This guide provides all the details you need to configure Reuters 3000 Xtra Hosted Terminal Access (HTA) sessions. It contains best practice information and basic troubleshooting tips.

Reuters 3000 Xtra is available as a ‘hosted’ service that employs Citrix®* access infrastructure technology. This means you can access Reuters 3000 Xtra and all your markets from any business location with internet access**, whilst still using the full application suite, including Reuters Kobra, PowerPlus Pro and user-created files.

Reuters maintains the product centrally with the latest versions, patches and display template releases, so users can always rely on access to the best available application, with support only a click away.

It’s the ideal solution for financial institutions seeking to lower their total cost of systems ownership (TCO) whilst maintaining the features of Reuters flagship product with no maintenance and support overheads, low communication requirements and no need to upgrade desktop hardware. For users who require high availability and consistent connection quality from the office, Reuters recommends competitively-priced secure connectivity over BT Radianz (where available).

Typically, Reuters 3000 Xtra Hosted Terminal Access (HTA) is straightforward to install, configure and access. Nevertheless, there are a number of prerequisites for a smooth and reliable installation and high-quality user experience.

* Citrix, Citrix ICA, Citrix MetaFrame XP Presentation Server and other Citrix product names referenced herein are registered trademarks or trademarks of Citrix Systems, Inc. in the United States and other jurisdictions.

** Subject to technical requirements
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1. Read me first

This document discusses both BT Radianz and internet delivery mechanisms. To determine which delivery mechanism you have subscribed to, see your Reuters 3000 Xtra HTA welcome email from Reuters administration services.

The URL is currently http://3000Xtra.glbl1.reuters.com regardless of the delivery mechanism you have chosen.

Please note Reuters may need to change the access URL – for example, when introducing new services and connectivity options.

2. Hardware requirements

The following are the minimum desktop hardware specification for running Reuters 3000 Xtra HTA and does not take into account any other applications that may be running on the desktop.

- Processor: Pentium III 500Mhz
- Memory: 128Mb RAM or greater
- Microsoft mouse or 100% compatible pointing device
- A network interface card (NIC) and the appropriate network transport software for a network connection to the Reuters Citrix® MetaFrame XP Presentation Server
- Video: VGA or SVGA video adapter with 2Mb memory, 65536 colours, 1024 x 768 resolution

3. Network requirements

Below is a summary of the network requirements of any workstation running Reuters 3000 Xtra HTA. A more detailed description of each bullet point follows.

- The supported connection method and network transport is HTTP/S (SSL)
- Port 80 (HTTP) and Port 443 (TCP and SSL) must be opened outbound
- DNS mapping and IP address routing to the Reuters host data centre
- A minimum of 32Kbps per concurrent access
- Network latency of no more than 200-300 milliseconds
- Less than 0.5% packet loss

a) Connectivity – ports and DNS

- In order to start a Reuters 3000 Xtra HTA connection, you need to connect to the first two URLs shown in the box below

  - Reuters may need to change the access URL and IP address range – for example, when introducing new and improved services and connectivity options
  - DNS must be configured to the IP address ranges on the client site network environment
  - The first URL serves the login page and provides a list of applications available for use (Port 80). The second URL establishes an ICA connection to the host in order to run the Reuters 3000 Xtra application (Port 443)
  - HTTP port 80 TCP and SSL port 443 TCP need to be opened outbound for these IP ranges
  - No other ports are accessible through the Reuters firewalls. In accordance with Reuters security policy it is not possible to ping either of these addresses or to use traceroute
  - Your firewall and any proxy server at your site must allow the same access

<table>
<thead>
<tr>
<th>URL DNS</th>
<th>BT Radianz IP Range</th>
<th>Internet IP Range</th>
<th>Subnet Mask</th>
</tr>
</thead>
<tbody>
<tr>
<td><a href="http://3000Xtra.glbl1.reuters.com">http://3000Xtra.glbl1.reuters.com</a></td>
<td>155.195.88.129</td>
<td>192.165.221.129</td>
<td>255.255.255.0</td>
</tr>
<tr>
<td><a href="https://3000Xtra1.glb1.reuters.com">https://3000Xtra1.glb1.reuters.com</a></td>
<td>155.195.88.130</td>
<td>192.165.221.130</td>
<td>255.255.255.0</td>
</tr>
<tr>
<td><a href="https://util1.glbl1.reuters.com">https://util1.glbl1.reuters.com</a></td>
<td>Not available</td>
<td>192.165.221.138</td>
<td>255.255.255.0</td>
</tr>
</tbody>
</table>
Connections are 128-bit cipher SSL over HTTPS; therefore, your browser needs to support 128-bit encryption. To confirm these settings, go to Internet Explorer > Help > About and check under cipher strength.

If your network has both BT Radianz and internet access to Reuters 3000 Xtra HTA, please make sure that your DNS mapping priorities resolve the BT Radianz address range before internet access.

See Appendix A for more detailed information on the ICA/SSL Protocol (Port 443).

To verify that port 443 is available, try opening the following URL on your PC – http://3000Xtra.glbl1.reuters.com

If port 443 is open you will get the Reuters 3000 Xtra HTA login page and the browser URL address must have redirected to https://3000xtra.glbl1.reuters.com – note the (s) in https.

If you cannot access this page then port 443 is not open on your network, or you haven’t enabled 128-bit encryption on your browser. See further sections on configuring your browser.

Another test is to enter https://www.microsoft.com:443 in your browser. You should be able to connect to this Windows Update site as this uses the secure http port.

b) Persistent connectivity

As well as opening the necessary ports, it is vital to ensure that any of your devices that maintain session state – e.g. proxy or firewall – are configured with best practice in mind (see Appendix B).

To help prevent intermediate network components dropping an inactive user session (i.e. before the nine-hour inactivity timeout), the Reuters host server sends application-level ‘keep-alive’ messages to the ICA client every 60 seconds.

‘Keep-alives’ are also sent from the ICA client to the server every 30-60 seconds.

You should set idle timeouts for network or firewall components to a minimum of 10 minutes to prevent dropped sessions.

This applies to client proxy servers, firewalls, and anything else maintaining session state; e.g. hardware load balancers or clustering software.

Appendix B contains further best practice information on proxies and firewall configurations.

