LSEG WORKSPACE

INSTALLATION AND CONFIGURATION GUIDE

Workspace 1.25

LSEG DATA & ANALYTICS

Version history

Workspace	Document	Summary
1.25	125.02	The following change was made: – Updated the trusted root certification section
	125.01	The following change was made: – New appendix covering Real-Time Data configuration requirements
1.24	124.08	The following changes were made: – Fixed minor internal linking issues – Fixed incorrect use of backslash in Workspace Messenger section
	124.07	The following changes were made: – Update to the Troubleshooting appendix regarding the MMD installation issue – Minor update to Protocol support – Renaming RDP to Delivery Platform (corporate rebranding) – Updated Server software > Versions section
	124.06	This version addresses the following: – Table rendering issues – Internal document links
	124.05	Further clarification of Protocol support
	124.04	Minor changes to the following sections: – Streaming protocols – Protocol support
	124.03	Global release version, containing: – A minor change to the Configuring multiple servers section. – A known issue affecting Datastream for Office (DFO) users only.
	124.02	Updating links to point to new LSEG site.
	124.01	The following changes were made. – New digital certificates – The DPRM connection issue, affecting Workspace 1.23 only, has been fixed.
1.23	123.03	Added Appendix H: Unsupported packaging methods.
	123.02	Updated Appendix J: Known issues to include DPRM connection issue.
	123.01	The following changes were made: – Guide rebranded for initial LSEG Workspace pre-release. – Additional features added to the Configuration Manager
1.22	122.02	The following changes were made: – Added Admin configuration to the Configuration override order section – Added the disabled contribution sources setting to the shared configuration Settings table.
	122.01	The following changes were made: – The Refinitiv ribbon add-ins table was updated – Added the Streaming protocols section – Minor changes to the shared configuration Settings table – Removed a no longer supported feature from the Logging section – Removed a fixed shared configuration file issue from the Appendix I: Known issues section
1.21	121.05	The System Test app is now described in its own guide, which can be found here: – Workspace System Test Guide
	121.04	This release contains the following changes: – Added Configuring multiple servers section – Updated the Appendix J: Known issues section
	121.03	Minor URL amendments
	121.02	This version contains the following updates: – Added Uninstalling Workspace with custom paths to the Known issues section.
	121.01	This version contains the following updates: – Added Logs Viewer section – Updated the --help commands – Updated the Error codes section – Added Mass deployment section – Revised the Default folder structures section – Some additional Workspace executable statements – Minor changes throughout to cover the new Workspace installer
1.20	120.01	This version contains information about the following updates: – New appendix covering shared configuration file creation and settings – ADH documentation location added – Updated executable statement parameters – Updates to Security section, including addition of TLS subsection – Minor changes to the Example domain list – Minor update to the DPRM section

Contents

About this document

This guide describes IT-managed installations to platforms running on the following environments[1]:

− Microsoft® Windows® directly

− Citrix® [2], specifically:

  − Windows application virtualization with Citrix XenApp® (published app or published desktop)
  − Windows desktop OS virtualization with Citrix XenDesktop®

− VMware[3], specifically:

  − Horizon 8 Connection Server, Agent, and Client
  − Blast display protocol

This document also details the steps and any post-installation configuration and customization that is required to install the application.

Intended readership

The LSEG Workspace Installation and Configuration Guide is intended for IT specialists that are responsible for the installation and maintenance of Workspace and Messenger standalone.

LSEG Workspace rebranding

This first phase of LSEG Workspace rebranding is entirely cosmetic. For changes of a technical nature that may impact your installation and maintenance of Workspace, you will be given a minimum of nine months of notice, our standard obsolescence period, through the PCN system.

Software releases and end of life

Refer to the Workspace Support Policy, which can be found in the documentation section of the LSEG Workspace page.

For further information, see:

− PCN208374 – LSEG Workspace – Rolling obsolescence policy

− Workspace Support and Obsolescence FAQ

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[1]   Instructions for macOS installation are provided in the Workspace Basic Installation Guide.
[2]   LSEG currently provides limited testing support and technical advice on Citrix Virtual Apps and Desktops (CVAD) solutions. However, customers deploying a CVAD solution should consider the following when deploying, updating, and running Workspace:
  − The impact of network latency and equipment used.
  − The potential for virtualization machines to adversely affect performance for end users.
  − Legacy products such as Eikon will not work in parallel with Workspace
[3]   As summarized for Citrix, above, LSEG currently provides limited testing support for VMware and the same considerations should be applied when deploying.

Contact information

To receive further assistance, contact Support.

You can also provide feedback regarding this document through DocFeedback@lseg.com.

Pre-requisites

This section summarizes the information of which you should be aware prior to commencing the installation of Workspace.

In this section

– Verifying system requirements

– Virtualized environments

Verifying system requirements

Before installing Workspace, ensure that your hardware and software meet the minimum requirements.

> **Important:** For an installation, creating a Workspace test user ID is highly recommended to validate the installation. For further assistance, contact your account team or Customer Success Manager.
>
> LSEG strongly recommends that 3D Graphics Processing Unit (GPU) acceleration is enabled. Workspace is based on Chromium, which uses the GPU for rendering environments.

System and network testing

The System Test application helps you determine whether your computer meets the minimum hardware, software, and connectivity requirements to run Workspace. No personal information is sent to LSEG during this process.

For further information regarding the System Test applications, refer to the System Test Guide.

Virtualized environments

When designing a deployed solution, individual utilization should be considered in the planning. If specific information is required, it is recommended that a selection of pilot users is monitored so benchmark testing can be performed by the relevant vendor support team.

> **Important:** If you encounter an issue; LSEG requests that you confirm the issue has been reproduced in a non-virtualized environment.

VDI support

Support is included with your subscription, when Workspace is installed according to our system requirements on a standalone desktop PC for one user.

Due to the inherently complex and distributed nature of these solutions, we cannot offer the same unconditional support as a standard desktop for the following:

– Terminal/Citrix Server

– VMware Server

– Other multi-user or virtualized environments

Help with installing and/or operating our software in these environments is strictly limited to a commercially reasonable effort. While this document makes every attempt to highlight the issues you may encounter, we can make no guarantees regarding a successful outcome.

If you encounter problems, we cannot investigate or escalate unless the issue is reproducible on a standalone desktop running Workspace, in a single instance environment.

Installing Workspace

Workspace can be installed on Windows, as a User or Machine Installation, and deployed to CVAD.

However, it is recognized that there is much innovation and change in our marketplace. As such, the content of this document is updated, as warranted by future changes in the marketplace, and the evolving needs of our software products.

In this section

- PC installation
- Citrix installation
- VMware installation
- Running Workspace Web access
- Post installation testing

PC installation

This section discusses the installation of Workspace onto personal computers.

RELATED LINKS
- Command line statements
- Registry files
- Error codes

Installation method summary table

Parameter	Location		Updated automatically	Windows service required
	Installation[4]	Launch/Update		
--user	%LocalAppData%		●	-
--machine-autoupdate-service	%ProgramFiles%	%ProgramData%	●	●
--machine-autoupdate-no	%ProgramFiles%	%ProgramData%	-	-
--machine-autoupdate-peruser [5]	%ProgramFiles%	%LocalAppData%[6]	Launch / Update location only	-

Workspace Help parameter options

When installing Workspace, you can use the `--help` parameter to list all parameters that are available.

The Command Prompt also lists all error codes that could be displayed during a Workspace installation. These codes are listed in the Error codes section.

Command line statements have the following structure, where one or more *<option>* parameters are non-mandatory:

```
RefinitivWorkspace-installer_x.xx.xx.exe <operation> <option>
```

---

[4]   Default locations. These are customizable during installation.
[5]   See Important note in Uninstalling Workspace.
[6]   A copy of the Installation (master image) will be created for each user when they first log into the machine. If the version of the master image changes, the local version is refreshed when a user next logs in.

All parameters are listed alphabetically in the following table:

Parameter	Purpose
<operation>	
`--machine-autoupdate-no`	Machine installation, with no auto-updates.
`--machine-autoupdate-peruser`	Machine installation, with an auto-update per user.
`--machine-autoupdate-service`	Machine installation, with an auto-update service.
`--uninstall`	Uninstall Workspace.
`--user`	User installation. This is the default installation option.
<option>	
`--cachepath="<Your cache path>"`	Specify the cache file path.
`--client-sso="<Your ClientSSO URL>"`	Allows you to set up Single Sign-On (SSO), once Workspace has completed installation. SSO settings are stored in either `user-settings.json` or `machine-settings.json`, depending on which installation mode was used for Workspace.
`--forceInstall` [7]	Skips the check to ensure your system meets the pre-requisites.
`--help`	Displays the list of parameters in a second command prompt window.
`--installpath="<Your install path>"`	Specify the installation path.
`--installerlogpath="<Your install log path>"`	Specify the installation log file path.
`--lang="<lang>"`	Allows you to specify the installation language. Where <lang> is: `en` English `ja` Japanese `zh` Chinese `ko` Korean
`--logpath="<Your log path>"`	Specify the log files path.
`--messengeronly`	Installs Workspace Messenger only. This installation mode will not share the login session with Workspace.
`--sharedconfig="<shared config file path>"`	Specify the path to a shared configuration file.
`--shortcut-excel=<FALSE / TRUE>`	Setting this parameter to `false` installs the product without the **Refinitiv Workspace - Excel** shortcut
`--shortcut-workspace=<FALSE / TRUE>`	Setting this parameter to `false` installs the product without the **Refinitiv Workspace** shortcut.
`--shortcuts="<"Your shortcuts path>"`	Specify the location of the **Refinitiv Workspace** and **Refinitiv Workspace - Excel** shortcuts. Enter `NONE` to hide the shortcuts.
`--silent` [8]	No information messages are displayed during installation.

Customizing paths

During the installation, you have the option of determining your own path for installation files, logs, cache files, and shortcuts. To do this, use one of the following commands:

Action	Command
Change install location	`RefinitivWorkspace-installer_x.xx.xx.exe --installpath="<folder_path>"`
Change log location	`RefinitivWorkspace-installer_x.xx.xx.exe --logpath="<folder_path>"`
Change cache location[9]	`RefinitivWorkspace-installer_x.xx.xx.exe --cachepath="<folder_path>"`
Change icon shortcut location	`RefinitivWorkspace-installer_x.xx.xx.exe --shortcuts="<folder_path>"`
Change installer log path	`RefinitivWorkspace-installer_x.xx.xx.exe --installerlogpath="<folder_path>"`

You can use multiple parameters in one command line. For example:

```
RefinitivWorkspace-installer_x.xx.xx.exe --installpath="<folder path>"
--cachepath="<folder_path>"
```

---

[7] Do not use this flag without a clear purpose and understanding of the impacts, as it may result in degraded product experience.
[8] Silent mode is enabled when installing, updating, or uninstalling Workspace, using the command line.
[9] See Cache path definition in the Known issues section.

Performing a User installation

When you perform a user installation, files are created in the `%LocalAppData%\Refinitiv\Refinitiv Workspace\` folder.

To install Workspace on a user basis:

1. Download the Workspace package.

2. Run the `.exe` file or use the Workspace command lines using the command prompt app. In a user installation, administrator rights are not required.[10]

3. Follow the on-screen instructions to install Workspace [11]:
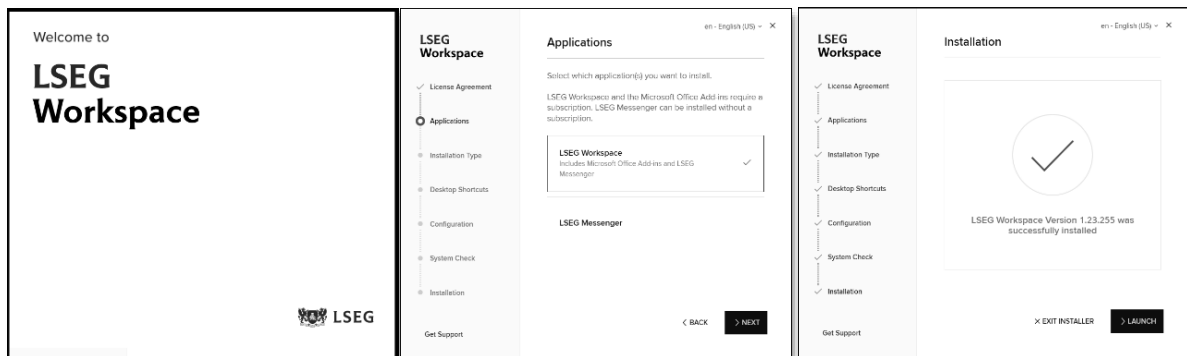
Performing a Machine installation [12]

With the auto-update Windows service

This is the recommended installation mode and is the preferred method for your organization, where:

−   Users are not allowed to run programs from areas where they have no write permissions on `%ProgramFiles%`.

−   Applications are reviewed before being approved across your organization, to ensure that they do not undermine application whitelisting. This is especially important for scripting languages, which have their own execution environment.

For this installation, files are created in the following folder:

Type of OS	Installation	Path
Windows	Default	`%ProgramFiles%\Refinitiv\Refinitiv Workspace\`

---

[10]   To review help for the `RefinitivWorkspace-installer_x.xx.xx.exe` command, add the parameter `--help`.
[11]   For further details, see the Workspace Basic Installation Guide.
[12]   To perform any *per machine* installation, you require administrator access rights.

To install Workspace on a machine basis:

1. Download the Workspace package

2. Do either of the following:

    a. Run the executable, taking the **Install for all users on this computer** option 13

– Or

    a. Open a Command Prompt window

    b. Run `RefinitivWorkspace-installer_x.xx.xx.exe --machine-autoupdate-service --sharedconfig="<file path>"` [17]
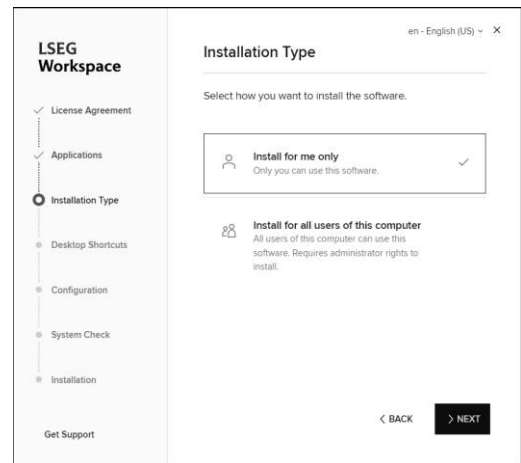
With auto-update per user

This installation mode [14] is the preferred method for your organization, where:

– Users are not allowed to run programs from areas where they have no write permissions on `%ProgramFiles%`.

– Applications are reviewed before being approved across your organization, to ensure that they do not undermine application whitelisting. This is especially important for scripting languages, which have their own execution environment.

For this installation, files are created in the following folders:

Type of OS	Installation	Path
Windows	Master image	`%ProgramFiles%\Refinitiv\Refinitiv Workspace\`
	Copy [15] [16]	`%LocalAppData%\Refinitiv\Refinitiv Workspace\`

Important: The master image must be updated on a regular basis – in accordance with the Support Policy – to avoid the situation where a new user on a machine can install a version of Workspace into their profile that is no longer supported.

To install Workspace on a machine basis:

1. Download the Workspace package

2. Open a Command Prompt window

3. Run `RefinitivWorkspace-installer_x.xx.xx.exe --machine-autoupdate-peruser --sharedconfig="<file path>"` [17]

Without auto-updates

This installation mode is the preferred method for organization running hot-desking, gold images, non-Persistent VDIs, or Provisioning Services (PVS) with configuration to clear changes once user close their Windows sessions.

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[13]   For further information, see the Workspace Basic Installation Guide.
[14]   See Important note in Uninstalling Workspace.
[15]   Copy installation location.
[16]   Once the master image has been copied to the profile of the user, the user needs to restart their machine.
[17]   Defining a shared configuration file (or files, for failover purposes) is optional but strongly recommended for mass configuration.

For this installation, files are created in the following folder:

Type of OS	Installation	Path
Windows	Default	`%ProgramFiles%\Refinitiv\Refinitiv Workspace\`

To install Workspace without auto-updates:

4. Download the Workspace package

5. Open a Command Prompt window

6. Run `RefinitivWorkspace-installer_x.xx.xx.exe --machine-autoupdate-no --sharedconfig="<file path>"` [17]

Performing an installation using your Single Sign On URL

Using a shared configuration file

Defining a shared configuration file (or files, for failover purposes) is optional but strongly recommended for mass configuration.

Using the command line

To install Workspace using your Single Sign On (SSO) URL, do the following:

1. Download the Workspace package.

2. Open a Command Prompt window.

3. Add the appropriate parameter from the table below [18], depending on your environment:

Environment	Additional installation parameters	Settings location
User	`--client-sso=<client SSO URL>`	user-settings.json
Machine	`--client-sso=<client SSO URL>`	machine-settings.json

Citrix installation

This section addresses the currently supported scenarios for Workspace deployment to CVAD. However, it is also recognized that there is much innovation and change in our marketplace. As such, the content is updated, as warranted by future changes in the marketplace, and the evolving needs of our software products.

Important! Workspace installers require administrator rights to create their own registry path entries.

Installing Workspace for Citrix XenApp

1. Check that no previous Eikon registry keys are set.

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[18]   This parameter should be added to the installer executable, also in combination with additional parameters.

2. Ensure that the following registry keys are applied, to disable Citrix API hooks for a single executable file: [19]

Version	CVAD 7 1912 LTSR	XenApp 7.6 LTSR	XenApp 7.15 LTSR [20]
Key(s)	No modification to registry keys is required	HKLM\SOFTWARE\Citrix\CtxHook HKLM\SOFTWARE\Wow6432Node\Citrix\CtxHook	HKLM\SYSTEM\CurrentControlSet\services\CtxUvi
Value name		ExcludedImageNames	UviProcessExcludes
Type		REG_SZ	REG_SZ
Value to add [21]		RefinitivWorkspace.exe [22]	RefinitivWorkspace.exe

3. To show the Workspace context menu when right-clicking the Windows taskbar, refer to the Citrix Support Knowledge Center article CTX131995, User Cannot Launch Application in Seamless Mode in a Provisioning Services Server when XenApp Optimization Best Practices are Applied.

4. On the Citrix server, to change to installation mode, use the command line:

```
Change user /install
```

5. To install Workspace, use the following command line, which includes the log and cache paths [23], which must point to the same location from where `RefinitivWorkspace.exe` is run:

– `RefinitivWorkspace-installer_x.xx.xx.exe --machine-autoupdate-no --logpath="<folder_path>" --cachepath="<folder_path>"`

– However, it is recommended that you define a shared configuration file (or files, for failover purposes) using the `--sharedconfig="<file_path>"` parameter [24]. This is optional but strongly recommended for mass configuration.

6. Once the installation has finished, change back to execute mode, using the command line:

– `Change User /execute`

Publishing Workspace applications for XenApp

To complete the installation, you must publish both Workspace and Refinitiv Workspace - Excel applications in Citrix XenApp.

To do this, use your usual configuration software, whether Citrix or third party, with the following parameter settings:

Product	Parameter	Setting
Workspace	Path to the executable file	`<installation_path>\RefinitivWorkspace.exe`
	Working directory	`<installation_path>`
Workspace for Excel	Path to the executable file	`<installation_path>\RefinitivWorkspace.exe`
	Command line argument	`--excel`
	Working directory	`<installation_path>`

---

[19] For further information, see https:\\support.citrix.com\article\CTX107825.
[20] Reboot from the VDA required.
[21] Process names have a 14-character limit. For example, to exclude `longappname.exe`, you add `longappname.ex`.
[22] If you want to use the Session Sharing Chrome Extension, add `Refinitiv-host.exe`.
[23] See Cache path definition in the Appendix J: Known issues section.
[24] For further information, see step 3 of Setting up configuration manager.

Installing Workspace for Citrix XenDesktop

If you use gold images, non-Persistent VDIs, or Provisioning Services (PVS) with configuration to clear changes after the user closes a session, you must install Workspace in *without auto-updates* mode using the following argument:

```
RefinitivWorkspace-installer_x.xx.xx.exe --machine-autoupdate-no --
sharedconfig="<file path>"
```

In most cases, the Per-Machine and Per-User installation modes of Workspace are also supported in Citrix XenDesktop.

ⓘ Log and Cache paths must point to the location from where `RefinitivWorkspace.exe` is run.

VMware installation

This section describes the installation of products that are required for Workspace deployment to VMware.

Installing Workspace for VMWare Horizon virtual app

1. Change to installation mode:

    On the Horizon server, use the command line:

    ```
    change user /install
    ```

2. Install Workspace:

    In a command-line interpreter, such as Command Prompt, type the following command line [25]:

    ```
    RefinitivWorkspace-installer_x.xx.xx.exe --machine-autoupdate-no --
    logpath="<folder_path>" --cachepath="<folder_path>" 26
    ```

    > **Important!** It is strongly recommended, particularly for mass configuration, that you define a shared configuration file (or multiple files, for failover purposes). This is done by using the `--sharedconfig="<file_path>"` parameter.

3. Return to execute mode:

    Once the installation has finished, change back to execute mode, using the following command line:

    ```
    change user /execute
    ```

---

[25]   The command line is run from the folder where `RefinitivWorkspace.exe` file is located and contains paths to the required log and cache file locations.

[26]   It is strongly recommended, particularly for mass configuration, that you define a shared configuration file (or multiple files, for failover purposes). This is done by using the `--sharedconfig="<file_path>"` parameter.
For further information about shared configuration files, see step 3 of the Setting up configuration manager.

Configuring virtual applications on Windows Server

Installation is completed by publishing both Workspace and Refinitiv Workspace - Excel applications in the VMWare Horizon virtual app.

To publish the applications, perform the following steps using the Horizon Console:

1. In Horizon Console, select **Inventory > Applications**

2. In the Application Pools panel, select **Add > Add Manually**

3. For Workspace, in the **Add Application Pool** panel, complete the form using the following details:

In this field…	Type or select this …
ID	RefinitivWorkspace
Display Name	Refinitiv Workspace [27]
Path	*<install_path>*Refinitiv\Refinitiv Workspace\RefinitivWorkspace.exe
Start Folder	*<install_path>*\Refinitiv\Refinitiv Workspace\
Entitle Users after Adding Pool	Select this checkbox
Multi-Session Mode	Select **Disabled**

4. Click **Submit**

   The application appears in the **Application Pools** panel

5. Select **Add > Add Manually**

6. For Refinitiv Workspace - Excel, complete the form using the following details:

In this field…	Type or select this…
ID	RefinitivWorkspaceExcel
Display Name	Refinitiv Workspace - Excel [27]
Path	*<install_path>*\Refinitiv\Refinitiv Workspace\RefinitivWorkspace.exe
Start Folder	*<install_path>*\Refinitiv\Refinitiv Workspace\
Parameter	--excel
Entitle Users after Adding Pool	Select this checkbox
Multi-Session Mode	Select **Disabled**

7. Click **Submit**

   The application appears in the **Application Pools** panel

---

[27] The **Display Name** value is a free text field. However, the structure of the **ID**, **Path**, and **Start Folder** entries are a requirement.

