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Introduction

This installation guide explains how to install the VirtualViewer® HTML5 ICN Connector.

If you need any help installing, configuring or using the VirtualViewer® HTML5 ICN Connector, please contact Snowbound Technical Support by entering a support ticket at http://support.snowbound.com.

VirtualViewer®

VirtualViewer® is Snowbound Software’s next generation suite of high-speed viewing™ applications designed for viewing, annotating and redacting documents and images from any platform, anywhere.

VirtualViewer® HTML5 provides unparalleled support for all popular document types (including AFP, Word, PDF, PNG, PCL, TIFF), as well as robust document and image handling capabilities. With VirtualViewer, you have the power to do more than just view documents and images. You can zoom, rotate, redact, annotate, and print documents and images stored within your repository — all through a web-based viewer.
Snowbound Connector For IBM Content Navigator

The VirtualViewer® implementation for IBM Content Navigator involves three important architectural components:

**VirtualViewer® Connector for ICN**

The Virtual Viewer provides a framework for integrating with external ECM Systems utilizing customized Connectors. It is the responsibility of the Connector to manage the Virtual Viewer’s interaction with the ECM System and to ensure that documents and data are saved, retrieved from and written into the ECM System accurately.

**VirtualViewer® Server**

The VirtualViewer® Server forms the backbone of the imaging and viewing experience. The VirtualViewer® Server is responsible for managing all user requests and handling communication between the Viewer and the Connector.

**VirtualViewer® Plugin for ICN**

The VirtualViewer® for ICN is implemented as a plug-in within ICN. The diagram below depicts a high-level data flow for the VirtualViewer® for ICN:
Deployment Models

When deploying the VirtualViewer®, either a single server or a distributed server deployment model may be used. As a plugin to IBM Content Navigator, it is recommended that the VirtualViewer be deployed in a manner that will best support the deployment model used for ICN.

Single Server Deployment Model

The single server deployment model utilizes the same application server that is running IBM Content Navigator for deployment and configuration of the VirtualViewer® server. The biggest benefit of this model is that it aids in a swift setup and configuration of the Virtual Viewer® server. The scalability however is limited to the hardware configuration expandability.
This is the simplest form of the deployment, where the VirtualViewer is deployed on the same application server as IBM Content Navigator. The ease of deployment allows for the quick setup of Development and/or POC environments. When using this deployment model, it is critical that the dedicated server has adequate resources allocated to allow for running multiple JVM’s.

This architecture permits limited scalability of the application environment, by scaling up the dedicated server. The diagram below depicts what a scale up of a server looks like:
Distributed Server Deployment Model

Deploying the VirtualViewer® in this model conforms to IBM’s clustering architecture and allows the application to scale for future growth. The Distributed Server Deployment Model, consequently, is the preferred deployment model for Production environments.

This deployment model is implemented by deploying the VirtualViewer across multiple servers that each have ICN running. It is expected, as with any clustered environment, that the resource utilization for the applications running behind load balancers are optimally distributed across the infrastructure.

Conforming to IBM Content Navigator’s design practices, the VirtualViewer scales up alongside ICN.
Software Requirements

This section describes the system requirements to install the VirtualViewer® HTML5 ICN Connector.

IBM Content Navigator (ICN)

The VirtualViewer® HTML5 ICN Connector requires that IBM Content Navigator be installed, configured and working, in order to function.

IBM Case Manager (ICM)

Optionally, the VirtualViewer® HTML5 ICN Connector requires IBM Case Manager installed, configured and working, if the viewer is to be integrated into it.

VirtualViewer® HTML5

The VirtualViewer® HTML5 ICN Connector also requires VirtualViewer® HTML5 This is included in this package.

Servlet Container

VirtualViewer® HTML5 requires a J2SE or J2EE servlet container to run. You may choose any compliant servlet container, although recommended servlet containers include IBM WebSphere, Apache Tomcat and JBoss.

Java Version

VirtualViewer® requires the client machine to have a JRE of 1.8 or higher.
Hardware Requirements

This section describes the system requirements to install the VirtualViewer® HTML5 ICN Connector.

