

AVEVA<sup>™</sup> Unified Engineering on CONNECT Service Description



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# **AVEVA Unified Engineering on CONNECT**

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### **Document Purpose and Audience**

#### **Document Purpose**

This document describes AVEVA Unified Engineering on CONNECT, including key features and limitations, as well as the operational parameters.

This document must be read in conjunction with the CONNECT Services service description, which describes the common services available for all functional digital services on CONNECT. Any additions or exceptions to the common services are described in this document.

#### Audience

The audience of this document are IT departments and business decision makers who are investigating whether to leverage AVEVA cloud offers in their own IT landscape.

### About AVEVA Unified Engineering on CONNECT

AVEVA Unified Engineering on CONNECT helps you control and accelerate the iterative design and engineering process within one integrated set of products.

AVEVA Unified Engineering on CONNECT has been created for customers who are investing in capital assets and wish to maintain control and visibility of their digital asset, ensure visibility to on-going engineering and design progress and deliverable.

- Delivered on CONNECT: AVEVA Unified Engineering on CONNECT applications are securely
  accessible over the Internet via CONNECT, integrated with the AWS WorkSpaces client for
  Windows, to deliver a streamed virtual desktop environment to end users.
- Integrated AVEVA Unified Engineering virtual desktop: AVEVA Unified Engineering on CONNECT includes a suite of the Windows desktop engineering and design authoring tools and simulation applications available from AVEVA along with Microsoft Excel and Visio (Diagrams users only) applications as an integrated virtual desktop solution. This enables users to collaborate on a centralized cloud-based digital asset.
- **Complete control over networking environment**: AVEVA Unified Engineering on CONNECT is provided to customers on a private instance basis, where each customer's environment is provisioned using dedicated cloud infrastructure that isolates their resources and data and restricts administrative access to AVEVA named team members.



• **Collaboration**: To support collaboration on a shared digital asset, highly resilient dedicated cloud infrastructure is used for the storage of application data on either AVEVA proprietary fileserver-based Dabacon storage or relational data in Microsoft SQL Server databases. AVEVA Unified Engineering on CONNECT server applications running on virtualized server infrastructure enable the interoperability and data sharing between the Unified Engineering desktop applications.

#### Architecture

The illustration below shows the AVEVA Unified Engineering on CONNECT shared services, dedicated infrastructure, and supporting back-end services making up a single AVEVA Unified Engineering on CONNECT environment, including optional add-ons extending the architecture for an on-premises hybrid model.



The service architecture adheres to a separation of concerns principle where each AVEVA server component is deployed on dedicated virtual infrastructure instance(s). The associated client software needs to be located on accessible virtual desktops delivered using the WorkSpaces service.

### WorkSpaces for AVEVA Unified Engineering on CONNECT Desktop Applications

AVEVA Unified Engineering on CONNECT delivers the end-user applications using an advanced streaming technology from Amazon Web Services (AWS) called WorkSpaces.

WorkSpaces provides a robust, secure, and managed cloud-based virtual desktop experience to meet the demanding needs of end-users accessing the AVEVA Unified Engineering on CONNECT applications, while ensuring optimal performance due to the high-bandwidth, low-latency product requirements.



AVEVA Unified Engineering on CONNECT authoring applications, such as E3D, have specific desktop requirements for a GPU processor to provide the best user experience. AWS meets this requirement by providing a high-end WorkSpace graphics type to E3D users.

All AVEVA Unified Engineering on CONNECT WorkSpaces are created and managed using a custom golden image which represents the blueprint for the managed and maintained software installation and configurations of the AVEVA Unified Engineering version the customer has subscribed to.

This golden image is used as part of the automated provisioning and allocation of a standard WorkSpace instance for all new AVEVA Unified Engineering on CONNECT users. The provisioning process creates a dedicated desktop that is optimized to deliver the approved AVEVA Unified Engineering applications within the virtualized customer infrastructure on the AVEVA cloud.

Two WorkSpaces specifications are used:

- Graphics G4DN WorkSpaces (4 CPU, 16GB RAM, 1 vGPU, 16GB Video RAM) for 3D user types
- Power WorkSpaces (4 CPU, 16GB RAM) for all other AVEVA Unified Engineering on CONNECT user type

AVEVA Unified Engineering on CONNECT includes the installation and required licenses for the Microsoft Office products required to use the AVEVA Unified Engineering application: Microsoft Excel and Visio (Diagrams users only).