Wireless local area network: Reuters strongly recommends that you use a cabled Ethernet LAN connection to access the Reuters 3000 Xtra HTA Application. Our experience suggests that wireless LAN sessions are more susceptible to network-related disconnects.

c) Concurrent access

The following data is generated by an idle Reuters 3000 Xtra HTA session:

- Host to client needs 86 bytes of data
- Client to host needs 60 bytes of data

The following data is generated by a typical Reuters 3000 Xtra HTA session:

- Host to client needs 8 Kbps
- Client to host needs 8 Kbps

Each concurrent Reuters 3000 Xtra session over Citrix requires a minimum of 32Kbps line bandwidth with low latency. The table below provides a sample of bandwidth allocations and details the number of concurrent Reuters 3000 Xtra Terminal accesses supported:

<table>
<thead>
<tr>
<th>Bandwidth</th>
<th>Concurrent users</th>
</tr>
</thead>
<tbody>
<tr>
<td>32Kbps</td>
<td>1</td>
</tr>
<tr>
<td>64Kbps</td>
<td>2</td>
</tr>
<tr>
<td>128Kbps</td>
<td>4</td>
</tr>
<tr>
<td>256Kbps</td>
<td>8</td>
</tr>
<tr>
<td>512Kbps</td>
<td>16</td>
</tr>
<tr>
<td>T1 1.544Mbps</td>
<td>48</td>
</tr>
<tr>
<td>2048Kbps</td>
<td>60</td>
</tr>
</tbody>
</table>

Our experience suggests that allowing 64 Kbps for each concurrently active user session improves the performance of sessions and accommodates peak traffic rates.

Bandwidth requirements are the same for both BT Radianz and internet delivery mechanisms.

Please note, current utilisation of available bandwidth must be taken into account when reviewing this product.

It is possible to access Reuters 3000 Xtra HTA via a 56K dial-up connection, although this is not advised. The end-user experience will depend on the reliability and performance of the connection.

d) Network latency and packet-loss

Wireless local area network: Reuters strongly recommends that you use a cabled Ethernet LAN connection to access the Reuters 3000 Xtra HTA Application. Our experience suggests that wireless LAN sessions are more susceptible to network-related disconnects.

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Please note, current utilisation of available bandwidth must be taken into account when reviewing this product.

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Appendix C contains further best practice information on proxies and firewall configurations.

Wireless local area network: Reuters strongly recommends that you use a cabled Ethernet LAN connection to access the Reuters 3000 Xtra HTA Application. Our experience suggests that wireless LAN sessions are more susceptible to network-related disconnects.

See Appendix C for details of the effects of WAN latency and packet loss on the usability and responsiveness of Reuters 3000 Xtra HTA.

In advance of using the product, it is important to ensure that your connection to the relevant Reuters host location is tested and falls within the ‘good’ and ‘acceptable’ criteria given in Appendix C.
4 Software requirements

The below is a summary of the software requirements of any workstation running Reuters 3000 Xtra HTA. A more detailed description of each bullet point follows:

- Citrix® MetaFrame ICA client
- Operating system – Windows (Windows 2000 SP3, SP4 or Windows XP SP1, SP2)
- Browser – Internet Explorer 5.5 or higher with 128-bit encryption

a) ICA client

- You will receive an ICA client installation guide as part of your welcome package when your Reuters 3000 Xtra HTA account is activated
- The ICA client is the only piece of software you need to run Reuters 3000 Xtra HTA. This lightweight Citrix-supplied component displays the image of Reuters 3000 Xtra on the end-user terminal, where it appears exactly as if installed locally
- You can download the latest Reuters-qualified version of the ICA client from the Reuters 3000 Xtra HTA web page
- At the time of writing the latest Reuters qualified version of the ICA client is version 9.0. It is therefore recommended that this version is installed prior to logging into the service
- If an ICA client is not already installed on your desktop, the following warning message will appear when you try to access the Reuters 3000 Xtra HTA login page. The message will say:

    You do not have the Citrix ICA Client (ActiveX) for 32-bit Windows installed on your system. You must install the ICA Client to launch the applications

- Installing the Citrix ICA client requires local administrative rights on your PC. Please ensure that your IT department has either granted you this permission or will handle the installation on your behalf
- To download a Reuters-approved version of the ICA client, click on the following link, located on the [https://3000xtra.glb1.reuters.com/asp/login.asp](https://3000xtra.glb1.reuters.com/asp/login.asp) website:

    Citrix ICA Web Client for 32-bit Windows

After clicking this link please follow the installation instructions displayed. Depending on your browser, these will be something like this:

- Click **Open** or select the option to run the application from its current location
- Files are extracted to your system by the Install Shield Wizard
- Once complete a Citrix ICA web client window appears with the message “This will install Citrix ICA web client. Do you wish to continue?” Click **Yes**

- A Citrix licence agreement window will open. Read the terms and click **Yes**
- The ICA web client window appears with the message “Setup completed successfully. You may need to restart your web browser to activate changes.” Click **OK**
- Restart the web browser and log on to the Reuters URL again. There should be no need to reboot the PC, but the browser should be closed and restarted
- If you need to confirm the version of an already-installed ICA client, log in and launch the Reuters 3000 Xtra application

Double-click on the Program Neighbourhood Connection Centre icon in the Windows taskbar and click on properties. The screenshot below shows the ICA client version and also the server that your session is connecting to:

![ICA Client Connection Status](image)

- You can also download the latest version of the ICA client from the Citrix website. However, Reuters strongly recommends that you download the version available on the Reuters 3000 Xtra HTA website
- Appendix D includes some further details on the ICA Client, including error codes and how you should troubleshoot problems with this piece of software
b) Web browser configuration

- Reuters 3000 Xtra HTA is not a web browser application, but a web browser is required to log into and launch the application within the Citrix ICA client.
- See Appendix E for details on which browsers are qualified by Citrix and which browsers Reuters qualify against when developing add-on functionality to Reuters 3000 Xtra HTA.
- At launch, the ICA client examines essential browser settings. These should be configured as below (for Internet Explorer):
  - Internet Explorer > Tools > Internet Options > Advanced Tab > Scroll to security settings and make sure the options are set as below:
  - The ICA client writes to the Temporary Internet Files folder when it is launched on your PC, which can result in the following error when the folder is full:

```
[i]The ICA client writes to the Temporary Internet Files folder when it is launched on your PC, which can result in the following error when the folder is full:
```

