a server to act in some capacity. Each server role must be present on one or more servers in the team for Propalms TSE to operate correctly. Propalms TSE will automatically push out roles to servers as selected.

Select the roles for the server WINTSE and click Next.

< Back Next > Cancel

| Role | Requirements |
|--|---|
| <input checked="" type="checkbox"/> Load Balancer Server | Requires: Windows 2003 Server or higher. |
| <input checked="" type="checkbox"/> Application Server | Requires: Windows 2003 Server with Terminal Server Role. The Application Server will reboot automatically after installation. |
| <input checked="" type="checkbox"/> Web Server | Requires: Windows 2003 Server or higher with IIS, .net framework 2.0 and above. |
| <input checked="" type="checkbox"/> Relay Server | Requires: Windows 2003 Server or higher. |
| <input type="checkbox"/> VD Server | Requires: Windows 2003 Server or higher. |

The SPR role installs a Single Port Relay service that by default listens on port 443 and is SSL enabled. An inbuilt Propalms SSL certificate is used. The certificate can be changed to a 3rd party cert after install. The port can also be changed if required. (Console-Options-Relay Servers)

Add Roles

Home **Manage** Monitor Reports Options ?

Review the Relay Server information and click Next.

< Back Next > Cancel

Server Relay Information

| | |
|--------------------|---------------|
| Relay Port | 443 |
| Enable SSL | ✓ |
| Server Certificate | Propalms Ltd. |

The Relay Server role install will start.

On completion the Relay role should show up as Green on the Manage-Server page

Propalms TSE Team

Help Support Log Off Close

Home **Manage** Monitor Reports Options ?

From this page you can add, update, or remove a server. You can also diagnose, update server roles, update server status or select applications for a server. To sort the table, click on a column heading.

Server Name Find

Page: [1]

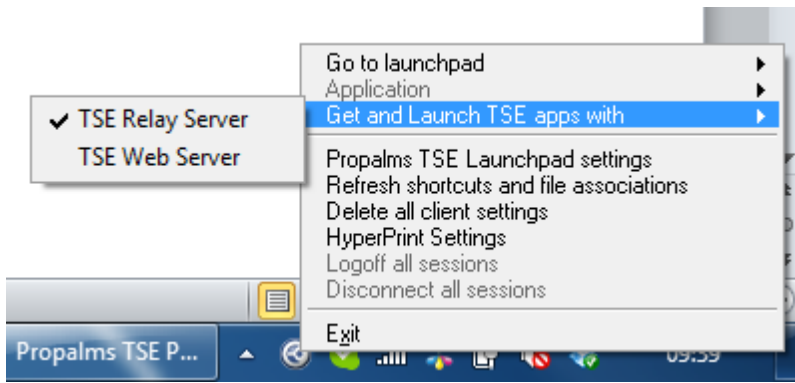
| Server Name | Description | Running Status | Install Status | Status | Web Server Role | Load Balancer Role | Application Server Role | VD Server Role | Relay Server Role | DMZ Relay Server Role |
|-------------|--------------------|----------------|----------------|---------|-----------------|--------------------|-------------------------|----------------|-------------------|-----------------------|
| WINTSE | Propalms TSE Setup | Online | Installed | Enabled | ● | ● | ● | | ● | |

Important: In Propalms Connection settings enable SPR, this will force Propalms TSE client to connect over SPR and not directly to the Application server.

| Propalms TSE Features | |
|---------------------------------|---------------------|
| Seamless Windows | Except during logon |
| System Tray Seamless | Disable |
| Launch in Existing Connections | If available |
| Reconnect | On |
| Enable Single Port Relay | Off |
| Enable DMZ Single Port Relay | On |
| Logoff Disconnected Connections | Unspecified |
| Logoff Idle Connections | Never |

If Admin does not wish to make changes to connection setting for external users, they could also use the Relay switch along with Launchpad URL
E.g.: https://SPR_IP_Addr/launchpad?relay=1

An alternative method of accessing applications over the SPR is to use the system tray integrated launch. Right-click the PCM system tray icon and select **Get and Launch TSE apps with** option then enable **TSE Relay Server** launch rather than direct launch via TSE Web Server.




The DMZ SPR service cannot be installed directly from the console; it has to be downloaded and manually installed. To download that latest msi, open the TSE Management Console and go to Home>Download screen

Download Server Software

Home Manage Monitor Reports Options ?