### Applications Included in AVEVA Unified Engineering on CONNECT

In addition to improvements to the underlying cloud platform, each AVEVA Unified Engineering on CONNECT release provides updates to the AVEVA Unified Engineering on CONNECT applications that are included with each release, and consequently the additional functionality from each application.

All other features and functionality are the same.

- AVEVA Unified Engineering on CONNECT
  - o AVEVA E3D
  - o AVEVA Engineering
  - o AVEVA Electrical and Instrumentation (SQL)
  - o AVEVA PRO/II Simulation
  - o AVEVA Process Simulation
  - o AVEVA Diagrams
  - AVEVA P&ID

For exact versions of the applications included in the release, please see the respective Release Notes of AVEVA Unified Engineering on CONNECT.

Microsoft OneDrive Sync app is included in AVEVA Unified Engineering on CONNECT to enable synchronization of users' folders and files between their Unified Engineering virtual desktop and their on-premises desktop or a designated shared SharePoint document site.



### Service Overview

The AVEVA Unified Engineering on CONNECT managed service provides access to geographically dispersed users, often including multiple collaborating EPCs, with an on-demand desktop which is optimized for design and engineering authoring tasks using AVEVA Unified Engineering on CONNECT applications all operating on a shared digital asset.

AVEVA Unified Engineering on CONNECT is made up of three components:

#### 1. Standard Platform Services

When AVEVA Unified Engineering on CONNECT service is enabled in the customer CONNECT account, one standard environment (or instance) is deployed by default. This environment is set to a chosen region data center; for more information, see *Regional Cloud Availability*. In addition, this default integrated platform service includes:

- a. A 500 GB storage space for project data and user collaboration.
- b. The File Transfer service enables customers to transfer and synchronize files between the shared project storage in AVEVA Unified Engineering on CONNECT and an on-premises file server on the customer's network.
- c. The Batch Service enables authorized users to schedule and manage the automated execution of common administrative tasks, generate reports, and create project deliverables using project engineering data. The Batch Service allows customers to upload Programmable Macro Language (PML) macros for use on Dabacon project databases using the Unified Engineering application and modules.

For more information, see the Add-On Services bullet in this section and Service Limitations.

2. User Services

The designated customer CONNECT administrator provides users with access to AVEVA Unified Engineering on CONNECT by the assignment of specific CONNECT service roles. Role assignment controls each user's access to one of the four services, provisioning of the appropriate AVEVA Unified Engineering on CONNECT virtual desktop type, and controls access to project data.

Services ->	1D	2D	Simulation	3D
Access To ->	AVEVA Engineering	1D application + AVEVA Electrical, AVEVA Instrumentation, AVEVA P&ID, AVEVA Diagrams	1D, 2D applications + AVEVA PRO/II, AVEVA Process Simulation	All + AVEVA E3D



#### 3. Add-On Services

Add-on services are optional and include:

- Incremental AVEVA Unified Engineering on CONNECT environments (or instances)
  - An additional AVEVA Unified Engineering on CONNECT environment may be added for users in a new region. For example, if your default base is in Europe, but your projects and teams are in APAC, then a second environment can be provisioned in APAC to ensure optimal performance for local users.
- o Global Services
  - Hybrid use case, enabling synchronization of 3D project data between on-premises and cloud. The mandatory prerequisite for hybrid use is the on-premises product version must always be aligned with the latest product version in the Unified Engineering on Connect.
  - Cross-regional-peering use case, enabling synchronization of 3D project data across AVEVA cloud regions.

For more information, see the documentation AVEVA Unified Engineering Global Add-on Service Guide.

- Additional project data storage of 2TB
  - Customers may request that the project storage be extended to 2TB at no additional charge by submitting a customer support request.

To ensure correct AVEVA Unified Engineering on CONNECT configuration for a customer, the initial setup and ongoing management of the project configuration can be coordinated through the AVEVA service delivery teams. For more information, see Additional Services.

