AVEVA™ Unified Engineering 2021 on AVEVA™ Connect

Service Description

Version 1.0
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AVEVA Unified Engineering 2021 on AVEVA Connect

Document Purpose and Audience

**Document Purpose**

This document describes the functional digital services of AVEVA Unified Engineering 2021 on AVEVA Connect, including its key features and limitations, as well as the operational parameters.

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

This document is neither an agreement, nor is a supporting document to the Product Schedules that outline the service commitment available on the AVEVA site https://sw.aveva.com.

**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 2021

AVEVA Unified Engineering 2021 helps you control and accelerate the iterative design and engineering process within one integrated set of products.

AVEVA Unified Engineering 2021 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.

- **Accessible over the Internet**: AVEVA Unified Engineering 2021 applications are accessible over the Internet via the WorkSpaces client that provides a virtual desktop environment for the user. The WorkSpaces client is supported only on Windows.

- **Complete control over networking environment**: AVEVA Unified Engineering 2021 is provided to customers on a dedicated instance basis using virtual network/virtual private cloud technologies for the isolation of resources on shared hardware, with restricted administrative access to AVEVA named team members.

- **Windows desktop**: AVEVA Unified Engineering 2021 applications delivers the Windows desktop engineering and design authoring tools available from AVEVA, as well as simulation tools such as PRO/II and SimCentral. The supporting cloud infrastructure is primarily responsible for the storage of application data on either AVEVA proprietary file-server based Dabacon storage or Microsoft SQL Server databases.

**Architecture**

The illustration below shows the AVEVA Unified Engineering 2021 applications and supporting back-end services making up a single AVEVA Unified Engineering 2021 environment.

- AVEVA Unified Engineering 2021 applications use a client-server application architecture, with some client applications requiring a GPU processor. Applications are delivered on the cloud platform using an advanced streaming technology from Amazon Web Services (AWS) called WorkSpaces. WorkSpaces is a managed cloud desktop-as-a-service (DaaS) solution and provides a virtual user desktop to each AVEVA Unified Engineering 2021 user. By using these technologies and services, AVEVA can securely deliver AVEVA Unified Engineering 2021 applications to users over the Internet, while ensuring good performance due to the high-bandwidth, low-latency requirements of these products.

- 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 2021 Application Desktops

WorkSpaces technology provides a robust, secure, managed cloud-based virtual desktop experience to meet the demanding needs of end-users accessing the AVEVA Unified Engineering 2021 applications, while allowing AVEVA to ensure a standard configuration.

All AVEVA Unified Engineering 2021 WorkSpaces are created and managed using a custom golden image which contains the managed and maintained software installation and configurations.

This golden image is used to provision a standard WorkSpace instance for each new AVEVA Unified Engineering 2021 user. The provisioning process creates a dedicated desktop containing the approved AVEVA Unified Engineering 2021 applications within the virtualized customer infrastructure on the AVEVA cloud.

Two WorkSpaces specifications are used:

- Graphics WorkSpaces with Plus bundle (8 CPU, 15GB RAM, 1 vGPU) for users of AVEVA Everything3D™
- Power WorkSpaces with Plus bundle (4 CPU, 16GB RAM) for all other AVEVA Unified Engineering 2021 applications
WorkSpaces Plus bundles include Microsoft Windows licensing, Microsoft Office Professional, Trend Micro Security and Utilities (IE11, Firefox, WinZip)

Service Overview

The AVEVA Unified Engineering 2021 managed service provides access to geographically dispersed users, including multiple collaborating EPCs, with an on-demand desktop which is optimized for design and engineering tasks using AVEVA applications all operating on a shared digital asset.

Service Components

AVEVA Unified Engineering 2021 is made up of three key components:

1. Cloud platform, consisting of cloud services, cloud servers and storage for applications and data
2. User WorkSpaces, a managed cloud desktop-as-a-service (DaaS) solution to provide secure user access to AVEVA applications in the cloud. WorkSpaces are assigned on an individual user basis to meet the user’s role in a project. There are two choices of WorkSpaces:
   ○ Graphics – required for 3D applications.
   ○ Power – required for 1D and 2D applications and tools
3. Managed Service to support and maintain the cloud platform, AVEVA software and WorkSpaces for users

To ensure a client’s desired project configuration is achieved, a strategy to correctly configure and maintain configuration for AVEVA Unified Engineering 2021 is required. This can be coordinated through AVEVA service delivery teams or by the client’s own project administration team, or with the help of a third-party system integrator with domain expertise of AVEVA products and projects.

Service Limitations

Limitations

- Single region - The AVEVA Unified Engineering 2021 service is currently limited to a single cloud region. A customer must choose one of the available cloud regions to host the service infrastructure including the WorkSpaces allocated to users. AVEVA can advise a suitable cloud region for deployment based on the location of users and the application use profile.
- User management - AVEVA Connect enables federation with your corporate identity service for user management. Users are able to access their WorkSpaces if they have the subscription and appropriate roles assigned to them.
- Users do not have administrative access to the WorkSpaces desktop environment.
- The AVEVA Unified Engineering 2021 service can be accessed on Windows devices only via the WorkSpaces desktop.
- Only Visio 2013 is supported for AVEVA Diagrams.

