PANARAY®

Installation Guide

Contents

System Requirements

This section describes the system requirements needed to install and run PANARAY.

Minimum PC Configuration

Operating System	Microsoft Windows 7
CPU	Intel Core 2 or AMD dual-core processor running at 2.1Ghz or Intel single core processor with hyper-threading running at 2.10 Ghz
RAM	4 Gb
Available Disk Space	100 Mb
Display Resolution	1280 X 1024
Video Card	Video card with 512MB shared video memory and support for DirectX 9
Network Connection	2 Mbps network connection and <200 ms latency when pinging tomcat.services.panaray.com
Application Framework	Microsoft .Net Framework version 4.6.2 Full
Software Suggestions	Adobe Acrobat Reader – Version 9 Microsoft Excel – Version 2002 Microsoft Windows Media Player – Version 10

Recommended PC Configuration

Operating System	Microsoft Windows 7 – 64 bit
CPU	Intel Core 2 or AMD dual-core processor at 2.80 Ghz or faster
RAM	6 Gb
Available Disk Space	250 Mb
Display Resolution	1920 X 1200; multiple monitors are supported
Video Card	Video card with 512MB dedicated video memory and support for DirectX 10
Network Connection	10 Mbps network connection and <100 ms latency when pinging tomcat.services.panaray.com.
Application Framework	Microsoft .Net Framework version 4.6.2 Full
Software Suggestions	Adobe Acrobat Reader – Version 9 or later Microsoft Excel – Version 2002 or later Microsoft Windows Media Player – Version 10 or later

If you have any questions regarding PANARAY system requirements, please contact Institutional Client Services at support@williamoneil.com.

Network Ports & Firewalls

PANARAY sends/receives financial data over the intranet through TCP port 80. Sign-on and change password transactions are always encrypted and transmitted through TCP port 443. The application can optionally be configured to encrypt all data and send/receive using port 443. To use encryption for all transactions, see the "Encryption Settings" section of this document after installing the application.

Directory & Registry Permissions

PANARAY requires read/write access to the following directories and registry entries on the client PC.

Application Installation Directory – The directory where the PANARAY application is installed must be readable and writable by the application. The installation directory is configurable during the installation process. The default locations are listed below.
C:\Program Files (x86)\William O'Neil + Co\PANARAY – for 64 bit operating systems
C:\Program Files\William O'Neil + Co\PANARAY – for 32 bit operating systems

Application Error Log Directory – The application error log directory must be readable and writable by the PANARAY application. This directory is used to store installation and application log files:
C:\Users\[username]\AppData\Roaming\Panaray

Windows Registry – PANARAY reads and writes the following Windows Registry locations.
HKEY_CURRENT_USER\Software\Panaray

Installation Procedure

This section describes the steps to install PANARAY on a client machine.

1. **Download PANARAY** – Download the PANARAY installation package from panaray.com: **http://www.panaray.com/downloads**

2. **Run the Installation Wizard** – Run the installation package executable file. The account used to run the installation must have the ability to write to the PC's hard disk and modify registry entries. If prompted for administration privileges — please click Yes.

Installation Password – The installation process is password-protected. Please contact Institutional Client Services at support@williamoneil.com or (800) 419-6632 for the installation password.

.NET Framework – PANARAY requires Microsoft® .NET Framework version 4.6.2. This can add up to 10 minutes to the installation time.

License Agreement – Please read the license agreement and acknowledge your acceptance of the license terms by selecting the "I accept the terms in the license agreement" checkbox.

Destination Folder – The program installs to the C:\Program Files (x86)\William O'Neil + Co\ PANARAY\ folder by default. You can change the install folder by clicking the Change button.

Installation Confirmation – When the install process completes successfully, you will see the confirmation screen. Select the Launch PANARAY checkbox and click the Finish button.