### Service Limitations

To ensure the smooth operation of AVEVA Unified Engineering on CONNECT and maintain a high level of service, certain limitations are imposed when compared to on-premises use. These limitations are in place to mitigate potential risks and allow AVEVA to provide a Service Level Agreement (SLA) to customers.

Limitations:

- 1. The AVEVA Unified Engineering on CONNECT service can be accessed on Windows devices only via the AWS WorkSpaces desktop client.
  - a. Users do not have Windows administrative access to the WorkSpaces desktop environment.
  - b. WorkSpaces are occasionally replaced by the Cloud provider to resolve hardware issues and will be deleted by AVEVA if unused during a calendar month. For this reason, users **should not** use the Workspace D: drive to **store critical data** because it cannot be recovered.
  - c. Dual displays are not supported.
  - d. .NET customization of the AVEVA Unified Engineering on CONNECT application user interface is not supported. The use of PML1 and PML2 customization are supported.



- 2. The File Transfer service allows synchronization of file-based data between the AVEVA Unified Engineering on CONNECT environment and an on-premises file location.
  - a. The size is limited to 5GB per file to be transferred across the AVEVA Unified Engineering on CONNECT environment to an on-premises file location (bilaterally).
  - b. This service storage has a total capacity of 100GB, which should be used for the temporary purpose of transferring files.
- 3. Standard Batch Service limitations include:
  - a. Execution Time Limits: Batch jobs are limited to a maximum duration of 4 hours to prevent long-running or resource-intensive scripts. This helps to ensure any single macro from monopolizing system resources.
  - b. Security Measures: Use of SYSCOM commands in PML macros is prohibited to mitigate against execution of malicious scripts on the underlying cloud server infrastructure used for script execution.
  - c. Supported Modules: The service is designed and tested for use with the following applications and modules:
    - i. AVEVA E3D: Model, Draw, and Isodraft
    - ii. AVEVA Administration: Admin
    - iii. AVEVA Engineering: Engineer and Configuration
  - d. Modules Switching: Avoid switching the primary application within a PML macro. Doing so may lead to inaccurate job execution statuses and potential job failures.
  - e. While migrating on-premises macros, recommendations are to:
    - i. Remove commands that launch another application or module within the macro.
    - ii. FINISH commands in macros should be removed as job parameters handle completion.
    - iii. Do not reference other macros. Instead, consider directly calling arguments and variables within the scheduled job macro.
    - iv. Since the service uses headless versions of the AVEVA Unified Engineering applications on a server, the Batch Job service does not support automation with PML that require Device Graphic (DEV GRA) mode.
- 4. Global Services Add-On Limitations:

The on-premises AVEVA Unified Engineering product versions must align with the versions used in the AVEVA Unified Engineering on CONNECT service when the AVEVA Unified Engineering on CONNECT service versions are upgraded on CONNECT. Liaise with your sales representative if this prerequisite cannot be met.

Refer to the AVEVA Unified Engineering Global Add-On Service Guide for more information.



- 5. Integration with third-party products:
  - a. Out-of-the-box direct integration with on-premises deployments of AVEVA applications and databases, and integration with on-premises or cloud-based third-party products is not supported.
  - b. Where available in the AVEVA Unified Engineering on CONNECT desktop, third-party products are for specific use with AVEVA products. The third-party products will be upgraded only when required by AVEVA products (as part of the standard release cadence). There is no guarantee that the third-party products or tools not required by AVEVA products will persist from one release of AVEVA Unified Engineering on CONNECT to the next.
- 6. Services initiated/enabled via the AVEVA Technical Support team:
  - a. Users do not have access to the AVEVA Unified Engineering on CONNECT back-end servers. Administrative activities for these servers can be requested through the AVEVA Technical Support team.
  - b. Folder access control for projects is supported. To enable this, submit a request through the AVEVA Technical Support team.
- 7. A weekly, scheduled maintenance window and downtime of up to two hours is required to carry out fully consistent back-ups and OS maintenance operations. During the maintenance time, users cannot access the service. This maintenance window is agreed with the customer at the point of order.