The VirtualViewer hardware requirements are highly dependent on user load, number of unique file views, types of files, and other configuration and usage details. In addition, when using VirtualViewer in conjunction with another application (ICN, Custom application etc.), it’s important to ensure that resources are sufficiently provisioned for the hosting application so that it would not to compete for resources needed by the VirtualViewer.

The table below provides guidelines on hardware requirements:

### Server Requirements

<table>
<thead>
<tr>
<th>Total User Count</th>
<th>Concurrent Users</th>
<th>Use Case</th>
<th>Servers</th>
<th>CPU/Cores</th>
<th>Processor Speed</th>
<th>Memory</th>
<th>Latency</th>
<th>Bandwidth</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 – 1000</td>
<td>25%</td>
<td>View</td>
<td>1+</td>
<td>4+</td>
<td>2GHz+</td>
<td>8GB+</td>
<td>&lt; 100ms-</td>
<td>1GBit/Sec+</td>
</tr>
<tr>
<td>0 – 1000</td>
<td>20%</td>
<td>Edit</td>
<td>1+</td>
<td>8+</td>
<td>2GHz+</td>
<td>16GB+</td>
<td>&lt; 100ms-</td>
<td>1GBit/Sec+</td>
</tr>
<tr>
<td>1000 – 5000</td>
<td>25%</td>
<td>View</td>
<td>2+</td>
<td>8+</td>
<td>2GHz+</td>
<td>32GB+</td>
<td>&lt; 100ms-</td>
<td>1GBit/Sec+</td>
</tr>
<tr>
<td>1000 – 5000</td>
<td>20%</td>
<td>Edit</td>
<td>2+</td>
<td>2x16+</td>
<td>2GHz+</td>
<td>64GB+</td>
<td>&lt; 100ms-</td>
<td>1GBit/Sec+</td>
</tr>
<tr>
<td>&gt; 5000</td>
<td>View/Edit</td>
<td>4+</td>
<td>4x16+</td>
<td>2GHz+</td>
<td>64GB+</td>
<td>&lt; 100ms-</td>
<td>1GBit/Sec+</td>
<td></td>
</tr>
</tbody>
</table>

### Client Requirements

<table>
<thead>
<tr>
<th>Browser</th>
<th>Cores</th>
<th>Dedicated Memory</th>
<th>Latency</th>
<th>Bandwidth</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internet Explorer</td>
<td>Single+</td>
<td>2GB+</td>
<td>&lt; 100ms-</td>
<td>1GBit/Sec+</td>
</tr>
<tr>
<td>Chrome</td>
<td>Single +</td>
<td>2GB+</td>
<td>&lt; 100ms-</td>
<td>1GBit/Sec+</td>
</tr>
<tr>
<td>Firefox</td>
<td>Single +</td>
<td>2GB+</td>
<td>&lt; 100ms-</td>
<td>1GBit/Sec+</td>
</tr>
<tr>
<td>Safari</td>
<td>Single +</td>
<td>2GB+</td>
<td>&lt; 100ms-</td>
<td>1GBit/Sec+</td>
</tr>
</tbody>
</table>

**NOTE:** The above provided information is to be used only as recommended guidelines for deployment planning. Precise requirements could only be determined after reviewing and analyzing the performance requirements and the infrastructure availability for a given project. Please contact Snowbound Professional Services for additional help.
Installing VirtualViewer – Single Server

Follow the steps below to install and configure the VirtualViewer using a single server deployment model.

The Snowbound web application is delivered as a ZIP archive. The zip archive must be reviewed and modified by the target environment user to manage and manipulate the configuration of the web application before and during deployment to the target server.

Deploying VirtualViewer® Web Application

NOTE: The steps below identify how VirtualViewer® is deployed on WebSphere. Please adjust the steps accordingly based on the Application Server.

1. Copy the updated virtualviewer.war file to a location accessible to the application server.
2. Login to WebSphere Admin Console:
   https://<your-websphere-server>:<port>/ibm/console/logon.jsp
3. Select Applications > Application Types > WebSphere enterprise applications
4. Select the Install button
5. Browse to the location of virtualviewer.war, select it and then click Open

Specify the EAR, WAR, JAR, or SAR module to upload and install.