- If you encounter this error when launching the Reuters 3000 Xtra application, Reuters suggests the following browser changes. These three changes should fix the problem and ensure that it does not happen again:
  1) IE > Tools > Internet Options > Advanced Tab > Security > The 'Do not save encrypted pages to disk' box should NOT be ticked > OK
  2) IE > Tools > Internet Options > General Tab > Temporary Internet Files > Delete Files > OK
  3) IE > Tools > Internet Options > Advanced Tab > Security > Tick the 'Empty Temporary Internet Files folder when browser is closed' box > OK
- When you click an application icon, the launch.ica file is downloaded from the Reuters web server and then executed by the local ICA client. If the Reuters server is using SSL (https://...) and your browser is configured not to save encrypted pages to disk, the launch.ica file cannot be written to disk and the ICA client has no file to open. In this case, you’ll get the following dialog box:

```
[i]When you click an application icon, the launch.ica file is downloaded from the Reuters web server and then executed by the local ICA client. If the Reuters server is using SSL (https://...) and your browser is configured not to save encrypted pages to disk, the launch.ica file cannot be written to disk and the ICA client has no file to open. In this case, you’ll get the following dialog box:
```

To avoid this problem make sure that your IE settings are set as above. The option ‘Do not save encrypted pages to disk’ should be unchecked:
- Ensure that session cookies are not stored. Reuters 3000 Xtra HTA requires the removal of session cookies for security purposes (for IE 5.5 only).
- Check IE setting ‘Active Scripting’ is set to Enable. Active Scripting allows the product to run third party scripts in Internet explorer. If the Enable is not set, then the 3000xtra web page will not display in its entirety i.e the page will display, but there will be limited content.
- Check ‘HTTP 1.1’ is selected. HTTP 1.1 provides faster delivery of Web pages than the original HTTP (v1.0) and therefore reduces Web traffic.
- Check IE setting ‘Use HTTP 1.1 through proxy connection’ is selected. This should be checked if your network is going through a proxy server.
5. Product and platform features

a) Availability – under normal operational conditions:

- You can log in 24x7 (see below for maintenance periods)
- A session left idle for more than nine hours is terminated
- An idle session is one that is receiving no keyboard or mouse input
- Any mouse movement or keystroke within any Reuters 3000 Xtra application display window will renew the nine-hour idle period
- A pop-up dialogue box warns the user 30 minutes in advance of idle session termination:
  “Your Reuters 3000 Xtra Hosted Terminal Access session has been idle for more than nine hours and will be closed automatically in 30 minutes. If you do not click ‘Continue Session’ any open unsaved files will be lost. Please click ‘Continue Session’ to return to Reuters 3000 Xtra”
- If the user clicks ‘Continue session’ the nine-hour idle timer is reset. If the user does not click ‘Continue session’ the Reuters 3000 Xtra session will be terminated and any open unsaved files lost

- The rationale for terminating idle sessions is threefold:
  1. You can have only one login at a time. Terminating an idle session lets you log in from elsewhere if you have forgotten to log out
  2. For security purposes your workstation should be set to log out within a certain period of inactivity. If this is not the case idle logout of the Reuters 3000 Xtra session by the Reuters host provides additional protection against unauthorised use
  3. To preserve and enable reuse of unused capacity
- Please note that the nine-hour idle time-out CANNOT be altered on a per-user basis. It is chosen as a compromise recognising that a user under normal conditions may simply be observing market information without interacting with Reuters 3000 Xtra

b) Scheduled maintenance and downtime

- In order to achieve optimal performance of the Reuters 3000 Xtra HTA Server Farm, Reuters carry out weekly maintenance at a weekend. Reuters endeavour to ensure that this takes place outside markets opening and closing. At the time of writing (September 2005) the maintenance window is 16:00 GMT on a Saturday to 08:00 GMT on a Sunday. Reuters make every effort to ensure customers can access the system during these maintenance slots.

- Prior to a scheduled server reboot, you will receive a popup warning message (if you’re connected to the relevant server):
  “The MetaFrame server you are using will be restarted in [xx] minutes. Please save all data and log off. Any unsaved data will be lost
  “Reuters 3000 Xtra Hosted Terminal Access will shortly undergo scheduled maintenance. To avoid losing any unsaved work please save your files and close your application and log off. You may log in again after hh:mm GMT Sunday dd/mm/yyyy. Reuters thanks you for your cooperation”
- If longer maintenance slots are required to upgrade software and configurations:
  - A Service Alert will also be issued in the event of any unscheduled outages, with an explanation of the cause and expected time of the service being restored
  - A Service Alert will be issue when service is restored

c) Regional settings and languages

- Reuters 3000 Xtra HTA accounts are by default created with US (English) language settings. This means that date format, thousand separators, decimal point, currency indicator and other language-dependent features will operate in the American English style
- To provide the flexibility to change language format, for example to accommodate date format in Excel macros and perform news headline searches in a local language, a regional settings application is also available
- To adjust your regional settings, first log in from the Reuters 3000 Xtra HTA website. Instead of clicking on the Xtra Icon to launch the application choose:
  Reuters Utilities > Regional Settings > Launches the standard Windows Regional Options control panel
  Use the ‘Up’ folder button to navigate back to the top level folder. Click the Reuters 3000 Xtra icon as usual to launch the application with your new regional settings

d) Passwords and security

- Your username is your email address. Your randomly-generated password is included in the Reuters 3000 Xtra HTA welcome email
- A password change is required the first time you log in. A webpage will prompt you to enter your old and new passwords
Password complexity rules:
- Minimum of eight characters
- Must contain at least one of each of the following:
  - uppercase character
  - lowercase character
  - number or symbol
- Must not contain part of first name or surname
- Must not be the same as previous seven passwords
- Once logged in the client can change password at any time by clicking on the key icon found on the post-login web page
- If an incorrect password or username is entered the following error will appear:
  
  ERROR: The entered username or password are incorrect. Please try again or, if you have forgotten your password and have previously entered your security questions, click Forgotten Password.

The Forgotten Password Tool is available once you have set three individual security questions
The process requires that you answer three selected security questions. On answering these questions correctly, you can create a new password and log in without calling Reuters customer support
Appendix F contains more detail on how to use the Forgotten Password Tool
If you enter your password incorrectly five times your account will be locked and the following error will appear: The account will automatically unlock after five minutes
The account will automatically become unlocked after five minutes. Reuters Support can verify if the user credentials are correct and can reset the password.