8. In the Application Pools panel, click **Entitlements**

9. In the **Add Entitlements** panel, click **Add**

   The **Find User or Group** panel, opposite, is displayed

10. Use the fields in this panel – **Domain**, **Name/User Name**, and **Description** – search for existing VMware users and select the checkboxes next to their details

11. Click **OK**
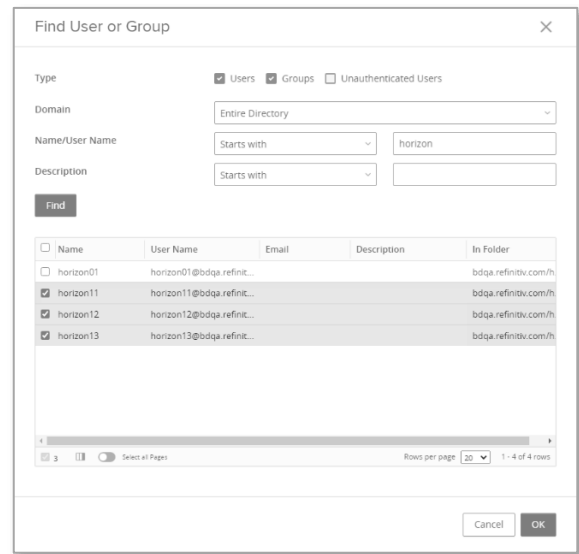
Installing Workspace for VMWare Horizon virtual desktop

If you use instant clone desktop pools (golden image), or automated full-clone desktop pools, configured to clear changes after the user closes a session, you must install Workspace using the no automatic update mode. To do so, use the following command line[28]:

```
RefinitivWorkspace-installer_x.xx.xx.exe --machine-autoupdate-no --sharedconfig="<file_path>"
```

In most cases, the Per-Machine and Per-User installation modes of Workspace are also supported for VMware Horizon virtual desktop.

Running Workspace web access

Workspace is also accessible through the Internet or private network.

RELATED LINKS
– Configuring Single Sign On (SSO) for browser-based Workspace

Accessing through the Internet

To access the Workspace sign-in page:

– Enter the following URL into your browser:

– https:\\workspace.refinitiv.com\web

Accessing through a private network

To access the Workspace sign-in page:

– Enter the following URL into your browser:

– https:\\workspace.extranet.refinitiv.biz\web

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[28] Although not shown in this example, as for the virtual app, the command line should include the log and cache paths, which must point to the same location from where `RefinitivWorkspace.exe` is run.

Post installation testing

Once Workspace has been installed, you can test the data retrieval functions using the testing tool provided in Refinitiv Workspace - Excel.

Downloading the tool

To download the testing tool, do the following:

1. Run Refinitiv Workspace - Excel

2. Under the **Workspace** menu:

   a. Sign in, if necessary

   b. Click **Templates**

   c. In **Search for templates…**, type `test` and press **Enter**

   d. In the first search result panel, Refinitiv Workspace – Microsoft Excel Functions Test, click the **Download** button
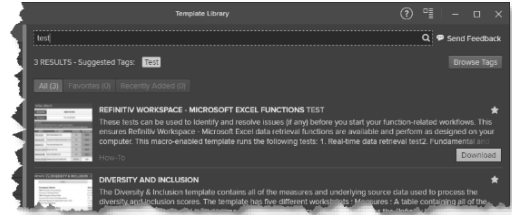
   Once downloaded, the tool template opens automatically:
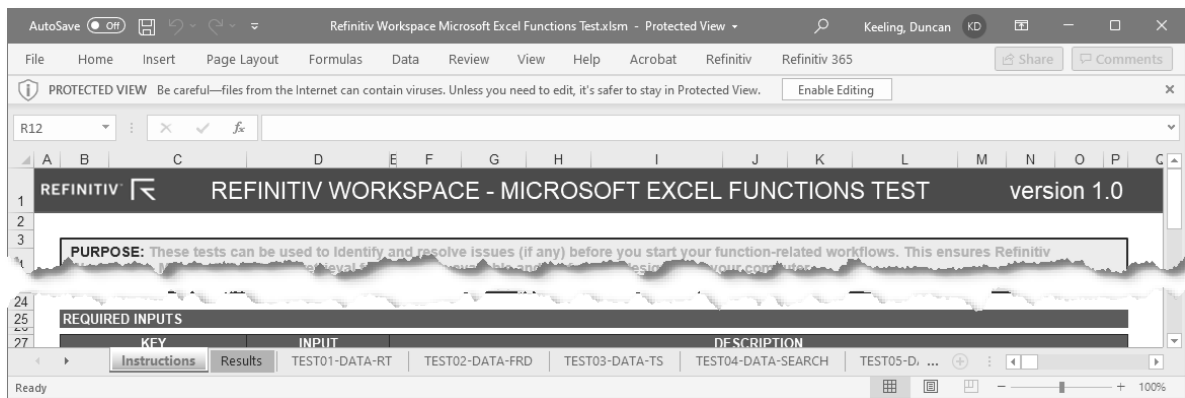
Running the tool

After checking the Prerequisites, listed in the Instructions section, do the following:

1. Click the **Results** worksheet tab

2. Click the **START THE TEST** button

   The tests usually take less than a minute to run and, should an error occur, you are presented with diagnostic data under the relevant tab.

Uninstalling Workspace

You can uninstall Workspace, by:

– Using the installer user interface, or

– Using a command

Using the installer user interface

You can uninstall Workspace using the standard add and remove functions in Windows and macOS [29]. For example:

1. In Windows, under **Settings > Apps & features**, select **Refinitiv Workspace** and click **Uninstall**

2. In the confirmation prompt, click **Uninstall** again to open the installer UI, opposite

3. Click **Uninstall**

4. Once the uninstallation is complete, click **Exit**
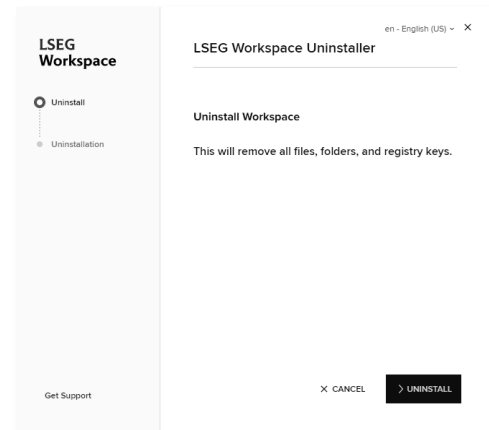
Using a command

You can uninstall Workspace using the following command line:

– `RefinitivWorkspace.exe --uninstall`

> **Important:** When the `--machine-autoupdate-peruser` installation method is used, running the uninstallation command removes the Workspace instance in the profile under which it is run. For instance, if the master image is removed, all clone images will remain installed.

Log file location

The uninstallation log file is stored in the `%Temp%\Refinitiv Workspace Uninstall Logs\` folder.

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[29]   The app removal function in macOS deletes the application folder without displaying the Workspace-specific UI.

Running a mass deployment

About mass deployment

You can deploy LSEG Workspace with your own mass deployment tool. To do so, follow the four stages summarized below:

Stage 1: Prepare installation and shared configuration files

Stage 2: Prepare the installation command line and create an install script

Stage 3: Ensure that the installation, shared configuration, and the install script files are in a shared location

Stage 4: Execute the install script or command line using your mass deployment tool

Prepare installation and shared configuration files

1. Download the Workspace Installer from the Workspace download page. The file has the following naming structure, where *x.xx.xx* is the version number:

–   `RefinitivWorkspace-installer_x.xx.xx.exe`

2. Create a `config.json` file

    For example:

```
{
  "EIKON.CONNECTION.MODE": "private",
  "EIKON.LOG.TRACELEVEL": "warn",
  "REFINITIV.WORKSPACE.RUN_ABOVE_NORMAL_PRIORITY": "true",
  "REFINITIV.WORKSPACE.TRADING.PRINTER_NAME": "Microsoft Print to PDF",
  "EIKON.INTRANET_OVERRIDE.URL": "C:\\Workspace\\config.json",
  "CLIENTSSO_URL.ENABLED": "true",
  "CLIENTSSO_URL": "https:\\myapps.testsso.com",
  "CLIENTSSO_REFINITIV_URL": "https:\\myapps.testsso.com",
  "EIKON.STREAMING.API.LOCAL.ENABLE": "true",
  "EIKON.STREAMING.API.LOCAL.SESSIONS": "[\"wss:\\test-ads-
sharedconfig.com:15000\WebSocket\"]",
  "EIKON.STREAMING.API.LOCAL.DACS.USERNAME": "permit_all_exchanges",
  "EIKON.STREAMING.API.LOCAL.DACS.POSITION":
"%USERDETAILS.LASTNAME%_%USERDETAILS.UUID",
  "EIKON.STREAMING.API.LOCAL.DEFAULTSOURCE": "IDN_RDF_2",
  "EIKON.STREAMING.JETQUOTES.DESKTOP.CONFLATION.ENABLE": "true",
  "EIKON.STREAMING.JETQUOTES.DESKTOP.CONFLATION": "3000",
  "EIKONPROTOCOL.ISDEFAULTAPPLICATION": "true"
}
```

Prepare the installation command line and an install script

For further information about installation command lines, refer to the Workspace Help parameter options section, under PC installation.

For an example of an install script (`install.cmd`), see the Script examples section.

Ensure all necessary files are in a shared location

The following files must be in a common location:

- `RefinitivWorkspace-installer_x.xx.xx.exe`
- `config.json`
- `config_fallback.json` (optional)
- `install.cmd`

Execute the install script using your mass deployment tool

Run the installation script using your deployment tool.

Script examples

This section contains examples of the following scripts for LSEG Workspace:

- Installation
- Update
- Rollback
- Uninstallation

Install (`install.cmd`) script example:

```
@echo off
:------ Identify the command's parameters to install the software
SET VERSION=1.20.38
SET REFINITIV_WORKSPACE_INSTALLER=C:\Workspace\RefinitivWorkspace-
installer□%VERSION%.exe
SET REFINITIV_WORKSPACE_SHARED_CONFIG_FILE=C:\Workspace\config.json
SET
REFINITIV_WORKSPACE_SHARED_CONFIG_FALLBACK_FILE=C:\Workspace\config_fallback.j
son
SET DEPLOYMENT_MODE=--machine-autoupdate-service
SET REFINITIV_WORKSPACE_INSTALL_PATH=C:\rw\installpath
SET REFINITIV_WORKSPACE_LOG_PATH=C:\rw_custpath\log
SET REFINITIV_WORKSPACE_CACHE_PATH=C:\rw_custpath\cache
SET REFINITIV_WORKSPACE_SHORTCUTS_PATH=C:\rw_custpath\shortcuts
:: ----- Workspace Installation ------
"%REFINITIV_WORKSPACE_INSTALLER%" %DEPLOYMENT_MODE% --
sharedconfig="%REFINITIV_WORKSPACE_SHARED_CONFIG_FILE%;%REFINITIV_WORKSPACE_SH
ARED_CONFIG_FALLBACK_FILE%" --silent;
:: "%REFINITIV_WORKSPACE_INSTALLER%" %DEPLOYMENT_MODE% --
sharedconfig="%REFINITIV_WORKSPACE_SHARED_CONFIG_FILE%;%REFINITIV_WORKSPACE_SH
ARED_CONFIG_FALLBACK_FILE% --installpath="%REFINITIV_WORKSPACE_INSTALL_PATH%"
--cachepath="%REFINITIV_WORKSPACE_CACHE_PATH%" --
logpath="%REFINITIV_WORKSPACE_LOG_PATH%" --
shortcuts="%REFINITIV_WORKSPACE_SHORTCUTS_PATH%" ;
```

Workspace update (`update.cmd`) script example:

```
@echo off
:------ Identify the command's parameters to install the software
SET VERSION=1.21.365
```

```
SET REFINITIV_WORKSPACE_INSTALLER=C:\Workspace\RefinitivWorkspace-
installer□%VERSION%.exe
SET DEPLOYMENT_MODE=--machine-autoupdate-service
:: ----- Workspace Software Update ------
"%REFINITIV_WORKSPACE_INSTALLER%" %DEPLOYMENT_MODE% --silent;
:: "%REFINITIV_WORKSPACE_INSTALLER%" %DEPLOYMENT_MODE% --
sharedconfig="%REFINITIV_WORKSPACE_SHARED_CONFIG_FILE%;%REFINITIV_WORKSPACE_SH
ARED_CONFIG_FALLBACK_FILE% --installpath="%REFINITIV_WORKSPACE_INSTALL_PATH%"
--cachepath="%REFINITIV_WORKSPACE_CACHE_PATH%" --
logpath="%REFINITIV_WORKSPACE_LOG_PATH%" --
shortcuts="%REFINITIV_WORKSPACE_SHORTCUTS_PATH%" ;
```

Rollback (`rollback.cmd`) script example:

```
@echo off
:------ Identify the command's parameters to rollback the software
SET REFINITIV_WORKSPACE_INSTALL_PATH=C:\Program Files\Refinitiv\Refinitiv
Workspace
:: ----- Workspace Uninstallation ------
"%REFINITIV_WORKSPACE_INSTALL_PATH%\RefinitivWorkspace.exe" –rollback --
silent;
```

Uninstallation (`uninstall.cmd`) script example:

```
@echo off
:------ Identify the command's parameters to uninstall the software
SET REFINITIV_WORKSPACE_INSTALL_PATH=C:\Program Files\Refinitiv\Refinitiv
Workspace
:: ----- Workspace Uninstallation ------
"%REFINITIV_WORKSPACE_INSTALL_PATH%\RefinitivWorkspace.exe" –uninstall --
silent;
```

Configuring Workspace

You can configure Workspace using the Configuration Manager, which is accessed by running the Workspace executable with the `--config-manager` parameter in a Command Prompt window or by selecting the **Help > Configuration Manager** option in Workspace.

In this section

- Setting up config manager
- Creating a new config file manually
- Configuring Single Sign On (SSO) for browser-based Workspace
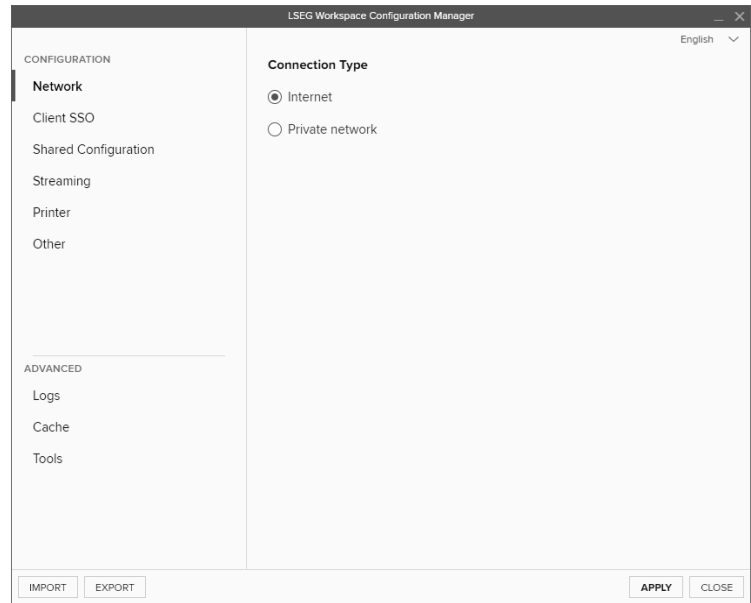
Configuration Manager command lines

The command line you use depends on the installation type:

- For User installations, use the command:

  ```
  "<InstallDir>\Refinitiv\Refinitiv Workspace\RefinitivWorkspace.exe"
  --config-manager
  ```

- For Machine installations, use the command:

  ```
  "<InstallDir>\Refinitiv\Refinitiv Workspace\RefinitivWorkspace.exe"
  --config-manager --machine
  ```

Setting up configuration manager

In the Configuration Manager, choose your settings for the following panels:

1. In the **Network** panel, set the connection type in your environment to either Internet (the default value) or private network.

2. In the **Client SSO** panel, if you have SAML 2.0 set up, enter the URL in the **Client Single Sign On (SSO)** field.

3. In the **Shared Configuration** panel, select whether you are using a shared configuration, which overrides other settings.

> **Important!** Defining a shared configuration file (or files, for failover purposes) is optional but strongly recommended for mass configuration, as it allows you to define configuration parameters for all users from a single location.

Workspace uses different `settings.json` files[30] based on the type of installation:

– For User installations, the file stores user-specific settings that are controlled by the user and can be found in the following location:

`%AppData%\Refinitiv\Refinitiv Workspace\Config\user-settings.json`

– For Machine or Hot-Desking installations, the file stores machine-specific settings that are controlled by elevated computer administrator rights and can be found in the following location:

`%ProgramData%\Refinitiv\Refinitiv Workspace\Config\machine-settings.json`

You can specify one or, for failover purposes, more configuration files that can be used across multiple desktops by putting these files on a shared drive or Web server (formerly Configuration Proxy concept).

To do this:

a. Click **Export** and navigate to the configuration file, `<override_settings>.json`, from the Configuration Manager.

b. Place this file on a shared drive or a Web server.

c. Enter the URL or UNC path of the file into the installation command line, or add this path into the Configuration Manager directly. For example:

`\\myserver\config\refinitiv\override-settings.json`

4. In the **Streaming** panel, you can choose streaming sources and whether to activate streaming conflation.

The **Streaming Conflation** rate[31] is used for desktop performance management by reducing CPU usage in downloading streaming data. In effect, it reduces data refresh rate from the default to every 1.5, 3, or 6 seconds.

Also, in the **Streaming** panel, choose your **Streaming Data Retrieval** source. Data can be streamed from either a Delivery

---
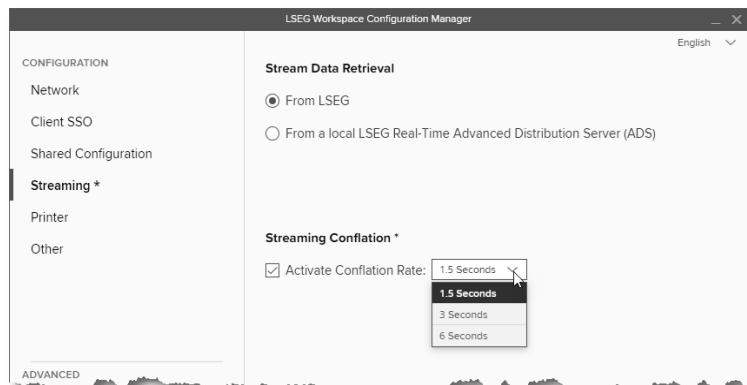
[30] A shared `<override_settings>.json` configuration file takes priority over local `user-settings.json` or `machine-settings.json` configuration files. When using the `--sharedconfig` parameter, Workspace reads the configuration from the specified location every time it is launched.

[31] Currently, this capability is for Workspace desktop access only and will not affect the conflation settings of the Workspace add-in running under Microsoft Office.
On Workspace desktop, the highest generally supported conflation rate is 300ms. However, certain exceptions, such as news and chart apps, can run at higher update rates.

Platform (formerly RDP) or by defining one or more local LSEG Real-Time Advanced Distribution Servers[32] (formerly ADS).

In Configuration Manager[33], you can configure the WebSocket[34] protocol to connect to the Workspace platform for streaming services:

– WebSocket Secure (`wss:\\`) for encrypted connections, and
– WebSocket (`ws:\\`) for unencrypted connections

Additional customer-managed sites use this connectivity to create a connection to the local LSEG Real-Time Advanced Distribution Server.

Some proxy servers may not support (or have disabled support for) the WebSocket protocol, which may cause Workspace streaming-related features not to work.

You must do the following:

a. For Internet, allow WebSocket connectivity to the following URLs:

`*.refinitiv.com`

`*.refinitiv.net`

b. For Delivery Direct, allow WebSocket connectivity to the following URLs:

`*.refinitiv.biz`

`*.refinitiv.net`

5. In the **Streaming > Servers** panel, enter the LSEG Real-Time Advanced Distribution Server IP address and hostname, together with the port[35]. The default LSEG Real-Time Distribution System (formerly TREP) port for WebSocket is 15000.

Click **+** to add multiple servers, which are called in turn if connection to the Primary server fails.
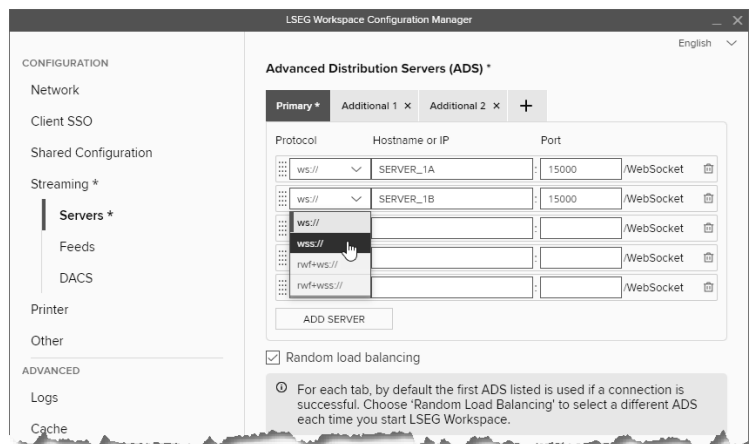
6. In the **Streaming > Feeds** panel, configure feeds provided by local LSEG Real-Time Advanced Distribution Server.

In supported Workspace versions, key letters[36] can be used as single-character shortcuts to additional feed sources. For example, LSEG Real-Time Advanced Transformation Server (formerly ATS) is key letter A.

For Office aliases[37], there is a limit of 32 characters.