# Integration with Other AVEVA Cloud Services and On-Premises Products

AVEVA Unified Engineering on CONNECT can be used as an integrated solution with the following products and services:

- 1. AVEVA E3D Whitespace Optimizer to be used in parallel with E3D for optimizing production of 3D drawings.
- 2. AVEVA 3D Asset Visualization (formerly known as AVEVA Engage) on-premises to enable interactive visualization of their 3D project models.
- 3. AVEVA Enterprise Resource Management to exchange E3D Catalog data.
- 4. AVEVA Point Cloud Manager to directly work with reality capture data, ensuring clash-free 3D design and error free construction.
- 5. AVEVA Asset Information Management for project data publishing.

To get a full picture of integration, refer to the associated AVEVA Cloud Services Description for cloud services (available at https://www.aveva.com/en/legal/service-description/), and the user guide documentation for the on-premises products (available from the AVEVA Knowledge & Support Center website at https://softwaresupport.aveva.com/).



# **Regional Cloud Availability**

AVEVA Unified Engineering on CONNECT is accessed by end-users via the public Internet using HTTPS/TLS and PCoIP (secure transport mechanisms).

For each deployment of AVEVA Unified Engineering on CONNECT standard platform, you can choose one the following public cloud regions:

- Americas Canada Central
- Americas South America São Paulo
- Americas US East Northern Virginia
- Americas US West Oregon
- Asia-Pacific Australia Sydney
- Asia-Pacific India Mumbai
- Asia-Pacific Singapore
- EMEA Frankfurt
- EMEA Ireland

NOTE: AVEVA Unified Engineering on CONNECT is not provided from any cloud regions based in China as these are autonomous facilities operated in isolation from cloud regions outside of China. Cross-region replication and operations between China regions and outside of China are not supported.

Users inside China can expect high network latency when connected to any web services outside of China. As such, AVEVA Unified Engineering on CONNECT cannot formally support users inside China.

#### **Deployment Details**

- Dedicated cloud infrastructure in a region: For each AVEVA Unified Engineering on CONNECT environment, AVEVA deploys a dedicated cloud infrastructure in the region of choice. The infrastructure includes the project storage and user directory services where all AVEVA Unified Engineering on CONNECT project data and user access details are stored, including back-ups and any replication within the region.
- Shared multi-tenant micro-services: Delivery of AVEVA Unified Engineering on CONNECT is enabled using a series of shared multi-tenant micro-services made available centrally in the eu-west-1 (Ireland) region. These services provide a single-sign-on experience for users and enable integration with CONNECT services such as Credits and Licensing. Data held is limited to metadata only.

NOTE: If a customer chooses to use add-on services where the data is synchronized from their AVEVA Unified Engineering on CONNECT environment to an on-premises location, data may cross regional boundaries and is, therefore, no longer covered by the standard SLA.



# Network, Bandwidth, Client and Other Software Requirements

#### **Requirements for Standard Platform Services**

#### Minimum Network and Bandwidth Requirements

WorkSpaces client applications rely on access to resources in the cloud and require a stable internet connection which provides at least **1 Mbps** of download bandwidth per power user, and at least **3.0 Mbps** of download bandwidth per graphics user. If your device has an intermittent or unstable connection to the network or internet, the WorkSpaces client application may report an issue and disconnect. To improve network stability, hardwire your computer to the network.

For the best performance, the round-trip time (RTT) from the client's network to the region where the WorkSpaces reside should be less than 100ms. When using AVEVA 3D applications it is recommended to have a round trip time of no more than 100 ms.

- If the RTT is between 100ms and 200ms, the user can access the WorkSpace, but performance is affected.
- o If the RTT is between 200ms and 375ms, the performance is degraded.
- $\circ$  If the RTT exceeds 375ms, the WorkSpaces client connection is terminated.

To check the RTT to the various regions from your location, use the *Amazon WorkSpaces Connection Health Check https://clients.amazonworkspaces.com/Health.html* and refer to the *Regional Cloud Availability* on page 11 of this document.

AVEVA recommends the use of quality of service (QoS) to meet the traffic requirements and reduce packet loss and latency on the network.

#### • Supported Clients

Using WorkSpaces requires a native client application to be installed on the end-user device to enable a user to securely connect to their personal WorkSpaces. Each WorkSpaces user is granted a unique login to a persistent desktop environment as part of the integration with the CONNECT account.

Supported Client: Windows Client requires 64-bit Microsoft Windows 8.1, Windows 10, or Windows 11.

