

# **Evaluating the necessity of a Citrix 4-Tier deployment of RDC in consideration of RDC 4.5.2 On-Site**



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## **Acknowledgements**

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## **Assumptions and Scope**

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- Assumption: Audience is familiar with RDC 4.5.x PDF mode
- Scope: Discussion of RDC 4.5.2 Onsite considerations in the context of a Citrix deployment

## **What are the expected advantages for the use of Citrix with RDC 4.5.x?**

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- Single Desktop configuration on a central Citrix server farm, no individual PC component stack, significant reduction of PC-related configuration deployment issues related to RDC 4.5.x Graphical PDF Mode
- Lower bandwidth utilization when compared to a standard http/https deployment
- Elimination of distribution of PC components to RDC clinical sites, such as J-Initiator, OPAPDF Plug in, Acrobat Reader, and IE
- Central maintenance of the PC Desktop tier on the Citrix Server instead of at each RDC site desktop
- Ability to view Citrix sessions directly to provide support to specific users (Citrix "shadowing")



## What are expected advantages for the use of Citrix with RDC 4.5.x? (2)

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- Performance benefits for remote RDC clinical sites with minimal bandwidth capacity, such as dial-up
- Increased security with an optional separate logon for access to RDC through public infrastructure
- For RDC Clinical Sites with intermittent or unreliable internet connectivity, Citrix can allow a disconnected user to reconnect to the same RDC session without any loss of work. Normal RDC deployments can not resume connectivity at the same exact point if there is a network interruption.
- Ability to deploy on platforms and clients not currently supported by RDC 4.5.x, such as Macintosh

# How is the RDC 4.5.2 On-Site configuration Different?

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- Previous to RDC 4.5.2, the following four components were required to run RDC in PDF Mode:
  - Internet Explorer
  - Acrobat Reader Reader
  - Oracle J-Initiator
  - RDC PDF Plug In
- These components require specific versions, privileged access to the PC desktop, and specific configuration settings.
- These reasons, along with the previous advantages described have lead many organizations to consider a Citrix 4-Tier deployment of RDC PDF mode.
- Oracle has released RDC On-Site (RDC 4.5.2) to reduce the PC desktop “footprint” of RDC PDF mode, and to mitigate some of the desktop configuration issues

# RDC 4.5.2 Onsite Configuration on the PC Desktop

- The following excerpts are from iPatch 4.5.1.23, which installs the first RDC PDF Plug-In which is compatible with RDC 4.5.2 On-Site:

Feature	4.5.1 RDC Spreadsheet	4.5.2 RDC Spreadsheet	4.5.2 RDC Onsite
<p><b>Caching</b> An application server configuration determines if your environment performs caching. For discussion and configuration instructions, refer to <a href="#">Configuring PDF Caching on Application Servers</a>.</p>	<p>Client caching may no longer be turned off during the Plug-in installation or by removing the registry string <code>PDFCacheLocation</code>. Cached PDF files are stored in the location pointed to by the registry string <code>PDFCacheLocation</code> on the Web client, as in previous versions of the Plug-in. However, specification of <code>PDFCacheLocation</code> is no longer required in order to use client caching. In this case, cached files are stored in the user's <code>trnp</code> directory.</p>	<p>If the application server was upgraded from 4.5.1, the value for registry setting <code>OPA_PDF_FILE_SOURCE</code> is ignored. The application server setting indicating whether client caching should be performed is now found in the <code>web.xml</code> file.</p>	<p>Same as 4.5.2 RDCSpreadsheet</p>
<p><b>Automated installation</b></p>	<p>You must still initiate download and installation of the Plug-in. During installation, if an earlier version of the Plug-in (starting with 4.5.1.19 and 4.5.0.55), resides on the computer, installation process now uninstalls the previous version automatically.</p>	<p>Same as 4.5.1 RDC Spreadsheet</p>	<p>The Plug-in installation can be initiated directly. Alternatively, both Adobe and the RDC PDF Plug-in installations can be triggered by the first click on a CRF cell in any RDC Onsite window. Once the installation and configuration finishes, Onsite opens the CRF window. For more information, see <a href="#">RDC Onsite Automated Installation</a></p>

# RDC 4.5.2 Onsite Configuration on the PC Desktop (2)

Feature	4.5.1 RDC Spreadsheet	4.5.2 RDC Spreadsheet	4.5.2 RDC Onsite
<b>Web Client configuration</b>	<ul style="list-style-type: none"> <li>The required Internet Explorer settings are set during the Plug-in installation.</li> <li>The required Adobe settings are automatically set upon installation and checked again each time a PDF window is opened. Adobe settings are reset at runtime, if necessary.</li> <li>If running with Adobe 7.0.x, Adobe toolbars not required by the PDF data entry window, are hidden by the Plug-in at run-time.</li> </ul>	Same as 4.5.1 RDC Spreadsheet	Same as 4.5.1 RDC Spreadsheet
<b>JInitiator requirements</b>	JInitiator is required and must be configured manually.	JInitiator is required and must be configured manually. For JInitiator configuration instructions, see <a href="#">Web client prerequisites</a>	JInitiator is not required.
<b>application server control of web client software versions</b>	The opaplugin.properties file can specify the minimum acceptable version of the Plug-in. If you have an earlier release of the Plug-in installed, the application prompts you that you are using the wrong version, but allows you to continue. See <a href="#">Define the minimum acceptable plug-in version for RDC Spreadsheet users</a> for more information.	The opaplugin.properties file can specify the minimum acceptable version of the Plug-in. If you have an earlier release of the Plug-in installed, the application prompts you that you are using the wrong version, but allows you to continue. See <a href="#">Define the minimum acceptable plug-in version for RDC Spreadsheet users</a> for more information.	The pluginpolicy.xml file is used to specify all versions of the RDC PDF Plug-in Adobe Reader that you allow your Web Clients to use. If a Web Client does not have appropriate versions of the software installed, the RDC Onsite interface prompts for the software to be upgraded. CRFs cannot be opened until the correct software is installed. For configuration instructions, see <a href="#">Define acceptable versions of Plug-in and Adobe for RDC Onsite</a> .



