# LSEG Workspace Technical Readiness Guide

Technical requirements, connectivity options,
software deployment, and support channels

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**v1.39**

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# Revision History

| Date | Version | Summary of changes |
| --- | --- | --- |
| Dec 2024 | 1.39 | MS Surface Pro and Apple iPad support added; Minimum Office version changed; RTDS Information updated; Added OpenFin information; Fixed broken links |
| Sept 2024 | 1.38 | Updated Supporting LSEG Wire Format (RWF) Protocols Page; updated RTMDS information; added link to LSEG WS PDP Config Guide; updated links from MyRefinitiv to MyAccount |
| June 2024 | 1.37 | Change to RTDS Minimum Version; additional information added to Supporting LSEG Wire Format (RWF) Protocols Page; added link to Customer Assurance information on MyAccount |
| Mar 2024 | 1.36 | Changes to Protocol Support page; Office Workspace Add-In link changes |
| Jan 2024 | 1.35 | Sample distribution.cnf additions for Customer Managed; Edited RWF Slide; Added Link to LSEG Workspace Technical Documents; Additional Links for Add-In; Removed outdated Links |
| Nov 2023 | 1.34 | Added Link for Web vs. Desktop comparison; Changed wording for Full Tick support; Repaired broken Links |
| Sept 2023 | 1.33 | Rebranding to LSEG Workspace; RWF Support information added; removed variants from required bandwidth chart |
| July 2023 | 1.32 | VMWare now supports Windows Server 2022; Refinitiv Add-In install guide added; additional Useful Links added |
| April 2023 | 1.31 | Added Refinitiv Workspace Vendor Subservice Definitions (DACS Codes) under Useful Links; Appendix change for DPRM |
| Feb 2023 | 1.30 | Addition of Workspace Checklist (Internal Use) under Useful Links section, CIAM Information and Required bandwidth for Trading Variant |
| Dec 2022 | 1.29 | Added information about TLS 1.2 needing to be enabled as of June 2023; recommend clients enable this now |
| Oct 2022 | 1.28 | Additional information added for PCN 205034 for additional Whitelisting needed; Updated System Requirements Page; Renamed the Workspace Advanced IT-Managed Install Guide to Workspace Installation and Configuration Guide |
| Oct 2022 | 1.27 | Added info about ADS 3.5.2.L1/L2 issues for CM sites |
| Aug 2022 | 1.26 | Consolidated Support Overview slides and cleaned up Useful Links sections |
| May 2022 | 1.25 | Cleaned up Links; Removed multiple links to documents; Full tick not supported; DPRM available; Updated System Requirements |
| Apr 2022 | 1.24 | DACS Sync no longer mandatory; Replaced COS with IRM; Updated SSO and Workspace Service Model links |
| Mar 2022 | 1.23 | Edited DACS Sync to be mandatory for CM users |
| Feb 2022 | 1.22 | Updated links i.e., System Test, Eikon/DACS perm synch; Removed duplicate info in software deployment; Added minimum ADS/DACS versions. |

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# Ensuring Technical Readiness

- **Technical Environment**
  - **Hardware Requirements**
  - **Software Requirements**
  - **Networking Requirements**

- **Connectivity Options**

- **Software Deployment method**

- **Workspace Variant - Deployed Desktop vs. Web**

- **Additional Considerations** - Professional Services, Packaging Support, Network Configuration, Single Sign On (SSO)

- **Support Overview**

- **Useful Links**

# TECHNICAL ENVIRONMENT

- Hardware Requirements
- Software Requirements
- Networking Requirements
- Workspace System Test Tool

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# Reviewing technical readiness

Review Workspace system requirements

Review Workspace Technical Requirements:

- Minimum hardware specs
- Operating System
- RTDS Information / OpenFin Information
- Excel Office / Excel Add-Ins
- Network Bandwidth
- System Test Tool

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# Reviewing technical readiness - Please see [LSEG Workspace System Requirements](#) for full list of Requirements

The list of system requirements that users must meet to run LSEG Workspace® on a personal computer and certain tablets[1], where the operating system is either Microsoft® Windows® or Apple® macOS®.

**Important:** During installation, a system test[2] is performed to check whether the environment meets the minimum levels required. For further information see the System Test Guide.

## Desktop[3]

| Processor[4] | | High resource | Recommended | Minimum |
|---|---|---|---|---|
| | Intel® | Core™ i9 (14 cores) | Core i7 (10 cores) | Core i5 (8 cores) |
| | AMD | Ryzen™ 9 (12 cores) | Ryzen 7 (8 cores) | Ryzen 5 (4 cores) |
| | Apple | M1 Ultra | M1 Max | M1 |
| Graphic Processing Unit | | It is strongly recommended that 3D GPU acceleration is enabled. Workspace is based on Chromium, which uses the GPU for rendering environments. | | |
| Memory | | 24 Gb | Single screen: 8 Gb<br>Multiple screens[5]: 16 Gb | 8 Gb |
| Hard disk | | 3 GB free disk space or higher | | 1 GB free disk space |
| Screen resolution | | 1920 x 1080 or higher | 1920 x 1080 | 1280 x 1024 |
| Virtual Desktop Infrastructure[6] | | Support is based on the ability of VDI platforms to continuously meet the minimum system requirements. | | |
| Operating system | Windows[7][8] | 10 or higher (64-bit only) | | |
| | macOS | 11 (Big Sur) or higher[9] | | |

## Web

| | Recommended | Minimum |
|---|---|---|
| Display settings | 1920 x 1280 | 1024 x 768 |
| Web browser[10][11] | Workspace web access is supported on the following versions of:<br>Google Chrome™ - Stable channel version(s)<br>Microsoft Edge – Stable channel version(s)<br>Apple Safari® - running under the Workspace-supported versions of macOS | |

[1] Workspace has been tested successfully on Microsoft Surface® Pro and Apple iPad®.

[2] In currently supported versions of Workspace, the test performed prior to installation no longer checks for the presence of the PowerShell app, as the 50 most used apps do not require this application. However, if you are using more niche applications, it may be a requirement.

[3] Hardware - CPU, memory, and GPU - of a higher specification may be necessary, depending on the requirements of other LSEG or third-party applications that are run concurrently with Workspace.

[4] The number of cores (or logical processors) specified for each processor are for the base model of the respective processor that is currently available. However, earlier generations of the same processors that are still maintained by their respective manufacturers can be used to run Workspace at the resource levels indicated above. So, for instance, the Intel Core i5 specified above, is a 13th generation processor. However, the base 7th generation 'Kaby Lake' processor (4 cores) is maintained by Intel and thus supported to run LSEG Workspace.

[5] With Advanced Monitoring - multiple screens, running different applications.

[6] LSEG currently provides limited testing support and technical advice on Citrix® VDI solutions. However, customers deploying a VDI 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.

[7] The recommended Windows 11 editions are Pro and Enterprise.

[8] The wmic (Windows Management Interface Command) tool can be removed from Windows version 10 onwards. However, it is currently a requirement for Workspace to run. This dependency will be removed from an upcoming version of Workspace.

[9] For Workspace on OpenFin, macOS 13 (Ventura) or higher is required. For further information, see the OpenFin macOS overview page.

[10] Workspace may run on other releases of these browsers, but you might not be able to use all features.

[11] Running on Windows OS or macOS platforms. Tablets are currently unsupported

# Security

## Transport Layer Security

To continue to access Real-Time services, Workspace users must ensure Use TLS 1.2 is enabled in their Internet Security settings. For further information, see [PCN205244-Change in supported TLS protocols for Eikon and Workspace.](#)

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# Reviewing technical readiness - [Workspace System Requirements](#) (cont.)

## Real-Time Product Version Compatibility

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

| Product | Recommended | Supported |
|---|---|---|
| Real-Time Distribution System<br>– Real-Time Advanced Distribution Server[14]<br>– Real-Time Advanced Distribution Hub | 3.8[15] | 3.6 and 3.7[16] |
| LSEG Real-Time Data Access Control System (formerly DACS) | 7.7 or higher[17] | |

[14] For additional information regarding the Real-Time Advanced Distribution Server encryption capabilities offered by version 3.8, see the Local connection security parameters section of the [Installation and Configuration Guide](#)

[15] The Perm Sync feature of the Real-Time Data Access Control System requires, as a minimum, Real-Time Distribution System version 3.8.1. For further information regarding Perm Sync, see the [DACS Permission Synchronization Configuration Guide](#), found under the [DACS section](#) of MyAccount

[16] Version 3.7 or higher is required for RWF data

[17] In line with the new [rolling obsolescence plan](#) being introduced for the Real-Time Data Access Control System on 01February 2025

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

While we recommend DACS Permission Sync, for information regarding the configuration of the DPRM service, see Appendix in the [Workspace Installation and Configuration Guide](#)

## OpenFin

The requirements for Workspace on OpenFin[12], when run under Windows and macOS [9], are largely the same as those laid out elsewhere in this document.
However, OpenFin does not have the same, high end hardware requirements.

For virtualized environments, use of Workspace on OpenFin[13]:
- ➢ Has not been validated for Citrix Virtual App.
- ➢ Requires between 8GB and 16GB RAM, regardless of usage profile.
- ➢ Depends on the number of users and their platform usage profile. For recommendations regarding vCPU requirements, refer to the Virtualized environment requirements section of the **[Workspace System Requirements Guide](#)**.