<table>
<thead>
<tr>
<th>Path to the new application</th>
</tr>
</thead>
<tbody>
<tr>
<td>Local file system</td>
</tr>
<tr>
<td>Full path</td>
</tr>
</tbody>
</table>

6. Select Next
7. Select Fast Path, select Next

<table>
<thead>
<tr>
<th>Preparing for the application installation</th>
</tr>
</thead>
<tbody>
<tr>
<td>How do you want to install the application?</td>
</tr>
<tr>
<td>Fast Path - Prompt only when additional information is required.</td>
</tr>
<tr>
<td>Detailed - Show all installation options and parameters.</td>
</tr>
</tbody>
</table>

8. Leave the default values in place on the “Select installation options” screen and click Next
9. Select the target “Clusters and servers:” and Click Apply. Then select the check box for the Virtual
10. If required, Map the appropriate Virtual hosts and click **Next**
11. Enter "/virtualviewer" as the Context Root and click Next.

12. Review the Summary and if no changes are required click Finish.


14. On the host, please verify if the application files are copied to all nodes where the deployment was performed.

15. Select the “virtualviewer_war” application checkbox and click the Start button.

Configuring VirtualViewer® Web Application

1) web.xml changes

- Located in WebSphere Installed apps /VirtualViewerJavaHTML5.war/WEB-INF

- Modify the following URLs in red

  `<param-name>codebase</param-name>`

  `<paramvalue>http://localhost:9080/virtualviewer</param-value>`

  `<param-name>servletURL</param-name>`

  `<paramvalue>http://localhost:9080/VirtualViewerJavaContentServer</param-value>`

- Create Folder and Modify tmpdir location if different

  Create a tmp directory for Snowbound to write to: /opt/IBM/P8/sbtmp is a suggestion. Then modify the file path in red to that location.

  `<param-name>tmpDir</param-name>`

  `<paramvalue>/opt/IBM/P8/sbtmp</param-value>`
2) Modify P8ContentHandler.properties

- Located in WebSphere Installed apps /virtualviewer.war/WEB-INF/classes/
- Change the CEUri iiop URL to point to the FileNet P8 Content Engine
- Change the PEConnectionPoint to match your environment. If you do not use a Process Engine then comment out that line.
- If you are using a pre-configured Admin ID and Password for the Viewer to access P8:
  - For Encrypted ID’s/Passwords, browse to https://serverURL/virtualviewer/encryptor.jsp
    - Enter the ID and click “Encrypt”
      - Copy the “Encrypted text” value and paste it into the P8ContentHandler.properties in the “userid” field
      - Example – userid=bVK85mXRmSds5la5Q2HmdA==
    - Enter the Password and click “Encrypt”
      - Copy the “Encrypted text” value and paste it into the P8ContentHandler.properties in the “password” field
      - Example - password=bVK85mXRmSds5la5Q2HmdA==
  - For unencrypted ID’s/Passwords
    - Enter the unencrypted Admin ID into the P8ContentHandler.properties in the “admin.userid” field
      - Example – admin.userid=peadmin
    - Enter the unencrypted Admin password into the P8ContentHandler.properties in the “admin.password” field
      - Example – admin.password=password

P8ContentHandler.properties - Example(Encrypted ID/PW)
#P8 settings
JaasStanza=FileNetP8WSI
CEUri=iiop://localhost:9080/FileNet/Engine
PEConnectionPoint=p8is1_1
userid=bVK85mXRmSds5la5Q2HmdA==
password=bVK85mXRmSds5la5Q2HmdA==

P8ContentHandler.properties - Example(Unencrypted ID/PW)
#P8 settings
JaasStanza=FileNetP8WSI
CEUri=iiop://localhost:9080/FileNet/Engine
PEConnectionPoint=p8is1_1
admin.userid=peadmin
admin.password=password
3) **SnowboundVirtualViewerPlugin.jar**
   
   Copy the SnowboundVirtualViewerPlugin.jar to:

   /IBM/ECMClient/plugins/

4) In WebSphere Administration stop/start the virtualviewer_war application
Installing the VirtualViewer® HTML5 ICN Connector

Follow the steps below to install and configure VirtualViewer® HTML5 ICN Connector:

### Snowbound VirtualViewer® IBM Content Navigator Plugin Installation

Follow the steps below to setup VirtualViewer® plugin into Content Navigator:

1. Obtain the IBM Content Navigator (ICN) plugin file:
   
   **SnowboundVirtualViewerPlugin.jar**

2. We recommend that you back up the contents of the IBM Content Navigator directory before installing VirtualViewer® HTML5

3. Copy the JAR to the IBM Content Navigator install directory (example: `D:\IBM\ECMClient\plugins` or `/opt/IBM/ECMClient/plugins/`)

4. Login to **ICN Admin**
   
   `http://<your IBM Content Navigator Server>:<port>/navigator/?desktop=admin`

5. Navigate to **Plugins > New Plug-in**

6. Assign JAR file path
   
   (example, `D:\IBM\ECMClient\plugins\SnowboundVirtualViewerPlugin.jar` or `/opt/IBM/ECMClient/plugins/SnowboundVirtualViewerPlugin.jar`)

7. Click **Load**

8. Scroll down to assign parameters as shown below:

   ![Plugin Information](image)

   **Name**: Snowbound VirtualViewer Plugin
   
   **Version**: 3.0.0.0
   
   **Repository types**: None
   
   **Actions**: Open with VirtualViewer
   
   **Open Actions**: None
   
   **Viewers**: Snowbound VirtualViewer
   
   **Features**: None
   
   **Layouts**: None

   - **VirtualViewer URL**: `/virtualviewer`
   - **VirtualViewer servlet path**: `/virtualviewer/AjaxServlet`

9. Assign parameters:
   
   **VirtualViewer URL**: `/virtualviewer`
   
   **VirtualViewer servlet path**: `/virtualviewer/AjaxServlet`
10. Click **Save and Close**
   
   **Note:** If errors occur try delete the plugin and re-add it

11. Logout of ICN Admin
Chapter 5 - Configuring the VirtualViewer® HTML5 ICN Connector

Configuring the VirtualViewer® HTML5 - ICN Connector (Content Navigator)

Follow the steps below to configure the VirtualViewer® HTML5 ICN Connector in Content Navigator.

Once the application and plugins are installed, the System Administrator can configure the VirtualViewer® in the Content Navigator interface. First, a Viewer Map will need to be created to utilize the VirtualViewer®. The Viewer Map defines which viewer is used to open any available mime type when a document of that mime type is opened from within Content Navigator. The System Administrator can decide which mime types will open in VirtualViewer® and the relative order of viewer selection when multiple viewer options are available for the same mime type. For example, VirtualViewer® can be made the default viewer for all mime types or can be used to only open specific mime types (ie. TIF and PDF).

Following the creation of the new custom Viewer Map, a custom Document Context Menu will be created to utilize the custom action provided within the Virtual Viewer Plugin.

Both of these configurations are described below.

Define a Viewer Map

Follow the steps below to define a new custom Viewer Map:

1. Login to ICN Admin

2. Navigate to Viewer Maps

3. Select New Viewer Map

4. Configure the New Viewer Map
   a. Name: SnowboundVVMap
   b. ID: SnowboundVVMap
   c. Desc: Snowbound Virtual Viewer Map

5. Click New Mapping
   a. Repository Type: FileNet Content Manager
   b. Viewer: Snowbound VirtualViewer (Plugin registered viewer name).

6. Check All MIME types OR Optionally add individual MIME types to the Selected MIME Types list

7. Click OK

8. Select the newly created Mapping from the list

9. Click the Move Up button to move this Mapping to the top of the list

10. Click Save and Close

11. Select Desktops in the ICN Administration Menu
12. Select the Desktop that the Virtual Viewer will be used in and click **Edit**
   a. In the General Tab under Desktop Configuration, choose the new Viewer Map
   - **Desktop Configuration**
     * Viewer map: SnowboundVVMap

13. Click **Save** and **Close**

**Create a Custom Context Menu**

Follow the steps below to create a custom Context Menu that utilizes the “Open with VirtualViewer” Action provided by the plugin

1. Open the IBM Content Navigator Administration View:
   http://<your IBM Content Navigator Server>:<port>/navigator/?desktop=admin

2. **Select Menus**
   - **Desksops**
   - **Repositories**
   - **Sync Services**
   - **FileNet Content Manager**
   - **Content Manager OnDemand**
   - **DocuViewARE**
   - **Viewer Maps**
   - **Plug-ins**
   - **Menu**
   - **Labels**
   - **Themes**
   - **Icon Mapping**
   - **Settings**

3. Find and Select the “Default document context menu”

4. Click **Copy**

5. Rename the copy “Snowbound Document Context Menu”

**Context Menu: New Menu**

You can restrict the actions that are available for this context menu or you can add custom actions that are defined in a plug-in. You can also organize the actions by adding separators and submenus to the context menu.