3. **Run PANARAY** – When the application starts, you will be prompted to enter your email address and password (see below). The email address and password for your account must be set up before you log in for the first time. Your email address and initial password will be sent to you via a PANARAY welcome email. If you have trouble accessing your PANARAY account, please contact Institutional Client Services at (800) 419-6632 or support@williamoneil.com.

Application Configuration

Encryption Settings

Panaray will encrypt all sensitive traffic for point-to-point secure transmission. You can optionally enable this encryption for all other data transmission as well via the Advanced Options link on the PANARAY login screen.

To configure encryption in PANARAY:

1. **Start the application.** If you are already logged into PANARAY, you must exit and then restart the application in order to change the encryption setting.

2. **From the Login Screen,** click the Advanced Options link.
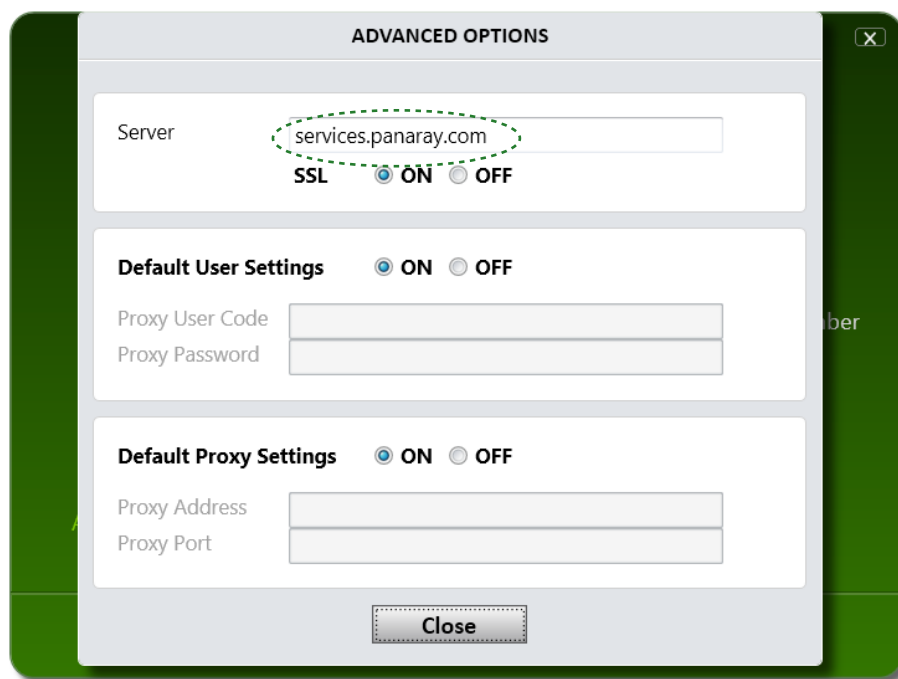
3. **The on/off setting is located under the Server address field.** Set this field as needed. Please note that even with the setting off, sensitive user data such as login credentials are still encrypted.

4. **Click the Close button in the Advanced Options rollover.** The application is now configured to use the selected encryption settings.
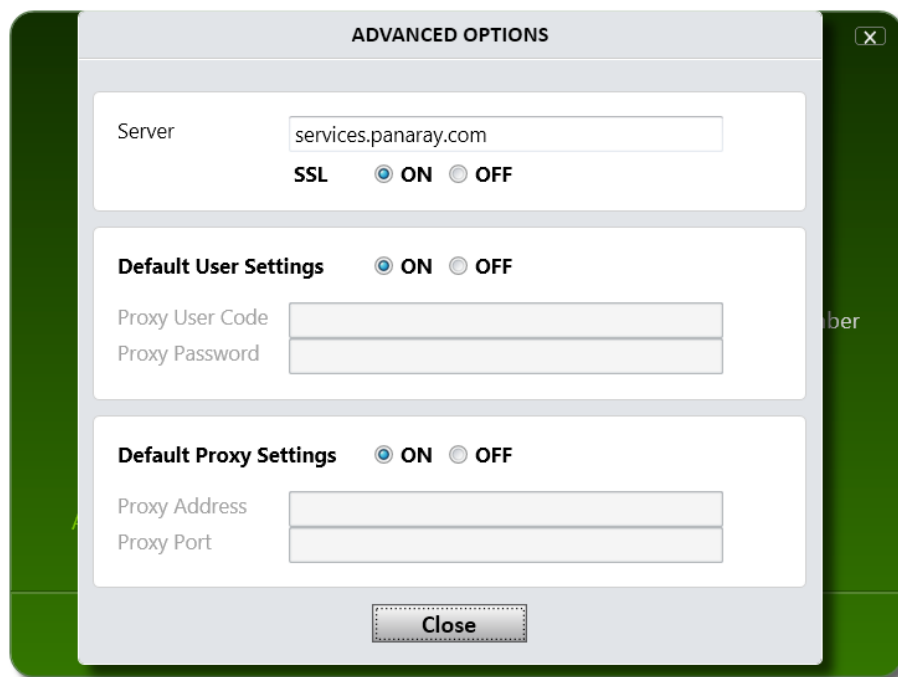
Proxy Settings