Additionally, from the 2.11.0.21 release of Workspace for OpenFin, the following minimum OpenFin runtime version is required:
- ➢ 38.126.82.69

[9] For Workspace on OpenFin, macOS 13 (Ventura) or higher is required. For further information, see the OpenFin [macOS overview](#) page.

[12] Workspace, powered by OpenFin, is currently in its Pilot stage. For further information regarding this product and its development roadmap, contact your account team.

[13] For related information regarding System Requirements for OpenFin, refer to [VDI Deployment](#) on the OpenFin developer site.

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# Reviewing technical readiness - Workspace System Requirements (cont.)

## Office Workspace Add-In / Workspace Lite (365) Add-In

- The Workspace excel add-in comes installed automatically with Workspace, see the LSEG Workspace Add-Ins – Workspace Installation Guide for details on minimum requirements

- Some features are web apps that require a minimum of Office 365 for corporate Office subscriptions, as well as other settings; see LSEG Workspace Add-Ins – System Requirements for more information

- Mac and web-only excel users should use the Workspace Lite add-in, which is platform independent LSEG Workspace Add-Ins – Workspace Lite Installation Guide

- See Microsoft Office Section of the LSEG Workspace System Requirements and the Technical Documentation Section on LSEG Data & Analytics Page for more information on Add-Ins

- Microsoft Office Workspace Lite (365) Add-In FAQ

- Workspace Office Tools Pre-check Test  (Internal SharePoint link)

**Workspace**
The Workspace add-in is installed as part of the LSEG Workspace desktop package and runs on Microsoft Excel® and Microsoft PowerPoint®. The ribbon for this add-in contains the full list of Web-based and COM options.

**Workspace Lite**
The Workspace Lite add-in is an app found on the Microsoft AppSource®. This ribbon contains Web-based capabilities only.
This Web-based app runs in online versions of Excel and PowerPoint, using the latest supported version(s) of the browsers listed below:
  − Microsoft Edge
  − Google Chrome™
  − Apple® Safari®

**Workspace Office Tools Pre-check Test** (Internal SharePoint Link)

| Add-in | Workspace | Workspace Lite |
|---|---|---|
| Office version(s) | Microsoft 365 Office LTSC 2021 | Microsoft 365 |
| Annotations [i] | ● | ● |
| Comp List [i] | ● | ● |
| Data Audit | ● | ● |
| Datastream | ● | ● |
| Deals BI [i] | ● | ● |
| Formula Builder | ● | ● |
| Insert Chart | ● | |
| Lists (Portfolio & Lists) | ● | |
| Logos [i] | ● | ● |
| Scenario Analysis | ● | ● |
| Screener | ● | |
| SDC Platinum | ● | ● |
| Search (Advanced Instruments) | ● | ● |
| Template Library | ● | |
| Eikon-compatible formulas [ii] | ● | |
| Function library (Adfin) | ● | |

i The Annotations, Comp List, Deals BI, and Logos tools are supported for Microsoft 365 only.

ii This includes =TR, =Rhistory, =RtGet, and =RtContribute.

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# Reviewing technical readiness - <u>Workspace System Requirements</u> (cont.)

## Customer Identity and Access Management (CIAM) requirements

LSEG is in the process of replacing the Customer Identity and Access Management (CIAM) environment a critical factor to the success of our customers business. The new CIAM capability is built on top of a highly resilient and reliable cloud-based identity and access management platform, benefitting from continuous and seamless security updates continuously developed product feature roadmap managed by the market leader in this space.
The new identity and authentication service is cloud-hosted and does not use static IP addresses.

**Internet**
If you whitelist access to the public Internet, you'll need to permit the following list of Fully Qualified Domain Names (FQDNs).

**Note:** You may already allow some of these domains as part of changes made in 2021. Any existing whitelisted domains previously communicated should not be removed.

| FQDN[1] | Protocol/Port | New domain | Delivery | Description |
|---|---|---|---|---|
| refinitiv.com<br>refinitiv.net<br>refinitiv.biz | HTTPS/443 | No | Internet or Refinitiv Delivery Direct | Login page**<br>Password reset |
| https://authenticator.pingone.com/ | HTTPS/443 | Yes | Internet | Multi-Factor Ping Authenticator app |
| https://idpxnyl3m.pingidentity.com/ | HTTPS/443 | Yes | Internet | Multi-Factor Ping Authenticator app |

[1] Domains listed in the table above are wildcard values, where a subdomain may prepend and/or append the listed domain.
**Login authentication is currently via the Internet. Delivery Direct as a connectivity option will be introduced by Q1 2023

**Private networks**
To access new AWS service endpoints, customers using a private network must whitelist the following new IP addresses, which will impact Delivery Direct, FCN and CMC users.
- 159.43.192.0/23 [AMERS]    amers-passage.extranet.refinitiv.biz
- 159.43.200.0/23 [EMEA]    emea-passage.extranet.refinitiv.biz
- 159.43.208.0/23 [APAC]    apac-passage.extranet.refinitiv.biz

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# Reviewing technical readiness - <u>Workspace System Requirements</u> (cont.)

## Workspace Network / Bandwidth Requirements

### Review Relevant Workspace Technical Documentation:

- <u>Workspace System Requirements Guide</u> – Covers Desktop, Web, Mobile, Virtualized Environments and Data Transfer Rates

- <u>Workspace Basic Installation Guide</u> – Guide for simple, end-user installation

- <u>Customer Connectivity Guide</u> - for customers with private-line connectivity. Please see Table 14 of the Guide for new Whitelisting IPs. Also review <u>PCN 205034</u>

- <u>Workspace Installation and Configuration Guide</u> - covers more complex set up options (installing in a virtualized environment, SSO, software packaging, etc.). Also has info on System test, Workspace Messenger and some troubleshooting/known issues.

### Network/bandwidth requirements:

- These calculations are 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 a user's workspace and the frequency at which those instruments update

| Workspace Product | Bandwidth per user |
|---|---|
| Workspace Desktop | 175 KB/s |
| Workspace Web | 100 KB/s |

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# Reviewing technical readiness

## Workspace System Test tool

### System Test Tool

- The Workspace System Test Tool helps determine whether a user meets the minimum hardware, software, and connectivity requirements to properly run Workspace

- The Workspace System Test is launched automatically during the initial Workspace installation but can also be run as a standalone tool in order to confirm technical readiness prior to installation

- No personal information is sent to LSEG during this process

- The output of the system test has multiple sharing options and can be sent by email, saved as a file, or copied to the system clipboard

- Standalone System Test executables for Window and Mac are available on the [LSEG Workspace for Desktop Product page](#)

- For more details on running and interpreting system test results, see the [Workspace System Test Guide](#)

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# Recommended Connectivity Options
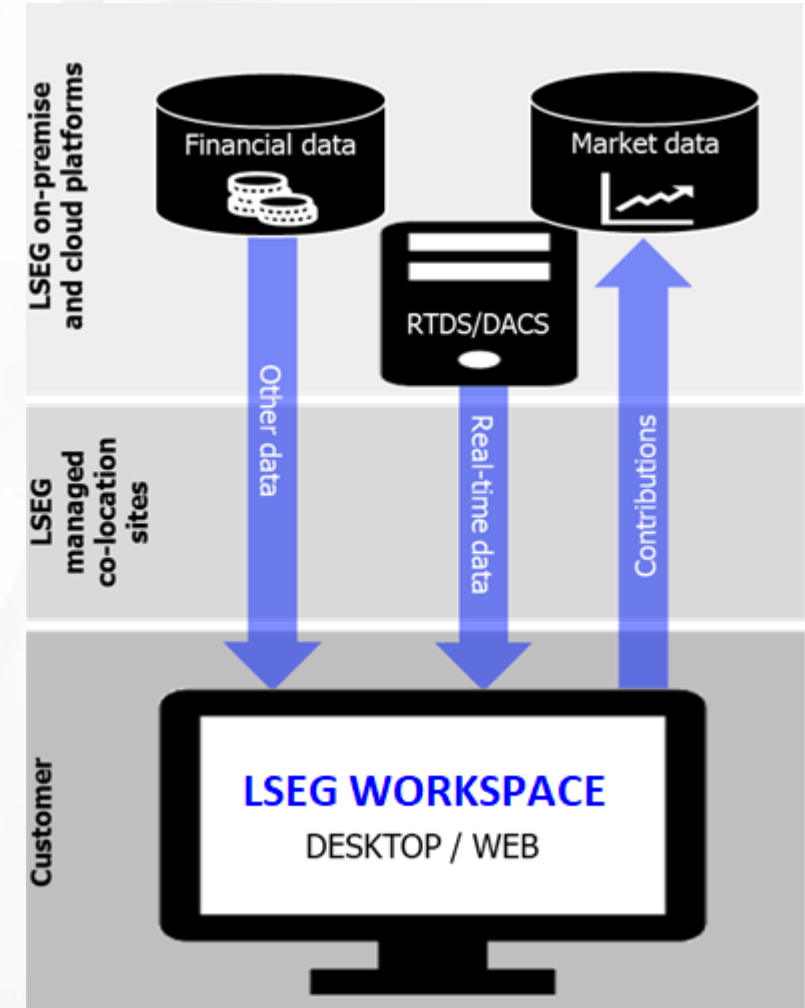
# Hosted - Internet