Click the button below to download PROPALMS-TSE-DMZ.msi, a Microsoft Windows Installer file that installs Propalms TSE Single Port Relay server software for DMZs.

Download Now 

The installation file allows you to add server placed in the DMZ to an existing Propalms TSE team.

You may save the file to your computer and install Propalms TSE later on another server. You may also open the file and install Propalms TSE on your computer if it is not already a Propalms TSE server.

After installing the Propalms TSE server software, click on the link below to return to the Summary page.

Done 

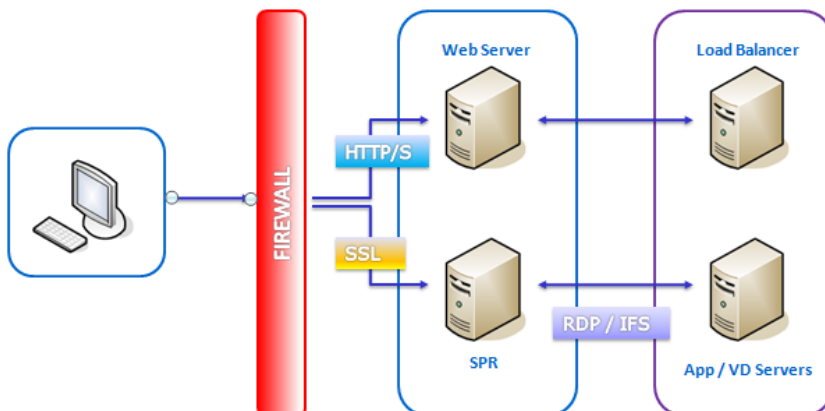
For full instructions on installing the DMZ SPR please refer to the Propalms TSE Install Guide available from the website.

To force the Propalms TSE client to launch Apps over DMZ-SPR you have three options:

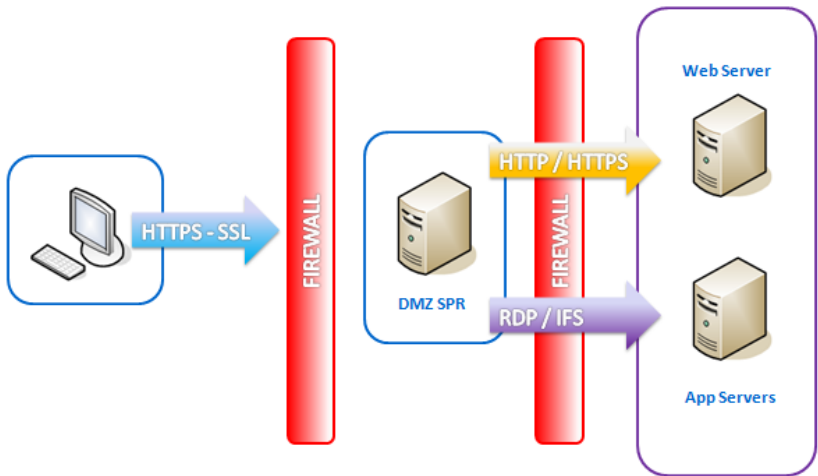
- Connection settings
- DMZ-SPR Launchpad URL switch - <https://DMZ-SPR-IP/Launchpad?DMZrelay=1>
- System tray integrated launch

SPR install port communication and firewall requirements

Client to Server Communication With SPR



Client to Server Communication With DMZ SPR



Printing option in Propalms

There are 3 printing options available within Propalms

- 1) Propalms IFS printing
- 2) Propalms HyperPrint (PDF based)
- 3) Native RDP Printing

Every printing mode has its pro's and con's. Choose the printing mode that best suits your printing needs and works best without hassles.

Propalms Printing

Propalms IFS Printing is Propalms own printing protocol, where client printers are re-directed in Application sessions and are made available for printing. Propalms printing has a host of features like Propalms Universal driver, printing bandwidth throttling, compression, Asynchronous printer install, Custom printer naming scheme etc.