In network environments that use a proxy server, PANARAY can automatically detect and use the PC's default Proxy Setting to communicate over the internet. In certain cases, however, the user will need to override the default proxy settings for PANARAY.

The Proxy Settings are configured via the Advanced Options link on the PANARAY login screen.

To configure the proxy setting in PANARAY:

1. **Start the application.** If you are already logged into PANARAY, you must exit and then restart the application in order to change the Proxy Settings.

2. **From the Login Screen,** click the Advanced Options link.

3. **The Proxy Settings are organized into two separate sections:**

   Default Proxy User Settings – This control enables the user to override the default Proxy Username and Password. The default for this field is ON, which means that the application will use the Windows default Proxy Username and Password. By setting this field to OFF, the user can force PANARAY to access the internet using the Proxy User Code and Proxy Password provided in this section.

   Default Proxy Server Settings – This section enables the user to override the default Proxy Server and Port Number. The default for this field is ON, which means that the application will use the default Proxy Server configured in the OS network settings. By setting this field to OFF, the user can force PANARAY to access the internet using the Proxy Server and Port Number provided in this section.

4. **Click the Close button in the Advanced Options rollover.** The application is now configured to use the selected Proxy Settings.
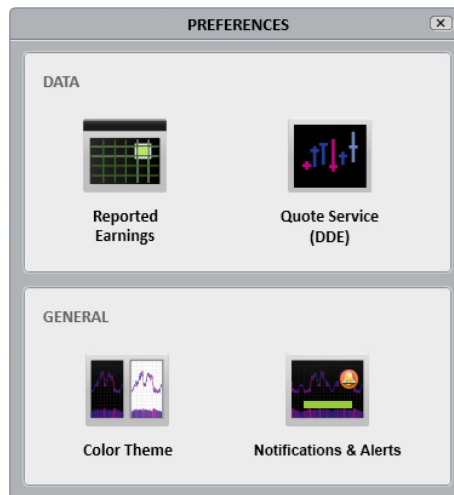
Quote Service Settings

PANARAY has the ability to integrate with a Quote Service provider via a Dynamic Data Exchange (DDE) connection. This feature enables real-time price and volume data from a Quote Service provider application to be displayed on the PANARAY Datagraph. The settings for Quote Server are configured within the Preferences screen once the user is logged into PANARAY.