#### Firewall Port Requirements

The following firewall ports are required for the WorkSpaces Windows client application:

o TCP Ports 443

This port is used for client application updates, registration, and authentication. This port must be open to a range of Amazon IP addresses for the region where AVEVA Unified Engineering on CONNECT service is delivered from.

• UDP and TCP Port 4172

This port is used for streaming the WorkSpace desktop and health checks and must be open to the Amazon PCoIP Gateway IP address ranges and health check servers in the region that the WorkSpace is in.



If required, most firewalls can support a configuration to only allow access to these ports from specific IP addresses/ranges on a corporate LAN, and not open these ports to all IP addresses.

#### • Proxy Server Configuration Requirements

If the client network requires use of a proxy server to access the Internet, you can enable the WorkSpaces client application to use a proxy for HTTPS (port 443) traffic. Proxy with authentication is not currently supported.

#### **Requirements For Global Services Add-On**

- Secure site-to-site VPN tunnels between customer on-premises network and AVEVA Unified Engineering on CONNECT (tunnels are deployed as part of the managed service provided by AVEVA).
- Installation and configuration of AVEVA Global satellites on-premises in customer network domain:
  - For configuration modifications of on-premises Customer Gateway Device (VPN endpoint), AVEVA will provide configuration changes as part of the managed service.
  - For configuration modifications of on-premises firewalls to permit site-to-site communications, AVEVA will provide the IP addresses of the AVEVA Unified Engineering on CONNECT on the Connect global server.
  - Alignment of AVEVA product versions on-premises with those deployed in AVEVA Unified Engineering on CONNECT in strict accordance with AVEVA Unified Engineering on CONNECT update cadence (approximately 4 times per year).
- Actual network requirements will vary depending on the amount of data updates and frequency of updates.

### Third-party Software Licenses

To provide customers with standard ready-to-go desktop services for users, additional software packages are required for some AVEVA Unified Engineering on CONNECT applications.

The following software licenses are included as part of AVEVA Unified Engineering on CONNECT as needed:

- AVEVA software as required for all services.
- Microsoft Excel Professional 2021 is bundled with all WorkSpace instances.
- Microsoft Visio Standard 2021 for AVEVA Diagrams Diagrams Module. Microsoft Visio is only made available on AVEVA Unified Engineering on CONNECT Workspaces upon prior agreement with AVEVA.

Where required, the customer must provide the following software licenses for use:

• Autodesk AutoCAD (The customer should purchase stand-alone/single-user AutoCAD licenses directly from Autodesk.)



# Security Standards and Compliance

AVEVA Unified Engineering on CONNECT implements the following to ensure a high level of security.

### Administrative Access

To enable the secure management and configuration of AVEVA Unified Engineering on CONNECT applications and services, authorized members of the AVEVA Services and Cloud DevOps teams use Microsoft Remote Desktop Protocol (RDP) to access specific cloud server instances. This access is granted to named users via a bastion server which acts as a jump server allowing authorized AVEVA team members (Cloud DevOps team) to establish a second RDP session to jump onto the relevant private subnet server(s) to carry out administration and configuration tasks.

### WorkSpaces Security

#### **Registration Security**

As part of the AVEVA Unified Engineering on CONNECT managed service, each new WorkSpaces is provisioned for a user as part of the self-service user and role management functionality of CONNECT, and the integrated Unified Engineering services. User identity is managed by CONNECT and the integrated AVEVA Unified Engineering single sign-on (SSO), eliminating the need for a separate registration process.

#### **Microsoft Active Directory for User Identity**

Integration of the CONNECT user identity management services and the dedicated Microsoft Active Directory instance within each customer's AVEVA Unified Engineering environment is used to control user access, privileges, and permissions across the AVEVA Unified Engineering on CONNECT service. This aligns with the standard identity repository on Windows-based networks. Microsoft Active Directory is a highly available managed service provided by the cloud service provider.

#### **Access Control**

To control user access, (for example, if the user leaves the company or if, for some other reason, a user needs to be blocked permanently or temporarily), the user account can be restricted by removing roles or group membership in CONNECT.

### WorkSpaces Network Encryption

The device running the WorkSpaces client will use the same two ports for connectivity to the WorkSpaces service. Traffic on both ports is encrypted.