**Recommended for standalone Workspace users**

## Overview

- **Standalone Workspace Desktop or Workspace Web**

- **LSEG hosted service provides Market data**

- **Internet provides connectivity**

## Use Cases

- **Easier to provide faster response times**
  Applications move to AWS Cloudfront CDN, so users always connect to closest AWS PoP

- **Web access requires no software install**

- **Desktop access requires local desktop install**
  If the multi-window / tiled user interface approach required

- **No deployment of on-site Market Data Servers**

- **Lower specification desktop hardware can be used**
  Using a managed or conflated data service, the desktop (or virtual desktop) hardware and bandwidth requirements are reduced



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# Hosted – Private Line

**For Workspace users connecting via a private line**

## Overview

- **Standalone Workspace Desktop or Workspace Web**

- **LSEG hosted service provides Market data**

- **Private circuits provide connectivity**

## Use Cases

- **Web access requires no software install**

- **Desktop access requires local desktop install**
  If the multi-window / tiled user interface approach required

- **No deployment of on-site Market Data Servers**

- **Private circuits connecting to the LSEG network set up in client data centres**

- **Lower specification desktop hardware can be used**
  Using a managed or conflated data service, the desktop (or virtual desktop) hardware and bandwidth requirements are reduced
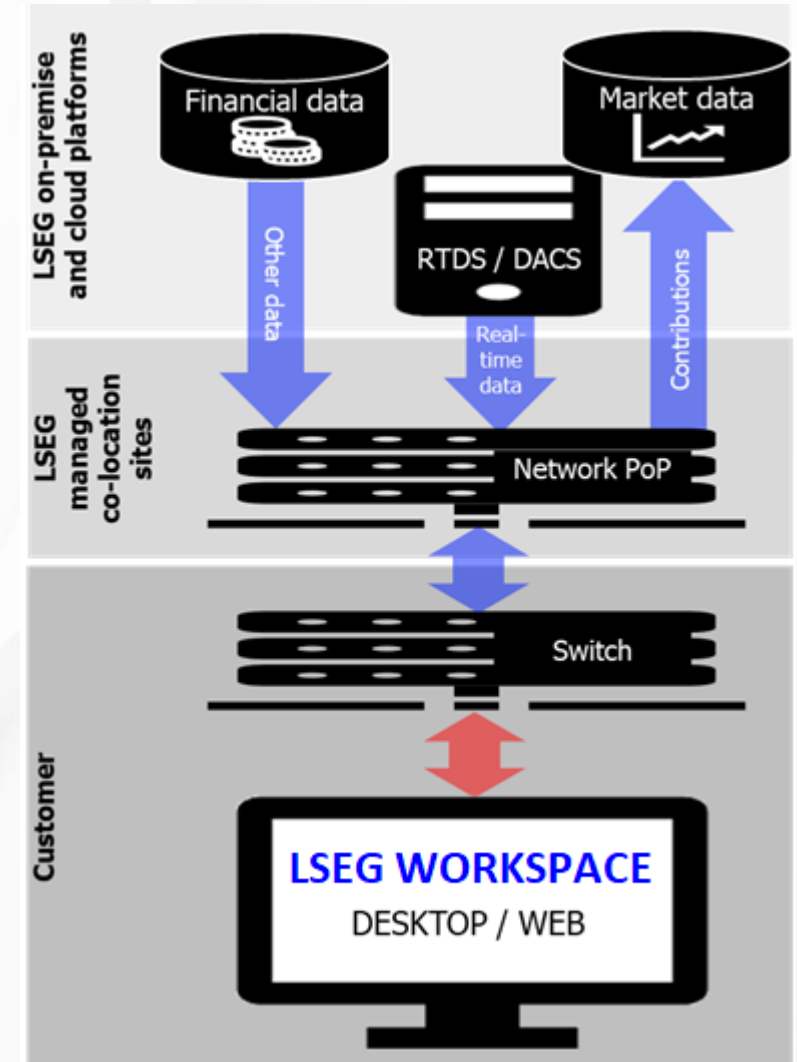
# Customer Managed / Local RTDS/DACS

**Traditional data delivery method for sell-side customers**

## Overview

- **Workspace Desktop only**
  Real-time data from the RTDS provides data to the Workspace Desktop only (Workspace Web cannot receive data from local RTDS)

- **Private circuit provides RTDS connectivity**

## Use Cases

- **For users requiring higher frequency (max 300ms conflated), low latency market data**

- **Requirement to provide market data to internal systems, and/or a need to contribute prices from these systems , view 3rd party data, and/or leverage RTDS capabilities (like ATS)**

- **Important: Full tick data is not displayed in Workspace. If connecting to a Full Tick Network, Workspace will display the data as 300ms conflated data**

**DACS Perm Synch: Strongly recommended** to setup DACS Permission Synchronization on client's DACS for CM users. If unable to implement, DPRM is available via adding parameters to the Workspace config file, see Appendix in the Workspace Installation and Configuration Guide
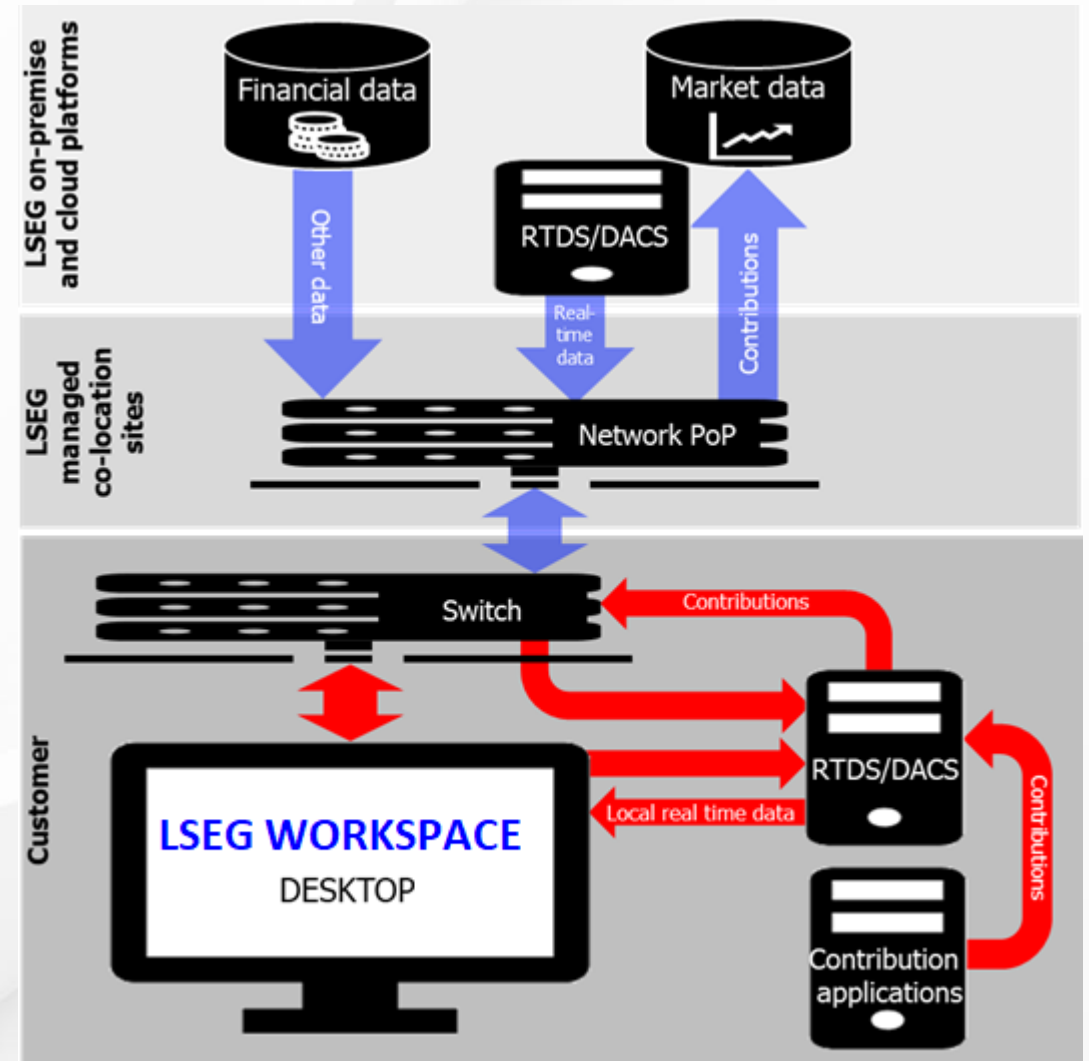
# RTDS - ADS Config Changes Needed

**(This is only a sample as client's needs may vary. Please see the REAL-TIME ADVANCED DISTRIBUTION SERVER SYSTEM ADMINISTRATION MANUAL for more information)**

Parameters to be added to distribution.cnf
**********************************

```
*ads*allowWSConnections : True
*ads*wsPort : 15000
*ads*15000*applicationIdName : applicationId
*ads*15000*authTokenName : AuthToken
*ads*15000*clientToServerPings : True
*ads*15000*compressionType : 0 (if client has issues connecting WS through ADS, try changing this to 1)
*ads*15000*flushInterval : 1
*ads*15000*maxMounts : 256 (this can be increased if necessary)
*ads*15000*minCompressionThreshold : 0
*ads*15000*pingTimeout : 30
*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 (add this parameter if not found)
*ads*15000*poolSize : 300000 (add this parameter if not found)
*ads*defaultJsonServiceId : 23 (or client's Service ID from config file)
*ads*wsMsgPacking : True

*ads*enableMultipartDictionary : True (as long as no 3rd Party systems are fetching real-time data from same ADS)
*ads*enableMultipleTransportFilterThreads : False

*ads*catchUnknownJsonFids : True
*ads*catchUnknownJsonKeys : False
*ads*defaultJsonQosDynamic : False
*ads*jsonExpandedEnumFields : True
*ads*wsMsgPacking : True
```