A password change is enforced every 90 days. This period CANNOT be changed. See Appendix G for further information

f) File upload and download
- There is now an automatic file upload/download capability for Reuters 3000 Xtra HTA users. This replaces the previous 48-hour turnaround email-based process
- To use this service click on the link to the file Upload, Download portal (File Transfer section) on the Reuters 3000 Xtra HTA post-login web page
Appendix H contains more information on the file upload/download utility

g) PowerPlus Pro
- PowerPlus Pro can only be accessed through Kobra; it will not appear as an icon on the log-in page
- To access PowerPlus Pro you can either open one of the pre-built XMS sheets and select a new worksheet or click on the icon in the Kobra toolbar
- A new PowerPlus Pro icon has been added to the Kobra toolbar. When clicked it will launch PowerPlus Pro or move an already-running instance to the foreground. See screenshot below

- Users can cut and paste snapshot data between hosted Kobra and PowerPlus Pro to local desktop applications such as Excel. However, there is no real-time linking; the figures will not update when copied to and displayed in the local application
- Copying formulas from Reuters 3000 Xtra PowerPlus Pro into local desktop Excel environment is useful for auditing or control functions
- Click Tools > Options
  - Select the View tab
  - Check Formulas under Windows options
  - Click OK
- Select and copy the area of formulas required
- Choose Paste Special in the desktop copy of Excel
  - IMPORTANT: To keep formula references intact make sure to paste the formulas to the EXACT same row and column positions as in the copied area e.g. A1 to A1 and so on
  - Use Paste Special
- Note that in the Citrix environment all links must use RtUpdate. You cannot copy formulas when formulas are used in cells updated by RtGet


e) Storage space and group drives
- Each Reuters 3000 Xtra HTA User is permitted 200Mb of storage space at the Reuters Host Data Centre
- You have access to a Personal Drive (Q:) and a Group Drive (G:)
- The Group Drive is an additional drive mapping that allows Users who reside at the same company site to share access to files. You can save a file to this common area, so that other users of Reuters 3000 Xtra HTA at the same site can access it
- Note that files should not be stored in the root G:\ folder. Reuters Support advise that clients save their files either within G:\3000xtra or a subfolder (which they create) below that
h) Permissioning for real-time news

- Version 4.5.2 of Reuters 3000 Xtra HTA platform is configured to allow any user to receive historical news items – even for products that have not been ordered and permissioned for real-time access.
- This is why some news items can be viewed historically but not in real-time – they are not permissioned for real-time access. **This is not a system error**
- Below is a list of news products/PEs permissioned for real-time access by default with Reuters 3000 Xtra including Reuters 3000 Xtra HTA. The issue described applies to all but these news products unless specifically purchased and permissioned:
  - 259 News 2000 – Norwegian Elec [NEL]
  - 261 News 2000 – EASDAQ [EAQ]
  - 264 News 2000 – RTR Corp svc [RCE]
  - 270 News 2000 – Kuala Lumpur SE
  - 280 News 2000 – Municipals News [MNI]
  - 303 News 2000 – Fitch Rating [FCH]
  - 336 News 2000 – PR Newswire [BSW][PRN]
  - 343 News 2000 – SE of Thailand [SET]
  - 414 News 2000 – Weather Svcs Corp [WSC]
  - 425 News 2000 – Hong Kong SE [SHK]
  - 426 News 2000 – Noram Power [ELN]
  - 428 News 2000 – General trial UK14137PU19
  - 431 News 2000 – application reqd [DTRY]
  - 432 News 2000 – Money [M]
  - 433 News 2000 – Securities [E]
  - 434 News 2000 – Debt [D]
  - 435 News 2000 – Commodities (Full) [C]
  - 436 News 2000 – Energy [O] [OIL]
  - 437 News 2000 – Market Focus [G MF SPO]
  - 439 News 2000 – Regulatory News Service
  - 449 News 2000 – Comombs GOL [GRO]
  - 450 News 2000 – Metals [MTL]
  - 451 News 2000 – Softs [SOF]
  - 459 News 2000 – Background Data [DIA]
  - 461 News 2000 – Treasury [T]
  - 462 News 2000 – Hugin [HGN]
  - 478 News 2000 – Middle East [MD]

To determine if a news story is real-time or historical you can go via the news categories. Entering ‘pnac’ in the quote object will determine if a user is permissioned for a story.

i) Contributions

- At present it’s not possible to make contributions via Reuters 3000 Xtra HTA to Reuters or any other vendor.
- Please visit the Reuters 3000 Xtra HTA and contributions sections of the Reuters Customer Zone or contact your account manager for further information and updates.

j) Printing

- While working on an application published through Citrix, you are connected to and effectively working on the server – not your own machine. For this reason printing occurs at the server end.
- Citrix redirects the print job to the client’s printer. The Citrix Metaframe server checks the type of printer on the client’s machine. The server then chooses the correct printer driver.
- If the host is unable to map a printer to a suitable driver, symptoms include:
  - Unable to print
  - Unable to complete printing
  - Printing crashes the application
  - Printing causes Windows errors
  - Fonts unreadable
- **Reuters is unable to support every manufacturer, model or legacy printer that may be in use at your site.** Reuters endeavours to support as many of the most commonly used printers as possible. See appendix K for a detailed statement.
To troubleshoot printing issues Reuters support will require a screenshot of the printer’s properties and also to know the printer model and the driver version being used.

k) Graphics object
- On Reuters 3000 Xtra HTA the DBU manager will not be available to the user. Therefore, if there are any gaps or spikes in data the client should contact Reuters support. To determine which DBU the client is connected to go to:

Open the Graphics Object > Help/About > Under the Kobra menu select > DBU

l) Information required by Reuters support
- If you need to contact Reuters support you will require the following information:
  - Username (your email address)
  - Please do not supply your password. If a Reuters support person requires access to your account for testing purposes they will reset the account password for security reasons. You’ll then be prompted to change your password the next time you log on
  - The URL you’re trying to access
  - If you are connecting via BT Radianz or the Internet
  - Any error message shown
- Additional information that Reuters may require
  - Operating system and browser details
  - ICA version
  - Can you access other web sites, particularly https sites?
  - 3000 ID, which can be found in the Reuters log-in panel by clicking on the Global icon in the Windows traybar
  - When did the problem start?
  - The server that your session is connected to at Reuters. This information can be ascertained by clicking on the ‘Program Neighbourhood Connection Center’ icon in the system tray area (normally in the bottom right hand corner of your screen Windows Operating System Clock). For example the screenshot shows that a user is connected to server DTCP-XTCMF016
- If the client is experiencing communication or disconnect problems with Reuters 3000 Xtra HTA they should fill in the client questionnaire in Appendix I
Appendix A

The ICA Protocol – some basic information

ICA/SSL is the protocol used to deliver ICA securely. This protocol encapsulates ICA in SOCKS, further wrapped in SSL. This protocol is typically delivered over TCP port 443.

