



Check manual in Assets for tank model for correct value

Check pressure gauge values daily.

Quick Start Guide

Leica Cyclone ENTERPRISE

Valid as of January 2022



Contents



Introduction 3

System Specifications 6

Installation & Licensing 14

Server Configurations & Scalability 25

Compatibility 31

First-Time Login 34

Additional Features 37

Appendix A: Installing on AWS 39

Appendix B: Installing on Microsoft Azure 67

- when it has to be **right**



Cyclone ENTERPRISE

Introduction

Contents:

Leica Cyclone ENTERPRISE

Features & Benefits

Introduction

Leica Cyclone ENTERPRISE

A new, **user managed**, software solution for the reality capture market, that delivers a simplified **management & collaboration platform**.

Powered by Leica Geosystems' **JetStream technology**, Cyclone ENTERPRISE facilitates:

- Reality Capture Project Management
- Access to rich, full 3D Reality Capture data through desktop programs & web browsers
 - Point clouds, imagery, models, & more
- Secure, flexible, **self-managed deployment** so you can meet your unique IT needs

- when it has to be **right**



Introduction (cont'd)

Features & Benefits

- **Centralized Management:** Control user & data management features from a simple, online, browser-based administration portal.
- **Seamless Integration:** Interoperability with all major CAD products from Hexagon, Autodesk, Bentley, AVEVA, Dassault Systems & others via CloudWorx & JetStream powered technology, delivering rich, reality capture-based feature extraction & analysis workflows.
- **Secure Project Access:** Provide secure access to internal & external users on a per-project basis. No data leaves the premise. Sessions are managed centrally & remotely.
- **Single Source of Truth:** Eliminate redundant & duplicated data sources & enable a common project view thereby improving quality & productivity.
- **Web & Desktop Access:** Access projects via a desktop viewer & CAD plugins, as well as the no-install, online viewer, TruView LIVE, for quick viewing & collaboration from anywhere on any device.
- **Powered by JetStream:** Cyclone ENTERPRISE harnesses the power of Leica JetStream technology for rapid visualization & powerful collaboration.



- when it has to be **right**

Leica
Geosystems



Cyclone ENTERPRISE

System Specifications

Contents:

Operating System

Deployments

Server Specifications

Client Machine Specifications

Please see the white paper "[Leica Cyclone ENTERPRISE: Scalability & High-Performance Requirements](#)" for additional information on how to create scalability to meet your organisation's needs.

System Specifications (cont'd)

Operating System

- Only Windows deployment is available.
- Supported Windows versions:
 - Windows 10
 - Windows 10 Pro
 - Windows 10 Enterprise
 - **Windows Server 2016 (recommended)**
 - **Windows Server 2019 (recommended)**

Deployments

- It is recommended to deploy Cyclone ENTERPRISE on a dedicated server machine to ensure optimal performance via full system resource allocation and reduce Port number collision.
- Cyclone ENTERPRISE supports cloud deployment on Amazon Web Services (AWS) & Microsoft Azure (requires Windows instance).

Note: No Linux or other server environment is supported

Note: It is recommended to use Windows Server. Non-server versions of Windows have user session limitations that may result in some functions not working (see the Troubleshooting chapter in the application's Help for more info)

Note: It is not recommended to deploy within a VM environment. Some features require a GPU, requiring a GPU that supports vGPU capabilities for VM deployment. vGPU configurations requires additional specialized software, motherboard hardware, and complex system configurations.

- when it has to be **right**

Leica
Geosystems

System Specifications (cont'd)

Server Machine Specifications

Processor	Recommended: 64 Cores, multi-threaded, at 4 GHz or higher Minimum: 8 Cores, multithreaded, at 2.5 GHz or higher
RAM	Recommended: 256 GB or higher Minimum: 32 GB or higher
Graphics	Recommended: 16 GB NVIDIA or AMD GPU with OpenGL 4.6 or newer support Minimum: 8 GB NVIDIA or AMD GPU or higher with OpenGL 4.6 or newer support
Hard Disk	Recommended: <ul style="list-style-type: none">• Installation drive: 2 TB* SSD• Project Storage Location drive(s): SSD(s) of at least the minimum total project storage you will need based on project quantity & average project size Minimum: <ul style="list-style-type: none">• Installation drive: 1 TB* HDD• Project Storage Location drive(s): HDD(s) of at least the minimum total project storage you will need based on project quantity & average project size
Network (Server connection)	Recommended: 10Gbps on-premise & 100Gbps for cloud services Minimum: 1Gbps on-premise & 50Gbps for cloud services <i>Please see the Client Machine specifications for information about client device network requirements.</i>

System Specifications (cont'd)

Server Machine Specifications (cont'd)

Hard Disk (cont'd)

Note: 1.25 GB is the **minimum drive space** required for application installation.