Example of using defined name instead of port number (15000)
Note that distribution_ws_sink needs to be defined in the /etc/services file
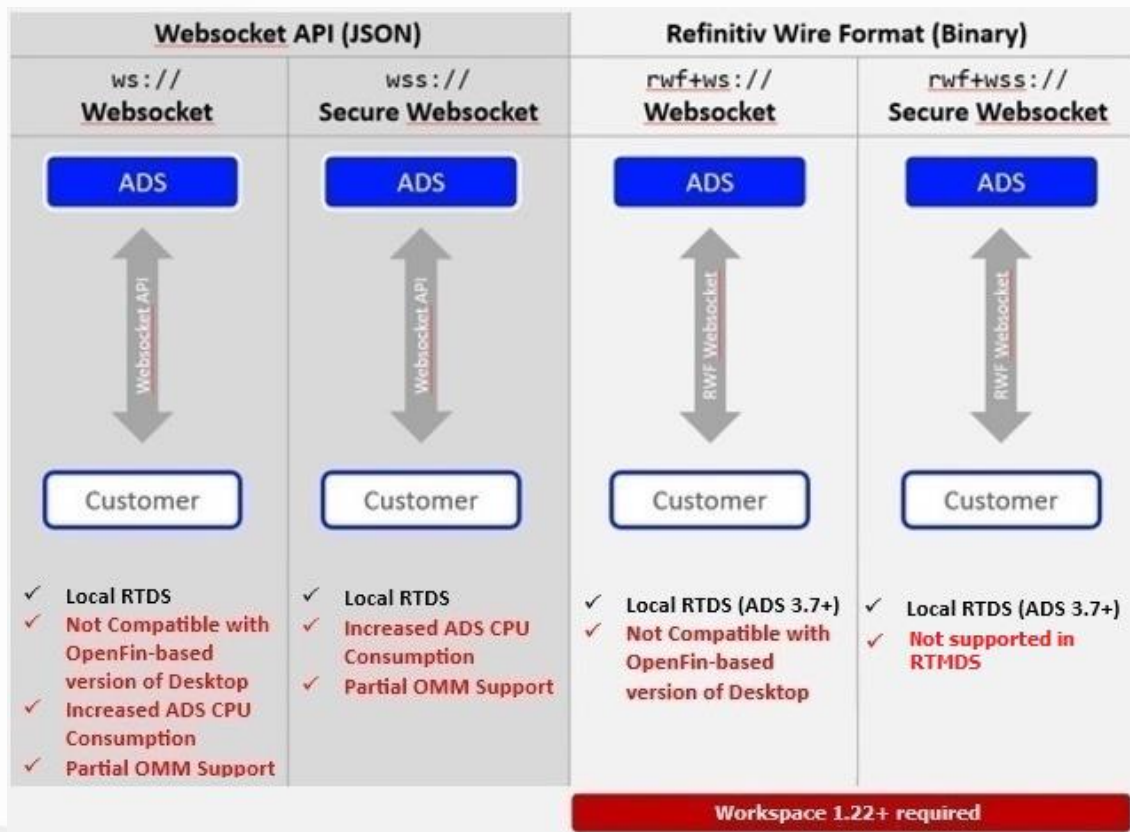**********************************

```
*ads*allowWSConnections : True
*ads*wsPort : distribution_ws_sink
*ads*distribution_ws_sink*applicationIdName : applicationId
*ads*distribution_ws_sink*authTokenName : AuthToken
*ads*distribution_ws_sink*clientToServerPings : True
*ads*distribution_ws_sink*compressionType : 0 (if client has issues connecting WS through ADS, try changing this to 1)
*ads*distribution_ws_sink*flushInterval : 1
*ads*distribution_ws_sink*maxMounts : 256 (this can be increased if necessary)
*ads*distribution_ws_sink*minCompressionThreshold : 0
*ads*distribution_ws_sink*pingTimeout : 30
*ads*distribution_ws_sink*positionName : AuthPosition
*ads*distribution_ws_sink*serverToClientPings : True
*ads*distribution_ws_sink*tcpNoDelay : True
*ads*distribution_ws_sink*tcpRecvBufSize : 64240
*ads*distribution_ws_sink*tcpSendBufSize : 64240
*ads*distribution_ws_sink*timedWrites : True
*ads*distribution_ws_sink*zlibCompressionLevel : 3
*ads*distribution_ws_sink*maxOutputBuffers : 4000 (add this parameter if not found)
*ads*distribution_ws_sink*poolSize : 300000 (add this parameter if not found)
*ads*defaultJsonServiceId : 23 (or client's Service ID from config file)
*ads*wsMsgPacking : True

*ads*enableMultipartDictionary : True (as long as no 3rd Party systems are fetching real-time data from same ADS)
*ads*enableMultipleTransportFilterThreads : False

*ads*catchUnknownJsonFids : True
*ads*catchUnknownJsonKeys : False
*ads*defaultJsonQosDynamic : False
*ads*jsonExpandedEnumFields : True
*ads*wsMsgPacking : True
```

**NOTE:  SNAP_AND_DYNAMIC_VIEW license is required to be installed on ADS when Client's application(s) request snapshot batch (snapshot multiple items in a single batch request) or with News Monitor.**

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# Supporting LSEG Wire Format (RWF) Protocols

| Websocket API (JSON) | | Refinitiv Wire Format (Binary) | |
|---|---|---|---|
| ws:// Websocket | wss:// Secure Websocket | rwf+ws:// Websocket | rwf+wss:// Secure Websocket |
| ADS | ADS | ADS | ADS |
| ↕ Websocket API | ↕ Websocket API | ↕ RWF Websocket | ↕ RWF Websocket |
| Customer | Customer | Customer | Customer |

✓ Local RTDS
✓ Not Compatible with OpenFin-based version of Desktop
✓ Increased ADS CPU Consumption
✓ Partial OMM Support

✓ Local RTDS
✓ Increased ADS CPU Consumption
✓ Partial OMM Support

✓ Local RTDS (ADS 3.7+)
✓ Not Compatible with OpenFin-based version of Desktop

✓ Local RTDS (ADS 3.7+)
✓ Not supported in RTMDS

**Workspace 1.22+ required**

**Workspace will follow the ADS configuration just as Eikon did for compression. It will be based on the ADS' *forceRsslCompression* setting.**
- ➢ If the client is concerned about bandwidth consumption, they should go with the JSON over Secure WebSocket option.
- ➢ Otherwise, they should disable compression on the ADS and go with the RWF over Secure WebSocket option.

## 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:// | | | | | |

## LSEG managed

The two services that are managed by LSEG – Hosted Market Data System and LSEG Contributions Channel – use the rwf+wss:// protocol.

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, HMDS connection uses rwf+wss:// protocol.

## Streaming protocols

In Workspace 1.22+, additional Refinitiv Wire Format protocols for LSEG Real-Time Advanced Distribution Server 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:443\WebSocket"]

**Additional Protocol Support and Creation of shared configuration files can be found in the [Workspace Installation and Configuration Guide](#)**

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# Hosted – Internet / Private Line Local RTDS/DACS hybrid

**Recommended for managed RTDS/DACS users with different user group requirements**

## Overview

- **Hybrid configuration:**

  **User group 1 – Workspace Web or Desktop**
  - LSEG hosted service provides Market data
  - Internet provides connectivity

  **User group 2 – Workspace Desktop only**
  - Local RTDS/DACS provides Market data
  - Private circuit provides RTDS/DACS connectivity