---

[32] For further information about configuring Real-Time data, refer to Appendix F: Configuring Real-Time Data products.
[33] Other protocols can be configured in your shared configuration file. For more information, see the Streaming protocols section.
[34] The WebSocket(ws) protocol provides full-duplex communication channels over a single TCP connection. For further information, see RFC 6455: The WebSocket Protocol (rfc-editor.org).
[35] Only one server or DNS can be entered for each line.
[36] Workspace supports only standard ASCII (Latin) alphabetic characters. That is, the values A-to-Z or a-to-z.
[37] A subset of ASCII printable characters is supported. That is, the values a-to-z, A-to-Z, and 0-to-9. Special characters (#, $, &, and so on) are not supported.

7. In the **Streaming > DACS** panel, enter the LSEG Real-Time Data Access Control System[38] username and position.

8. In the **Printers** panel, select the default printer or output mechanism that is to be used to print trading tickets silently. That is, without the need to select the printer each time.
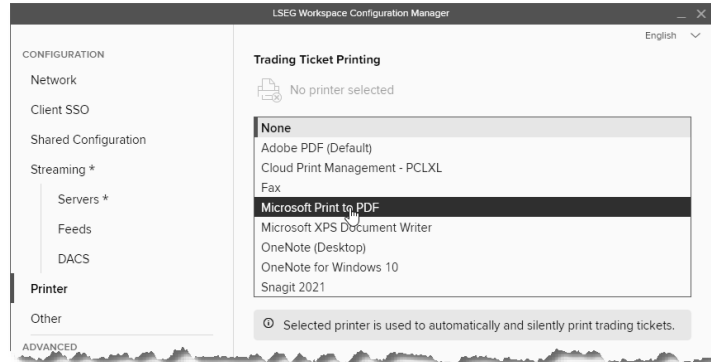
9. In the **Other** panel, you can choose whether Workspace is to run at above normal priority [39] by selecting the **Run At the highest Available Process Priority Level** checkbox. [40]

    You can also select whether links from LSEG apps open in Workspace or Eikon. [41]

    Finally, the **Select trading keypad mode** applies your chosen keypad lighting scheme to the LSEG FX trading keypad.
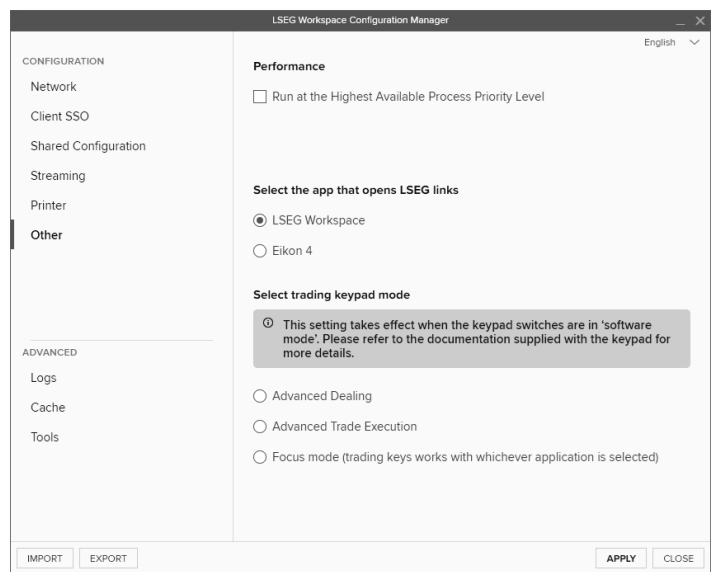
10. In the **Logs** panel, you can modify the default path for log files, changing from the folder path chosen during installation.

    You can choose the depth of logging required.

    You can also activate the web logger to troubleshoot networking issues.

---
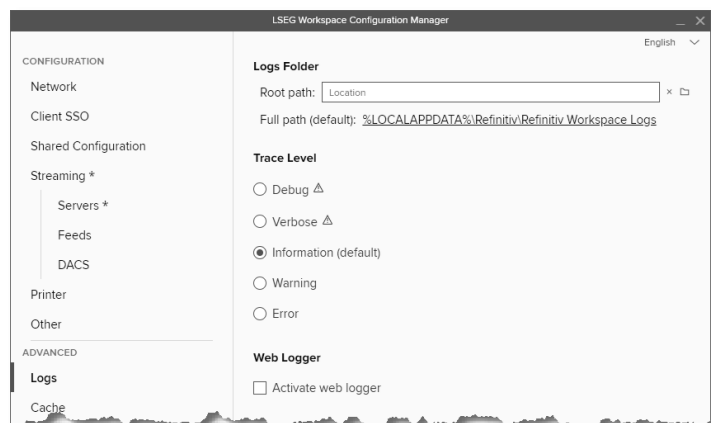
[38]   For further information about configuring Real-Time data, refer to Appendix F: Configuring Real-Time Data products.

[39]   Currently, this capability is for Workspace running on Windows only and will not affect the process priority of Workspace on macOS or the add-in running under Microsoft Office.

[40] This can also be achieved by using the command line parameter `--run-above-normal-priority`. For more information, see Workspace executable statements.

[41] You are unable to switch between Eikon 4.0 and Workspace where there was a Citrix installation of Workspace. In Citrix we do not support multiple applications to be installed concurrently (Jira ref: EFO-9593).

11. In the **Cache** panel, you can define a new folder location for cache files, changing from the folder path chosen during installation.

    You can also choose to clear all cache folders or only those folders of Electron or your Workspace apps.
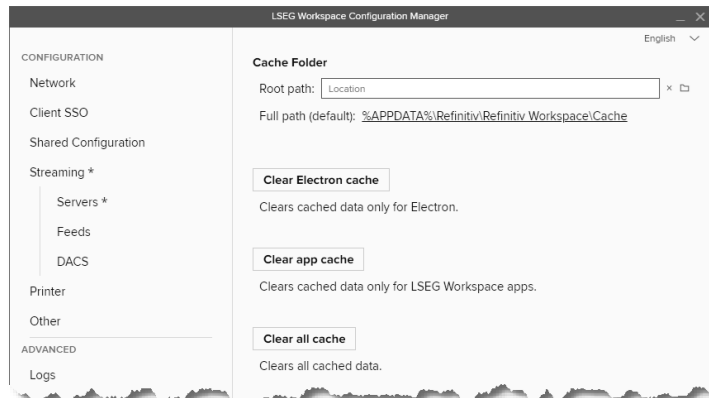
12. Finally, in the **Tools** panel, use the Eikon 4 configuration converter tool to convert an existing Eikon configuration file to Workspace-compatible `.json` format.

    For further information, see the section below.
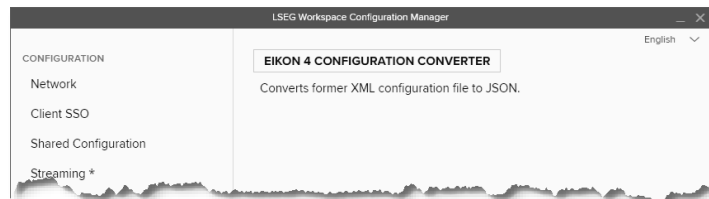
Converting and modifying an Eikon configuration file

For test purposes, in the **Tools** panel of the Configuration Manager, you can use the **Eikon 4 configuration converter** to convert an existing `OverrideConfiguration.xml` file to `.json` format.

To convert and modify an existing file:

1. Click Eikon 4 Configuration Converter.

2. Select your saved `.xml` file. For example:

    `\\myserver\config\refinitiv\OverrideConfiguration.xml`

3. Click **Open**.

    The file is converted, and the converted configuration file is then displayed.

4. Click **OK**.

5. [Optional] Change your Network and SSO configuration.

6. Check that the Streaming settings are correct and make any necessary changes.

7. Click **Export** to create a new file with a `.json` extension.

> **Warning:** The converted `.json` file still contains legacy configuration settings from Eikon, which could potentially raise issues.

Creating a new configuration file manually

To create a clean Workspace configuration file:

1. Delete your currently loaded configuration file.

2. Copy specific parameters from the Eikon Configuration Manager to the Workspace Configuration Manager.

Parameters in the Eikon Configuration Manager largely share the same names as their counterparts in Workspace. However, the following table lists the exceptions (parameter name and location):

Eikon	Workspace
Distributors Configuration: Customer Managed (Local Configuration Files) > Real-Time tab > ADS Connection – RSSL protocol	**Hostname or IP** Streaming > Servers
User Name Configuration: Customer Managed (Local Configuration Files) > Permissions tab > DACS Identification	**Username** Streaming > DACS

For more complex environments and further support, contact Workspace technical support, who can assist in converting the content of the `OverrideConfiguration.xml` and RFA.RFA-configuration-files.

Configuring Single Sign On (SSO) for Workspace web access

Required configuration for when LSEG is the Service Provider (SP):

−   Embed the Workspace Web access URL within the Identity Provider (IDP) initiated login URL. This redirects to Workspace after a successful login.

For example:

```
https:\\id-abc.com\abc-
sso\eikonweb?RelayState=https:\\workspace.refinitiv.com\web
```

The appropriate attribute name must be used, as indicated by the IDP software, for example, `RelayState` or `TargetResource`.

Appendix A: Folders and files

In this section

- Packages
- Server software
- Executable files
- Digital signatures
- Registry files
- Configuration file settings
- Shortcuts
- Default folder structures
- Proxies

Packages

This document can be used by IT to create an installation package and provide documentation for future updates to the application.

Download locations

You can download the latest version of the installation file, `RefinitivWorkspace-installer_x.xx.xx.exe`, from the locations listed in the table below.

Location	Link
Internet	https://www.lseg.com/en/data-analytics/products/workspace/download-workspace
Private network	https:\\workspace.extranet.refinitiv.biz

Executable file sizes

The installer executable size is operating system dependent:

Operating System	Size (Megabits)
Microsoft Windows	~100
Apple macOS	~200

Server software

Important: DACS Permission Synchronization for Workspace is recommended – rather than the Deployed Permissions Reconciliation Manager (DPRM) service - to prevent misconfiguration or permission issues between the Delivery Platform (formerly RDP) and local LSEG Real-Time Distribution System (formerly TREP).

While we recommend DACS, for information regarding the configuration of the DPRM service, refer to Appendix E: Settings.

Creating an internal connection

To create a connection to the LSEG Real-Time Distribution System, you must download the Data Dictionary from a LSEG Real-Time Connector (RTC) or LSEG Real-Time Advanced Distribution Server (formerly ADS).

However, to do so, you must do either of the following:

− Set `*maxOutputBuffers` in the LSEG Real-Time Distribution System to `5000`, or

− Use the following multi-part dictionary setting [42] to enable the download to be performed:

   `*<XYZ>*enableMultipartDictionary : True`

Executable files

The core installation of Workspace has the following executables:

Process Name	Service
RefinitivWorkspace.exe	LSEG Workspace (the main Workspace process)
Refinitiv-host.exe	Session Sharing Chrome Extension
RWupdaterService.exe	Software update installation service
Refinitiv.Workspace.BatchService.UserInteraction.exe	(Optional) Batch print service [43]
Setup.exe	Called by the main processes to perform various sub-processes

Workspace uses `.zip` for updates. This may change in future releases, when smaller (delta) installation packages are introduced.

Digital signatures

The executable (`.exe`) and dynamic link library (`.dll`) files are digitally signed.

From Workspace version 1.24, these files will be signed using new digital certificates. This code signing certificate retains the same **Issuer** value but has different **Subject** and **Thumbprint** values. The new certificates do not impact builds of Workspace released prior to version 1.24.

For further information, refer to PCN208112 - LSEG Workspace 1.24 - New digital certificate.

Digital certificates for Workspace 1.24 or higher

LSEG signature

Publisher	London Stock Exchange Group PLC
Subject	C=GB/S=London, City of/O=London Stock Exchange Group plc/CN=London Stock Exchange Group plc
Issuer	C=GB/O=Sectigo Limited/CN=Sectigo Public Code Signing CA R36
Thumbprint	5E56E4978E9D9F19C1298C55E1E6373DFAF44A6F
Expiration	Friday, April 24, 2026, 11:59:59 PM

macOS signature

Publisher	REFINITIV US LLC
Subject	C=US/O=REFINITIV US LLC/OU=YHNVBQZ486/CN=Developer ID Application: Refinitiv US LLC (YHNVBQZ486)/UID=YHNVBQZ486

---

[42]   No change to the `maxOutputBuffers` parameter is required.

[43] The Batch Print service is an optional download, used to print or save documents from the search results grid.
    The service can be downloaded using the following URL:
    https://\cdn.refinitiv.com\public\packages\batchsaveinstall\RefinitivWorkspaceBatchService.msi

Issuer	C=US/O=Apple Inc./OU= Apple Certification Authority/CN=Developer ID Certification Authority
Thumbprint	148A8BC109B61AB34D6688249545B40983E3DD44
Expiration	Friday, September 8, 2028, 03:17:30 GMT

Digital certificates for Workspace 1.23 or earlier

All Desktop and native apps files stamped with the previous or expired certificates are not affected by this change and will remain validly signed without any time limit.

Refinitiv signatures

Publisher	REFINITIV US LLC
Subject	C=US/PostalCode=10036/S=New York/L=New York/STREET=3 Times Square/O=REFINITIV US LLC/CN=REFINITIV US LLC
Issuer	C=GB/S=Greater Manchester/L=Salford/O=Sectigo Limited/CN=Sectigo RSA Code Signing CA

Publisher[44]	REFINITIV US LLC
Subject	C=US/S=New York/O=REFINITIV US LLC/CN=REFINITIV US LLC
Issuer	C=GB/O=Sectigo Limited/CN=Sectigo Public Code Signing CA R36
Thumbprint	faeb75e9e11605257a0c9b32c8c1f4aa61245276
Expiration	Friday, November 24, 2023, 11:59:59 PM

Microsoft signature

Publisher	Microsoft Corporation
Subject	C=US/S=Washington/L=Redmond/O=Microsoft Corporation/CN=Microsoft Corporation
Issuer	C=US/S=Washington/L=Redmond/O=Microsoft Corporation/CN=Microsoft Code Signing PCA 2010

macOS signature

Publisher	REFINITIV US LLC
Subject	C=US/O=REFINITIV US LLC/OU=YHNVBQZ486/CN=Developer ID Application: Refinitiv US LLC (YHNVBQZ486)/UID=YHNVBQZ486
Issuer	C=US/O=Apple Inc./OU= Apple Certification Authority/CN=Developer ID Certification Authority
Thumbprint	B69FD35BFD9D7FFE877DCF570A4EFC7D4E8ADCFA
Expiration	Wednesday, October 16, 2024, 14:47:34 GMT

Registry files

Installation mode	Description	Registry key	User
User	The registry is deployed only once, at installation time	HKCU[45]	Current user
Machine with an auto-update per user	The registry is deployed multiple times, as it depends on Active Setup	HKCU, HKLM	Every user (Separate user profile)
Machine with auto-update service or no auto-updates	The registry is deployed only once, at installation time.	HKLM[46]	Every user

---

[44]   For further information, refer to PCN 13469
[45]   HKEY_CURRENT_USER
[46]   HKEY_LOCAL_MACHINE

Configuration file settings

The following settings are customizable in your `.json` configuration file.

Setting	Customization
`EIKON.STREAMING.API.LOCAL.ALLOWHOSTEDFALLBACK`	Defining this setting as `false`, indicates that you do not want Workspace to fall back to the Common Platform hosted streaming servers. In this case, if the connection to all configured local server URLs fails, Workspace is unable to retrieve streaming data.
	By default, Workspace systematically attempts to connect to the Common Platform hosted streaming servers, if no local connection can be made.
`EIKON.STREAMING.API.LOCAL.DACS.APPLICATIONID`	This setting allows you to customize the DACS application ID, for Workspace it is 56 by default.
`CLIENTSSO_URL.ENABLED` `CLIENTSSO_URL`	Support Client SSO service to allow the user to use company credentials to login.

Shortcuts

There are two shortcuts created under the **Refinitiv** folder, found under the Start menu:

− Refinitiv Workspace

− Refinitiv Workspace - Excel

Default folder structures

The following table contains the default folder structures for User and Machine installations, and includes the location under which the structures are created:

Service	Location	Structure
User installation		

n/a	%LocalAppData%	`├──Refinitiv for Office`
		`│    └──1.20.68`
		`│         ├──config`
		`│         │    └──addin.config.json`
		`│         ├──Office_x64`
		`│         │    └──refinitiv-shim.dll`
		`│         └──Office_x86`
		`│              └──refinitiv-shim.dll`
		`├──Refinitiv Workspace`
		`│    |── com.refinitiv.workspace.sessionsharing.json`
		`│    |── install-settings.json`
		`│    |── installInfo.json`
		`│    |── Refinitiv-host.exe`
		`│    ├── RefinitivWorkspace.exe`
		`│    ├── locales`
		`│    ├── resources`
		`│    └── swiftshader`
		`├──Refinitiv Workspace Install Logs`
		`├──Refinitiv Workspace Logs`
		`├──Refinitiv Workspace.versions`
		`│    └──1.21.344`
		`└──Refinitiv Workspace.ToInstall`
		`     |──RFVWWindows_Core_1_21_276.zip`
		`     └──Extract`

	%AppData%	`└──Refinitiv Workspace`
		`     ├── Local State`
		`     └── Cache`

Machine installation		

`With auto-`
`update service`
	%ProgramFiles%	`├──Refinitiv for Office`
		`│    └──1.20.68`
		`│         ├──config`