Port 443 is also the official registered port for HTTPS, and therefore any traffic over port 443 is assumed to be HTTPS. Hence firewalls, proxies and other boxes cannot really differentiate ICA/SSL from HTTPS, and typically try to treat ICA/SSL as HTTPS.

However, ICA has different characteristics from HTTPS. Specifically:

- ICA is a real-time interactive protocol, sensitive to latency and other delays (round-trip for every keystroke and mouse click)
- HTTPS is a near-real-time protocol, and typically does not require individual keystrokes and mouse clicks to be sent to the server. Latency tolerance of HTTPS is at least 4-5 times higher than that of ICA
- ICA is a connection-oriented protocol. ICA does not tolerate interruptions in the transport TCP connection. Terminated TCP connection causes loss of session or interruptions. Please see Appendix B for firewall and proxy best practice regarding ICA traffic
- HTTPS is transaction-oriented protocol (request/response), and is not sensitive to TCP connection interruptions. Transport TCP connection may go up and down several times during a typical web/portal session
Appendix B

Firewall and proxy best practice

Considerations if a proxy and/or a firewall is used at your site

General best practice

Reuters suggests that networks and firewall components have idle timeouts set to a minimum of 10 minutes to prevent dropped sessions. This applies to client proxy servers, firewalls, hardware load balancers, clustering software, and anything else maintaining session state.

It is worth noting that there have been reported cases of certain proxies dropping connection regardless of idle timeout setting. In these cases Citrix has recommended that Idle timeout be disabled.

Typical firewall configurations

Typically, firewalls can be configured in ‘proxy’ or ‘forward’ mode. Depending on the firewall vendor and firewall type there are several variations of relevant configurations, but fundamentally all configurations fall into proxy or forward category.

Proxy mode firewalls

In proxy mode, firewalls will terminate transport TCP connection from the client and open a new TCP connection to the server. They then analyse and copy data between the client and the server connections and will try to protect you from various attacks, such as malformed packets.

Firewalls in proxy mode have a lot of opportunities to analyse and manipulate TCP streams. In this mode, firewalls will typically make some assumptions about the protocol, and may take some actions based on these assumptions.

For example, firewalls know that HTTPS connections can easily tolerate interrupted transport TCP connections, and may terminate idle or overlong TCP connections assumed to be HTTPS connections.

When a firewall is running in proxy mode for HTTPS traffic, it will typically use the Nagle algorithm to aggregate small TCP packets. The Nagle algorithm isn’t ideally suited to interactive protocols like ICA, but it is perfectly fine for HTTPS. Unfortunately if the firewall thinks that ICA/SSL is HTTPS, it may use the Nagle algorithm for it – killing ICA interactivity and performance.

Forward mode firewalls

In forward mode, firewalls will not terminate TCP connection and will instead inspect and forward packets to the right destination. The level of packet inspection depends on the vendor and firewall type.

The key difference between proxy and forward modes lies in whether the firewall terminates the TCP connection.

Choosing forward mode on the firewall ensures that a TCP connection will be opened directly between the client (ICA Client) and CSG Gateway (or SSL Relay) server, that know how to handle ICA connections properly.

Possible problems with proxy firewalls and ICA traffic

What happens if I use my firewall in proxy mode with ICA/SSL connections? Depending on the firewall type and settings, you might experience one or more of the following problems:

1. Sluggish user interface response in your Reuters 3000 Xtra HTA session.
2. Random disconnects in your ICA session. ICA sessions may disconnect even when they are not idle if the firewall is using some other criterion for connection termination. For example, the firewall may have a limit on the total session time, or on the total amount of data sent.

A firewall that is explicitly aware of ICA protocol and its requirements should work fine. However, most firewalls are not aware of ICA/SSL. Moreover, ICA/SSL traffic is usually misinterpreted by firewalls as HTTPS.

What to configure

It is not always possible to configure your firewall to treat ICA/SSL protocol in a ‘compatible’ manner. In this case, please note:

- firewalls should not impose any timeouts on an ICA/SSL session, including idle, absolute, and data traffic timeouts
- The Nagle algorithm is not ideally suited for ICA/SSL traffic
- firewalls should not impose any other specific restrictions/filters on ICA/SSL traffic

Citrix eLabs have tested the following proxy and firewall configurations.

Other firewall and proxy combinations are also possible provided the general connectivity guidelines described can be adhered to.

Microsoft® Windows® clients:

- Microsoft Internet Security and Acceleration Server with service pack 1 or greater
- Microsoft Proxy Server 2.0 with Service Pack 1 or greater
- iPlanet Web Proxy Server 3.6 (Windows/Solaris platforms)
- Linux Squid Server 2.4
Appendix B, continued

An example of a specific proxy configuration recommendation
Install the following service packs and hotfixes on Microsoft Proxy Server and ISA server:

- Microsoft Proxy 2, Service Pack 1 or greater

Check and change the following registry keys on the Microsoft Proxy in order to change the timeout for socks sessions:

```
HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\W3Proxy\Parameters
"RequestTimeoutSecs"=360 (for instance)
```

```
HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\W3Proxy\Parameters
"SocketIoTimeoutSecs"=300 (for instance)
```

Specific firewall example
Symantec enterprise firewall (SEF Version 8.0)
- In the left pane of the Security Gateway Management Interface (SGMI), select System
- In the right pane, on the Advanced tab, select Advanced Options
- Click New Advanced Option. This creates a new Advanced Option entry and highlights it for you
- Click Properties
- In the New Advanced Option window, in the Option Name text box, type the following: httpd.csvr.forced_death
- On the Value tab, in the Value text box, type the number 0 and then click Add
- Click OK
- In the right pane of the SGMI, click Apply
- From the Action menu, select Activate Changes
- This can also be done in SEF Version 7.x by editing the config.cf file

Symantec Raptor Firewall
Experience has shown that there are a number of problems with Symantec-Raptor firewalls. These firewalls have been known to close down the session to both the client and the host.