## Use Cases

- **Two groups of users:**

  **Wealth Advisors/Research Analysts**, require less frequent market data update dates – managed data provided through nearest AWS PoP
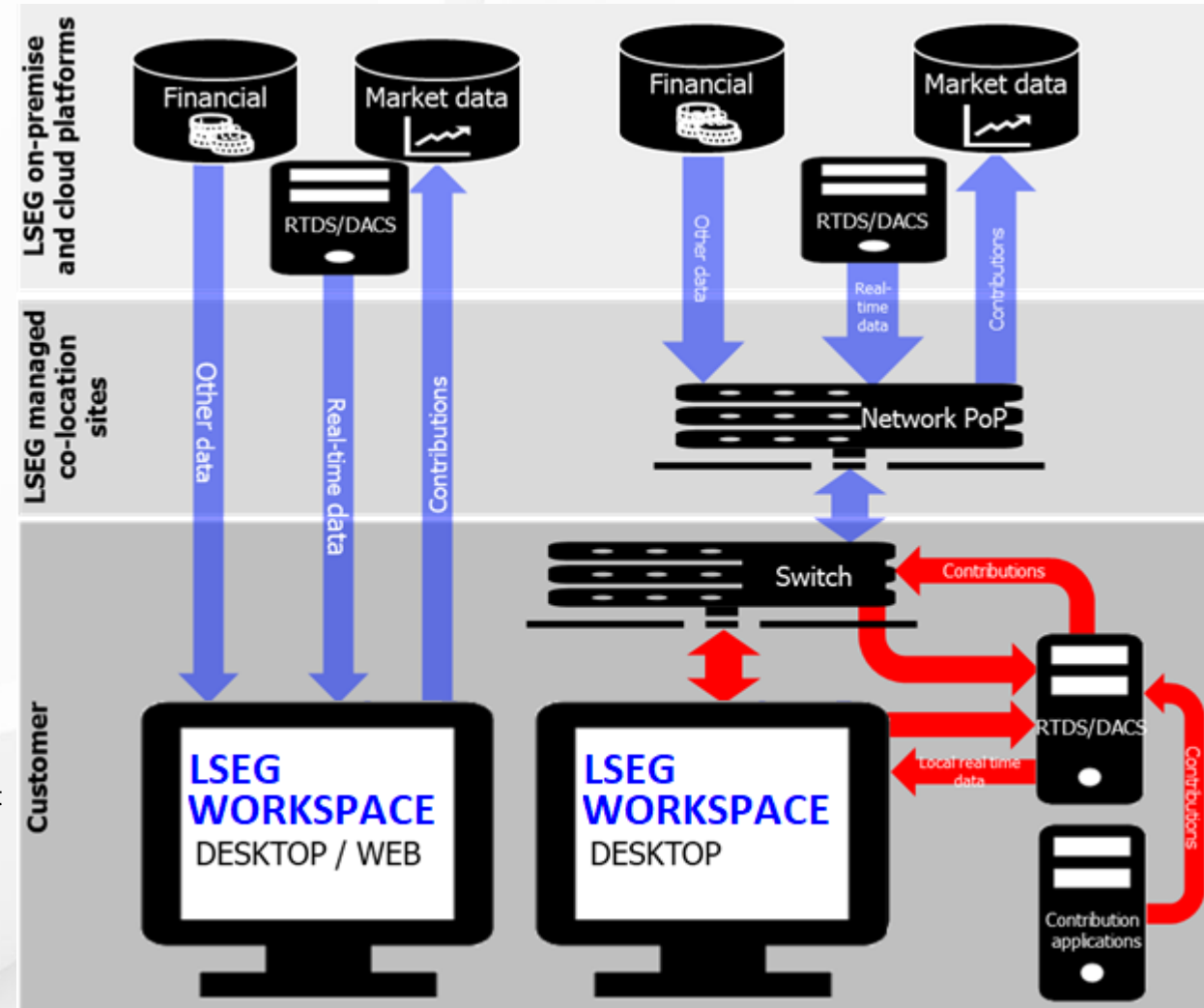  - Workspace Web recommended using Internet connectivity
  - Lower administrative overhead
  - Using a managed or conflated data service, the desktop (or virtual desktop) hardware and bandwidth requirements are reduced

  **Traders**, requiring high frequency (max 300ms conflated data), low latency market data provided through local RTDS/DACS
  - Workspace Desktop only
  - Higher spec PCs hardware may be required for heavy Excel users
  - Potential of slower application response times when connecting through private circuit (based on location)

**Optional: Hosted Internet Users permed via DACS**, only possible to do if DACS Permission Synchronization is enabled on client's DACs

**DACS Perm Sync: Strongly recommended** to setup DACS Permission Synchronization on client's DACs for CM users. If unable to implement, DPRM is available via adding parameters to the Workspace config file, see Appendix in the **Workspace Installation and Configuration Guide**

# Hosted – Private Line | Local RTDS/DACS hybrid

**Recommended for managed RTDS/DACS users with different user group requirements**

## Overview

- **Hybrid configuration:**

  **User group 1 – Workspace Web or Desktop**
  - LSEG hosted service provides Market data
  - Private circuit provides connectivity

  **User group 2 – Workspace Desktop only**
  - Local RTDS/DACS provides Market data
  - Private circuit provides RTDS/DACS connectivity

## Use Cases

- **Two groups of users**

  **Wealth Advisors/Research Analysts**, require less frequent market data update dates – managed data provided through nearest AWS PoP
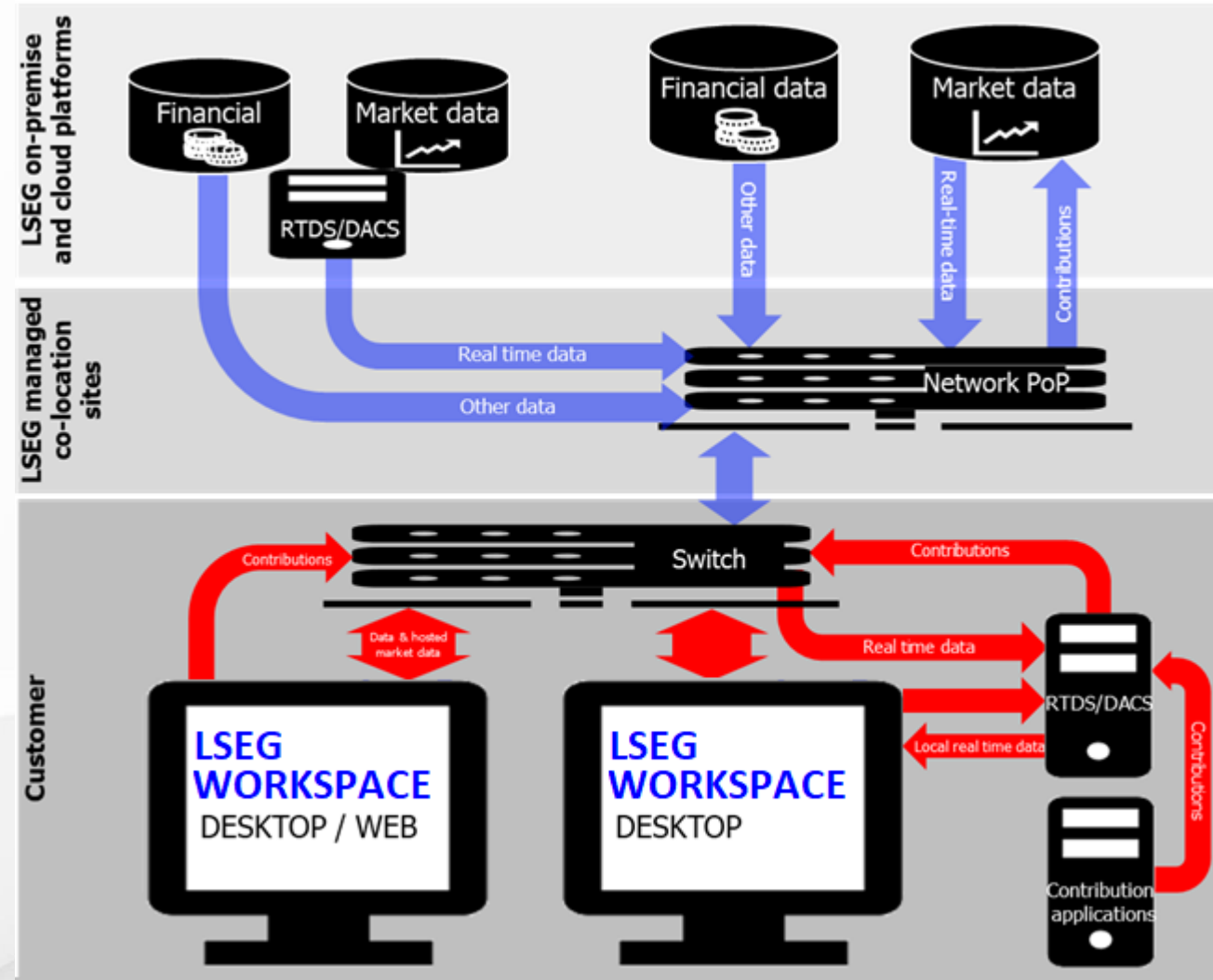
  - Workspace Web, with Private circuit connectivity
  - Lower admin overhead
  - Using a managed or conflated data service, the desktop (or virtual desktop) hardware and bandwidth requirements are reduced

  **Traders**, requiring high frequency (max 300ms conflated data), low latency market data provided through local RTDS/DACS
  - Workspace Desktop only
  - Higher spec PCs hardware may be required for heavy Excel users

**Optional:** Hosted Internet Users permed via DACS, only possible to do if DACS Permission Synchronization is enabled on client's DACs

**DACS Perm Sync:** Strongly recommended to setup DACS Permission Synchronization on client's DACs for CM users. If unable to implement, DPRM is available via adding parameters to the Workspace config file, see Appendix in the Workspace Installation and Configuration Guide

# RTMDS Deployment Options

Workspace will systematically conflate data to 300ms.
Providing full tick data to Workspace is excessive and will consume unnecessary bandwidth.  This is why we recommend that Workspace be fed by a 300ms trade-safe conflated feed.