Service	Location	Structure
| | | ```
|       |       └──addin.config.json
|       ├──Office_x64
|       |       └──refinitiv-shim.dll
|       └──Office_x86
|               └──refinitiv-shim.dll
└──Refinitiv Workspace
    ├──install-settings.json
    ├──RefinitivWorkspace.exe
    └──1.21.344
            ├──com.refinitiv.workspace.sessionsharing.json
            ├──installInfo.json
            ├──Refinitiv-host.exe
            ├──RefinitivWorkspace.exe
            ├──RWupdaterService.exe
            ├──locales
            ├──resources
            └──swiftshader
``` |
| | %ProgramData% | ```
├──Refinitiv Workspace
|   ├──pmInstallInfo.json
|   └──userInfo.json
├──Refinitiv Workspace Install Logs
├──Refinitiv Workspace.versions
|       └──1.21.344
└──Refinitiv Workspace.ToInstall
        ├──RFVWWindows_Core_1_21_276.zip
        └──Extract
``` |
| | %LocalAppData% | ```
└──Refinitiv Workspace Logs
``` |
| | %AppData% | ```
└──Refinitiv Workspace
    ├──Local State
    └──Cache
``` |
| With auto-update per user | %ProgramFiles%\Refinitiv | ```
├──Refinitiv for Office
|   └──1.20.68
|       ├──config
|       |       └──addin.config.json
|       ├──Office_x64
|       |       └──refinitiv-shim.dll
|       └──Office_x86
|               └──refinitiv-shim.dll
└──Refinitiv Workspace
    ├──com.refinitiv.workspace.sessionsharing.json
    ├──install-settings.json
    ├──installInfo.json
    ├──Refinitiv-host.exe
    ├──RefinitivWorkspace.exe
    ├──locales
    ├──resources
    └──swiftshader
``` |
| | %ProgramData%\Refinitiv | ```
├──Refinitiv Workspace
|   ├──pmInstallInfo.json
|   └──userInfo.json
|
└──Refinitiv Workspace Install Logs
└──Refinitiv Workspace.versions
        └──1.21.344
``` |
| | %LocalAppData%\Refinitiv | ```
├──Refinitiv for Office
|   └──1.20.68
|       ├──config
|       |       └──addin.config.json
|       ├──Office_x64
|       |       └──refinitiv-shim.dll
|       └──Office_x86
|               └──refinitiv-shim.dll
├──Refinitiv Workspace
|   ├──com.refinitiv.workspace.sessionsharing.json
``` |

Service	Location	Structure
		`│        ├──install-settings.json`
		`│        ├──installInfo.json`
		`│        ├──Refinitiv-host.exe`
		`│        ├──RefinitivWorkspace.exe`
		`│        ├──locales`
		`│        ├──resources`
		`│        │    ├──app.asar`
		`│        │    ├──deployment.asar`
		`│        │    ├──package.zip`
		`│        │    ├──REFINITIVEXCEL.ico`
		`│        │    ├──REFINITIVMESSENGER.ico`
		`│        │    ├──REFINITIVWORKSPACE.ico`
		`│        │    ├──versionInfo.json`
		`│        │    └──app.asar.unpacked`
		`│        └──swiftshader`
		`├──`**`Refinitiv Workspace Logs`**
		`└──`**`Refinitiv Workspace.ToInstall`**
		`         │──RFVWWindows_Core_1_21_276.zip`
		`         └──Extract`
	%AppData%\Refinitiv	`└──`**`Refinitiv Workspace`**
		`├──Local State`
		`└──Cache`
	%Temp%	`└──`**`Refinitiv Workspace Uninstall Logs`**
Without auto-update service	%ProgramFiles%\Refinitiv	`├──`**`Refinitiv for Office`**
		`│   └──1.20.68`
		`│        ├──config`
		`│        │    └──addin.config.json`
		`│        ├──Office_x64`
		`│        │    └──refinitiv-shim.dll`
		`│        └──Office_x86`
		`│             └──refinitiv-shim.dll`
		`└──`**`Refinitiv Workspace`**
		`├──com.refinitiv.workspace.sessionsharing.json`
		`├──install-settings.json`
		`├──installInfo.json`
		`├──Refinitiv-host.exe`
		`├──RefinitivWorkspace.exe`
		`├──locales`
		`├──resources`
		`└──swiftshader`
	%ProgramData%\Refinitiv	`├──`**`Refinitiv Workspace`**
		`│   ├──pmInstallInfo.json`
		`│   └──userInfo.json`
		`├──`**`Refinitiv Workspace Install Logs`**
		`└──`**`Refinitiv Workspace.versions`**
		`     └──1.21.344`
	%LocalAppData%\Refinitiv	`└──`**`Refinitiv Workspace Logs`**
	%AppData%\Refinitiv	`└──`**`Refinitiv Workspace`**
		`├──Local State`
		`└──Cache`
	%temp%	`└──`**`Refinitiv Workspace Uninstall Logs`**

Proxies

Qualified Proxy

Workspace is qualified with the following authenticated proxy:

Proxy	Authentication Method
Squid 2.7	– No authentication

	– Basic – Digest – NTLM – Kerberos
Squid 3.5.28	– Basic – Digest

HTTP/1.1 (or above) Compliant Proxy

Workspace requires HTTP/1.1. Workspace can attempt to use HTTP/2 but falls back to HTTP 1.1 if it is not viable.

It is vital that you use an HTTP/1.1+ Compliant Proxy to have the best connection between the Workspace key station and the LSEG Platform on the head end.

Important: The Streaming Service requires a *keep alive* or *persistent* connection, which is supported in the HTTP/1.1 specification.

Appendix B: Software information and support

In this section

- Documentation locations
- Export control classification
- Hosted connection item limits
- About LSEG Workspace dialog
- Data dictionary support
- Local mode support

Documentation locations

Workspace technical content can generally be found in two locations:

- The documentation section of the LSEG Workspace page. These documents are searchable using all popular search engines (such as Google or Bing).
- Under the Workspace section of MyAccount (formerly MyRefinitiv), the authenticated website.

Where documents are to be found in other locations, these are provided in the table below:

Documentation	Location(s)
Workspace Administration Panel Configuration	A description of the functions of the Workspace Administration Panel can be found in the Configuration Guide.
Workspace System Requirements	The system requirements documentation can be found in the System Requirements document.
LSEG Real-Time Data Access Control System (formerly DACS)[47]	The DACS permission synchronization requirements can be found in the DACS Permission Synchronization Configuration Guide, under the DACS section of the authenticated website.
LSEG Real-Time Advanced Distribution Server[48] (formerly ADS)	An overview of the ADS WebSocket connection configuration can be found in the ADS Software Installation Manual, under the Advanced Distribution Server (ADS) section of the authenticated website.
LSEG Real-Time Advanced Distribution Hub (formerly ADH)	Content covering the installation and configuration of the LSEG Real-Time Advanced Distribution Hub can be found in the Advanced Distribution Hub section of the authenticated website.
Financial Community Network (FCN) and Delivery Direct	For further information about FCN and Delivery Direct, see the Private Network Overview section of the authenticated website.
Chrome Extension	For further information about the Google Chrome extension, see the Chrome Extension Installation Guide.
Release Notes	A summary of the features in the latest release of Workspace can be found in the Release Notes document.
Service Description	The Workspace Service Description document can be found in the Service Description document.
Workspace Vendor Subservice Definitions	A list of the Products, Exchanges, and Specialist Data definitions can be found in the Vendor subservice definitions document. These are managed using the LSEG Real-Time Data Access Control System (DACS).

---

[47]   DACS Permission Synchronization for Workspace is recommended – rather than the DPRM service - to prevent misconfiguration or permission issues between the Delivery Platform (formerly RDP) and local LSEG Real-Time Distribution System (formerly TREP).
While we recommend DACS, for information regarding the configuration of the DPRM service, refer to Appendix E: Settings.

[48]   For further information about configuring Real-Time data, refer to Appendix F: Configuring Real-Time Data products.

Documentation	Location(s)
Technical Roadmap	A tabular summary of known significant changes to upcoming releases of Workspace can be found in the Technical roadmap document.

Export control classification

The following table contains export control classification details for Workspace:

Program Name	Refinitiv Workspace
ICOS Reference	6420
Program Version	1.x
Sub-Products	6413 for Windows & 6414 for macOS

ECCN (United States)	EAR99
ECCN (European Union)	None
Refinitiv Export Code	NL
Export Note	This export code means 'Not Licensable' and is applied to items that can be exported 'no license required', under both EU and US regulations. Exports of NL items can be made to all countries except embargoed countries (Iran, Syria, North Korea, Cuba, or Crimea).
US Commerce, BIS CCATS number	self-classified

Hosted connection item limits

For the deployed desktop hosted connection, the Item limit is 2500. This can be extended to 5000, with a fee-liable Product Line Item (PLI) add-on.

Once the limit is reached, a message is displayed in the **About LSEG Workspace > Streaming** panel.

About LSEG Workspace dialog

The **About LSEG Workspace** dialog box provides information about the viewed Workspace installation and environment.

To open the **About LSEG Workspace** dialog, In Workspace:

– Click **Help > About Refinitiv Workspace**

The dialog box divides information over five panels:

– **System Status** contains Workspace version and variant information, together with service connection

details and an overview of the computer on which this iteration of Workspace is running.

Streaming contains information about real-time data sources, including the primary feed used, RICs used[49] (subscriptions), and any other feeds provided through a local LSEG Real-Time Distribution System.

– **User Details** contains information about the currently logged in user, including their email address, their user unique identifier (UUID), job role, and location information.

– Along with the proxy URL and version, the **Data API Proxy** panel also contains information about the status of the proxy, indicating whether it is available for external connections.

– **Services & Apps** contains version information about services and apps that have been made available to the user.

Data dictionary support

Access to a Data Dictionary is only supported from a LSEG Real-Time Advanced Distribution Server[50] (formerly ADS).

Local mode support

The Local Mode feature, as found in Eikon, is not supported.

---

[49]   See the Hosted connection item limits section.
[50]   For further information about configuring Real-Time data, refer to Appendix F: Configuring Real-Time Data products.

Appendix C: Command line statements

In this section

– Installation statements

– Uninstallation statements

– Configuration Manager parameters

– Workspace executable statements

Installation statements

The table below list command line statements that can be used to install Workspace:

RELATED LINKS
– Performing an installation using your Single Sign On URL

Installation mode	Command
Base commands	
User [51]	`RefinitivWorkspace-installer_x.xx.xx.exe --user`
Machine	`RefinitivWorkspace-installer_x.xx.xx.exe --machine-autoupdate-peruser`
Machine without Auto-Update	`RefinitivWorkspace-installer_x.xx.xx.exe --machine-autoupdate-no`
Machine with Update Service	`RefinitivWorkspace-installer_x.xx.xx.exe --machine-autoupdate-service`
SSO	`RefinitivWorkspace-installer_x.xx.xx.exe --client-sso=<client SSO URL>`
Installation help page	`RefinitivWorkspace-installer_x.xx.xx.exe --help`
Run Messenger only	`RefinitivWorkspace-installer_x.xx.xx.exe --messengeronly`
Shared configuration [52] [53]	
Additional parameter	`--sharedconfig="<file path>"`
Failover	`--sharedconfig="<file path-1>";"<file path-2>";"<file path-3>"`

Uninstallation statement

The table below list command line statements that can be used to uninstall Workspace:

Command
`RefinitivWorkspace.exe --uninstall`

Configuration Manager parameters

The table below list command line statements that can be used to configure Workspace:

Installation mode	Command
User	`"<InstallDir>\Refinitiv\Refinitiv Workspace\RefinitivWorkspace.exe" --config-manager`
Machine or Hot-Desking	`"<InstallDir>\Refinitiv\Refinitiv Workspace\RefinitivWorkspace.exe" --config-manager --machine`

---

[51]   This is the default method of installing Workspace. As such, the `--user` parameter is not a requirement.

[52]   For example, `RefinitivWorkspace-installer_x.xx.xx.exe --machine-autoupdate-peruser --sharedconfig="<file path>"` is the command line for a machine installation with a shared configuration.

[53]   The content of the file(s), identified by the `--sharedconfig` parameter, could change from version-to-version. So, refer to the appropriate documentation for amendments to this parameter when there is a new release.

Workspace executable statements

There are various parameters you can add to the Workspace executable, located in the `%ProgramFiles%\Refinitiv\Refinitiv Workspace\<version>\` folder.

The command line structure is:

`RefinitivWorkspace.exe <Parameter>`

For example:

`RefinitivWorkspace.exe --connection=internet`

The following parameters are available:

Parameter	Purpose
`--clearCache`	Clear the Electron cache of Workspace
`--clearLogs`	Clear the logs folder of Workspace
`--clearRememberMe`	Delete the automatic login cookie
`--client-sso=<url>`	Set the URL for your SSO
`--dumpApps`	Dump available Apps of Workspace into the logs folder
`--dumpConfig`	Dump the configuration of Workspace into the logs folder
`--excel`	Start Excel with the **Workspace** ribbon add-in
`--log-level=<level>`	Set the level of detail for log files, where `<level>` is: – error – warning – information – verbose – debug
`--resetCache`	Reset the product cache of Workspace to its default state
`--systemtest`	Run the embedded System Test [54]
`--uninstall`	Uninstall Workspace
`--update-office-registry=<value>`	Used to update the office registry key, where `<value>` is either HKLM or HKCU. For further information, see Excel add-in loading issues.
`--upload-logs`	Upload log files
`--version`	Show the version of Workspace [55]
`--versions`	Display the version of underlying components of Workspace, for example: `--versions=electron, node` (or simply `--versions`)
`--nofile`	Start system tray icon only

Installer command line statements

Currently, only the following command line statement is available, which enables Workspace to run at a higher processing priority:

`RefinitivWorkspace-installer_x.xx.xx.exe --run-above-normal-priority`

---

[54]   For further information regarding the System Test applications, refer to the Workspace System Test Guide.

[55]   On macOS, for this command to work as intended, go to the `/Applications/Refinitiv Workspace.app/Contents/MacOS` folder and run the command, `./RefinitivWorkspace --args --version`.

Appendix D: Automatic update workflow

The content in this appendix applies to the following installation types:

- `--user`
- `--machine-autoupdate-peruser` [56]
- `--machine-autoupdate-service`

The `--machine-autoupdate-no` installation mode is not discussed, as automatic update functionality is disabled for that mode.

Device and installation registration

1. Login into Workspace

2. During the first minute after login, `RefinitivWorkspace.exe` retrieves installationGUID from `installinfo.json`.

   - If installationGUID is not found in `installinfo.json`, it is created using `guid.json` [57]
   - If `installinfo.json` does not exist, it is created automatically

- Depending on the installation method, `installinfo.json` is in one of the following locations:

Method	Location
User	C:\Users\%Username%\AppData\Roaming\Refinitiv\Refinitiv Workspace\
Machine with auto update per user	<install path>\Refinitiv\Refinitiv Workspace\
Machine with auto update service	%programdata%\Refinitiv\Refinitiv Workspace\

3. `RefinitivWorkspace.exe` sends a request to **Desktop Deployment Portal** to do the following:

   a. Check whether the device is registered on Desktop Deployment Portal and, if not, add the new device

   b. Add a login history record

Checking new version availability

Randomly, between 5-60 minutes after login, `RefinitivWorkspace.exe` checks [58] the availability of the new target version for the current user. Version checks are then scheduled daily, at 00:*<randomMinutes>*.

4. Checks the new version with **Admin Panel**[59]

5. Checks the new version with **Desktop Deployment Portal**

---

[56] For `--machine-autoupdate-peruser` mode only: To update the master installation automatically (bulk autoupdate), the administrator should get the latest version and reinstall Workspace. All users, that have a lower version than the master installation, are updated to the new version of master installation automatically, with the active setup, once they log off from Windows, and log in again.

[57] Guid.json is located under C:\Users\%Username%\AppData\Roaming\Refinitiv\Refinitiv Workspace\

[58] This check can also be triggered by opening the **About Box**.

[59] For further information, see the Administration Panel Configuration Guide.

Changing the update time

To change update time after login, use the command `--checkupdateTime=<n>`, where:

- `--checkupdateTime=0` – Checks for a new version instantly after login

- No parameter set – Checks for a new version randomly between 5-60 minutes after login

Setting up a custom scheduler

To set up a custom scheduler to check for new versions, use the command:

`--autocheckupdatetime=<a> <b> <c> <d> <e>`

Where:

<a>	Day of week (0 – 7, where 7 is Sunday). You can also use names, that is, Monday, and so on.
<b>	Month (1 - 12)
<c>	Day of month (1 - 31)
<d>	Hour (0 - 23)
<e>	Minute (0 - 59)

For example, for an update check to be performed every Sunday, at 5:30 PM, use the command:

`--autocheckupdatetime=7 * * 17 30`

If a new version is detected see the next steps.

Downloading a version and preparing for upgrade

1. Workspace receives the target version information (including URL) and automatically downloads the zipped package.

Calling process	RefinitivWorkspace.exe
URL	`https:\\cdn.refinitiv.net\public\packages\RFVWWindows\RFVWWindows_Core_x_xx_xxx.zip`
Installation type	`Download location`
--user	`%AppData%\Local\Refinitiv\Refinitiv Workspace.ToInstall`
--machine-autoupdate-peruser	
--machine-autoupdate-service	`%programdata%\Refinitiv\Refinitiv Workspace\Refinitiv Workspace.ToInstall`

2. Workspace extracts the files from the zipped file to a newly created `Extract` folder

Calling process	`RefinitivWorkspace.exe`
Unzip tool	yauzl node_module [60]
Extract location	*<Download location>*`\Extract`

---

[60]   https:\\www.npmjs.com\package\yauzl

Checking new package with Desktop Deployment Portal

1. Checks whether the content in the `Extract\checkUpdateInfo.json` matches the content received from the Desktop Deployment Portal (by checking the file hash code):

If…	Then…
Yes	Skip downloading the new package and wait for the upgrade initiation
No	Delete the downloaded package and `Extract` folder

2. Download the new package, with the updated `Extract\CheckUpdateInfo.json` content (see Downloading a version and preparing for upgrade)

Initiating an update

1. The persons required to perform this step depend on the installation type:

Installation type	Performed by
`--user`	The user of the machine where Workspace was installed
`--machine-autoupdate-peruser`	Each Workspace user on the machine where the application was installed
`--machine-autoupdate-service`	Any user of the machine(s) where Workspace was installed

- To begin the upgrade, do one of the following:
  - Select the **Help** menu, choose **About Refinitiv Workspace**, and click the **Upgrade now** button.
  - Select the **Refinitiv Workspace** menu and choose:
    - **Sign Out**, or
    - **Exit Refinitiv Workspace**

2. `RefinitivWorkspace.exe` runs an `Extract\setup.exe` command, with arguments based on `setupArgs`, defined in `CheckUpdateInfo.json`.

Installation type	Example command
`--user` `--machine-autoupdate-peruser`	setup.exe --update --rerun --silent --forceInstall --calledByCheckupdate --execute=RefinitivWorkspace.exe --appLocation=C:\\Users\\%Username%\\AppData \\Local\\Refinitiv\Refinitiv Workspace
`--machine-autoupdate-service`	setup.exe --update --rerun --silent --forceInstall --calledByCheckupdate --execute=RefinitivWorkspace.exe --appLocation=C:\\Program Files\\Refinitiv\Refinitiv Workspace\\1.19.447

Upgrade workflow

The following actions are performed by `Extract\Setup.exe`:

1. Waits for several seconds until `RefinitivWorkspace.exe` is terminated [61]

2. Performs a backup of installation folders, based on the information in the `files` section of `InstallInfo.json`

---

[61]   If `RefinitivWorkspace.exe` has not been terminated, `Setup.exe` force-kills the process.
    For `--machine-autoupdate-service` mode: Only the instigating user is required to terminate their Workspace session.

a. `--machine-autoupdate-service` only: Checks whether Workspace is in use by another user:

If…	Then…
Yes	Go to step 2.c.
No	Go to step 2.b.

b. Backs up the Workspace installation folder:

Installation type	Installation folder	Backup location
`--user` `--machine-autoupdate-peruser`	`Refinitiv Workspace`	*<install_path>*`\Refinitiv Workspace.Backup`
`--machine-autoupdate-service`	`Workspace` *<Version>*	*<install_path>*`\Refinitiv\Refinitiv Workspace\`*<Version>*`.Backup`

c. `--machine-autoupdate-service` mode only: Checks whether Microsoft Office is in use by another user on the same machine:

If…	Then…
Yes	Go to step 2.e.
No	Go to step 2.d.

d. Backs up the Refinitiv for Office installation folder:

Installation type	Installation folder	Backup location
`--user` `--machine-autoupdate-peruser`	`Refinitiv for Office`	*<install_path>*`\Refinitiv for Office.Backup`
`--machine-autoupdate-service`	`Office` *<Version>*	*<install_path>*`\Refinitiv for Office\`*<Version>*`.Backup`

e. `--machine-autoupdate-service` mode only: Performs a backup of the Update Service installation folder:

Installation type	Installation folder	Backup location
`--machine-autoupdate-service`	`Update Service` *<Version>*	*<install_path>*`\Refinitiv Workspace Update Service\`*<Version>*`.Backup`

3. Backs up the `shortcuts` folder, based on the information in the `shortcutsFolder` section of `InstallInfo.json`:

Installation type	Backup location
`--user` `--machine-autoupdate-peruser`	`%appdata%\Refinitiv\Refinitiv Workspace\Backup\`*<randomname>*`-backupShortcut\`
`--machine-autoupdate-service`	`%programdata%\Refinitiv\Refinitiv Workspace\Backup\`*<randomname>*`-backupShortcut\`

4. Creates new folders and installs files:

Installation type	Workspace location	Office location	Update Service location
`--user` `--machine-autoupdate-peruser`	`<install_path>\Refinitiv Workspace`	`<install_path>\Refinitiv for Office`	`n\a`
`--machine-autoupdate-service`	`<install_path>\Refinitiv Workspace\<Version>`	`<install_path>\Refinitiv for Office\<Version>`	`<install_path>\Refinitiv Workspace Update Service\<Version>`

5. Installs shortcuts:

Installation Type	File location
`--user`	`%AppData%\Microsoft\Windows\Start Menu\Programs\Refinitiv`
`--machine-autoupdate-peruser`	− `%AppData%\Microsoft\Windows\Start Menu\Programs\Refinitiv`

Installation Type	File location
–	`%ProgramData%\Microsoft\Windows\Start Menu\Programs\Refinitiv`
`--machine-autoupdate-service`	`%ProgramData%\Microsoft\Windows\Start Menu\Programs\Refinitiv`

6. Installs Add Remove Programs (ARP) registry entries for Workspace

7. Checks whether Workspace was installed with `–messengeronly` parameter:

If…	Then…
Yes	Go to step 9
No	Go to step 8

8. Installs Office Registry and Office Add-ins

9. Creates `install-settings.json`, containing settings for Microsoft Office, providing the location for Workspace and Office add-ins:

Installation Type	File location
`--user` `--machine-autoupdate-peruser`	`<install_path>\Refinitiv\Refinitiv Workspace\`
`--machine-autoupdate-service`	`<install_path>\Refinitiv\Refinitiv Workspace\<version>`

10. Creates `com.refinitiv.workspace.sessionsharing.json`, providing Chrome extension settings and the location of the `Refinitiv-host.exe` file:

Installation Type	File location
`--user` `--machine-autoupdate-peruser`	`<install_path>\Refinitiv\Refinitiv Workspace\`
`--machine-autoupdate-service`	`<install_path>\Refinitiv\Refinitiv Workspace\<version>`

11. Checks whether the installation was completed successfully:

If…	Then…
Yes	Removes backup folders [62]
No	Removes all newly installed files and restores backup folders. Ends the installation with an error message.

12. Creates `InstallInfo.json`, in a mode-specific location, and writes new installation information, such as installation paths, shortcut paths, and so on:

Installation Type	File location
`--user` `--machine-autoupdate-peruser`	`<install_path>\Refinitiv\Refinitiv Workspace\`
`--machine-autoupdate-service`	`<install_path>\Refinitiv\Refinitiv Workspace\<version>`

13. If the update was triggered by signing out, it relaunches Workspace with `--startApp`

---

[62] For the `machine-autoupdate-service` only: If Workspace is in use at the time of update, the previous `<Version>` folders under `Refinitiv Workspace` and `Refinitiv for Office` are preserved. Once all users have logged out of their devices and logged in again, access to the new Workspace version is facilitated using Active Setup.

Appendix E: Settings

In this section

- [Networking](#)
- [Microsoft Office settings](#)
- [Security](#)
- [Enabling the DPRM service](#)

Networking

Ports

Workspace uses the following connections:

API [63]	Connection	Port [64]
Desktop Data API	`http:\\localhost:9000\api\`	9000
Side by Side API [65]	`http:\\localhost:9000\sxs\`	9000
Refinitiv Workspace Bus	`http:\\localhost:49152\`	49152

Communication protocols

Protocol	Port Number	Workspace Services	Required For
TCP	1024+ → 443 1024+ ← 443	LSEG Workspace Platform	Administration Services View Service Search & Navigation Service Time Series Service Workspace Messenger Service, Trading Service Update Service Thomson Reuters Remote Support (TRRS) Datastream Service Newscasts (internet only) FXall Flextrade Spark Real-Time Data
TCP	1024+ → 15000 1024+ ← 15000	Real-Time Data	LSEG Real-Time Advanced Distribution Server[66] (formerly ADS)
TCP\UDP	1024+ → 53 1024+ ← 53	DNS Server	Domain Name Resolution from Domain Name Server

Services

This section summarizes the services and features related to connectivity and provides links to further information.

---

[63]   You can find further information regarding APIs on the Developer Community website.

[64]   9000 and 49152 are internal ports. If the port is already in use, Workspace increments until a free port number is found:
- for Desktop Data and Side by Side, from 9000, and
- for Workspace Bus, from 49152

[65]   For further information, see Workspace Web Side by Side API on the Developer Community website.

[66]   For further information about configuring Real-Time data, refer to Appendix F: Configuring Real-Time Data products.

Financial Community Network and Delivery Direct

To access new AWS service endpoints, customers using a private network must whitelist the following new IP addresses, which impact Delivery Direct, FCN, and CMC users:

- 159.43.192.0/23 (AMERS)

- 159.43.200.0/23 (EMEA)

- 159.43.208.0/23 (APAC)

For further information about Finance Community Network (FCN) and Delivery Direct, see the Private Network Overview section of MyAccount (formerly MyRefinitiv), containing the following documents:

- Customer Connectivity DNS Migration Guide

- FCN Customer Connectivity Guide

Internet

LSEG will not divulge IP address information under any circumstances. Doing so prevents us from changing IP addresses, as and when needed, without a notification period. These IP addresses may not always be under our direct control.

Transport Layer Security protocol

From 01 June 2023, to continue to use LSEG Real-Time services[67], you must ensure that use of TLS version 1.2 is enabled for all Workspace users.

To enable TLS 1.2:

1. In Windows, click Start

2. Open the Control Panel app and choose **Network and Internet**

3. In the Network and Internet panel, choose **Internet Options**

4. In the Internet Properties dialog, shown opposite, select the **Advanced** tab

5. Scroll to the Security section (at the end of the settings list) and select **Use TLS 1.2**

For further information, refer to PCN205244-Change in supported TLS protocols for Eikon and Workspace.

Web hosted services

The following services and features are accessed through the Internet and not reached through a private network:

MyRefinitiv (my.refinitiv.com)	The authenticated documentation repository.
Contact Us	For raising questions, issues, and other topics.
Desktop crash dump upload utility	Sends data to the LSEG support platform. This is in case a user has a session crash. The crash data is sent from the user session to Refinitiv, so we can investigate the crash.

---

[67]   For further information about configuring Real-Time data, refer to Appendix F: Configuring Real-Time Data products.

GetSupport or interactive Chat	Where feedback / support issues are logged, and you can establish a chat dialogue with an agent.
Messenger Traffic	All traffic will be over internet, by default. [68]
Portal SDK starter kit (cdn.refinitiv.com)	Software Development Kit (SDK) is a toolkit that you can use to interact with the app and our platform. This is hosted on CloudFront.
Chrome Extension	This is accessed from an external web site, either by the user going to the Google store, or through enterprise set-up.

Content filtering domains

You need to whitelist the domains for content that can be accessed through Workspace.

Important: Third Party apps in Workspace may require access to specific domains. For information about specific access requirements, it is advisable to contact the app developer directly.

Example domain list

The following list of domains is not exhaustive and is for illustrative purposes only.

ⓘ Many of the domains listed in the table below are wildcard values, where a subdomain may prepend and/or append the listed domain.

DNS	Workspace services
autex.com autexnow.com	Autex
authenticator.pingone.com idpxnyl3m.pingidentity.com	Multi-factor Ping Authenticator app
bit.ly reut.rs tmsnrt.rs	Bit.ly Integration Information
trmcs-documents.s3.amazonaws.com	Central Bank Polls
session.rservices.com	Contribution address, News documents
cnbc.com ft.com moodys.com	Miscellaneous external content
googleapis.com	Google
chrome.google.com	Workspace Chrome Extension
virtualearth.net thomsonreuters.wdtinc.com	Interactive Map
lipperweb.com	Lipper Market Insight
loanconnector.com	Loan Connector
loanpricing.com	Loan Pricing
depth.finance	Market Depth
cdn.mathjax.org	MathJax JavaScript display engine
storage.tr.191.it thomsonone.com ws.platts.com	News Documents
reuters.com breakingviews.com	News URL link

---

[68]   This is not the case when private line connectivity is enabled for Workspace Messenger. For further information, see Appendix E: Workspace Messenger standalone.

DNS	Workspace services
refinitiv.com refinitiv.net refinitiv.biz thomsonreuters.com thomsonreuters.net thomsonreuters.biz	LSEG
globalrelay.com	Workspace Messenger Compliance
salesforce.com webtrendslive.com	Refinitiv Migration Tools
kaltura.com reuters.tv vmnd.tv	Newscasts (formerly Reuters Insider)
cxvid-livecapture.s3.amazonaws.com	Newscasts (formerly Reuters Insider): Recording Video and Images
thomson.112.2o7.net	Newscasts (formerly Reuters Insider): Analytics and user interaction reporting
gstatic.com apis.google.com bv-predictions2021.com cloudfront.net google-analytics.com googletagservices.com product.datastream.com themes.googleusercontent.com trust.org views.rkd.reured.com	Reuters Interactive graphics
bing.com	Search engine
media-server.com	Street Event content
comodo.com	TLS/SSL Client Certificate (HTTPS)
tradeweb.com	Tradeweb
fxall.com	Trading Service
pbs.twimg.com twitter.com	Twitter integration
wom.finance	Wealth Order Management
awsglobalaccelerator.com	
avatars.stocktwits.com	Social Media Monitor
img.en25.com eloqua.com	LSEG Training
salesforceliveagent.com	Support
oneaccess.io	OneAccess
dtn.com	Weather layers in InteractiveMap app

Trusted root certification

You can download and verify the appropriate certificate from the appropriate location, defined in the table below:

Internet	https:\\cipher-test.refinitiv.com\
Private network	https:\\cipher-test.extranet.refinitiv.biz\

Certificate details:

Workspace version		Issued by	CN	O	C
1.23 and earlier	COMODO	COMODO RSA Certification Authority	COMODO RSA Certification Authority	COMODO CA Limited	GB

Workspace version	Issued by	CN	O	C
1.24 and later	Sectigo	Sectigo Public Code Signing CA R36	Sectigo Public Code Signing CA R36	Sectigo Limited	GB

Microsoft Office settings

Workspace for Excel VSTO add-in

For the Microsoft Excel Visual Studio Tools for Office (VSTO) add-in, Workspace installs a single DLL file under the Windows operating system, `refinitiv-shim.dll`. This supports the core features of the Refinitiv Workspace - Excel (**Workspace** ribbon) add-in.

MS Office	File location
32-bit	`<Install_path>\Refinitiv\Refinitiv for Office\x.x.x\Office_x86`
64-bit	`<Install_path>\Refinitiv\Refinitiv for Office\x.x.x\Office_x64`

There is no linking, presentation tools, or deal analytics package.

Workspace add-in

The Refinitiv Workspace - Excel (**Workspace** ribbon) add-in changes are listed in the table below:

Version	Add-ins
1.22	No changes
1.21	=RDP.FxSwpToSwp() =RDP.FxDepToSwp() =RDP.FxSwpToDep() =RDP.FxSpot() =RDP.FxInfo() =RDP.FxZcToFra() =RDP.DateAdjToWD() =RDP.DateCountPeriods() =RDP.DateFindDate() =RDP.DateIsWD() =RDP.DateLastWD() =RDP.DateListHolidays() =RDP.Adinterp()
1.20	No changes
1.19	No changes
1.18	No changes
1.17	No changes
1.16	=RDP.Publish() =RtContribute()[69] =RDP.PublishChain() =RtContributeChain() =DSCHART()
1.15	No changes
1.14	No changes
1.13	No changes
1.12	=TRAggregate() =RDP.Aggregate() =RDP.Analytics() =RDP.Data() =RDP.HistoricalPricing() =RDP.Price()
1.11	=RDP.Today() =RDP.Now()
1.10	=RtToday()

---

[69] See Contributions (RtContribute) in the Appendix J: Known issues section.

Version	Add-ins
	=RtNow()
1.9	Refinitiv.EmbeddedApplication (financial chart) =DSGRID() =Thomson.Reuters.AFOSpreadSheetFormulas.DSGRID() =RDP.Search()
1.8	=RHistory() =RtGet() =TR()

Customer managed over Internet

Customer managed over Internet mode is a sub deployment, where Workspace connects the real time data on a user's own local LSEG Real-Time Distribution System (formerly TREP) infrastructure, while other content is sourced from the Delivery Platform (formerly RDP), through the Internet.

To configure this:

1. In Workspace, open Configuration Manager.

2. In the **Network** panel, under **Connection Type**, select **Internet**.

3. In the **Streaming** panel, under **Streaming Data Retrieval**, select **From a local LSEG Real-Time Advanced Distribution Server (ADS)**[70].

4. This opens three separate panels – **Servers**, **Feeds**, and **DACS** – where you can add your server and feed information.

Security

FIPS

Workspace is not supported in a 140 series Federal Information Processing Standards (FIPS) environment.

User Agent

A User Agent is an application that retrieves and presents Web content for users or is implemented using Web technologies.

Workspace identifies connections to the ADS User Agent. For example, this could contain the following string and version:

`RFV-Workspace\<version>`

Where the `<version>` is updated to match the Workspace executable version.

---

[70]   For further information about configuring Real-Time data, refer to Appendix F: Configuring Real-Time Data products.

Appendix F: Configuring Real-Time Data products

This appendix provides an overview of the configuration requirements to establish a connection between Workspace and a local LSEG Real-Time Advanced Distribution Server (formerly ADS).

In this section

Network requirements

Bandwidth	Workspace Desktop: 175 kb/s Workspace Web: 100 kb/s
Firewall	*.refinitiv.com *.refinitiv.biz *.refinitiv.net
Ports	15000 443

The Bandwidth figures were calculated based on the bandwidth used over a several-week period using typical Investment Banking and Wealth Advisor watchlists. Actual bandwidth utilization will vary based on the actual number of symbols in your environment and the frequency at which those instruments update.

Real-Time product version compatibility

For LSEG Workspace, the following Real-Time product versions are recommended:

Product	Version
Real-Time Advanced Distribution Server[71]	3.6 or higher (3.7 or higher for RWF data)
LSEG Real-Time Data Access Control System (formerly DACS)	7.2 or higher

---

[71]   For additional information regarding the Real-Time Advanced Distribution Server encryption capabilities offered by version 3.8, see the Local connection security parameters section.

Connection configuration

WebSocket is an industry-standard, bidirectional communication protocol that sends data between client and server by reusing the established connection channel. The connection is kept alive until terminated by either the client or the server.

Important: Raw TCP IP (for example, RSSL) connections are not supported by LSEG Workspace.

Protocol support

LSEG supports[72] the following communication protocols for use with LSEG Workspace. However, we recommend RWF over secure WebSocket.

Option	Data format	Scheme	ANSI page support	Price formatting support[73]	RTDS or ADS 3.7 or higher	Reduced CPU use	OpenFin compatible
RWF over secure WebSocket[74]	RWF	rwf+wss://	●	●	●	●	●
RWF over WebSocket	RWF	rwf+ws://	●	●	●	●	
JSON over secure WebSocket	JSON	wss://					●
JSON over WebSocket	JSON	ws://					

Local connection security parameters

Real-Time Advanced Distribution Server version 3.8 supports the use of simultaneous encrypted and unencrypted connections, without impact the performance or resource usage of Workspace, to the same server.

That is, it supports connection through multiple ports, where one or more ports are configured as encrypted, and one or more ports are configured as unencrypted.

For further information about WebSocket configuration options, including the configuration parameters in the sections below, refer to the **WebSocket Connection** chapter of the Real-Time Advanced Distribution Server System Administration Guide. This can be found in the Real-Time Advanced Distribution Server section on MyAccount (formerly MyRefinitiv).

Connections secured with certificates

Certificates can be used to establish secured connection between the Real-Time Advanced Distribution Server and the end user.

Certificates require the following parameters[75] (highlighted in bold) to be added to the Real-Time Advanced Distribution Server configuration (.cnf) file:

```
*ads*allowwsconnections : true
*ads*${port}*connectiontype : 1
*ads*${port}*servercert : <certificate path>
*ads*${port}*serverprivatekey : <private key path>
```

---

[72]   Currently, the LSEG Real Time Managed Distribution System does not support secured and encrypted connections.
[73]   Fractions and trailing zeroes for price values.
[74]   For requests to LSEG, the Hosted Market Data System (HMDS) connection uses rwf+wss:// protocol.
[75]   Refer to the **Advanced configuration** section of the **WebSocket Connection** chapter in the Real-Time Advanced Distribution Server System Administration Guide

Encrypting certificates

To encrypt certificates, do the following:

1. Generate the certificates on the server that hosts your Real-Time Advanced Distribution Server.

2. Define the certificate private key path and certificate path in your Real-Time Advanced Distribution Server configuration file.

Enable encryption in your configuration, defined in your local connection security parameters[76].

Self-signed certificates

While not recommended as an approach, self-signed certificates can be used to establish secured connection between the Real-Time Advanced Distribution Server and the end user. To do this, the certificate should be installed on every user machine under Root certificates.

Non-secured connections

```
*ads*allowwsconnections : true
*ads*${port}*connectiontype : 0
```

Data compression

The RWF and JSON WebSocket protocols support ZLib compression only. LZ4 compression is not supported by WebSocket.

For further information about compression, see the **Compression parameters** section of the Real-Time Advanced Distribution Server System Administration Guide.

Port configuration

You can customise ports in Real-Time Advanced Distribution Server[77].

Connection	Port[78]
Non-secured	15000
Secured (ADS)	15000
Secured (LSEG)	443

Sample configuration parameters

Real-Time Advanced Distribution Server LAN and Host devices running on the Real-Time Distribution System require a centralized Real-Time Advanced Distribution Server configuration (.cnf) file that you generate using the tconfig utilities. For further information, see the **Configuring the LAN and Host Servers** chapter of the Real-Time Advanced Distribution Server System Administration Guide.

As an example, for Workspace, the following parameters are added to the configuration (.cnf) file. Customers should customise this file in accordance with their own requirements:

```
*ads*allowWSConnections : True
```

---

[76] Determined by the `connectiontype` parameter, where:
  – 1 indicates the connection is encrypted and certificates are required.
  – 0 indicates the connection is unencrypted.
[77] For further information, refer to the **WebSocket Connection > Basic Configuration** section of the Real-Time Advanced Distribution Server System Administration Guide.
[78] Ports can be customised in Real-Time Advanced Distribution Server.

```
*ads*wsPort* : 15000
*ads*15000*applicationIdName : applicationId
*ads*15000*authTokenName : AuthToken
*ads*15000*clientToServerPings : True
*ads*15000*compressionType : 0
*ads*15000*flushInterval : 1
*ads*15000*maxMounts : 256
*ads*15000*minCompressionThreshold : 0
*ads*15000*pingTimeout : 30
*ads*15000*poolSize : 16000
*ads*15000*positionName : AuthPosition
*ads*15000*serverToClientPings : True
*ads*15000*tcpNoDelay : True
*ads*15000*tcpRecvBufSize : 64240
*ads*15000*tcpSendBufSize : 64240
*ads*15000*timedWrites : True
*ads*15000*zlibCompressionLevel : 3
*ads*15000*maxOutputBuffers : 4000
*ads*15000*poolSize : 300000
*ads*defaultJsonServiceId : 23
*ads*wsMsgPacking : True
*ads*enableMultipartDictionary : True
*ads*enableMultipleTransportFilterThreads : False
*ads*maxOutputBuffers : 300000
*ads*catchUnknownJsonFids : True
*ads*catchUnknownJsonKeys : False
*ads*defaultJsonQosDynamic : False
*ads*jsonExpandedEnumFields : True
*ads*wsMsgPacking : True
```

Configuring multiple servers

Up to eight additional LSEG Real-Time Advanced Distribution Servers can be added to a custom configuration. This is done by using the **Streaming > Servers** panel of the Configuration Manager or by using the following statement:

EIKON.STREAMING.API.LOCAL.ADDITIONAL.SESSIONS.*<n>*

Where *<n>* is a number between 1 and 8.

For example:

```
/*
Each server can have more than one URL, where each subsequent URL acts as a
failover for the specific server
*/
// Main server
//
"EIKON.STREAMING.API.LOCAL.SESSIONS":
"[\"ws://ads01:15000/WebSocket\",\"ws://ads02:15000/WebSocket\",\"ws://ads02:1
5001/WebSocket\"]",
//
// Additional server
//
"EIKON.STREAMING.API.LOCAL.ADDITIONAL.SESSIONS.1":
"[\"ws://example01:15000/WebSocket\",\"ws://example02:15000/WebSocket\",\"ws:/
/example03:15001/WebSocket\"]"
```

Important: Additional servers work only if the main server connects successfully.

License requirements

To establish a successful connection between the Real-Time Advanced Distribution Server and the end user, the Snapshot batch and dynamic view requests (SNAP_AND_DYNAMIC_VIEW) capability license is required.

For further information regarding this license, contact your LSEG Account Team.

Workspace configuration

By default, LSEG Workspace retrieves streaming data from the Common Platform hosted streaming servers (HMDS). However, for users wanting to connect Workspace to retrieve data from their own streaming sources the following settings can be defined in a shared settings JSON file. This allows administrators to share these settings between users.

The settings discussed in this section can also be managed at an individual Workspace Desktop level, using the Configuration Manager.

For further information on:

− Workspace settings, refer to the Settings section of Appendix G: Shared configuration in this guide.

− Configuration Manager, refer to the Configuring Workspace section of this guide.

Important: To avoid syntax errors, it is recommended to generate the configuration using the Configuration Manager.

Sample Workspace configuration

```
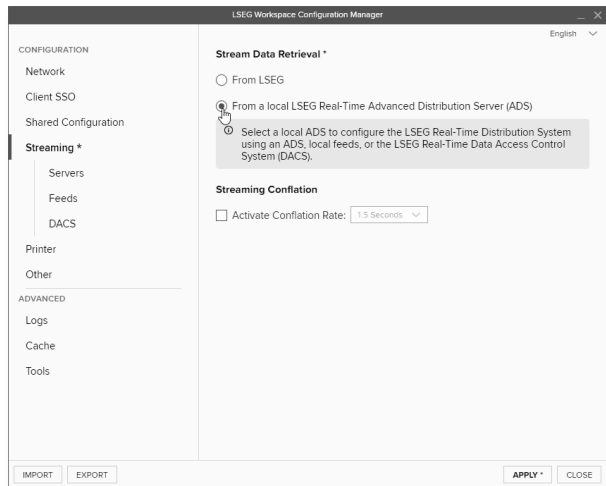{
  "EIKON.STREAMING.API.__CORE__.PLUGINS.FALLBACK.DELAYED.ENABLED": "true",
  "EIKON.STREAMING.API.LOCAL.ENABLE": "true",
  "EIKON.STREAMING.API.LOCAL.SESSIONS":
"[\"rssl://ads01.example.com:14002\",\"ws://ads01.example.com:15000/WebSocket\",\"rssl://ads02.example.com:14002\",\"rwf+wss://ads02.example.com:443/WebSocket\"]",
  "EIKON.STREAMING.API.LOCAL.ALLOWHOSTEDFALLBACK": "false",
  "EIKON.STREAMING.API.LOCAL.LOADBALANCING": "random",
  "EIKON.STREAMING.API.LOCAL.DACS.USERNAME": "my-dacs-username",
  "EIKON.STREAMING.API.LOCAL.DACS.POSITION": "localhost/127.0.0.1",
  "EIKON.STREAMING.API.LOCAL.DACS.FORCECASE": "uppercase",
  "EIKON.STREAMING.API.LOCAL.DACS.APPLICATIONID": "42",
  "EIKON.STREAMING.API.LOCAL.DACS.DPRM.DELAY": "20000",
  "EIKON.STREAMING.API.LOCAL.DACS.DPRM.INTERVAL": "43200000",
  "EIKON.STREAMING.API.LOCAL.DACS.DPRM.PORT": "8302",
  "EIKON.STREAMING.API.LOCAL.DACS.DPRM.SERVERS": "[\"dacs01\",\"dacs02\",\"dacs03\"]",
  "EIKON.STREAMING.API.LOCAL.DEFAULTSOURCE": "ELEKTRON",
  "EIKON.STREAMING.API.LOCAL.DESKTOP.ALIASES":
"{\"ATS_GLOBAL_1\":[\"A\",\"T\",\"S\"],\"IDN_SELECTFEED\":[\"I\"]}",
  "EIKON.STREAMING.API.LOCAL.OFFICE.ALIASES":
"{\"ATS_GLOBAL_1\":[\"ATS\",\"A\"],\"IDN_SELECTFEED\":[\"I\"]}",
  "EIKON.STREAMING.API.LOCAL.DISABLEDCONTRIBUTIONSOURCES": "[\"ATS_GLOBAL_1\",\"NO_CONTRIB_ALLOWED\"]",
```

```
  "EIKON.STREAMING.API.LOCAL.ADDITIONAL.SESSIONS.1":
"[\"rssl://add01.example.com:14002\",\"ws://add01.example.com:15000/WebSocket\"]",
  "EIKON.STREAMING.API.LOCAL.ADDITIONAL.SESSIONS.2": "[\"ws://add02.example.com:15000/WebSocket\"]",
  "EIKON.STREAMING.API.LOCAL.ADDITIONAL.SESSIONS.3":
"[\"rwf+ws://add03.example.com:15000/WebSocket\",\"rwf+ws://add03-2.example.com:15000/WebSocket\"]"
 }
```

Local RTADS configuration

Setting	Value	Default Value
EIKON.STREAMING.API.LOCAL.ENABLE	true	false

By adding this setting to the case-sensitive string, `true`, you instruct LSEG Workspace to try to connect to any configured local Real-Time Advanced Distribution Server.

Failover to hosted connection

Setting	Default Value
EIKON.STREAMING.API.LOCAL.ALLOWHOSTEDFALLBACK	true

When Workspace fails to connect to the first Real-Time Advanced Distribution Server connection, it attempts to connect to the next configured connection, if available. If none of the Real-Time Advanced Distribution Server connections manage to connect successfully, Workspace attempts to connect to LSEG hosted servers.

This behaviour can be disabled by setting the value to `false`. In this case, Workspace shows no data.

Important: After connecting to a hosted server, Workspace will not attempt to reconnect to a local Real-Time Advanced Distribution Server unless it gets restarted manually.

Server connection strings

To establish a WebSocket connection with Real-Time Advanced Distribution Server, Workspace requires a connection string comprised of Protocol, Hostname/IP, and Port number. The value is a comma separated list of ordered connection strings.

Primary connection

Setting	Value (Array)
EIKON.STREAMING.API.LOCAL.ADDITIONAL .SESSIONS	["ws://ads01.example.com:15000/WebSocket","wss://ads02.example.com :14002/WebSocket ","rwf+wss://ads02.example.com:443/WebSocket"]

Additional connections

Setting	Value (Array)
EIKON.STREAMING.API.LOCAL.ADDITIONAL.SESSIONS.1	For example: ["ws://ads01.example.com:15000/WebSocket","wss://ads02. example.com:14002/WebSocket ","rwf+wss://ads02.example.com:443/WebSocket"]

Workspace supports up to eight (8) additional simultaneous Real-Time Advanced Distribution Server connections, together with the primary connection. However, it requires the primary connection to connect successfully beforehand. Both the primary and additional connections can have unlimited fallback connection strings.

Feeds

Primary streaming source setting

Setting	Default value
EIKON.STREAMING.API.LOCAL.DEFAULTSOURCE	"IDN_RDF"

This setting allows you to customize the default streaming source used in LSEG Workspace applications.

This source is available in:

– LSEG Workspace, as the **Q** key letter. and

– Microsoft365, as the **IDN** alias.

– By default, LSEG Workspace assumes that the default source is named "IDN_RDF". As such, by customizing this setting, you can change the default streaming source to use.

The primary source should be trade-safe[79] and sourced from LSEG Elektron real-time data.

Additional or secondary sources

Desktop

Setting	Value (Array)
EIKON.STREAMING.API.LOCAL.DESKTOP.ALIASES	{"ATS_GLOBAL_1":["A","T","S"],"IDN_SELECTFEED":["I"]}

By customizing this setting, you can define additional key-letters for sources provided by the local LSEG Real-Time Distribution System (formerly TREP). These key-letters will only be visible in LSEG Workspace applications (Quote, Monitor, and so on).

> **Important**: LSEG Workspace Desktop will only display single letter aliases, known as key-letters. Multi-letter aliases are used in the Microsoft Office Workspace add-ins.

This setting should be defined to a JSON-encoded object. These object properties are real source names, and their values are a JSON-encoded array of key-letters.

Office

Setting	Value (Array)
EIKON.STREAMING.API.LOCAL.OFFICE.ALIASES	{"ATS_GLOBAL_1":["ATS","A"],"IDN_SELECTFEED":["I"]}

By customizing this setting, the user can define additional aliases for sources provided by the local LSEG Real-Time Distribution System (formerly TREP). These aliases will only be visible in the Microsoft365 Workspace add-ins.

Real-Time Data Access Control System configuration

Username

Setting	Default value
EIKON.STREAMING.API.LOCAL.DACS.USERNAME	Username taken from the operating system

This setting allows you to customize the Real-Time Data Access Control System (formerly DACS) username that is used to authenticate to your local streaming servers. For example, `"my-dacs-username"`.

---

[79]   For further information, refer to the Trade-safe requirements section.

If this is not set, LSEG Workspace will use the local operating system username .

Force username letter case

Setting	Default value
EIKON.STREAMING.API.LOCAL.DACS.FORCECASE	

This setting allows you to override the letter case of the defined Real-Time Data Access Control System username to be:

− Upper case (ABC123), using the string "uppercase", or

− Lower case (abc123), using the string "lowercase"

By default, LSEG Workspace will not change the case of the username that is entered using the EIKON.STREAMING.API.LOCAL.DACS.USERNAME setting.

Position

Setting	Default value
EIKON.STREAMING.API.LOCAL.DACS.POSITION	

This setting allows you to customise the Real-Time Data Access Control System position that is used to authenticate to local streaming servers. For example, "localhost/127.0.0.1".

If not set, to authenticate, Workspace uses the local hostname followed by a local IP address. If no such address is found, 127.0.0.1 is used.

Application ID

Setting	Default value
EIKON.STREAMING.API.LOCAL.DACS.APPLICATIONID	56

This setting allows you to customise the Real-Time Data Access Control System application ID that is used to authenticate to local streaming servers. For example, "42". If not set, Workspace will use the default value of "56".

DPRM configuration

DPRM is supported on Workspace Desktop. However, while it is highly recommended to use DACS Sync.

Warning: DPRM is not supported on LSEG Workspace for OpenFin.

Enabling the DPRM service

Important: In Workspace 1.23, there is a known issue with the DPRM service that affects a small minority of installations. This has been fixed in Workspace 1.24.

For those Workspace desktop customers who want to use the optional DPRM service in their local LSEG Real-Time Distribution System, the settings in the following table can be added to the *<override_settings>*.json file.

Setting	Description
EIKON.STREAMING.API.LOCAL.DACS.DPRM.PORT [80]	This allows you to specify the port to use to retrieve the entitlements used for DPRM.

---

[80]   The EIKON.STREAMING.API.LOCAL.DACS.DPRM.PORT parameter is mandatory.

Setting	Description
	In general, the port should be set to either of the following modes[81]: – 8261 - Permission proxy mode, or – 8302 - Permission service mode[82]
EIKON.STREAMING.API.LOCAL.DACS.DPRM.INTERVAL	This allows you to set the interval, in milliseconds, between each reconciliation of DACS entitlements with the DPRM service. Default value: 86400000 (24 hours).
EIKON.STREAMING.API.LOCAL.DACS.DPRM.DELAY	This allows you to set the delay, in milliseconds, between Workspace initialization after login and the reconciliation of DACS entitlements with the DPRM service. Default value: 60000 (60 seconds).
EIKON.STREAMING.API.LOCAL.DACS.DPRM.SERVERS	This parameter is used when running permission service mode only. This allows you to specify a list of servers to use for DPRM and should be set for permission service mode only (port 8302).[83] This setting is defined as a JSON-encoded array of permission service hostnames. For example: "[\"dacs01\",\"dacs02\",\"dacs03\"]"

DPRM settings example