Problem: There is no route to specified subnet address

![Image](image1.png)

Solution:
- This message appears if the ICA session is not terminated correctly by the application – for instance, if a device between the your PC and the host server terminates the session
- Experience shows that these problems are associated with the proxy server or proxying firewall configurations
- These devices perform well for standard web traffic, which are mostly short-lived connections made to web servers. Some devices are configured to close down long-lived connections because they are erroneous connections

Problem: The Citrix server is not available, please try again later

![Image](image2.png)

Solution:
- This message will appear whenever the established ICA session loses connectivity to the host server. The session is not closed by either side; connectivity is simply lost, e.g. LAN disconnection
- See Appendix D for further information on ICA Client errors

Problem: Proxy NTLM authentication errors
Solution:
- Please be aware that if you require the NTLM proxy authentication you must obtain Citrix ICA Client version 7.0 or greater
Appendix C

Latency and packet-loss guidelines

To get the best possible experience in Reuters 3000 Xtra HTA, latency and packet-loss over a wide area network connection from the end-user location to the Reuters host must fall within certain quality parameters.

Reuters 3000 Xtra HTA is delivered using Citrix access infrastructure technology. The behaviour of the Reuters 3000 Xtra Citrix session has been tested against simulated typical network service quality parameters to determine a subjective measure for usability and responsiveness:

- **Good** – means responsiveness is effectively the same as the equivalent desktop-installed product
- **Acceptable** – means that, although responsiveness is not instantaneous, the product remains usable
- **Unacceptable** – means that the product works, but that the end-user experience will be intolerable for most users

The table below gives the simulated minimum and maximum roundtrip times. The first two rows are fixed latency. The last two rows are variable latency introduced to two-thirds of packets following a normal distribution as given by the average and deviation parameters.

In both scenarios .5%, 1%, 3% and 5% packet loss was introduced. The tests were repeated with a single session over a 512Kbps and 32Kbps upstream and downstream connection. However, restricting bandwidth to the recommended per concurrent key station 32Kbps allocation showed no discernible difference in the end-user experience.

These tests reflect typical conditions over the public internet. However, many factors outside Reuters control can influence internet delivery quality, including PC and local area network configuration, firewalls and proxy server combinations and settings, Internet Service Provider (ISP), type of subscriber line, your geographical location, and that of the host.

In advance of using the product, it is important to ensure that your connection to the relevant Reuters host location is tested and found to fall within the ‘Good’ and ‘Acceptable’ criteria.

<table>
<thead>
<tr>
<th>Packet loss</th>
<th>0.5%</th>
<th>1%</th>
<th>3%</th>
<th>5%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Applied to two-thirds of packets</td>
<td>Min</td>
<td>Max</td>
<td>Average</td>
<td>Deviation</td>
</tr>
<tr>
<td>100ms</td>
<td>100ms</td>
<td>100ms</td>
<td>0ms</td>
<td>Good</td>
</tr>
<tr>
<td>200ms</td>
<td>200ms</td>
<td>200ms</td>
<td>0ms</td>
<td>Good</td>
</tr>
<tr>
<td>100ms</td>
<td>400ms</td>
<td>250ms</td>
<td>150ms</td>
<td>Good</td>
</tr>
<tr>
<td>300ms</td>
<td>600ms</td>
<td>450ms</td>
<td>150ms</td>
<td>Acceptable</td>
</tr>
</tbody>
</table>
Appendix D

ICA Client Errors – troubleshooting

If the ICA client encounters a problem you’ll receive a pop-up error. The error code/message depends on the version of the ICA client you have installed; hence Reuters recommends that you always download the most up-to-date version from the Reuters 3000 Xtra login page.

Please record your error and contact Reuters support with the details. Many of the errors are numbered. For example:

- 1001 NO_MEMORY Insufficient memory
- 1026 NO_MOUSE Mouse not available
- 1041 LAN_NOT_AVAILABLE LAN not available
- 1063 IPC_TIMEOUT The client window process is not responding
- 1069 CONNECTION_TIMEOUT Connection dropped because of communication errors

However, some errors may not contain a numerical code. For example:

Please be sure to note down the text of the error and pass this information on to Reuters who will investigate.

An example of this logfile (wfcwin32.log) is shown below:

10-29-2003 14:34:37:871 Kobra on mf 19:  
CONNECTED to ‘Kobra on mf 19:CustomNeighborhood’

10-29-2003 14:35:53:289 Kobra on mf 19:  
Error in connection.

10-29-2003 14:35:53:289 Kobra on mf 19:  
The Citrix MetaFrame server is not available, please try again later.

10-29-2003 14:37:49:797 Kobra on mf 19:  
DISCONNECTED from ‘Kobra on mf 19:CustomNeighborhood’

If you encounter the pop-up error “ICA File Not Found” when launching the Reuters 3000 Xtra application, Reuters Support suggests the following IE browser changes. These three changes should fix the problem and ensure that it does not happen again:

1) IE > Tools > Internet Options > Advanced Tab > Security > The ‘Do not save encrypted pages to disk’ box should not be ticked > OK
2) IE > Tools > Internet Options > General Tab > Temporary Internet Files > Delete Files > OK
3) IE > Tools > Internet Options > Advanced Tab > Security > Tick the ‘Empty Temporary Internet Files folder when browser is closed’ box > OK

Please be sure to note down the text of the error and pass this information on to Reuters who will investigate.

It is also worth consulting the Citrix Support website and the Reuters 3000 Xtra HTA Customer Zone page (see the Useful URL section of this guide), as both are useful sources of information on ICA client related problems.

For example there is a known issue with ICA version 9.0 and Windows 2000 Professional SP3 that generates an ‘SSL Error 59’ pop-up message. The fix is to install windows hot-fix MS04-011 (835732). The ICA client logs connection and disconnection events to a file called wfcwin32.log. This log file will help determine the reason for the disconnection. For example, when the host closes the session due to idle-time, the log indicates a normal termination of a client connection.

By default this log-file will not append information. To change this, alter the LogAppend option to LogAppend=On in the following file:

C:\Program Files\Citrix\icaweb32\appsrv.ini

The log file itself is located at:

C:\documents and settings\%username%\Application Data\ICAClient\wfcwin32.log

(Note that the Application Data folder is a hidden directory.)
Users require ‘administrator’ rights to download the ICA client. They also require the necessary permissions on their PC to run the ICA client and therefore connect to Reuters 3000 Xtra HTA.

This should be in place by default; however, if you experience the following errors or have problems maintaining an ICA connection, it’s worth checking that your permissions are set correctly.

“The network connection to your application has been interrupted...”