To configure the Quote Service Provider:

1. **Start and sign in to the PANARAY application.**

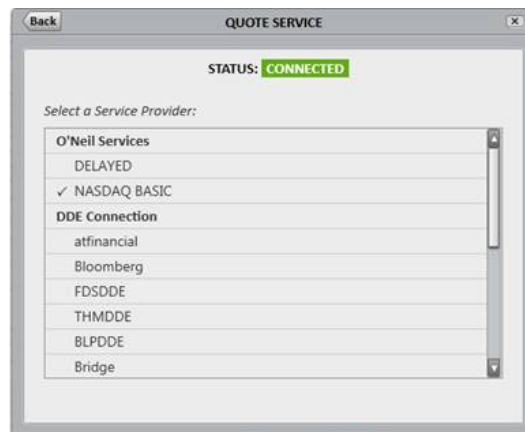2. **From the PANARAY Application Menu, select Preferences.**
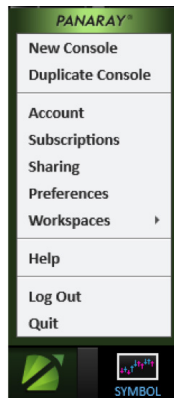
3. **From the Preferences dialog box, select Quote Service (DDE).**

4. **From the Quote Service (DDE) dialog box,** select your Quote Service provider from the service provider drop down list.

5. **There are default settings for each provider that will work in most situations.** The Advanced Options menu enables you to configure the location of the Quote Service Provider app and change the DDE parameters.
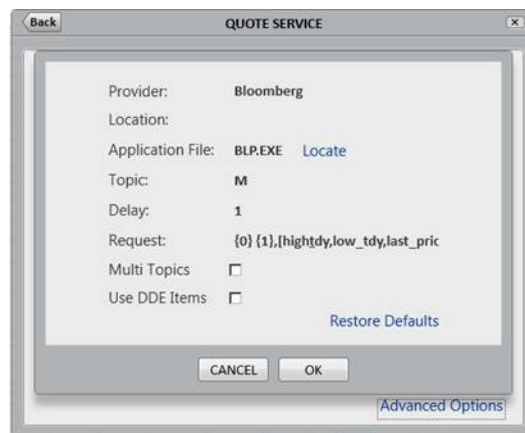
6. **Quote Service Connection Issue.** If there is a connection issue with the service provider selected, the displayed Status will say 'Not Connected'. Select the refresh button to the right to attempt a reconnection, if the connection still fails, contact Customer Service.

For questions, contact Institutional Client Services at support@williamoneil.com or call 800.419.6632.

Troubleshooting Tips

I. Are you able to successfully resolve the end points?
    1. Open command prompt
    2. Type **nslookup**, press <Enter>
       The screen will display the default DNS server

    3. To test the following end points,
          1. Type: **tomcat.services.panaray.com**, press <Enter>
          2. Type: **iis.services.panaray.com**, press <Enter>
          3. Type: **sqs.us-east-1.amazonaws.com**, press <Enter>
          4. Type: **NASDstream.panaray.com**, press <Enter>
          5. Type: **exit**, press <Enter> to end nslookup process

```
C:\>nslookup
Default Server:  netdai2k3dc1.netdai.com
Address:  172.22.10.66

> tomcat.services.panaray.com
Server:  netdai2k3dc1.netdai.com
Address:  172.22.10.66

Name:    tomcat.services.panaray.com
Address:  198.200.194.162

> iis.services.panaray.com
Server:  netdai2k3dc1.netdai.com
Address:  172.22.10.66

Name:    iis.services.panaray.com
Address:  198.200.194.163

> exit
```

II. Can you ping the following end points?
    1. Website: **https://tomcat.services.panaray.com/ray/u/signin**?
       Log-in with your PANARAY credentials
    2. Type: **ping tomcat.services.panaray.com**, press<ENTER>
    3. Type: **ping iis.services.panaray.com**, press <ENTER>
    4. Type: **NASDstream.panaray.com**, press <ENTER>

```
C:\>ping tomcat.services.panaray.com

Pinging tomcat.services.panaray.com [198.200.194.162] with 32 bytes of data:
Reply from 198.200.194.162: bytes=32 time=1ms TTL=126
Reply from 198.200.194.162: bytes=32 time<1ms TTL=126
Reply from 198.200.194.162: bytes=32 time<1ms TTL=126
Reply from 198.200.194.162: bytes=32 time<1ms TTL=126

Ping statistics for 198.200.194.162:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 1ms, Average = 0ms

C:\>ping iis.services.panaray.com

Pinging iis.services.panaray.com [198.200.194.163] with 32 bytes of data:
Reply from 198.200.194.163: bytes=32 time<1ms TTL=126
Reply from 198.200.194.163: bytes=32 time<1ms TTL=126
Reply from 198.200.194.163: bytes=32 time<1ms TTL=126
Reply from 198.200.194.163: bytes=32 time<1ms TTL=126

Ping statistics for 198.200.194.163:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms
```