## **Improvements of RDC 4.5.2 On-Site PC configuration vs. previous RDC PDF Mode versions**



- No Requirement for J-Initiator. This is a tremendous benefit for RDC clinical sites which have difficulty with:
  - Downloading the J-Initiator due to low network bandwidth
  - Installing the J-Initiator due to lack of privileges on the PC desktop
  - Configuration of the J-Initiator settings due to conflicts with another JRE
- Automatic download of the current RDC PDF Plug In if non-existent
- Automatic detection of incorrect RDC PDF Plug In and upgrade to correct version if the current RDC PDF Plug is 4.5.1.19 and higher or 4.5.0.55 and higher
- Verification of required Windows XP/2000 client, Internet Explorer 5.5, Windows XML 3.0 and higher and mfc42u.dll
- Automatic configuration checks for Acrobat Reader settings and one IE setting
- Performs updates of Acrobat Reader reader



## Limitations of RDC 4.5.2 On-Site PC configuration

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- Checks for RDC PDF Plug In and Acrobat Reader are at the time when the PDF Page is attempted to be opened, not at RDC On-Site startup time. This leads to situations where a series of update activities might need to occur before a page is opened, and in the worst case, hang the page or require a PC reboot.
- Requires de-installation and re-installation to upgrade from RDC PDF Plug-In versions older than 4.5.1.19 or 4.5.0.55
- Can optionally attempt large version changes in Acrobat reader updates (e.g. 6.0 to 7.0.x) , which will require de-installation and re-installation of the RDC PDF Plug-In and possible PC reboot and initial launch of Acrobat Reader



## Limitations of RDC 4.5.2 On-Site PC configuration (2)

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- Requires local Administrator/Power User access on the PC desktop to update RDC PDF Plug and Acrobat Reader components
- Does not check for **all** required IE configuration settings, such as:
  - Uncheck of "Do not save encrypted pages to disk" in https mode
  - Check "Allow active content to run in files on My Computer"
- No longer checks for J-Initiator version. In cases where a clinical site uses both RDC 4.5.2 spreadsheet and RDC 4.5.2 On-Site, this could lead to problems with access to the spreadsheet version
- Implied wildcard for Acrobat reader versions for 5.0 could lead to some version of Acrobat reader attempting to open a PDF form which is not possible. PDF Form supports started in 5.0.5 and higher.
- Overall concept of Acrobat reader and PDF Plug in dependency is limiting when compared to other EDC tools which only require IE.

# Some known issues with Citrix RDC deployment



- Users who are already on a high bandwidth connection may have same or slower performance with Citrix as compared to http/https connectivity
- Different network security issues exists requiring proxy exceptions and in some cases, local .ica files
- Citrix Web Interface or some equivalent method is required to eliminate need for port 1494 traffic. Most clinical sites can not be expected to open this additional port. This presents another level of complexity to the environment
- Administrator/Power User access to desktop required for the installation of the Citrix client



# Can a Citrix 4-Tier configuration be useful with RDC on-site ?

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- Migrating existing sites which are at lower RDC plug versions:
  - If RDC was already previously deployed with Citrix, there is no requirement to have RDC PDF Plug In 4.5.1.19 or 4.5.0.55 to perform an automatic update
- Reduced need for privileged desktop access
  - RDC 4.5.0 has had 5 PDF Plug in changes and RDC 4.5.1 has had 4 PDF plug-in changes since their releases. Each of these changes would require privileged access to the desktop to update. But with a single Citrix client installation, the plug-ins are updated seamlessly.
- Version conflicts with Adobe or IE settings
  - Some clinical sites may require specific versions of Acrobat reader for other applications. Even if RDC on-site automatically installs Acrobat Reader, it can cause a conflict with another required version.
- Allow deployment of RDC 4.5.2 Spreadsheet and on-site simultaneously
  - Many clinical sites like to use the RDC Spreadsheet for discrepancy management. This flexibility to switch between PDF and Classic mode to use Classic Mode tools is lost in a pure RDC on-site deployment, but can be easily deployed and maintained with Citrix control over J-Initiator.

# Can a Citrix 4-Tier configuration be useful with RDC on-site ?

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- Reconnecting disconnected sessions
  - Citrix can provide reconnection capabilities if there is an intermittent network connection or network failure.
- Provide for RDC user sessions remote support via Citrix shadowing.
  - Currently, there is no way to see a user's RDC session without the use of some additional tools. Citrix is one possibility.
- Support for broader range of desktop clients, including Linux, Mac, and older Windows versions



## Conclusions and Suggestions

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- RDC On-Site represents a significant step in reducing the PC desktop configuration of RDC PDF mode.
- However, there are still several benefits in using a Citrix deployment with RDC on-site.
- Some additional capabilities could be considered in a future release of RDC on-site, such
  - persistent sessions during short network disconnections
  - “zero footprint” deployment, where there is no dependency on Acrobat Reader or an RDC PDF Plug-In
  - remote viewing of RDC on-site session by an administrator



## Question and Answers

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All follow-up questions, please contact:

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