Login as administrator and go to the Registry editor

1. Click Start > Run > type in regedit
2. Navigate to HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\MSLicensing
3. Right click on your Username and choose > Permissions > Give “Full Control” permissions to your User.
   Click OK to save changes

You may also experience errors like the one above if your PC has recently had security updates installed. These licensing issues can be resolved by resetting the licensing on the PC:

1. Click Start > Run > type in regedt32 (regedit will not work)
2. Navigate to > HKEY_LOCAL_MACHINE\Software\Microsoft\MSLicensing
3. Click on Security > Permissions > If “Authenticated Users” is not listed under name > click on “Add”, double click on “Authenticated Users” and then click OK
4. On the Permissions for MSLicensing screen, make sure both Read and Full Control are checked for “Authenticated Users”. Click OK to save changes
5. Reset the license. Navigate to > HKEY_LOCAL_MACHINE\Software\Microsoft\MSLicensing\Store\LICENSE00x > Delete the key LICENSE00x, where x is a number. If multiple LICENSE00x keys exist, delete them all
6. Connect to Reuters 3000 Xtra HTA
7. If successful, please reboot your workstation and try to log on a second time. This will ensure the licensing is working properly

Appendix E

Operating system and browser support

Reuters

At the time of writing (September 2005) Reuters qualify the Reuters 3000 Xtra HTA application against the following operating systems and browsers:

Operating systems
- Windows 2000 SP3
- Windows 2000 SP4
- Windows XP SP1
- Windows XP SP2

Browsers
- Internet Explorer Version 5.5
- Internet Explorer Version 6.0

 Reuters will make every effort to resolve configuration and access issues for the tested platforms listed and may escalate client specific configurations to Citrix. Reuters also reserve the right to make changes to the list of supported platforms and browsers.

Citrix

Citrix, who make the ICA client software freely available (download at www.citrix.com) have tested against a larger variety of platforms and browsers. For example at the time of writing they have tested the ICA Client with:

Tier 1 O/S
- Internet Explorer 6.0 Windows 2003
- Internet Explorer 5.5 Windows 2000, CE NET 4.1 (WYSE 3125se)
- Netscape 7.x Windows XP, Windows 2000
- Pocket IE 2003 PocketPC 2003 (HP iPAQ H5550, Dell Axim 5)
- Internet Explorer 6 CE.NET 4.2 (WYSE 3125se & HP t5510)

Tier 2 O/S
- Internet Explorer 6.0 Windows 2003
- Internet Explorer 5.5 Windows 2000, CE NET 4.1 (WYSE 3125se)
- Netscape 7.x Windows XP, Windows 2000
- Pocket IE 2003 PocketPC 2003 (HP iPAQ H5550, Dell Axim 5)
- Internet Explorer 6 CE.NET 4.2 (WYSE 3125se & HP t5510)

Tier 3 O/S
- Internet Explorer 5.21 MacOS X
- Netscape 6.x MacOS 9

Tier I – Mainstream platforms, fully tested
Tier II – Less commonly used, basic version tested only
Tier III – Very basic testing – installed and proved to work
Appendix F

Forgotten Password tool

- Prior to using the Forgotten Password link you will need to answer three security questions. These can be accessed once you have logged into Reuters 3000 Xtra HTA, via the icon located on the application toolbar.

Select three of the six questions displayed and enter your answers. You can change these questions and answers again at a later date.

Using the Forgotten Password tool once the security questions have been set:

- On the Reuters 3000 Xtra HTA Portal, click on the Forgotten Password link.

  - Enter your registered email:

  ![ Forgotten Password tool screen with email entry field ]

  - You will then receive an email from Reuters with an embedded link (URL).

  - After reading the email, please click on the link to return to the Enter Security Questions page.

  - Answer your three security questions and then press OK.

  ![ Forgotten Password tool screen with security question fields ]

  - Enter your new password, ensuring you adhere to the minimum password requirements.

  ![ Forgotten Password tool screen with password entry fields ]

  - You will then be logged into the service.
Appendix G

Password reset policy

A security white paper is available on request. Please contact your technical account manager or the Reuters support centre.

Q Does each Reuters 3000 Xtra HTA user have his/her own user ID and password?

A Yes, all Reuters 3000 Xtra HTA users are issued with a unique user ID.

Passwords are managed by the Reuters registration and authentication system.

The Reuters customer administrator registers new users and has the option to generate a random password, or set a generic password which the user must change at first log-in. Thereafter the user can freely change the password.

Q What password rules does Reuters 3000 Xtra HTA enforce?

A Passwords are managed by a standard Reuters registration and authentication system. The minimum password length is eight characters, maximum is 20.

Users must change their passwords every 90 days and the last seven passwords may not be reused.

Users are restricted in their choice of passwords; i.e. the password may not contain part of the username and must contain characters from at least three of the following four classes:

Description examples

Upper case letters A,B,C,...Z
Lower case letters a,b,c,...z
Numerals 0,1,2,...9
Non-alphanumeric (special characters), punctuation marks and other symbols

After five failed log-in attempts a user is automatically locked out for a period of about five minutes.

Q How are my details protected during the login process?

A The application asks for your user ID and password and these are transmitted across the network in encrypted form over SSL to be checked by the Reuters access server.
The file download/upload utility

Reuters has designed the file upload/download application to allow the automatic transfer of files between a user’s desktop machine and the associated home drive in the Citrix environment (hosted at Reuters). The application is accessed via a link on the standard Reuters 3000 Xtra login page.

The upload page looks like this:

The download page looks like this:

There is also a history page, for viewing audit trails:

BT Radianz is a traffic managed network and therefore large file transaction may impact the available bandwidth and hence the performance of Reuters 3000 Xtra Hosted terminal access. This File Upload/Download capability has therefore been made available over the internet only.

For those clients who access Reuters 3000 Xtra Hosted via BT Radianz, but also have separate internet access, please refer to the following document for details on how to configure you local DNS to route File Upload/Download requests via your local internet connection.

BT Radianz DNS Integration Guide:
http://xtraserv.session.rservices.com/desktopsupport/support_docs/4_5_x/4_5_3/docs/xtra/RXNDNSintegration37.pdf

The following additional information is also required.