III. **Can you telnet to the end points over the required ports?**

END POINTS	PROTOCOL	PORT
tomcat.services.panaray.com	ITCP/UDP	80
tomcat.services.panaray.com	TCP/UDP	443
iis.services.panaray.com	TCP/UDP	80
iis.services.panaray.com	TCP/UDP	443
sqs.us-east-1.amazonaws.com	TCP/UDP	80
sqs.us-east-1.amazonaws.com	TCP/UDP	443
nasdstream.panaray.com	TCP/UDP	80
nasdstream.panaray.com	TCP/UDP	443

1. Type: **telnet tomcat.services.panaray.com 80**, press <ENTER>


```
C:\>telnet tomcat.services.panaray.com 80
```

2. If successful, you should see a blank terminal screen (see below)
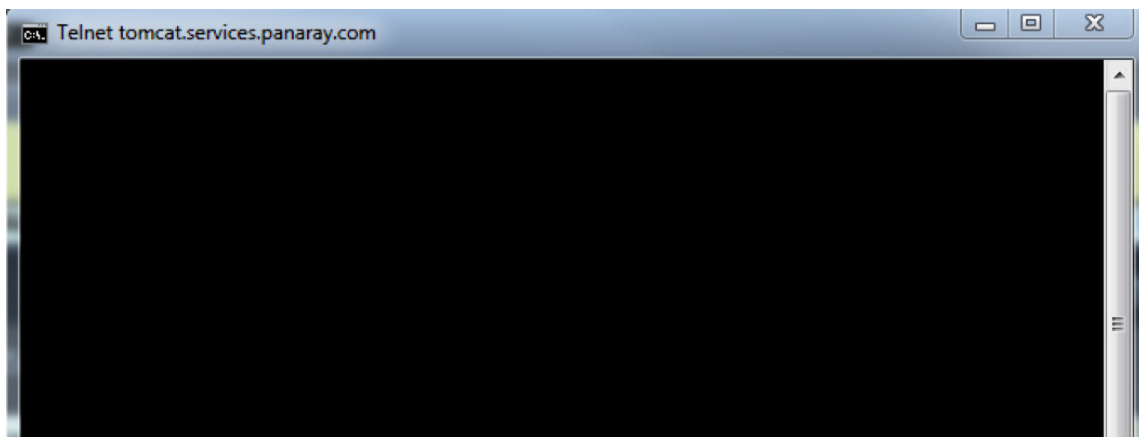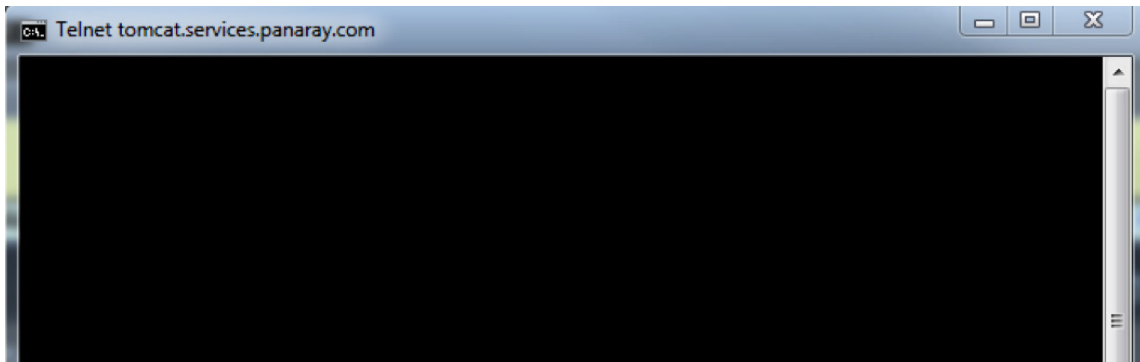