It can be configured through Propalms Connection Settings:

| Client Printer Sharing | |
|---|----------------------------------|
| Windows 2003 | Propalms TSE ▾ |
| Windows 2008 / 2008 R2 | Propalms TSE ▾ |
| Unidriver (for Propalms TSE printing only) | If vendor driver not available ▾ |
| Limiting Bandwidth (for Propalms TSE printing only) | Unlimited ▾ |
| Compression (for Propalms TSE printing only) | Off ▾ |
| Allow printer properties to be remotod | On ▾ |
| Select printers to remote to server | All Printers ▾ |

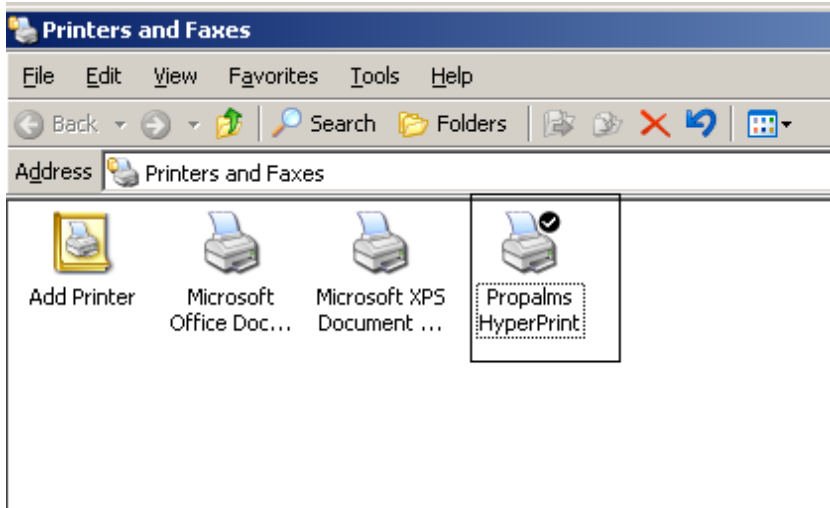
Propalms HyperPrint

It is PDF based printing, where client printers are not re-directed in Application sessions.

A generic printer called HyperPrint is installed on each Propalms Application server. User should print to this HyperPrint printer from within their App session.

HyperPrint then re-directs the print job in a pdf format to the client machine, where the user can select the Printer to print to.

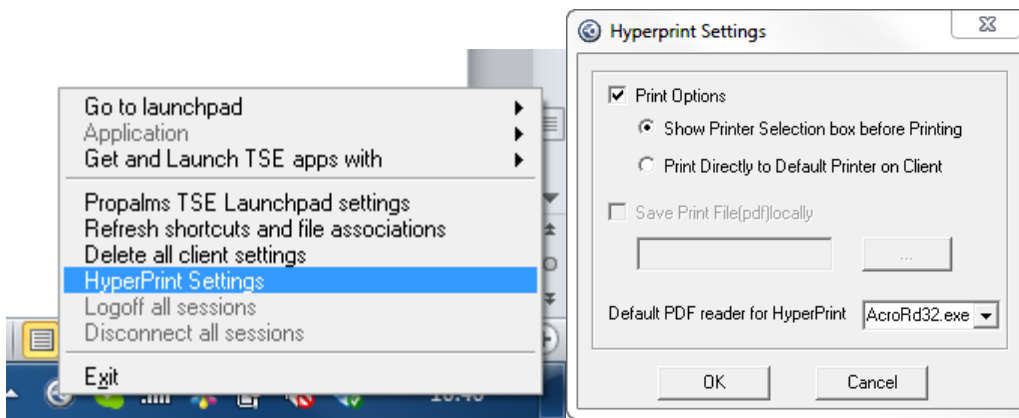
Client machine needs to have a PDF reader installed to print using Propalms HyperPrint.



HyperPrint can be configured within TSE Connection Settings



HyperPrint options can also be selected from the PCM system tray icon. From here you can select the option to show print dialog box or print directly and save print locally. You can also select the default PDF reader to use for HyperPrint. Any installed readers should be enumerated from the local machine.



Native RDP Printing

It is the standard printing offered by Windows RDP. Printing scheme and functionality is similar to that when using Native RDP.

It can be set in Propalms Connection settings.

| Client Printer Sharing | |
|---|--------------------------------|
| Windows 2003 | Native |
| Windows 2008 / 2008 R2 | Native |
| Unidriver (for Propalms TSE printing only) | If vendor driver not available |
| Limiting Bandwidth (for Propalms TSE printing only) | Unlimited |
| Compression (for Propalms TSE printing only) | Off |
| Allow printer properties to be remoted | On |
| Select printers to remote to server | All Printers |



Propalms Ltd is a global provider of application delivery and secure remote access solutions for Terminal Services and Virtual Desktop Infrastructures. Delivering to Enterprises of all sizes we offer reliable, scalable and affordable solutions that simply work. Our belief is that application delivery solutions should be flexible, dynamic and above all, simple to use.

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