Application:
3000 Xtra Hosted Terminal Access – File Upload Download Capability

URL:
https://util1.glbl1.reuters.com

Protocol
https

Use:
SSL : File Transfer to and from 3XHTA
### Appendix I

**Client Disconnect Questionnaire**

<table>
<thead>
<tr>
<th><strong>Company details</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>What IP address will your clients appear as on the Internet?</td>
</tr>
<tr>
<td>What ISP do you use?</td>
</tr>
<tr>
<td>What bandwidth do you have to the internet?</td>
</tr>
<tr>
<td>What is the utilisation of the link?</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Nature of the problem</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>What was the exact error message seen? Please provide a screenshot</td>
</tr>
<tr>
<td>Was the session already up and running when the message appeared?</td>
</tr>
<tr>
<td>Was the session minimised at the time?</td>
</tr>
<tr>
<td>Had the session been idle/minimised for a period of nine hours?</td>
</tr>
<tr>
<td>When did the problem start and how long have you had Reuters 3000 Xtra HTA working without this error?</td>
</tr>
<tr>
<td>When did you purchase Reuters 3000 Xtra HTA?</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Client configuration</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating system of client (including service packs)?</td>
</tr>
<tr>
<td>Citrix ICA client version installed, e.g. 7.0, 8.1?</td>
</tr>
<tr>
<td>What devices are between the client and the internet (e.g. proxy, firewall, load balancer)?</td>
</tr>
<tr>
<td>Type of internet connection (e.g. ADSL, dial-up or corporate internet)?</td>
</tr>
<tr>
<td>Do you connect via a wireless connection?</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Firewall questions</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Firewall manufacturer?</td>
</tr>
<tr>
<td>Device type?</td>
</tr>
<tr>
<td>If more than one firewall how are they load balanced (hardware/software)?</td>
</tr>
<tr>
<td>Configuration settings for idle session timeout?</td>
</tr>
<tr>
<td>Configuration settings for utilised session timeout?</td>
</tr>
<tr>
<td>If using a hardware load balancer, what are its timeouts set to?</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Proxy questions</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Proxy manufacturer/software (and patch levels)?</td>
</tr>
<tr>
<td>OS the software is running on (and patch levels)?</td>
</tr>
<tr>
<td>If more than one proxy how are they load balanced (hardware/software)?</td>
</tr>
<tr>
<td>Configuration settings for idle session timeout?</td>
</tr>
<tr>
<td>Configuration settings for utilised session timeout?</td>
</tr>
<tr>
<td>If using a hardware load balancer what are its timeouts set to?</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Router questions</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Router manufacturer?</td>
</tr>
<tr>
<td>Device type?</td>
</tr>
<tr>
<td>If more than one, how are they load balanced (hardware/software)?</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Load balancer information</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Load balancing manufacturer?</td>
</tr>
<tr>
<td>Device type and version, i.e. Cisco?</td>
</tr>
<tr>
<td>Configuration settings for SSL sessions?</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Other information</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Have any changes been carried out recently on your desktop or network architecture?</td>
</tr>
</tbody>
</table>
Appendix J

Useful sources of information

- Reuters Customer Zone
  http://customers.reuters.com

- Reuters Customer Zone – Reuters 3000 Xtra HTA page
  This is the key source for Reuters 3000 Xtra news and documentation

- Product information
  http://about.reuters.com/productinfo/3000Xtrahosted/
  http://xtraserv.session.rservices.com/desktopsupport/user_docs/4_5_1/userdocs.htm

- Product alerts
  http://www.markets.reuters.com/alerts/dyn/citrix/alerts.shtml

- Data alerts
  http://alert.session.services.com
  or enter ALERT into quote object

- Citrix support site
  http://support.citrix.com/

- Useful printing support site
  http://www.printingsupport.com/

Appendix K

Reuters 3000 Xtra HTA – printing statement

Printer support

Reuters cannot guarantee the suitability or correct operation of all printers with the Reuters 3000 Xtra HTA product. Every effort will be made to resolve any printer problems that a client experiences, but Reuters may not be able to fix all issues. Reuters may escalate specific configuration issues to Citrix and request that clients refer to the statements made below.

The printing capability within Reuters 3000 Xtra HTA is a Citrix function and, due to the dynamic nature of the printer market and the continual updating of print driver, neither Citrix nor Reuters maintain a list of supported printers. The Citrix Support website is a useful source of printer-related information. In general, Citrix suggest that the best place to find information on printer compatibility is in the Printer Driver Documents, which should specify if the print driver has been tested and is supported in a Terminal Server environment. Some printer manufacturers publish lists. For example Hewlett Packard maintain a list of their printers that are supported in a Windows Terminal Services Environment. At the time of writing (September 2005) this is available on the Hewlett Packard technical support website: http://h20000.ww2.hp.com

Reuters has installed the Citrix Universal Print Driver (UPD) within its Citrix server environment. This generic printing feature uses a standard printer control language (PCL) that is supported by a large number of printers. If the specific driver for your printer is not installed on the Reuters host, the UPD should take over and ensure that your print job is processed, distributed and executed effectively. Neither Citrix nor Reuters can guarantee that all printers’ functionality will always be available when using the UPD feature.

Reuters recommends that clients install the latest Reuters-qualified version of the ICA client (available on the Reuters 3000 Xtra HTA login page), as later versions of the client contain new printer-related fixes and functionality.

Reuters also has the capability to make printer mappings on the Citrix farm. The purpose of these is to map names between client printer names and server printer names, if they are different. In other words, if the same printer is installed on a client, and on a server, and if the driver gives each a slightly different name, then these names need to be associated using a mapping file.

Although Reuters does not recommend printers or try to maintain an exhaustive list of supported printers, we do test a limited set of printers with Reuters 3000 Xtra HTA, delivered using Citrix Access Infrastructure™.

On the rare occasion that a client is not able to print using the UPD or through mappings this list is available on request.
### Glossary of Terms

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>3XHTA</td>
<td>Reuters 3000 Xtra Hosted Terminal Access application</td>
</tr>
<tr>
<td>ICA</td>
<td>Independent Computing Architecture (Citrix product)</td>
</tr>
<tr>
<td>ISA</td>
<td>Internet Security and Acceleration Server (Microsoft product)</td>
</tr>
<tr>
<td>NTLM</td>
<td>NT LAN Manager (Microsoft product)</td>
</tr>
<tr>
<td>Socks</td>
<td>Refers to sockets a client/server communications protocol</td>
</tr>
<tr>
<td>Thin Client</td>
<td>All the business logic executes centrally on a server and the user's desktop only needs to render a 'thin' image of the application's desktop display. The server transmits a live graphic image of the application screen over a network to the remote user, where it is presented as if the full software was installed on the desktop. The user's keystrokes and mouse movements are transmitted over the network back to the application on the server where the required action takes place, updating and transmitting the resulting display changes back to the user's desktop.</td>
</tr>
</tbody>
</table>

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