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# Hosted – Internet / Private Line Hosted RTDS/DACS (RTMDS) hybrid

## Recommended for managed RTDS/DACS users with different user group requirements

### Overview

- **Hybrid configuration:**

    **User group 1 – Workspace Web or Desktop**
    - LSEG hosted service provides Market data
    - Internet provides connectivity

    **User group 2 – Workspace Desktop only**
    - Hosted RTDS/DACS (RTMDS) provides Market data
    - Private circuit provides RTDS/DACS connectivity
    - **Important:** If conflation is configured for a client today on RTMDSv2 it will be configured for the client on RTMDSv3. If conflation is not configured for a client today there is no requirement to configure it as part of the move to RTMDSv3 or for the move from Eikon to Workspace. In the event a client requests conflation is configured where it was not previously a charge will occur.
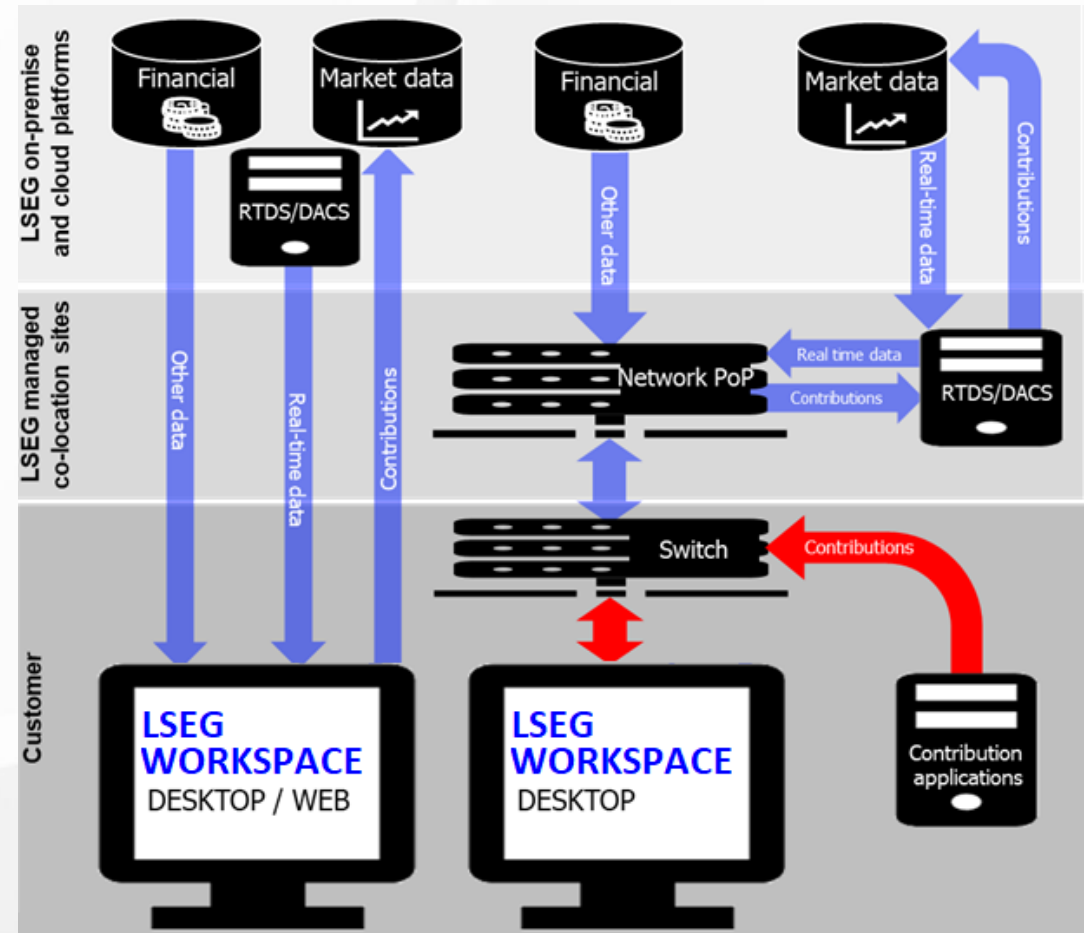
### Use Cases

- **Two groups of users:**

    **Wealth Advisors/Research Analysts**, require less frequent market data update dates – managed data provided through nearest AWS PoP
    - Workspace Web recommended
    - Lower admin overhead
    - Using a managed or conflated data service, the desktop (or virtual desktop) hardware and bandwidth requirements are reduced

    **Traders**, requiring high frequency (max 300ms conflated data), low latency market data provided through local RTDS/DACS
    - Workspace Desktop only
    - Higher spec PCs hardware may be required for heavy Excel users
    - Potential of slower application response times when connecting through private circuit (based on location)

**Optional:** Hosted Internet Users permed via DACS, only possible to do if DACS Permission Synchronization is enabled on client's DACs



**DACS Perm Sync: Strongly recommended** to setup DACS Permission Synchronization on client's DACs for CM users (only available for clients with dedicated DACS, not shared). If unable to implement, DPRM is available via adding parameters to the Workspace config file, see Appendix in the Workspace Installation and Configuration Guide

# Hosted – Private Line / Hosted RTDS/DACS (RTMDS) hybrid

## Recommended for managed RTDS/DACS users with different user group requirements

### Overview

- **Hybrid configuration:**

  **User group 1 – Workspace Web or Desktop**
  - LSEG hosted service provides Market data
  - Private circuit provides connectivity

  **User group 2 – Workspace Desktop only**
  - Hosted RDMS/DACS (EaaS) provides Market data
  - Private circuit provides RDMS/DACS connectivity
  - Workspace will systematically conflate data to 300ms.
  - **Important:** If conflation is configured for a client today on RTMDSv2 it will be configured for the client on RTMDSv3. If conflation is not configured for a client today there is no requirement to configure it as part of the move to RTMDSv3 or for the move from Eikon to Workspace.  In the event a client requests conflation is configured where it was not previously a charge will occur.
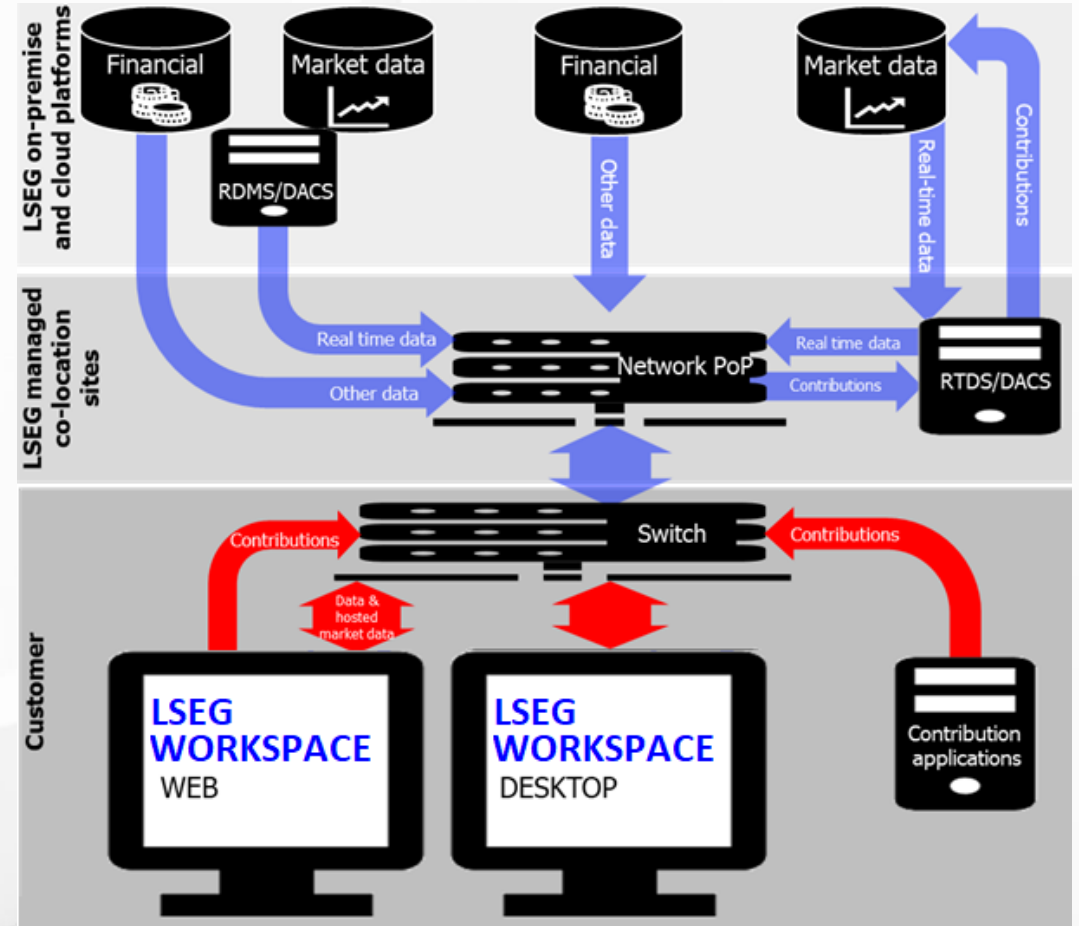
### Use Cases

- **Two groups of users:**

  **Wealth Advisors/Research Analysts**, lesser refresh rate requirements provided through nearest AWS PoP
  - Workspace Web access recommended
  - Lower admin overhead
  - Using a managed or conflated data service, the desktop (or virtual desktop) hardware and bandwidth requirements are reduced

  **Traders**, requiring high frequency (max 300ms conflated data), low latency market data provided through local RDMS/DACS
  - Workspace Desktop access only
  - Higher spec PCs hardware may be required for heavy Excel users

**Optional:** Hosted Internet Users permed via DACS, only possible to do if DACS Permission Synchronization is enabled on client's DACs



**DACS Perm Sync: Strongly recommended** to setup DACS Permission Synchronization on client's DACs for CM users (only available for clients with dedicated DACS, not shared). If unable to implement, DPRM is available via adding parameters to the Workspace config file, see Appendix in the Workspace Installation and Configuration Guide

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# Customer Managed / Hosted RTDS/DACS (RTMDS)

## Overview

- **Workspace Desktop only**
  Real-time data from the RTDS provides full-tick data to the Workspace Desktop only (Workspace Web cannot receive data from RTMDS)

- **Hosted RTDS/DACS (RTMDS) provides Market data**

  - **Important:** If conflation is configured for a client today on RTMDSv2 it will be configured for the client on RTMDSv3. If conflation is not configured for a client today there is no requirement to configure it as part of the move to RTMDSv3 or for the move from Eikon to Workspace. In the event a client requests conflation is configured where it was not previously a charge will occur.