```
"EIKON.STREAMING.API.LOCAL.DACS.DPRM.PORT": "8261",
"EIKON.STREAMING.API.LOCAL.DACS.DPRM.INTERVAL": "43200000",
"EIKON.STREAMING.API.LOCAL.DACS.DPRM.DELAY": "50000",
"EIKON.STREAMING.API.LOCAL.DACS.DPRM.SERVERS":
"[\"dacs01\",\"dacs02\",\"dacs03\"]"
```

Important: DACS Permission Synchronization for Workspace is recommended – rather than the DPRM service - to prevent misconfiguration or permission issues between the Delivery Platform (formerly RDP) and local LSEG Real-Time Distribution System (formerly TREP).

Additional Workspace settings

Load balancing

Setting	Default value	Other value(s)
EIKON.STREAMING.API.LOCAL.LOADBALANCING	"random"	"disabled"

The load balancing setting allows you to disable the default priority order of Real-Time Advanced Distribution Server connections and randomly connect to one of the connections when Workspace starts. This is used to distribute the load on Real-Time Advanced Distribution Server connections equally.

For example, if the value is set to "random", with 100 users and four server configurations, on average, each server will have 25 connected users.

Disabling contribution

Setting	Value
EIKON.STREAMING.API.LOCAL.DISABLEDCONTRIBUTIONSOURCES	["ATS_GLOBAL_1","NO_CONTRIB_ALLOWED"]

Using this setting, you can list sources on your local LSEG Real-Time Distribution System (formerly TREP) to which they are not allowed to contribute. As such, any attempt at contributing data on the sources listed under this setting will be rejected.

By default, contribution is allowed on all sources.

---

[81]   If not set to one of these values, DACS synchronization is not performed.
[82]   In permission proxy mode, the list of servers in the EIKON.STREAMING.API.LOCAL.SESSIONS setting is used.
[83]   If not set, the list of servers defined in the EIKON.STREAMING.API.LOCAL.SESSIONS setting is used.

Falling back to delayed RICs

Setting	Default value	Other value(s)
EIKON.STREAMING.API.__CORE__.PLUGINS.FALLBACK.DELAYED.ENABLED	”true” - Workspace will automatically request data from the corresponding delayed RIC.	"disabled" – Workspace will not show any data.

If users are not entitled to Real-Time RIC information, this setting can be defined in the Workspace shared configuration (.json) file using the "true" value.

This can also be activated through the Settings option. To do so:

1. Select **WS > Settings**, to open the Settings app.

2. From the side menu panel, select **Workspace**.

3. In the Workspace Settings panel, select **the Automatically show delayed data if real-time data is not available** checkbox.

Workspace for OpenFin

Workspace for OpenFin has the same capabilities in terms of real-time configuration as Workspace Desktop. However, the differences between the products are summarized below.

Workspace for OpenFin:

− Can only be configured using Workspace Admin Tools, where configurations are hosted at LSEG side.

− Does not support DPRM, as only Secured WebSocket protocols will be supported, including rwf+wss:// and wss://

Managing hosted connections

Setting	Default Value
EIKON.STREAMING.API.LOCAL.ENABLE	False

By default, Workspace is configured to connect to LSEG hosted servers to retrieve real-time data.

Subscription limits

For hosted users, the default subscription limit for RICs on Workspace Desktop is 2500[84] and 1000 for Workspace Web.

---

[84] This can be extended to 5000 or 10000 by obtaining additional licenses or products from LSEG.

The limit applies at user level, across all devices, platforms, and apps. This means that for a single app, such as Monitor, it may not be possible to achieve the maximum number of RICs, as some will be used by other apps or services.

There is no limit to subscriptions on Real-Time Advanced Distribution Server connections.

The **Streaming** panel of the About LSEG Workspace dialog box, opposite, contains information about real-time data sources, RICs used (subscriptions), and any other feeds provided through a local LSEG Real-Time Distribution System.

Conflation management

Conflation on Real-Time Distribution and Managed Distribution Services

Conflation at Real-Time Advanced Distribution Server level is preferred to reduce the conflation processing on user machines. This will also reduce the bandwidth between a Real-Time Advanced Distribution Server and the end user.

For Real-Time Managed Distribution Services, data is conflated to 300ms on the server side.

For further information, refer to the **Configuration** section of the **Conflation** chapter in the Real-Time Advanced Distribution Server System Administration Guide.

Conflation on Workspace

For feeds that use a more frequent conflation rate than 300ms, by default, Workspace Desktop will change the rate to 300ms. However, this does not apply to all apps, as certain apps use custom conflation or trade safe data.

While conflating, only the latest record is displayed from the conflation timeframe.

The conflation can be increased to 1500ms, 3000ms, or 6000ms to have less frequent updates on Workspace. It is, however, recommended to configure conflation on your Real-Time Advanced Distribution Server, considering all users require the same conflation level.

Trade-safe requirements

In Workspace, Time Series requires trade-safe data. That is, when trade-safe conflation is enabled, the Real-Time Advanced Distribution Server does not conflate trade-type updates. So, any pending updates for the item are sent, followed by the non-conflatable update.

For further information, refer to the **Trade-safe conflation** section of the **Conflation** chapter in the Real-Time Advanced Distribution Server System Administration Guide.

Configuration manager

The Workspace Configuration Manager facility provides the flexibility to apply conflation at single user and machine level, or to many users through a shared configuration file.

Administration panel

The Administration Panel app can be used to apply conflation configuration at company level.

The app also supports an option to manage Conflation for the Blended Order Books app.

Conflation on Real-Time Advanced Distribution Server and Workspace

Depending on the use case, conflation can be applied both on your Real-Time Advanced Distribution Server and Workspace Desktop, to achieve minimum bandwidth and resources usage.

Connection information in About LSEG Workspace

The **About LSEG Workspace** option provides information about the status of connections at an individual user level. To access this option:

–   Select **Help > About LSEG Workspace**

For further information about this option, refer to the About LSEG Workspace dialog section of this guide.

Contributions

The Contributions Channel allows data to be contributed to a Real-Time Advanced Distribution Server or LSEG directly. This data can then be consumed across Workspace products.

Contributions to LSEG

LSEG Elektron contribution feeds

By default, contribution to LSEG[85] is not enabled and approval from LSEG is required to contribute data. Additionally, you will require assistance from LSEG to setup and configure your systems.

The feeds used to contribute data to LSEG include the following:

–   DDS_TRCE

–   ELEKTRON_CON

–   TRC

---

[85]   Contribution to LSEG uses the rwf+wss:// protocol.

Contributions to a local Real-Time Advanced Distribution Server

Contribution to your local Real-Time Advanced Distribution Server uses the pre-configured protocol for requests. However, contribution can be disabled for specific feeds using the following array setting:

Setting	Value
EIKON.STREAMING.API.LOCAL.DISABLEDCONTRIBUTIONSOURCES	[\"ATS_GLOBAL_1\",\"NO_CONTRIB_ALLOWED\"]

Appendix G: Shared configuration

Configuration override order

The illustration below shows the override order for configuration settings[86], where commands issued using the command line have the highest level of priority:

CONFIGURATION	COMMAND LINE	Command line statements
	SHARED	Company configuration
		Admin configuration
	PLATFORM	User details settings	Product settings	User settings
	LOCAL	User settings (JSON file)
		Machine settings (JSON file)
		Default settings

Creating a shared configuration file

Once you have made your settings using the Configuration Manager dialog, do the following:

1. click **Export**

2. Use the **Save As** dialog to define a file name and location

---

[86]   The Admin level shared configuration file is created using the Administration Panel tool. For further information, refer to the Administration Panel Configuration Guide.

Settings

The following table contains a shared configuration file example, showing where the setting is found, and the selection or entry that was made in the example:

Setting example	Description\Source
{	
Configuration Manager > Network menu	
"EIKON.CONNECTION.MODE": "private",	Options: – Internet – Private network
Configuration Manager > Advanced menu	
"REFINITIV.WORKSPACE.RUN_ABOVE_NORMAL_PRIORITY": "true",	Option: Run at the Highest Available Process Priority Level
Configuration Manager > Printer menu	
"REFINITIV.WORKSPACE.TRADING.PRINTER_NAME": "Microsoft Print to PDF",	Options: – Configured printers[87] – Fax – Microsoft Print to PDF – Microsoft XPS Document Writer – OneNote (Desktop) – OneNote for Windows
Configuration Manager > Shared Configuration menu	
"EIKON.INTRANET_OVERRIDE.ENABLED": "true",	Options: – Use a shared configuration
"EIKON.INTRANET_OVERRIDE.URL": "C:\\RWTest\\Shared config\\MAIN.json",	– Location path or URL (defined as C:\\RWTest\\Shared config\\MAIN.json) – This can be multiple location paths or URLs, delimited using a semi-colon (;)
Configuration Manager > Client SSO menu	
"CLIENTSSO_URL.ENABLED": "true",	Options: – Use a client SSO
"CLIENTSSO_URL": "https:\\myapps.testsso.com",	– Thomson Reuters (defined as https:\\myapps.testsso.com)
"CLIENTSSO_REFINITIV_URL": "https:\\myapps.testsso.com",	– Refinitiv (defined as https:\\myapps.testsso.com)
Configuration Manager > Streaming menu	
"EIKON.STREAMING.API.LOCAL.ENABLE": "true",	Stream Data Retrieval options: – From Refinitiv – From a local LSEG Real-Time Advanced Distribution Server[88] (formerly ADS)
"EIKON.STREAMING.JETQUOTES.DESKTOP.CONFLATION.ENABLE": "true",	Streaming Conflation option: – Activate Conflation Rate
"EIKON.STREAMING.JETQUOTES.DESKTOP.CONFLATION": "3000",	– Conflation rate value drop down (3 seconds selected)
Configuration Manager > Streaming > Servers menu[89]	
"EIKON.STREAMING.API.LOCAL.SESSIONS": "[\"wss:\\test-ads-sharedconfig.com:15000\WebSocket\"]",	LSEG Real-Time Advanced Distribution Server (formerly ADS) options: – Protocol (selected wss:\\) – Hostname or IP (defined as test-ads-sharedconfig.com) – Port (defined as 15000)

---

87   Network or connected directly
88   For further information about configuring Real-Time data, refer to Appendix F: Configuring Real-Time Data products.
89   Up to eight additional servers can be configured. For further information, refer to the Configuring multiple servers section.

Setting example	Description\Source
	For additional servers that may be configured in the shared configuration file only, see the Streaming protocols section, below.
Configuration Manager > Streaming > DACS menu	
`"EIKON.STREAMING.API.LOCAL.DACS.USERNAME":` `"permit_all_exchanges",`	Options: – Username (defined as `permit_all_exchanges`)
`"EIKON.STREAMING.API.LOCAL.DACS.POSITION":` `"%USERDETAILS.LASTNAME%_%USERDETAILS.UUID",`	– Position (defined as `%USERDETAILS.LASTNAME%_%USERDETAILS.UUID`)
Configuration Manager > Streaming > Feeds menu	
`"EIKON.STREAMING.API.LOCAL.DEFAULTSOURCE":` `"IDN_RDF_2",`	Main Feed options: – Feed Name (defined as `IDN_RDF_2`) – Key Letter(s) – Alias(es)
`"EIKON.STREAMING.API.LOCAL.DESKTOP.ALIASES":` `"{\"Test Internal feed 1\":[\"Z\"]}",`	Other Local Feeds options: – Feed Name (defined as `Test Internal feed 1`) – Key Letter(s) (defined as `Z`)
`"EIKON.STREAMING.API.LOCAL.DESKTOP.ALIASES":` `"{\"Test Internal feed 1\":[\"INF_1\"]}",`	– Feed Name (defined as `Test Internal feed 1`) – Alias(es) (defined as `INF_1`)
`"EIKON.STREAMING.API.LOCAL.DISABLEDCONTRIBUTIONSOUR` `CES": "[\"ATS_GLOBAL_1\",\"NO_CONTRIB_ALLOWED\"]"`	By default, contribution is allowed on all sources. This setting is used to list sources on your local LSEG Real-Time Advanced Distribution Server[90] (formerly ADS) where contributions are not allowed. Any subsequent attempt to contribute data to one of the listed sources is then rejected. This setting should be defined to a JSON-encoded array, where each array entry is a real source name. For example: `["ATS_GLOBAL_1","NO_CONTRIB_ALLOWED"]`
Configuration Manager > Other menu	
`"EIKONPROTOCOL.ISDEFAULTAPPLICATION": "true"`	Select the app that is used to open LSEG links: – LSEG Workspace – Eikon 4
`}`	

For further information on the creation of a shared configuration file, refer to the Configuring Workspace section.

Streaming protocols

In Workspace 1.22[91], additional Refinitiv Wire Format protocols for LSEG Real-Time Advanced Distribution Server[90] may be configured using Configuration Manager or, manually, in your shared configuration JSON file:

Protocol	Transport	Example
rwf+ws:\\	WebSocket	`rwf+ws:\\ads01.example.com:15000\WebSocket`
rwf+wss:\\	Secure WebSocket	`rwf+wss:\\ads01.example.com:443\WebSocket`

For example:

`["ws:\\ads01.example.com:15000\WebSocket","rwf+wss:\\ads02.example.com:44 3\WebSocket"]`

---

[90] For further information about configuring Real-Time data, refer to Appendix F: Configuring Real-Time Data products.
[91] Workspace version 1.22 is the first release to support the new protocols.

Appendix H: Workspace Messenger

Standalone

Workspace Messenger private line connectivity

You can use Workspace Messenger to send and receive text messages, photos, and stock prices.

Once you have installed Workspace Messenger, if you require connectivity through a Private Line, do the following:

1. Navigate to the **Refinitiv Workspace** shortcut:
    a. Click **Start**
    b. Scroll to **Refinitiv > Refinitiv Workspace**
    c. Right-click **Refinitiv Workspace** and select **More > Open file location**
2. In File Explorer, right-click the **Refinitiv Workspace** shortcut and select **Properties**
3. Add the following parameters to the end of the Target field:

– `--messenger-url="https://collab.platform.refinitiv.biz/eikonmessenger"`

Embedded

Running Messenger traffic through a private network

To allow Workspace Messenger to route traffic through a private delivery network, you need to request that Workspace is permissioned for Messenger Private Delivery, using the following values:

Product code	100464
Permission Object name	COLLRMPRIVATE

Appendix I: Unsupported packaging methods

> **Important**: This section describes packaging methods that are neither recommended nor supported by LSEG.

Supported methods

LSEG supports the installation of Workspace, using the downloadable executable file:

- On an individual basis. See the Basic Installation Guide.
- Using a command line statement. See Installing Workspace, in this document.

Unsupported methods

Customers may choose to deploy Workspace using the methods summarized below. While we neither recommend nor, on an ongoing basis, support[92] these approaches, the steps outlined below are understood to work.

Packaging support

Customers are entitled to a session of up to two hours of free packaging support, provided by one of our Technical Implementation Specialists (TIS). During this time, our specialist focuses on providing guidance and offers expert advice on packaging Workspace.

Packaging support beyond this session will be chargeable. Should you require further assistance from LSEG, contact your Implementation Relationship Manager (IRM).

Installing using an MSI installer

You may choose to use the MSI installer method in situations where you are blocked from downloading and/or installing executable files, due to:

- A policy that is enforced on your computer, for example, by an antivirus product, or
- Your corporate firewall preventing access through their network

To do this:

1. Convert the `RefinitivWorkspace-installer_x.xx.xx.exe` file to an MSI installer. This can be done using tools such as MSI Wrapper or Advanced Installer.

2. Open PowerShell[93], with admin privileges, and navigate to the

---

92   Refer to the Packaging support section. LSEG does not maintain test environments for these methods.
93   For further information, refer to the online Microsoft PowerShell documentation.

folder containing the `.msi` file.

3. To install Workspace using the quiet install method, use the command[94]:

`Start-Process RefinitivWorkspace-installer_x.xx.xx.msi –ArgumentList "/quiet"`

A system test is performed and LSEG Workspace is installed.

Deploying using Microsoft Intune

Using Microsoft Intune, you may be able to deploy Workspace to users in your organization.

Pre-requisites

The following are the pre-requisites for machines on which Microsoft Intune is used and applies to the machines to which Workspace is to be deployed. These requirements may not align with those of LSEG Workspace[95]:

– Use Windows 10 version 1607 or later (Enterprise, Pro, or Education editions)[96]

– Machines (or devices) to which Workspace is to be deployed must be

   – Enrolled in Intune, and

   – One of the following[97]:

      – An Azure AD registered device

      – An Azure AD joined device

      – A hybrid Azure AD joined device

– The installation file size must not be greater than 8GB.

Deployment overview

The Workspace installer file, `RefinitivWorkspace-installer_x.xx.xx.exe`, must be converted to a file with an `.intunewin` extension. The tool used to do this can be found on the Prepare Win32 app content for upload page.

Creating the temporary folders

1. Download the Content Prep Tool zip file and extract the tool (`IntuneWinAppUtil.exe`).

2. In the Windows `%temp%` folder, create the following folders:

   – `1-LSEG_Workspace`

   – `2-IntuneAppsLSEG_Workspace` [98]

   – `3-IntuneWinAppUtil`

3. In the `LSEG_Workspace` folder, add the following files:

   – `RefinitivWorkspace-installer_x.xx.xx`

   – `install.cmd`

---

[94] This command line instruction is used to install Workspace on one machine. For mass deployment, add the command to your deployment portal (Microsoft System Center Configuration Manager, for instance).

[95] For further information, refer to the Workspace System Requirements.

[96] This requirement applies to all machines that are to be managed by Intune.

[97] For further information about Azure device categories, refer to the Concept section under Azure AD device identity documentation.

[98] The `2-IntuneAppsLSEG_Workspace` folder acts as the repository for the converted installation file.

- uninstall.cmd

Sample `install.cmd` script:

```
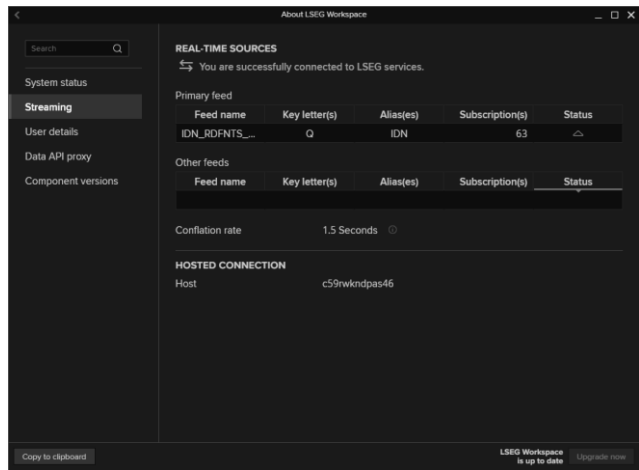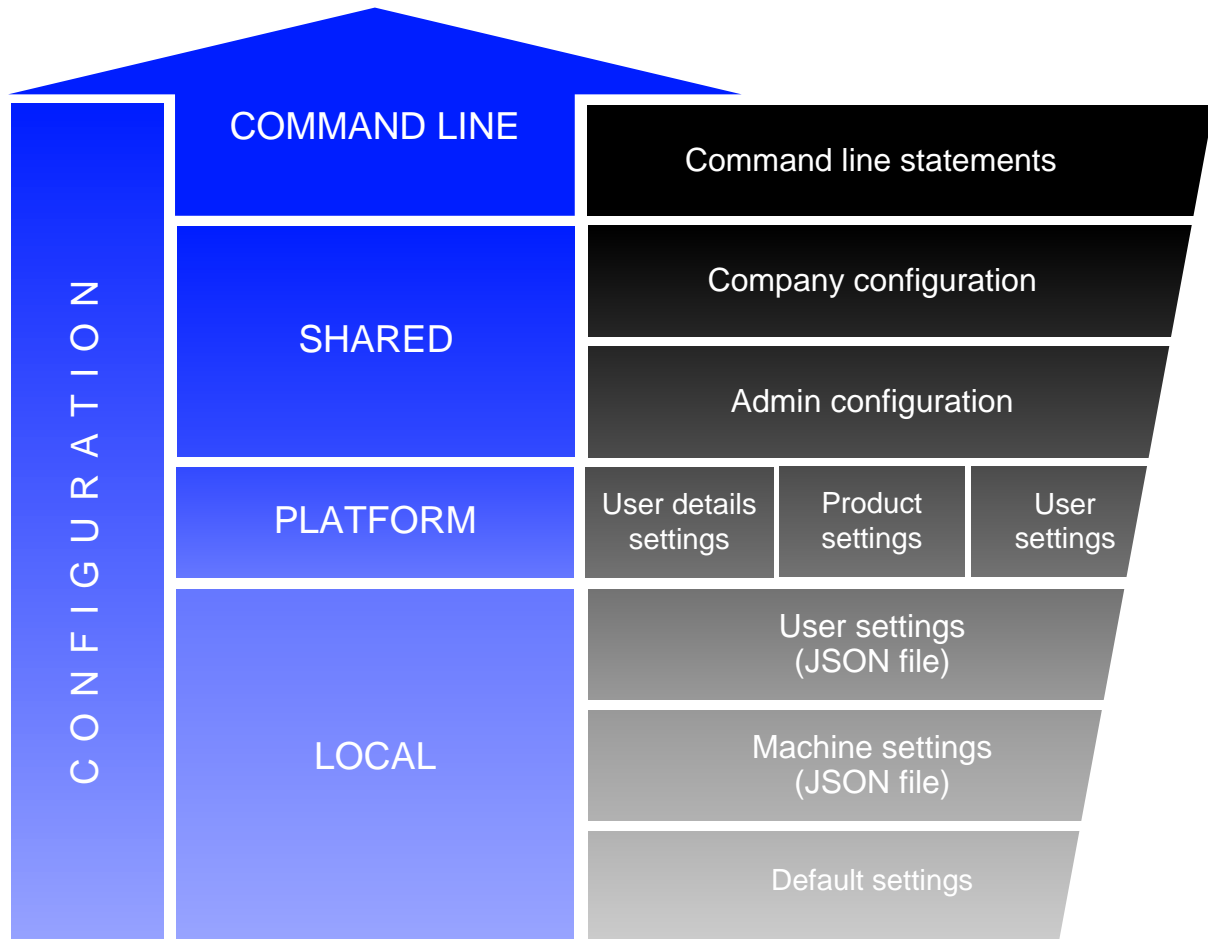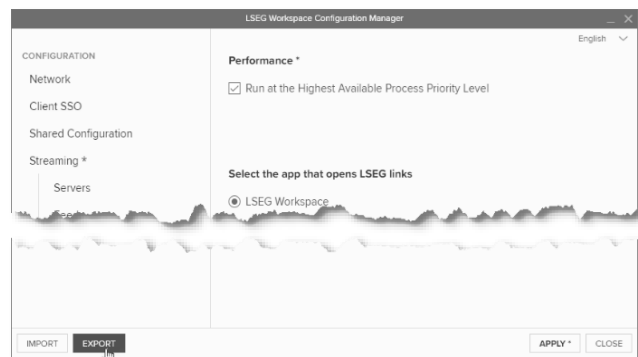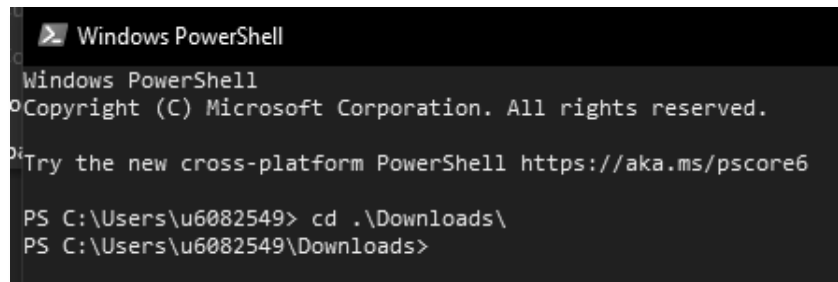START %temp%\1-LSEG_Workspace\RefinitivWorkspace-installer_x.xx.xxx.exe --
user --silent --installpath="%localappdata%\Refinitiv\Refinitiv Workspace" -
-cachepath="%localappdata%\Refinitiv\Refinitiv Workspace\cachepath" --
installerlogpath="%localappdata%\Refinitiv\Refinitiv
Workspace\installerlogpath" --logpath="%localappdata%\Refinitiv\Refinitiv
Workspace\logpath" --shortcuts="%localappdata%\Refinitiv\Refinitiv
Workspace\shortcuts"
```

Sample `uninstall.cmd` script:

```
START %temp%\1-LSEG_Workspace\RefinitivWorkspace-installer_1.22.303.exe --
uninstall --silent
```

4. In the `3-IntuneWinAppUtil` folder, save the `IntuneWinAppUtil.exe` tool.

Running the conversion tool

Once the folders have been created, use the `IntuneWinAppUtil.exe` tool to create the Intune file.

1. Open the `3-IntuneWinAppUtil` folder and double-click the `IntuneWinAppUtil.exe` tool.

2. At the `Please specify the source folder` prompt, type the path to the first temporary folder and press **Enter**.

   For example:

   `C:\temp\1-LSEG_Workspace`

3. At the `Please specify the setup file` prompt, type the name of the Workspace installation file and press **Enter**.

   For example:

   `RefinitivWorkspace-installer-win32-x64_1.23.269.exe`

4. At the `Please specify the output folder` prompt, type the path to the second temporary folder and press **Enter**.

   For example:

   `C:\temp\2-IntuneAppsLSEG_Workspace`

5. For the `Do you want to specify catalog folder` prompt, type `N` and press **Enter**.

   The conversion tool starts converting the installation file to `.intunewin` format.

Installing through Intune

Once the `.intunewin` file has been created in the `2-IntuneAppsLSEG_Workspace` folder, follow the instructions in the Add, assign, and monitor a Win32 app in Microsoft Intune page.

Use the information in the following table as a reference when configuring Intune:

Intune Name	Mode	Command
Refinitiv Workspace - user mode	--user	RefinitivWorkspace-installer-win32-x64_1.19.448.exe --user --silent
Refinitiv Workspace - machine-autoupdate-peruser mode	--machine-autoupdate-peruser	RefinitivWorkspace-installer-win32-x64_1.19.448.exe --machine-autoupdate-peruser
Refinitiv Workspace - machine-autoupdate-service mode	--machine-autoupdate-service	RefinitivWorkspace-installer-win32-x64_1.19.448.exe --machine-autoupdate-service
Refinitiv Workspace - machine-autoupdate-no mode	--machine-autoupdate-no	RefinitivWorkspace-installer-win32-x64_1.19.448.exe --machine-autoupdate-no

Appendix J: Troubleshooting

In this section

Microsoft Managed Desktop installation issue

Issue

Customers who are:

– Hosted on full Microsoft Managed Desktop (MMD) environments

– Installing or uninstalling Workspace 1.22 or higher, and

– Using a command line script

May encounter the following error message in their installation log file (under %Temp%):

```
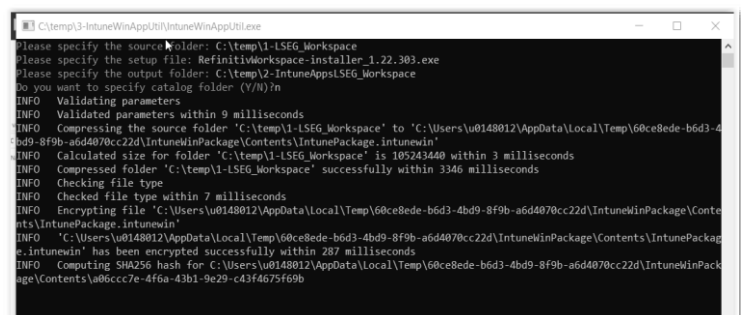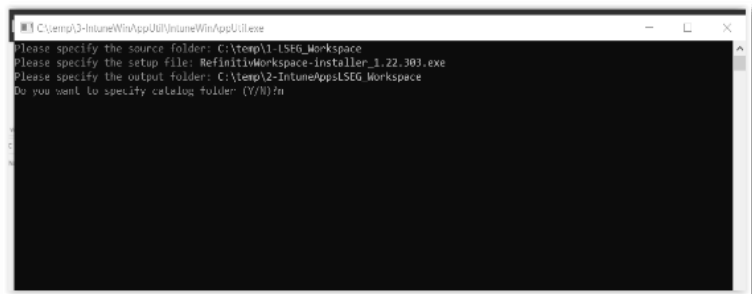Deployment] Cannot get pmInstallinfo.json
1008:0524/093420.906:ERROR:gpu_process_host.cc(962)] GPU process launch failed: error_code=18
1008:0524/093420.954:ERROR:gpu_process_host.cc(962)] GPU process launch failed: error_code=18
1008:0524/093420.985:ERROR:gpu_process_host.cc(962)] GPU process launch failed: error_code=18
1008:0524/093421.011:ERROR:gpu_process_host.cc(962)] GPU process launch failed: error_code=18
1008:0524/093421.041:ERROR:gpu_process_host.cc(962)] GPU process launch failed: error_code=18
1008:0524/093421.076:ERROR:gpu_process_host.cc(962)] GPU process launch failed: error_code=18
1008:0524/093421.121:ERROR:gpu_process_host.cc(962)] GPU process launch failed: error_code=18
1008:0524/093421.179:ERROR:gpu_process_host.cc(962)] GPU process launch failed: error_code=18
1008:0524/093421.223:ERROR:gpu_process_host.cc(962)] GPU process launch failed: error_code=18
1008:0524/093421.223:FATAL:gpu_data_manager_impl_private.cc(417)] GPU process isn't usable. Goodbye.
```

Cause

This error stems from the introduction of sandboxed processes[99] in Electron version 20, as the AppLocker Software Restriction policies may prevent the installation of binary files with a SANDBOX flag.

Before starting a new installation or upgrade, the Workspace installer creates a spawn file under %temp%, which triggers version and hardware tests. During the hardware test, the GPU requirements of Workspace are checked.

At this juncture, the App Locker Software Restriction Policy:

– Flags the executable fille, preventing the GPU check

---

[99]   For further information, see Process Sandboxing | Electron.

- Writes the GPU error message (above) to the Electron and Workspace installation logs, and

- Creates the four binary flags, listed under Solution, below.

Solution

By exempting the blocked files, listed below, from the AppLocker policy, Workspace can be installed successfully on MMD environments:

- `Hash B949CF64DC938AC4D005CB683725E9343E09E3F3E6B9C3465F3FEE20F8FE3EE4`

- `Hash D66DCCC12FBF1D20C7FD7E2E00E49DD8A0939F26BB4E5B01A482050A72B058C`

- `FQBN PublisherName="O=REFINITIV US LLC, S=NEW YORK, C=US" ProductName="*" BinaryName="*">`

- `FQBN PublisherName="O=MICROSOFT CORPORATION, L=REDMOND, S=WASHINGTON, C=US" ProductName="MICROSOFTÃ‚Â® WINDOWSÃ‚Â® OPERATING SYSTEM" BinaryName="*">`

However, should you experience issues with this approach, contact LSEG Support who will investigate the issue further. Support will require your installer logs and information related to the installation.

Crash information uploads

If a crash occurs, Workspace sends the dump file to the internal Support platform.

Whenever possible, Workspace also uploads session logs to provide more information to the support teams.

Crash and log files are sent to the following internal Support platform:

https:\\dst.platform.refinitiv.com\

JSON coding changes

The following additional, advanced syntax changes have been made to the coding of JSON files:

- Add single line comments, using `//` at the beginning of the line

- Multiple line comments, using `/* text text text */`

- Empty lines are permitted

- Indentation errors are skipped and do not cause interruptions

- The last line of the file is not required to end with a comma

Error codes

The following error codes may be reported during an installation failure:

Error reported	Code	Summary
UNSUPPORT_PLATFORM	100	Unsupported Platform.
FAILED_TO_INSTALL	101	Failed to install Workspace.

Error reported	Code	Summary
FAILED_TO_COPY_FILES	102	Failed to copy files to `%AppData%\Refinitiv`.
CANNOT_GET_FOLDER_SIZE	103	Cannot get folder size for stamping to Add/Remove program.
FAILED_TO_INSTALL_ADD_REMOVE_PROGRAM	104	Failed to install Add/Remove program.
FAILED_TO_INSTALL_WINDOWS_REGISTRY	105	Failed to install Windows registry.
FAILED_TO_CONFIG_PRODUCT	107	Failed to create/update config product.
FAILED_PREREQUISITE_CHECK	108	Failed prerequisites check.
ALREADY_INSTALLED	109	Already installed
NO_INSTALLATION_FOUND	110	No installation found
FAILED_TO_UNINSTALL	201	Failed to uninstall
FAILED_TO_UNINSTALL_CANNOT_REMOVE	202	Failed during uninstall process. Cannot remove **Refinitiv Workspace** folder
UNSUPPORT_PLATFORM	300	Unsupported operating system.
INVALID_COMMAND_ARGUMENT	301	Invalid parameter used in installation command line.[100]
INVALID_ARGUMENT_VALUE	302	Invalid parameter used in installation command line
CUSTOM_PATH_NOT_ALLOW	303	Make sure that the path(s) entered in parameter(s) are compatible with the chosen installation mode
ALREADY_INSTALL	310	Workspace is already installed
ALREADY_INSTALL_DIFFERENT_MODE	311	You cannot proceed with the installation, as Workspace is already installed with a different installation mode
OFFICE_REGISTRY_CLI_NOT_SUPPORT	321	You must update Workspace to version 1.21 or higher to use the `--office-registry` command
UPDATE_OFFICE_REGISTRY_CLI_NOT_SUPPORT	322	You must update Workspace to version 1.21 or higher to use the `--update-office-registry` command.
UPDATE_BLOCKED_BY_OFFICE_REGISTRY	323	Update is blocked because your office registry is set to HKCU. Reset using `--update-office-registry=HKLM` before performing the update again.
NOT_ALLOW_ROLLBACK_BY_OFFICE_REGISTRY	324	Rollback is blocked because your office registry is set to HKCU. Reset using `--update-office-registry=HKLM` before performing the update again.
SYSTEM_CHECK_FAILED	350	The installer was unable to run the system test successfully
SYSTEM_CHECK_UNKNOWN_RESULT	353	The installer was unable to run the system test successfully
NOT_ENOUGH_DISKSPACE	351	Insufficient disk space on which to install Workspace
NO_ADMIN_RIGHT	352	Workspace installation requires Administrator privileges
FILE_IS_LOCKED	400	Process stopped as Workspace file(s) in use
FILE_IS_MISSING	401	Workspace installation executable does not contain all required files
INSTALLER_FILE_CORRUPT	451	Workspace installation executable is corrupt
NO_INSTALLATION_FOUND	500	Workspace installation file was not found
MS_OFFICE_PROCESS_IS_RUNNING	501	Installation stopped as Microsoft Office applications are running
FAILED_TO_HANDLE_FILE	801	Unable to access Workspace installation files
FAILED_TO_CONFIG_PRODUCT	802	Unable to configure product [101]
FAILED_TO_ADD_REMOVE_PROGRAM	810	Unable to update Add/Remove Programs
FAILED_TO_ADD_WINDOWS_REGISTRY	811	Unable to update Windows registry
UNKNOWN_ERROR	999	Unknown error

Logging

Uploading Workspace logs

You can upload Workspace logs by using:

– A menu option

– Excel launcher

---

[100] See Workspace Help parameter options.
[101] In this event, contact Support. You will also be asked to provide your installation log file.

Menu option

−   From the **Help** menu, select **Upload logs**.

Excel launcher

If you are logged into Excel:

1.   Press **Shift+Ctrl+Space**.

2.   In the Search window, type `/log`.

3.   Click **Upload Logs**.

Log upload workflow

By user request or if a crash occurs, Workspace sends the contents of the application logs folder to the internal Support platform:

https:\\dst.platform.refinitiv.com\

To save bandwidth, log uploads are sent in chunks of no more than 5Mb. Additionally, logs that have already been uploaded are not uploaded again.

You can also upload log files to the desktop support site using the following command line:

```
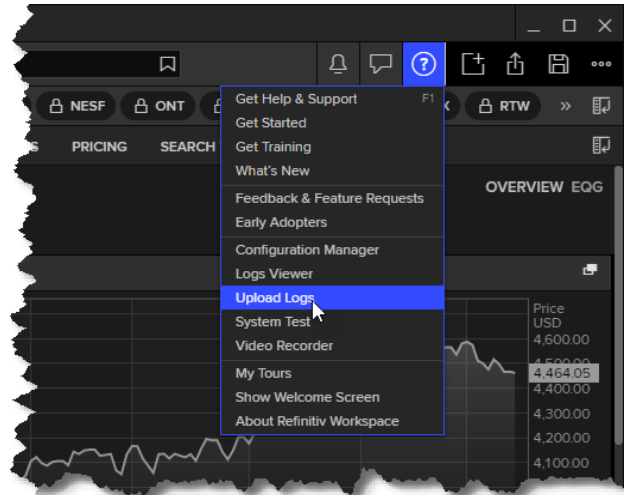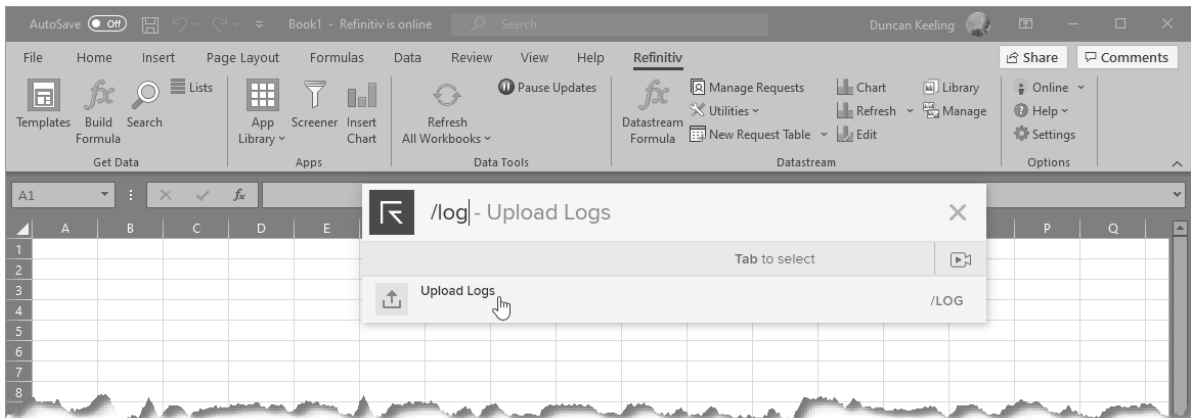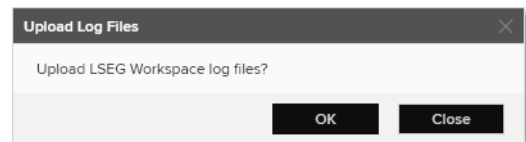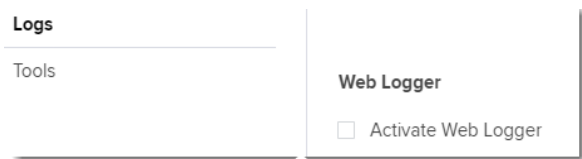RefinitivWorkspace.exe --upload-logs
```

Log upload troubleshooting

For troubleshooting purposes, the settings[102] shown in the table below can be written to the `user-settings.json` or `machine-settings.json` file:

Setting	Purpose
`EIKON.LOGSUPLOAD.VERBOSEOUTPUT`	set to true to have some output generated in the console.
`EIKON.LOGSUPLOAD.DEACTIVATEENCRYPTION`	set to true to send the logs without encryption.
`EIKON.LOGSUPLOAD.WRITETEMPFILESONDISK`	set to true to write the original and the crypted zips in the `%TEMP%` folder.
`EIKON.LOGSUPLOAD.TESTDECRYPTIONLOCALLY`	set to true to test that decryption works locally (useful with `VERBOSEOUTPUT` and/or `WRITETEMPFILESONDISK`).

Networking issues

After installing Workspace, you have the option of using the web logger command to troubleshoot networking issues. To do this:

– Use the command `RefinitivWorkspace.exe --web-logger`, or

– Activate it using the Web Logger checkbox under **Configuration Manager > Logs**:

To troubleshoot networking issues:

1. Launch Workspace with the `--web-logger` parameter, using the Command Prompt, or through the Configuration Manager.

2. Enter your credentials and login.

3. Navigate to the `log` folder location.

4. Open the most recently created desktop log file (`web-requests.log`) [103]. This file is created and available with all captured web calls from Workspace.

Resetting Electron application data

You can use the following parameters to delete application data – configuration files, caches, preferences, and settings – resetting Electron.

Important: Close all Workspace applications before running these commands.

To do this, depending on your requirements:

– Run `RefinitivWorkspace.exe` with a parameter, or

– Select a cache clearing function under **Configuration Manager > Cache**

Depending on the option chosen, resetting the cache has the following effect:

Configuration Manager function	Parameter	Effect
Clear all cache	`--resetCache`	Resets the **product** cache of Workspace to its default state. That is, as it would be after a fresh installation.
Clear Electron cache	`--resetElectronCache`	Reset the **Electron** cache of Workspace to its default state

.

---

[102] By default, all these settings are set to FALSE.
[103] When Workspace shuts down, it generates both the `web-requests.log` file and a HAR-based topology log file.

Using the Video Recorder tool

The Video Recorder tool allows you to capture and save video footage of your entire desktop or a particular screen. This is particularly useful for capturing issues you are experiencing with your environment to provide additional information to Support.

You can start the tool from the Help menu or by using a parameter.

Starting the tool from the Help menu

To do this:

1. Open the Help menu by clicking the **?** icon.

2. Select **Video Recorder** from the menu.

Starting the tool using a parameter

Run Workspace with the `--video-recorder` parameter. This can be done either by:

−   adding the parameter to the application shortcut by editing its properties, or

−   using the appropriate command line statement:

```
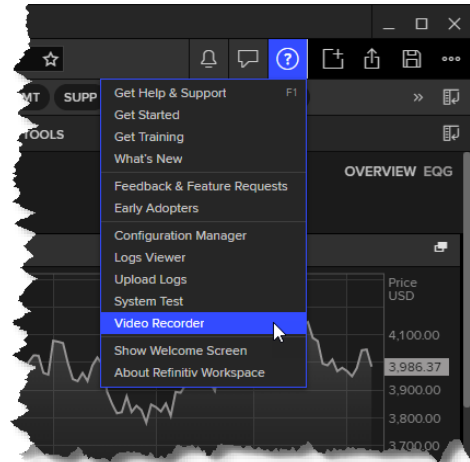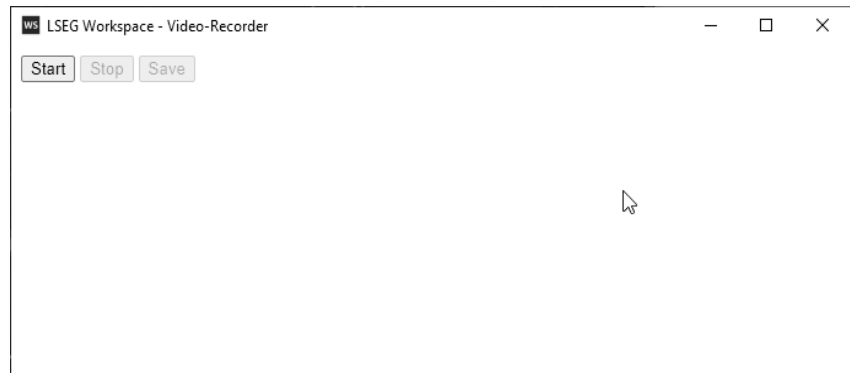Windows      "%LOCALAPPDATA%\Refinitiv\Refinitiv Workspace\RefinitivWorkspace.exe" --video-recorder
macOS        "/Applications/Refinitiv Workspace.app/Contents/MacOS/RefinitivWorkspace" --args --video-recorder
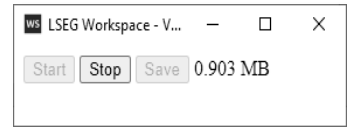```

The following dialog is displayed:

## Capturing a video

To capture a video, do the following:

1.  Click **Start**.

2.  In the dialog that is displayed, choose whether to capture video of your whole desktop or of a specific screen.

While the video is recording, a dialog is displayed which shows the current size of the video file, as it is recording.