3. Type **exit**, press <ENTER> to return to the active command prompt

4. Type: **telnet tomcat.services.panaray.com 443**, press <ENTER>

```
C:\>telnet tomcat.services.panaray.com 443
```

5. If successful, you should see a blank terminal screen (see below)
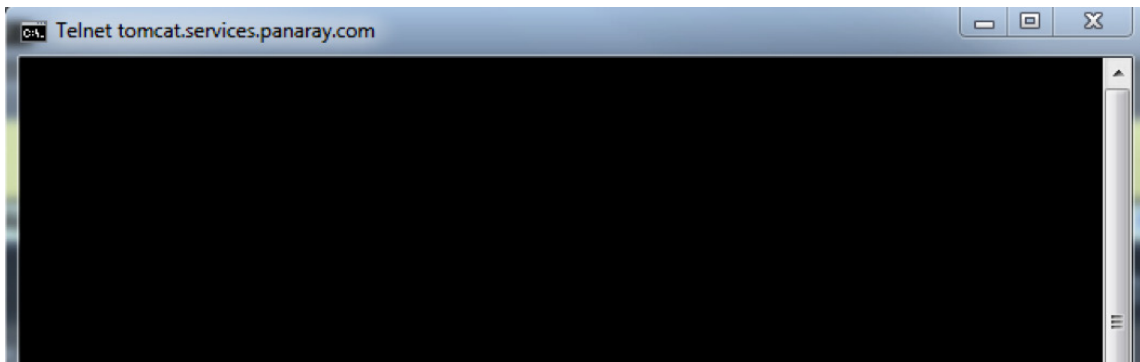

6. Type **exit**, press <ENTER> to return to the active command prompt

7. Type **telnet iis.services.panaray.com 80**, press <ENTER>

```
C:\>telnet iis.services.panaray.com 80
```

8. If successful, you should see a blank terminal screen (see below)
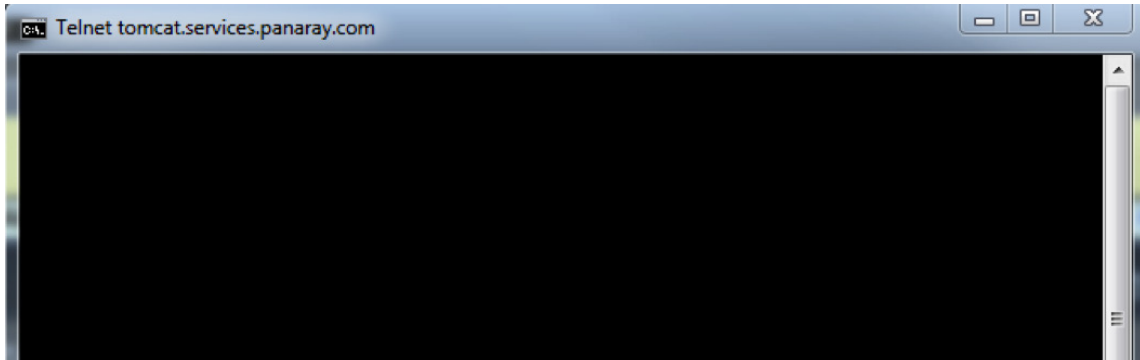

9. Type **exit**, press <ENTER> to return to the active command prompt

10. Type: **telnet tomcat.services.panaray.com 443**, press <ENTER>

11. If successful, you should see a blank terminal screen (see below)

12. Type **exit**, press <ENTER> to return to the active command prompt

This will confirm if your firewall and proxy settings are configured to allow outbound access to Panaray services.