## Use Cases

- **All users require high frequency (max 300ms conflated data), low latency market data**

- **Workspace will systematically conflate data to 300ms.**

- **Requirement to provide market data to internal systems, and/or a need to contribute prices from these systems , view 3rd party data, and/or leverage RTDS capabilities (like ATS)**

**DACS Perm Sync: Strongly recommended** to setup DACS Permission Synchronization on client's DACs for CM users (only available for clients with dedicated DACS, not shared). If unable to implement, DPRM is available via adding parameters to the Workspace config file, see Appendix in the Workspace Installation and Configuration Guide
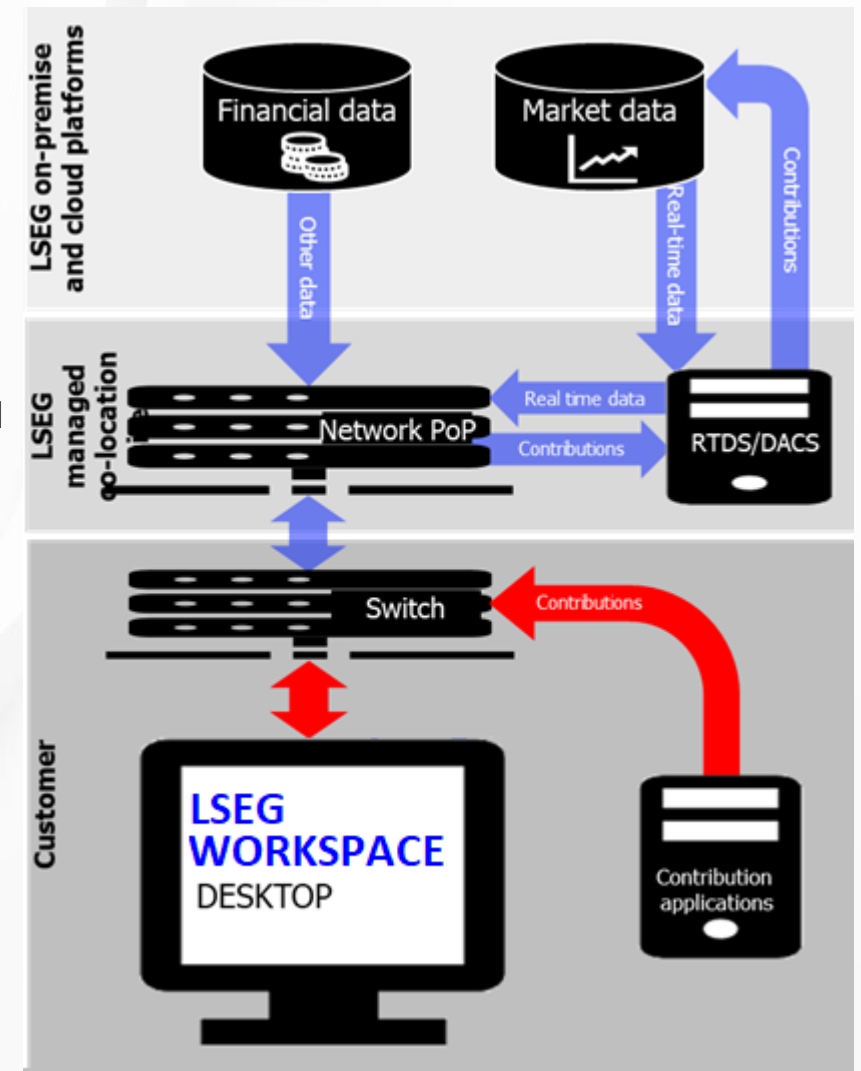
# Connectivity Method Feature Matrix

| | Hybrid deployment | Hosted RTDS (RTMDS) | Workspace Variant | | Connectivity | | | Market data update rate | | Deployed (on-site) market data servers | | Users require high frequency / low latency data | Need to provide data to internal systems, and/or a need to contribute prices from these systems, view 3rd party data, and/or leverage RTDS capabilities |
| | | | Workspace Desktop | Workspace Web | Internet | Private circuit | Private circuit (RTDS/DACS) | Conflated / Managed | Full-tick / Unmanaged | Yes | No | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Hosted - Internet** | | | ● | ● | ● | | | ● | | | ● | | |
| **Hosted – Private Line** | | | ● | ● | | ● | | ● | | | ● | | |
| **Customer Managed / Local RTDS/DACS** | | | ● | | | | ● | | ● | ● | | ● | ● |
| **Customer Managed / Hosted RTDS/DACS (RTMDS)** | | ● | ● | | | | | ● | ● | | ● | | ● |
| **Hosted – Internet / Private Line Local RTDS/DACS** | ● | | ● | ● | ● | | ● | ● | ● | ● | | ● | ● |
| **Hosted – Private Line / Local RTDS/DACS** | ● | | ● | ● | | ● | ● | ● | ● | ● | | ● | ● |
| **Hosted – Internet / Private Line Hosted RTDS/DACS (RTMDS)** | ● | ● | ● | ● | ● | | ● | ● | | | ● | | ● |
| **Hosted – Private Line / Hosted RTDS/DACS (RTMDS)** | ● | ● | ● | | | ● | ● | ● | | | ● | | ● |

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# SOFTWARE DEPLOYMENT METHOD

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# Software Deployment Options

**Manual Desktop Installation**

- Install from LSEG download site or launching the Workspace installation package from a network drive

**Deployed Software Package**

- Workspace software packaged and deployed to client desktops

**Virtualized Environment/Virtual Desktop Infrastructure (VDI)**

- No local Workspace software install – instead, leverages VDI (Citrix, VM Ware, etc.)

- VDI installation is a utilized method if an organization uses the technology to create a virtualized desktop environment on a remote server setup for LSEG Workspace

- There is no auto-update for LSEG Workspace on VDIs

**Mobile**

- LSEG Workspace Mobile is available for IOS and Android environments

    - ❖ iOS

    - ❖ Android

- It provides users with access to LSEG data, presented via an easy to navigate, customizable display, designed for smaller screens

- Users are automatically signed into Workspace Messenger when they sign-in to LSEG Workspace

**Office Workspace Add-In / Workspace Lite (365) Add-In**

- The Workspace excel add-in comes installed automatically with Workspace, see the LSEG Workspace Add-Ins – Workspace Installation Guide for details on minimum requirements

- Some features are web apps that require a minimum of Office 365 for corporate Office subscriptions, as well as other settings; see LSEG Workspace Add-Ins – System Requirements for more information

- Mac and web-only excel users should use the Workspace Lite add-in, which is platform independent LSEG Workspace Add-Ins – Workspace Lite Installation Guide

- See Microsoft Office Section of the LSEG Workspace System Requirements and the Technical Documentation Section on LSEG Data & Analytics Page for more information on Add-Ins

- Microsoft Office Workspace Lite (365) Add-In FAQ

- Workspace Office Tools Pre-check Test  (Internal SharePoint link)

**Web-based version – Accessed via web browser (Chrome, Edge, Safari)**

- Workspace Web is limited to 500 instruments per monitor / screen

- Workstation can display a maximum of 1,000 total unique streaming instruments per session

**Single Sign On (SSO)**

- Does your organization currently use (or plan to implement) Single Sign On (SSO)? IRM can involve the TIS group to assist the client in setting this up

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# Workspace Web vs. Desktop

## Workspace Web

- Browser-based application

- Regardless of the number of tabs or windows open, LSEG Workspace Web supports up to:
  - 500 instruments per monitor / screen
  - 1,000 total unique streaming instruments per session

- LSEG Workspace Web Access requires no installation but must meet some basic System Requirements

- An Exclusive Sign-On (ESO) policy is enforced - users cannot access the desktop client and Workspace Web at the same time (the Workspace Chrome Extension can be used concurrently with Workspace Web)

- Workspace Web - Quick Start Guide

| Internet | Private Network |
|---|---|
| https://workspace.refinitiv.com/web | https://workspace.extranet.refinitiv.biz/web |

## Web vs. Deployed Desktop Comparison (Follow Link for Full List)

| | Desktop | Web |
|---|---|---|
| **Excel Add-in** | Y | N * |
| **Layouts** | Y | Y |
| **Tiles** | Y | N |
| **Search Results Previews** | Y | Y |
| **Configuration Manager** | Y | N |
| **Notification Manager** | Y | N |
| **Integrated Messenger** | Y | N *(Stand-Alone Web Messenger)* |
| **Side by Side API** | Y | N |
| **Data API** | Y | N |
| **Launcher (CTRL+SHIFT+SPACE)** | Y | N |

*LSEG Workspace Excel 365 online add-in can be used for customers who subscribe to Office 365