3. Once you have captured the content you require, click **Stop**.

4. Then, in the main dialog, click **Save**.

A Windows Explorer dialog is displayed, with the **Downloads** folder open, by default.

5. Optionally, navigate to a different download folder.

6. Click **Save**.

7. Contact Support, who will guide you regarding the submission of this file.

# Using the Logs Viewer

The Logs Viewer facility allows you to view a comprehensive and filterable list of log entries that were captured in the main and other files.

You can start the facility from the Help menu or by using a parameter.

## Opening the facility from the Help menu

To do this:

1. Open the Help menu by clicking the **?** icon.

2. Select **Logs Viewer** from the menu.

## Opening the facility using a parameter

Run Workspace with the `--logs-viewer` parameter [104]. This can be done either by:

− adding the parameter to the application shortcut by editing its properties, or

− using the appropriate command line statement:

| Windows | `"%LOCALAPPDATA%\Refinitiv\Refinitiv Workspace\RefinitivWorkspace.exe" --logs-viewer` |
|---------|---------------------------------------------------------------------------------------|
| macOS   | `"/Applications/Refinitiv Workspace.app/Contents/MacOS/RefinitivWorkspace" --args --logs-viewer` |

---

[104] See the Logs Viewer parameters section.

## Logs Viewer parameters

The table below lists valid parameters for the `--logs-viewer` command line statement:

| Parameter | Description |
|---|---|
| `--logs-viewer` | Select the *main* file, which is the log of the current Workspace session, in the current log folder |
| `--logs-viewer=*` | Select all files in the current log folder |
| `--logs-viewer=<prefix>` | Select the files in the log folder that have the defined \<prefix>. Where \<prefix> is one of the following:<br>– `main` – Workspace desktop log<br>– `excel` – Workspace for Excel log<br>– `renderer` – Workspace window rendering log<br>– `node` – Node.js log |
| `--logs-viewer=<file>` | Select the specified log file. For example:<br>`--log-viewer="%LOCALAPPDATA%\Refinitiv\Refinitiv Workspace Logs\Desktop.20230104.151635.p8956\renderer-1-r6.20230104.p22728.log"` |
| `--logs-viewer="<folder path>"` | Select the main log file from the specified \<folder>. For example:<br>`--log-viewer="%LOCALAPPDATA%\Refinitiv\Refinitiv Workspace Logs"` |
| `--logs-viewer="<folder path>\*"` | Select all files from the specified \<folder>. For example:<br>`--log-viewer="%LOCALAPPDATA%\Refinitiv\Refinitiv Workspace Logs\*"` |
| `--logs-viewer="<folder path>\<prefix>"` | Select files with the specified \<prefix> from the specified \<folder>. For example:<br>`--log-viewer="%LOCALAPPDATA%\Refinitiv\Refinitiv Workspace Logs\renderer"` |

## Overview of the Logs Viewer panel

**What** – the type of file. That is, main, excel, renderer, and so on.

**Where** – file name, if more than one of that type, and line number

**When** – date and time stamp (local or UTC)

**Shift** – time variance from first log entry

**Level** – error, warning, info, debug, or verbose

**Tags** – [XYZ] markers found in the log entry

The contents of the selected files are saved to a .csv file in %LOCALAPPDATA%\Temp\Refinitiv

Tags are extracted from the log text when there is an info, error, warn, and so on, prefix

Select from a list of all log files, then click **GO** to confirm your selections

Header – Containing file name and length



Log entry list, where the background color indicates the type of entry:

- Error
- Warn
- Info
- Debug
- Verbose

Textual search of all filtered log records

**Show dates as UTC** – date and time is converted to UTC time zone.

**Show Dates as Local** – Default. Date and time shown in local time zone.

**Auto-scroll** – Updates to a single selected file are tracked and the new data is added. Select this to scroll automatically to the bottom when an update occurs.

# Importing files

Under the **Files** filter, log files held in folders that are not listed in the Logs Viewer can be imported into the viewer.

To do so:

1. In Windows Explorer, open the folder containing the file(s) to import.

2. Select the file(s).

3. Drag the files into the Logs Viewer panel [105].

   − When you release your pointing device, the files are added to the viewer under the folder in which they were located.

# Using the Actions menu

The **Actions** menu, an ellipsis found under the Actions column, can be used to copy the contents of specific log file entries.

To open the **Actions** menu:

1. Hover your cursor over the Actions column of the entry to copy.

   − An ellipsis appears.

2. Click the column to display the menu.

Choose from the following options:

| Copy raw line | Copy the original data from the log file to the clipboard. This copies the entire contents of the line, including date, time, and so on. |
|---|---|
| Copy Text Column | Copy the content of the **Text** column to the clipboard. |

---

[105] You can copy the files into the existing folder by holding the Ctrl key before releasing your pointing device.

# Appendix K: Known issues

## Datastream for Office issues

> **Warning:** As a result of these issues, existing Datastream for Office (DFO) users should not yet upgrade to Workspace 1.24. A patch release of Workspace correcting this issue will be released early in Q1 2024.

The following issues have been identified that would impact DFO users only:

- When the Autorefresh parameter is set to **Off** in a DSGRID formula, the refresh of the formula may hang and will display **Retrieving data** indefinitely.

- The copying and pasting of a DSGRID formula should use cached data, but currently does not.

- When the **Compile** option is selected in Excel, a VBA alert is displayed when opening a new Request table.

- When cell referencing in the formula builder, the cell to return the formula is moved to the cell reference location, causing an error.

## DPRM connection issue

If DPRM-related settings are read incorrectly, it may result in DPRM failing. In this case, the `No working server available for DPRM` log file error message.

> **Important**: The workaround, below, is only required for installations of Workspace 1.23 and has been fixed in the Workspace 1.24 release. Therefore, if you have upgraded to 1.24, these settings will need to be removed.

As a workaround, the following settings should be added to your configuration file:

```
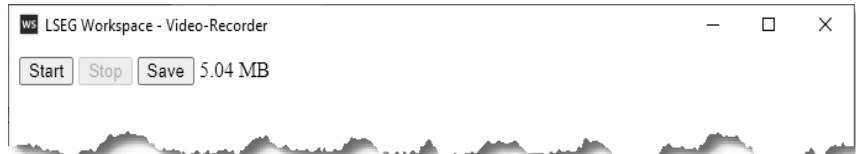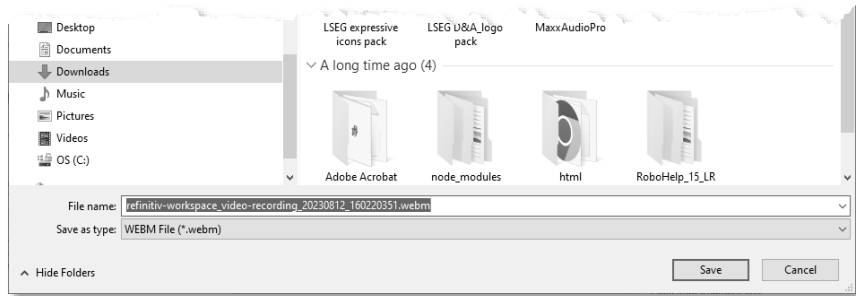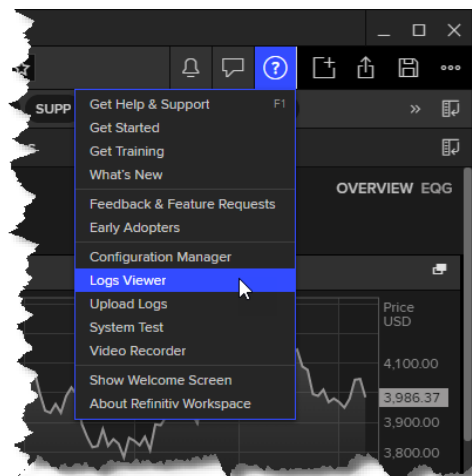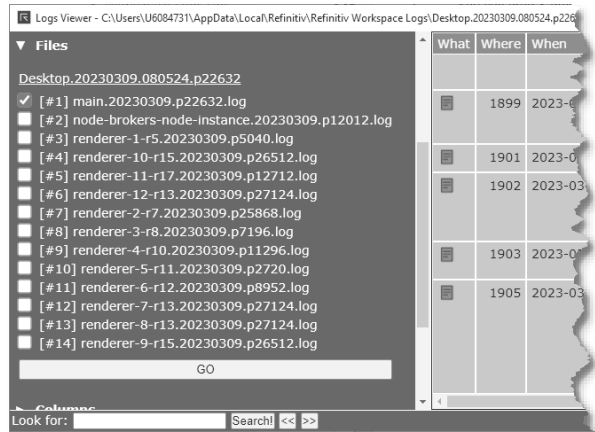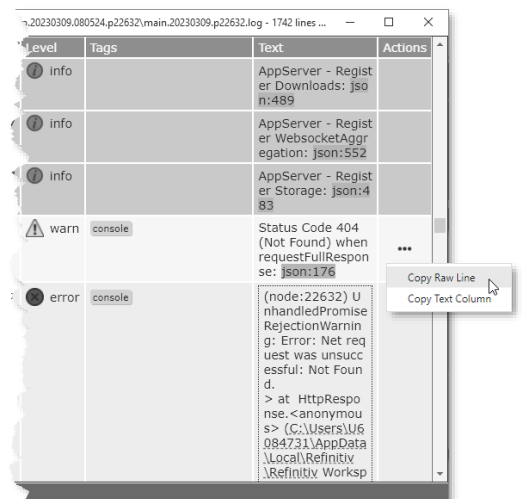{
"EIKON.STREAMING.API.__CORE__.PLUGINS.ADDITIONAL.LOCAL": "%.7%,%.8%",
"EIKON.STREAMING.API.LOCAL.ADDITIONAL.SESSIONS.1":
"%EIKON.STREAMING.API.LOCAL.DACS.DPRM.SERVERS%",
"EIKON.STREAMING.API.LOCAL.ADDITIONAL.SESSIONS.2":
"%EIKON.STREAMING.API.LOCAL.DACS.DPRM.PORT%",
"EIKON.STREAMING.API.LOCAL.ADDITIONAL.SESSIONS.3":
"%EIKON.STREAMING.API.LOCAL.DACS.USERNAME%",
"EIKON.STREAMING.API.LOCAL.ADDITIONAL.SESSIONS.4":
"%EIKON.STREAMING.API.LOCAL.DACS.FORCECASE%",
"EIKON.STREAMING.API.LOCAL.ADDITIONAL.SESSIONS.5": "%USERDETAILS.UUID%",
"EIKON.STREAMING.API.LOCAL.ADDITIONAL.SESSIONS.6":
"%EIKON.STREAMING.API.LOCAL.DACS.DPRM.INTERVAL%"
}
```

Retrieving permissions

If you use this workaround, the default for retrieving permissions from the LSEG Real-Time Advanced Distribution Server[106], to which you are currently connected, will not work.

---

[106]   For further information about configuring Real-Time data, refer to Appendix F: Configuring Real-Time Data products.

As such, you need to specify a value for the following setting:

```
EIKON.STREAMING.API.LOCAL.DACS.DPRM.SERVERS
```

Limitations

There are several impacts of these additional settings that are described below.

Defining additional local connections

If you use additional local connections, you will be limited to two. These are the connections configured using the following settings:

```
EIKON.STREAMING.API.LOCAL.ADDITIONAL.SESSIONS.7
EIKON.STREAMING.API.LOCAL.ADDITIONAL.SESSIONS.8
```

Using Configuration Manager

This workaround will severely impact use of Configuration Manager.

Certain components of Configuration Manager – Streaming feeds, for instance – will not initialized properly. As such, any changes made in Configuration Manager will not persist and, therefore, will have no effect on Workspace.

Exporting data to Excel

This affects users who are not permitted to access the Windows operating system tool[107], PowerShell, only.

An error message may be displayed when attempting to export data to Excel.

ⓘ This has been noted to impact users of the SDC PLATINUM application especially.

Excel add-in loading issues

Trust Center policies

If the Group and/or Microsoft 365 Trust Center policies are set to deny the use of Web add-ins, certain **Workspace** add-in menu ribbon items, such as Deals BI, may not load.

To resolve this issue, do the following:

1. Open a Microsoft 365 file (Word document, Excel spreadsheet, …)
2. Open the **File** menu
3. Select **Options**
4. In the Options dialog, select **Trust Center**

---

[107] For a list of required operating system tools, refer to the System Test Guide.

5. Click the **Trust Center Settings…** button

6. Select **Trusted Add-in Catalogs**

7. Uncheck the **Don't allow any web add-ins to start** checkbox

Workspace installations without automatic update[108]

For users installing Workspace using `--machine-autoupdate-no`, the Excel add-in does not load correctly on non-virtual machines. This is because the default location of the Office registry key is registered at HKLM.

To correct the registry key location, use the command:

```
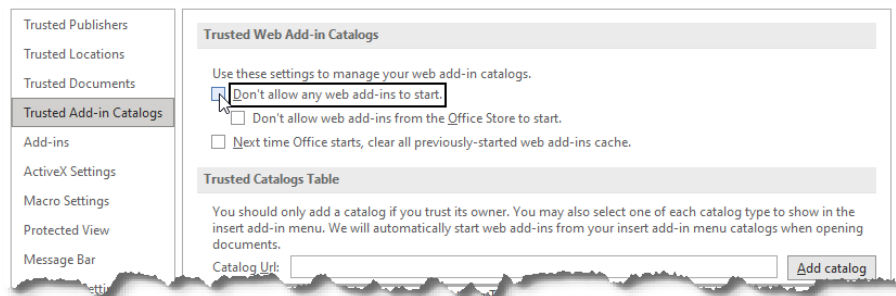<install path>\RefinitivWorkspace.exe --update-office-registry=HKCU
```

Installing standalone Workspace Messenger

For Workspace 1.21 only, installation or update of Workspace Messenger alone is done using command line statements. That is:

Action	Command
Installation	RefinitivWorkspace-installer_x.xx.xx.exe --<mode> --messengeronly
Update	RefinitivWorkspace-installer_x.xx.xx.exe --<mode> --messengeronly
Uninstallation	<install path>\Refinitiv Workspace\RefinitivWorkspace.exe --uninstall

Contributions (RtContribute)

The Refinitiv Workspace - Excel (**Workspace** ribbon) add-in was added in Workspace version 1.16. The following list summarizes the known issues and their solutions or when they are to be addressed.

Issue	Solution/To be addressed in
RTDS requires updating to a new Data Dictionary version.	
LSEG Real-Time Advanced Distribution Server[109] (formerly ADS) version 3.5.2 L1 does not support the contribution from Workspace Excel.	Install version 3.5.2 L3 [110] or higher.
POS and LANGUAGE parameters are not supported. Requires sending data in RMTES encoding.	Only UTF-8 is supported by the API

LSEG Real-Time Advanced Distribution Server version issues

There were several issues with the handling of WebSocket connections in the initial release of version 3.5.2, which were only partially resolved in 3.5.2 L2.

---

[108] PCN206237 provides more information about this fix.
[109] For further information about configuring Real-Time data, refer to Appendix F: Configuring Real-Time Data products.
[110] See also Creating an internal connection.

Further issues concerning WebSocket connections were addressed in the L3 release, together with minor changes to the default settings, which improved the handling of larger messages.

Virtualized environment issues

Important: If you encounter an issue; LSEG requests that you confirm the issue has been reproduced in a non-virtualized environment.

CVAD environments

This section lists all known issues for running Workspace on a CVAD environment:

Subject	Jira reference	XenApp pub. app	XenApp pub. d'top	Xen Desktop
RTGet template which has 10k functions is not responding on applying "save as val- agreeues-Workbook"	EFO-8412			
Refinitiv Workspace - Excel is not automatically sign in and retrieve the data when Open saved Functional template + native excel via command line	EFO-8579		●	●
HelpApi request doesn't work	HELP-5828	●		
All menus are displayed as separate entry in taskbar	SAP-9231	●		
Toast UI is displaying as separate entry in taskbar	SAP-9233	●		
Notification Centre: Toast still appears when user activate Focus Assist on local machine	SAP-9617	●		
There is a small black area around toasts	SAP-9620	●		
Shortcut (ALT + S) doesn't work	SAP-10009			●
RW in XenApp does not support custom protocols	SAP-10157	●		
Black areas are shown near guidelines and snapping lines	SAP-10399	●		
Snapping/grouping features breaks after moving a tile (moving frame)	SAP-10368	●		
Black screen is displayed around opened window for area and full screen screenshot	SAP-10785	●		
Messenger on Citrix XenApp environment intermittently freeze while typing in the text box	SAP-11267	●		
File type is not added into save dialogue	SAP-14187			
Unknown container type and app-name into UsTracking evet for Tile, Modal window	SAP-18302			
If the 'Position of Toast' sets as 'Bottom - Right or Left', it's not working as expected	SAP-24424	●		
Three horizontal dots (ellipsis) option is not appearing in the toast notification	SAP-24438	●		
Not able to close the popped-out conversation in the system task bar	SAP-24439	●		
Deep links are not opened on virtual desktop machines	SAP-25517			
[Widely:] Palo Alto Networks TS Agent can raise problems - whitelisting	---			

VMware environments

This section lists all known issues for running Workspace on a VMware Horizon 8 environment:

Subject	Jira reference	Horizon virtual apps
There's only 'Close window' in the task bar	SAP-10823	●
Published Apps - Do not disturb option is activated on Published Apps when Focus assist is OFF in OS settings	SAP-10972	●

Subject	Jira reference	Horizon virtual apps
Published Apps - Impossible to copy screenshot to clipboard for Virtual App	SAP-11011	●
Tiles - Snapping line and guideline are visible only after dropping a tile	SAP-11025	●
Tiles - Group movement is not working properly	SAP -11026	●
Tiles - Single tile resizing works for snapped or grouped tiles	SAP-11027	●
Impossible to open deep link	SAP-11955	●
Published Apps - RW desktop 1.19 is not resized	SAP-22571	●
Tiles - Pinned tile manager can be moved	SAP-22620	●

SSL inspection support

LSEG does not support or enforce SSL inspection, sometimes referred to as TLS/HTTPS Interception.

If clients use SSL inspection, they must configure URL filtering profiles **not** to enforce SSL inspection on LSEG domains, such as *.refinitiv.com, *.refinitiv.net, *.refinitiv.biz.

Real-Time server disconnections

In the event where the LSEG Real-Time Distribution System disconnects immediately following a successful mount, refer to Creating an internal connection.

Cache path definition

An alternative cache path can be defined for Workspace during its installation, using the parameter:

```
RefinitivWorkspace-installer_x.xx.xx.exe --cachepath="<folder_path>"
```

However, currently, this does not re-route the entire content of the `Refinitiv Workspace` folder in the cache. That is, while the `electron` folder is moved to the new location, the following subfolders are not:

– Config

– Dictionaries

– Data API Proxy

– File Links

Signing in automatically

When users first log into Workspace, they have the option of choosing to sign in automatically in future, which creates a cookie in the electron cache for the user.

However, if electron is upgraded to a higher version, the cache is cleared and users are expected to sign in again.

ⓘ As this may occur many months later, users may have lost their credentials.

Rolling back

If your instance of Workspace was upgraded automatically, you can return to the previous version of Workspace by using the rollback parameter in the command line:

`"<Install Path>\Refinitiv\Refinitiv Workspace\RefinitivWorkspace.exe" --rollback`

However, this command also disables the automatic update feature for subsequent releases of Workspace.

Rolling forward command support

Due to changes to the Workspace architecture, the `--rollforward` command line parameter is only valid for version 1.19 or higher. Also, this command can only be used after a `--rollback` operation has been performed.

https://my.refinitiv.com/content/mytr/en/productsupport.html