- **Name:** Snowbound Document Context Menu
- **ID:** SnowboundDocumentContextMenu
- **Description:** Displayed when the user right-clicks a document
- **Type:** Document context menu
6. From the "Available:" section, select “Open with VirtualViewer”

7. Move “Open with Virtual Viewer” into “Selected:" and move it to the top of the list:

8. Click Save and Close

9. To assign the Snowbound Document Context Menu to a desktop, open the Desktop in the ICN Administration View and select the “Menus” tab

10. Scroll to the “Content Context Menus” section and change the “Document context menu:” to “Snowbound Document Context Menu”

11. Click Save and Close

**Restart and Go!**

Once all configuration steps have been completed, we highly recommend restarting the server running your web server to assure VirtualViewer® HTML5 functions correctly with IBM Content Navigator.

Once your server has been restarted, simply load IBM Content Navigator into a browser and double click a document to load VirtualViewer® HTML5.
Enable Pop-ups

If the browser does not show the new VirtualViewer® you may need to enable pop-ups.

This icon means that the pop-up is blocked: 

Click on the icon and select “Always allow pop-ups from site.”
Configuring the VirtualViewer® HTML5 - ICM Connector (Case Manager)

To implement the Virtual Viewer in Case Manager, ensure that the Snowbound VirtualViewer Plugin is deployed in Content Navigator and then update the Viewer Map for the Case Manager Desktop in ICN to associate the necessary file types with the Snowbound Virtual Viewer.

Follow the Configuring the VirtualViewer® HTML5 - ICM Connector instructions.
VirtualViewer® Bookmarks for IBM FileNet P8

The VirtualViewer® implementation for IBM FileNet P8 provides the ability to bookmark pages within a document for later access directly to those pages. VirtualViewer® Bookmarks are stored as XML content within a custom Document object in P8.

Sample VirtualViewer® Bookmark data looks like:

```xml
<snbd_bookmarks>
  <page pagenumber="0">
    <bookmark name="firstpage"></bookmark>
  </page>
</snbd_bookmarks>
```

The VirtualViewer® Bookmark custom document objects can be stored as unfiled objects within P8 or they can be filed into a P8 folder.

The following steps detail the P8 configuration process required to enable VirtualViewer® Bookmarks:

**Update the VirtualViewer® P8ContentHandler.properties file**

The P8ContentHandler.properties file contains configuration information regarding the type of connection the Virtual Viewer will utilize to communicate with P8, along with parameters required to establish that connection. It is also used to configure the storage location (folder) within P8 for VirtualViewer® Bookmarks.

To declare the folder to file the VirtualViewer® Bookmarks custom document objects into provide a folder path in the “bookmarks.folderPath” property. An example is:

```
bookmarks.folderPath=/_SnowboundDataObjects
```

Using the path noted in the example, all VirtualViewer® bookmarks custom document objects would be filed in the “_SnowboundDataObjects” folder. The folder defined in the P8ContentHandler.properties file must be created within P8 prior to using VirtualViewer® bookmarks and must be secured in a manner that supports the access rights to the P8 Document Classes that VirtualViewer® bookmarks will be used within. This means that users who have access to create an Instance of, or version an instance of an object in the Document Class must also have access to view objects, file objects into and version objects in the folder.

The Folder can be hidden in P8 so that it can’t be found via browsing by setting the “IsHiddenContainer” property on the folder to “True”.