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# Workspace variant – Web vs. Desktop

| Requirements | Desktop | Web |
|---|---|---|
| **Personal Computers** | | |
| **Hardware** | • Minimum / Recommended<br>• **Processor:** Intel i5 / Intel i7<br>• **RAM:** 8 GB / 16GB<br>• **Hard Disk:** 1 GB free disk space / 3 GB free disk space<br>• **Display Setting:** 1280 x 1024 / 1920 x 1080 | |
| **Software** | • Microsoft Windows 10 (64-bit only)<br>• Microsoft Widows 11 (recommend Pro and Enterprise editions)<br>• macOS 10.13 (High Sierra)<br>• macOS 12 (Monterey)<br>• Latest versions of: Microsoft 365, Office 2021 | • Operating System: No specific requirements<br>• Web browser: We support the current versions of:<br>   o Google Chrome - Stable channel version(s)<br>   o Microsoft Edge - Microsoft-maintained version(s)<br>   o Apple Safari - Browsers running under the LSEG-supported versions of macOS (see System Requirements |
| **Minimum bandwidth** | 175 KB/s | 100 KB/s |
| **Internals** | | |
| **Platform** | ElectronJS, in addition to opensource projects, including Atom, GitHub Desktop, Light Table, Visual Studio Code, and WordPress Desktop | HTML5 web application |
| **Frontend** | HTML5 UI | |
| **Backend** | Cloud and on-premise | |
| **Installation** | | |
| **Link to installer** | The landing page, below, contains a link to the installer:<br>Internet: https://workspace.refinitiv.com<br>Private network: https://workspace.extranet.refinitiv.biz | No installation required. The browser-based version of Workspace is available through the following URLs:<br>Internet: https://workspace.refinltiv.com/web<br>Private network: https://workspace.extranet.refinitiv.biz/web |

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# Workspace variant – Web vs. Desktop

| Requirements | Desktop | Web |
|---|---|---|
| **Maintenance and updates** | | |
| **Workspace** | The platform updates automatically. Updates can also be managed manually. | Platform is updated automatically, without affecting user operations. |
| **Browser** | Underlying browser (chromium) is updated together with updates to the ElectronJS. | Maintained versions of the Chrome and Edge browsers, and Safari on supported macOS versions only |
| **Office and Data API** | | |
| **Office** | COM Excel Add-in, requires installation | See Authentication > ESO support for Office |
| **Office 365** | The Workspace 365 plugin is available from the Microsoft Store. However, it has less functionality compared to the COM Add-in. | |
| **Data API** | Data API is available, including Eikon Data API for PythonDesktop | RDP Typescript Library is under development |
| **3rd Party Integrations** | | |
| **Side-by-Side (SxS)** | Desktop SxS API is available | SxS API is under development |
| **AppStudio** | Y | Y |
| **Authentication** | | |
| **LSEG Authentication (AAA)** | Y | Y |
| **Exclusive Sign-On (ESO) support for Office** | Workspace Desktop and Office can run simultaneously | User needs to install a Chrome Extension to run browser-based Workspace and Office |
| **SSO Support** | Y | Y |

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# Workspace variant – Web vs. Desktop

| Requirements | Desktop | Web |
|---|---|---|
| **Collaboration** | | |
| **Screen Capture and Send screenshot capability** | Y | Y |
| **Send by email** | Y | News only |
| **Integrated Messenger** | Y | N<br>(Stand-Alone Web Messenger available) |
| **Data access** | | |
| **Auto-updated historical charts** | Y | Under development |
| **Office 365** | The LSEG 365 plugin is available from the Microsoft Store. However, it has less functionality compared to the COM Add-in. | |
| **Streaming data limits** | • 2,500 RICs for Hosted environment (You can submit a request to your account manager to have this raised to 5000)<br>• No limit for Customer Managed environment | • 1000 RICs per browser tab |
| **Other capabilities** | | |
| **Tiles - Advanced market monitoring (traditionally trading) workflows with floating windows and search bar** | Y | N |
| **Notifications** | Y | N |
| **Launcher** | Y | N |
| **Workspace Browser** | Y | N |
| **Screenshots** | Y | N |
| **Deep links** | Y | N |

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# ADDITIONAL CONSIDERATIONS

- Sign-On (SSO)

- Software Packaging Support

- Professional Services

- Network Configuration Support

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# Additional considerations

SSO / Professional Services / Software packaging & support / Network configuration support

## Single Sign On (SSO)

- Clients self-administer SSO in their environment
- Support is available to customers who require assistance - the IRM can coordinate additional support resources (TIS involvement)

## Professional Services

- Our Professional Services team can package software, configure Single Sign On (SSO), or help with other integration work (*additional fees will apply*)
- Please contact your Account Manager or IRM for more information

## Software Packaging

- Clients who choose to package Workspace software will find useful information in the Workspace Installation and Configuration Guide. Additional packaging assistance can be coordinated through the IRM

## Network Configuration Support

- Detailed networking requirements are outlined in the Workspace Installation and Configuration Guide as well as the Private Network Connectivity Guides
- Additional network / firewall configuration assistance can be obtained through our support desk, or via a call coordinated by the IRM

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# SUPPORT OVERVIEW

- **Statement of Service**
- **MyAccount**
- **Methods of Support**

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# LSEG Support

Statement of service / Methods of support

## Statement of Service

- The LSEG Statement of Service is a client-facing, end-to-end support guide outlining our support model and various ways to contact support
- The latest version of the LSEG Statement of Service document can be found [here](here)
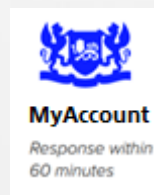
## MyAccount

- [MyAccount](MyAccount) provides a consolidated access point to support, product information/documentation/downloads, alerts, notifications, and billing
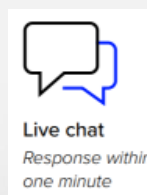
## Customer Support

- LSEG Customer Support is your central point of contact for all questions associated with our products and content
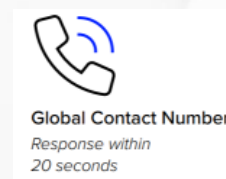- Support can be obtained via:

| | | | |
|---|---|---|---|
| **Get help** | • Help or Support sections of the product | **MyAccount**<br>*Response within 60 minutes* | • [MyAccount](MyAccount) |

| | | | |
|---|---|---|---|
| **Live chat**<br>*Response within one minute* | • Messenger Chat | **Global Contact Numbers**<br>*Response within 20 seconds* | • Telephone |

Can be found at the end of the [LSEG Statement of Service](LSEG Statement of Service)

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USEFUL LINKS

# Useful Links

Workspace Technical Documentation

**Private Network Connectivity Guides**

Documents outlining all network and firewall configurations required for private line connectivity

**Workspace Administration Panel App User Guide**

Guide documenting the Workspace Administrative Panel which allows IT specialists to create / assign default home pages to users as well as manage desktop version updates

**Workspace Installation and Configuration Guide**

The LSEG Workspace Installation and Configuration Guide is intended for IT specialists that are responsible for the installation of Workspace, this document includes additional information about Virtualization, Single Sign On, etc.

**Workspace Basic Installation**

An installation guide for users self-installing Workspace

**Workspace Download Page / System Test**

Links to download Workspace / System Test (for Windows and MacOS), Access Workspace Web, and launch the Workspace System Test

**DACS Permission Synchronization Configuration Guide**

DACS permission synchronization guide which outlines the steps to configure DACS with Workspace

**LSEG Workspace Vendor Subservice Definitions (PDP Codes)**

This document provides a list of the Products Exchanges and Specialist Data definitions for LSEG Workspace that are managed using DACS

**LSEG Workspace PDP DACS Configuration Guide**

This guide describes the configuration of PDP codes that are defined for LSEG Workspace variants, using DACS

**Workspace Home on MyAccount**

Workspace technical documents, product overview, support documents, and other product links

**Workspace Single Sign On Manual** (Internal SharePoint link)

SSO Self-admin user manual for LSEG Workspace.

**Workspace System Requirements**

This document outlines the system requirements for Workspace

**LSEG Workspace Technical Documents**

This page has various LSEG Workspace documents that may not be referenced in this Guide

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# Useful Links

Workspace Support Documentation

**MyAccount Support Portal**

Main support page where users can request product or content assistance

**LSEG Statement of Service**

Client-facing, end-to-end support guide outlining our support model and various ways to contact support

**Workspace Technical Documents**

Technical Guides, Release Notes and other Documents to assist clients

**Workspace Service Model** (Internal SharePoint link)

This document describes the service that customers of LSEG Workspace can expect.  It also provides internal process information and links that will help with the ordering, delivery, and support of LSEG Workspace

**Workspace Checklist** (Internal SharePoint link)

This document should be used as a guide for conversations with clients for technical readiness prior to installing Workspace. It also provides a comparison between Eikon and Workspace for system requirements and port/network differences

**Workspace Customer Assurance**

This page is the Technology Risk (TR) Customer Assurance LSEG Workspace page. Here we provide Information Security information, Attestations, and other useful links for LSEG Workspace products.

Workspace Web Access

**Workspace Web Access Link – Internet**

Link to access Workspace Web via the Internet

**Workspace Web Access Link – Private Line**

Link to access Workspace Web via a Private Line connection

**Workspace Web Quick Start Guide**

This document provides a high-level overview of how to configure and access the browser-based Workspace Web application

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Thank you

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