Unsupported Features

- .NET customization of the AVEVA Unified Engineering 2021 application user interface is not supported. The use of PML1 and PML2 customization are supported.
- Integration with external applications - Hybrid integration with on-premise deployments of AVEVA applications and databases, or other vendor products either on-premises or cloud based is not supported.
- The use of AVEVA Global for Workshare on distributed projects and workloads is not supported.
Regional Cloud Availability

AVEVA Unified Engineering 2021 is accessed via the public Internet using HTTPS/TLS and PCoIP (secure transport mechanisms).

AVEVA Unified Engineering 2021 focuses on delivery of our solutions from the following public cloud regions:

- Americas - Northern Virginia
- Americas - Oregon
- EMEA - Ireland
- APAC - Singapore
- APAC - Sydney

NOTE: AVEVA Unified Engineering 2021 is not available from any China cloud regions 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 connection to any web services outside of China. As such, AVEVA Unified Engineering 2021 cannot formally support users inside China.

Network, Bandwidth, Client and Other Software Requirements

Minimum Network and Bandwidth Requirements

WorkSpaces client applications rely on access to resources in the cloud and require a connection which provides at least 1.0 MBPS of download bandwidth for power users at least 3.0 MBPS of download bandwidth for graphics users and with a recommended maximum round trip time of 250 ms.

The best user experience is achieved with a maximum round trip time of 150 ms. AVEVA 3D applications are recommended to have a round trip time of no more than 120 ms.

If your device has an intermittent connection to the network, the WorkSpaces client application may report an issue with the network.

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.

Supported Client:

- Windows Client Application (Microsoft Windows 7, Windows 8, or Windows 10.)

Firewall Port Requirements

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

- 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 address for the region where AVEVA Unified Engineering 2021 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.

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 2021 applications.

The following software licenses are included as part of AVEVA Unified Engineering 2021 as needed:

- AVEVA software as required for all services
- Microsoft Office Professional is bundled with all WorkSpace instances
- Microsoft Visio 2013 is included for deployments of AVEVA Diagrams

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

- Autodesk AutoCAD

Security Standards and Compliance

AVEVA Unified Engineering 2021 leverages a Shared Responsibility Model to clearly define the responsibilities and scope operational responsibility.
With this model as the framework, AVEVA Unified Engineering 2021 implements the following to ensure high level of security.

**Separation of Environments, Access Control and Administrative Privileges**

**Separation of Environments**

Segregation of development and operational activities, and the separation of customer data is ensured by providing isolated, separate cloud environments for different functions.

Separate cloud environments are used for development, test and production purposes to provide a high level of isolation. AVEVA Unified Engineering 2021 uses separate cloud environments for each customer/project.

AVEVA development teams have established testing QA/AA processes which include the use of public cloud security, monitoring and analysis tools, checks for compliance to the AVEVA Privacy Policy. Products and components are cloud cleared from a licensing perspective, and security testing to confirm web-application security implementation is aligned with OWASP recommendations.

**Administrative Access**

To enable the secure management and configuration of AVEVA Unified Engineering 2021 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 2021 managed service, when a new WorkSpaces client is provisioned, the provisioned user will be sent an email telling them their AVEVA Unified Engineering 2021 desktop is ready. This allows the user to create a password during the initial registration process.

**Microsoft Active Directory for User Identity**

Microsoft Active Directory is used to control user access, privileges and permissions across the AVEVA Unified Engineering 2021 service. This aligns with the standard identity repository on Windows-based networks. Microsoft Active Directory is a managed service provided by the cloud service provider.

**Access Control**

To control user access, for example if the user leaves the company or for some other reason needs to be blocked permanently or temporarily, the user account can be disabled by the process of AVEVA Connect account disabling/removal.

**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.
High Availability, Business Continuity, and Data Protection

To ensure high availability, business continuity, and data protection, AVEVA Unified Engineering 2021 follows the timelines given below.

- **Data Storage**: Most AVEVA Unified Engineering 2021 applications use the Dabacon platform and file-based datastore, and 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 (RPO = 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.

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<thead>
<tr>
<th>Cloud Service</th>
<th>Recovery Point Objective (RPO)</th>
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<tbody>
<tr>
<td>AVEVA Unified Engineering 2021</td>
<td>24 hours</td>
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<table>
<thead>
<tr>
<th>Cloud Service</th>
<th>Recovery Time Objective (RPO)</th>
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</thead>
<tbody>
<tr>
<td>AVEVA Unified Engineering 2021</td>
<td>48 hours</td>
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</tbody>
</table>

- **Service Availability**

- Infrastructure Availability: The Service Level Agreement (SLA) does not include non-availability due to scheduled or emergency maintenance of the application services or AVEVA Connect.
- Service levels are applicable to production environments only.

**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 https://sw.aveva.com/support/customer-first/success-accelerators.

The following services can be provided for AVEVA Unified Engineering 2021:

**Administrative Services**

The following administrative services are available on recurring or subscription basis:

- Application administration
- Database administration (Dabacon)
- Data cleansing, project and data validation, data consistency checking
- Routine data updates
- Corporate standards implementation
- Routine deliverables for drawing production, report generation
- Standard reporting, suite of best-practice reports

**Content Creation**

Content creation projects are scoped and priced per customer requirements, to identify and provide application content to:

- Accelerate implementations for customers by having a library of ready-made content available
- Reduce duplication by our customers having to repeatedly build these items
- Provide an "out of the box" solution with standard content

Content varies by application, but it is generally defined as:

- Catalogue items and specifications
- Datasheets and symbols
- Data model, UDETs/UDAs

Further information is available on request.