**Create SnowboundData Custom Document Object**

The VirtualViewer® uses a custom document object called “SnowboundData” within P8 to store the bookmark xml data. To create the SnowboundData custom document object, complete the following steps:
• Browse to the IBM Administrative Console for Content Platform Engine (ACCE)
• Select the Object Store that contains the Document Class(es) that will be utilizing VirtualViewer® bookmarks
• Expand the Treeview to Data Design -> Classes -> Document and then select a Document Class that will utilize VirtualViewer® bookmarks
• Right click on the Class and Select “New Class”
• A “New Class” dialog will open. Enter “SnowboundData” into the “Display name:” field.
• Click into the “Symbolic name:” field. The Symbolic name should be automatically generated. Click “Next”.
• Click “Finish”

Create Snowbound Data Object property

The VirtualViewer® Content Handler for ICN will create one custom document object in P8 for every document that contains bookmarks. To link the custom document object to its associated document, an object property will need to be created where the GUID of the document object can be stored and referenced from. That object property will be named “Snowbound Data Object” and will need to be added to every P8 Document Class where VirtualViewer® bookmarks will be utilized.

To create the Snowbound Data Object property complete the following steps:

• Browse to the IBM Administrative Console for Content Platform Engine (ACCE)
• Select the Object Store that contains the Document Class(es) that will be utilizing VirtualViewer® bookmarks
• Expand the Treeview to Data Design -> Property Templates
• Right Click on Property Templates and select “New Property Template”
• Enter “Snowbound Data Object” in the “Display name:” field and then click in the “Symbolic name:” field. The Symbolic name should automatically be generated. Do not change it.
• Click “Next”
• From the “Data type:” choicelist, select “Object” and click “Next”
• On the “Single or Multi-Value?” screen, leave “Single” selected and click “Next”
• Review the Summary screen and click “Finish”

Update Document Classes

Every P8 Document Class that will utilize VirtualViewer® bookmarks will need to have the Snowbound Data Object property added to it. To add it, complete the following steps in every Document Class that requires VirtualViewer® bookmarks:

• Browse to the IBM Administrative Console for Content Platform Engine (ACCE)
• Select the Object Store that contains the Document Class(es) that will be utilizing VirtualViewer® bookmarks
• Expand the Treeview to Data Design -> Classes -> Document and then select the Document Class being updated
• Select the “Property Definitions” tab and Click “Add”
The “Add Properties” dialog will open. Either scroll to the “Snowbound Data Object” property or utilize the Filter to narrow the Property list.

Select “Snowbound Data Object” and click “OK”. The “Add Properties” dialog should close.

Scroll to the bottom of the Property Definitions list and click on “Snowbound Data Object”.

The “Property Definition” dialog should open. Click the “More” tab.

In the “Required class:” choicelist, select “SnowboundData” and click “OK”.

Click “Save”.

Click “Close”.
**Troubleshooting Guide**

I get the following popup error when I try to open a document

![Unsupported File Format](image)

This error typically occurs when the license file is incorrect or unavailable for VirtualViewer®.

Try the following remedies:

- Check to see if you received a new license file with the deployment package. Ensure that the new license file is copied to the VirtualViewer® libraries folder. `<webapps>\VirtualViewer.JavaHTML5\WEB-INF\lib\SnowboundLicense.jar`
  
  If the license file was copied after the application was deployed, some app servers require the web app to be restarted.

- Check to see if you are able to open standard formats (like PDF, TIF etc.) or if those have the same issue as well.

- Update web.xml to directly refer to the license file (some app servers like JBOSS have difficulty resolving app deployment paths)
  
  o Open the VirtualViewer WAR file using 7-zip
  o Copy the web.xml from `\VirtualViewerJavaHTML5.war\WEB-INF\` to your local drive
  o Open the web.xml in a text editor
  o Navigate to the very end where it lists the path for license `<env-entry>`
    
    `<env-entry-name> snowboundLicensePath </env-entry-name>`
    `<env-entry-value> .\WEB-INF\lib\SnowboundLicense.jar </env-entry-value>`
  
  o Change the relative path to a fixed path where the app server could get the license JAR from `<env-entry>`
    
    `<env-entry-name> snowboundLicensePath </env-entry-name>`
    `<env-entry-value> C:\Snowbound\SnowboundLicense.jar </env-entry-value>`
  
  o Save the web.xml and drag/drop it to the `\VirtualViewerJavaHTML5.war\WEB-INF\` in 7-zip. This should replace/update the web/\xml file.
  o Close the WAR to save
  o Redeploy the WAR
Validated Environments

**IBM**

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<th>Software</th>
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**VirtualViewer®**

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**Disclaimer**

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