The WorkSpaces client uses HTTPS over port 443 for all authentication and session-related information, and leverages TLS 1.2 for encrypting traffic.

The WorkSpaces client uses port 4172 (PcoIP) with both TCP and UDP for encrypted pixel streaming to a given WorkSpaces and for network health checks. Pixel streaming traffic leverages AES-256-bit encryption for communication between the desktop client and the AWS WorkSpaces service, via the streaming gateway.



# Decommission of the Service

Upon request and confirmation from the customer to decommission the service, AVEVA initiates the following:

- Deletion of all customer data held in databases, file storage and back-ups.
- Removal of all user WorkSpaces and any data stored on user drives.
- Removal of all cloud infrastructure and serverless resources associated with the customer tenant.

A backup of the Dabacon databases, last full SQL Server back-up and file-based data may be provided (for an additional fee) upon request from the customer as part of the request for decommissioning.

# High Availability, Business Continuity, and Data Protection

To ensure high availability, business continuity, and data protection, AVEVA Unified Engineering on CONNECT follows the time intervals given below.

- **Data Storage**: The AVEVA Unified Engineering on CONNECT applications use either the file-based AVEVA Dabacon platform, proprietary simulation data storage, or relational data managed in Microsoft SQL Server.
- Data Backup
  - Backups are created on a daily schedule.
  - All backup data is stored in the same cloud region as the cloud service. All backups are held on secondary storage which is replicated across multiple data centers within the same region.

**NOTE**: Production environment data backup retention exceeds the requirement to meet the defined recovery targets and service levels.

- User Profile and Data
  - When a WorkSpaces client is provisioned, a separate volume (D:) is created for the user and all profile data is committed to these separate volumes (D:\Users\%username%). As the volume is a virtual disk which remains attached to the user's WorkSpaces client, there is no overhead on the logon process. This also makes WorkSpaces persistent to the user; a 1-to-1 relationship. As such, there is no roaming of profiles between WorkSpaces.
  - The user volume is protected by snapshotting it every 12 hours. This snapshot is independent of the OS volume (C:) and when a WorkSpaces client is rebuilt, a new user volume is created from the latest snapshot only.



#### Disaster Recovery

In a disaster situation, infrastructure and services shall be provisioned to an alternate, unaffected location. Data shall be restored from backup or retrieved from replicas where available for the specific solution and service.

Cloud Service	Recovery Point Objective (RPO)
AVEVA Unified Engineering on CONNECT	24 hours

Cloud Service	Recovery Time Objective (RTO)
AVEVA Unified Engineering on CONNECT	48 hours

### Service Maintenance Window

A maintenance window is required for environment updates and upgrades to AVEVA Unified Engineering on CONNECT as detailed in the release notes.

Release notes for AVEVA Unified Engineering on CONNECT are available from your AVEVA Customer Success Manager and are also available from the AVEVA Knowledge & Support Center website at https://softwaresupport.aveva.com/

The maintenance window typically occurs on a quarterly basis and requires a minimum window of six hours. The maintenance will be scheduled in advance and performed outside of the customers' stated key business hours.

### Service Level Commitment

AVEVA Cloud Services are governed by the AVEVA General Terms and Conditions.

The AVEVA Cloud Service Level Commitment is a supporting document that describes the service level commitment for all available AVEVA Cloud Services.

Both documents are available on the AVEVA web site at https://www.aveva.com/en/legal.

### Exclusions

- Infrastructure Availability: The AVEVA Cloud Service Level Commitment (SLA) does not include non-availability due to scheduled or emergency maintenance of the application services or CONNECT.
- Service levels are applicable to production environments only.
- For production environments employing the Global Services Add-On for hybrid project-sharing, the service level commitment is not applicable to services dependent either directly or indirectly on on-premises processes or configurations. For example, ensuring the availability of the site-to-site VPN for connectivity or interruptions in service as a result of changes to any on-premises component (infrastructure, networking, computer, firewalls, routing etc.)



# **Additional Services**

AVEVA offers an extensive collection of Customer Success Accelerators, well-defined, outcome-based services that are designed to ensure you realize the maximum benefit from your investment in our software through all the lifecycle stages of your software application.

For more details, visit the Customer Success Accelerators site at https://www.aveva.com/en/support/customer-first/success-accelerators/.