However, **Project Import and Publish (as LGS) utilize temporary storage on the installation drive.** A typical import or publish will temporarily require approximately 2.5-times the size of the project being imported or published (e.g., if you are importing a 100 GB LGS file, we suggest having a minimum of 250 GB of free storage on the drive). Therefore, despite only needing 1.25 GB for installation, we recommended at least 1 TB (and possibly 2 TB or more) to accommodate large project imports and publishes. You can use an exemplar project to refine the required temporary storage capacity for both import and publish processes.

Project Storage drives can be added to the system via the Admin UI at any time, therefore expanding your server capacity with additional storage is not a problem. However, if you wish to estimate, we suggest taking an exemplar project, published as an LGS file. This should give a baseline for per-project size and then multiply by the intended/estimated quantity of projects to be managed in Cyclone ENTERPRISE

- when it has to be **right**

System Specifications (cont'd)

Client Machine Specifications

Thin Client

- **Hardware requirements:** The Thin Client machine viewing the project via TruView LIVE does not need a high-performance graphics card as the rendering is handled on the Server. Therefore, any reasonable system, including lower-end tablet devices with a sufficient Wi-Fi connection, will be able to handle the TruView LIVE session efficiently.
- **Software Requirements:** Cyclone ENTERPRISE works on all modern browsers. The following browsers are tested and verified in benchmark testing.
 - Chrome (Windows, MacOS, iOS, & Android)
 - Safari (iOS)
 - Firefox (Windows)
 - Edge (Windows)

Note: Always be sure to have the latest version installed.

- when it has to be **right**



System Specifications (cont'd)

Client Machine Specifications (cont'd)

Thin Client (cont'd)

- **Network Requirements:** It is recommended to ensure the following performance specifications for the Thin Client device's network/Internet connection.
 - **Latency:** It is recommended to have latency under 25 milliseconds. Lower values are preferred.
 - **Bandwidth:** A minimum of 100 Mbps for downstream is recommended. Higher values are preferred.

System Specifications (cont'd)

Client Machine Specifications (cont'd)

Thick Client

- **Hardware requirements:** Cyclone ENTERPRISE projects can be seamlessly accessed by most of Leica Geosystems Reality Capture products and the Powered by JetStream products from Leica Geosystems and Partners.
 - The Client machine requirements for connecting to Cyclone ENTERPRISE from a consuming product such as TruView, CloudWorx, Map360, Cyclone 3DR, etc., is the same as the specification required by the connecting product(s).
 - The product datasheets and catalogues should be referenced for details.

System Specifications (cont'd)

Client Machine Specifications (cont'd)

Thick Client (cont'd)

▪ Network Requirements

- ***On-Premises Network:*** An Intranet connection minimum of 1 Gbps rate (10 Gbps recommended) is needed for network of Thin Clients connecting to Cyclone ENTERPRISE Server.
- ***Internet (Cloud Deployment):*** It is recommended to ensure the following performance specifications for a Thick Client machine's network/Internet connection.
 - *Latency:* It is recommended to have latency under 25 milliseconds. Lower values are preferred.
 - *Bandwidth:* A minimum of 100 Mbps for downstream is recommended. Higher values are preferred.



Cyclone ENTERPRISE

Installation & Licensing

Contents:

Prepare for installation

Installing Leica Cyclone ENTERPRISE

Migrating JetStream Enterprise Projects

Installing on Amazon Web Services (AWS)

Installing on Microsoft Azure

Installing Leica CLM & licensing

Installation & Licensing

Prepare for installation

Update Windows

- From Windows Update, Check for updates & apply all critical security patches.

Configure Antivirus/Antimalware Applications

- Disable antivirus/antimalware or other real-time protection software, or configure antivirus/anti-malware software with the following directory exclusions:
 - %PROGRAMFILES%\Leica Geosystems\Cyclone Enterprise
 - %PROGRAMDATA%\Leica Geosystems\Cyclone Enterprise
 - %COMMONPROGRAMFILES(x86)%\Leica Geosystems\License-Serve

Install the .NET Framework

- Make sure .NET Framework 4.6 or later is installed on Windows

Note: Do not run the Windows Update Service during Cyclone ENTERPRISE installation.

Note: Make sure that no system reboot is pending. You should reboot the computer after Windows Update before installation

Note: Refer to your specific antivirus software documentation on how to configure directory exclusions.

Installation & Licensing (cont'd)

Installing Leica Cyclone ENTERPRISE

1. Right-click on the Cyclone ENTERPRISE setup file & select “Run as Administrator”.
2. Follow the directions in the InstallShield Wizard.
3. Choose the Storage folder location & Select Next.
4. To complete the installation:
 - a. Select Yes, I want to restart my computer now.
 - b. Select Finish.

The installation will create & use the following folders:

- %PROGRAMFILES%\Leica Geosystems\Cyclone ENTERPRISE
- %PROGRAMDATA%\Leica Geosystems\Cyclone ENTERPRISE

Note: You must have administrative privileges on your Windows machine to correctly install Cyclone ENTERPRISE.

Note: Installation of Cyclone ENTERPRISE requires at minimum 1.25 GB of storage space for the application, but please see the server specifications for recommended available storage.

Note: You cannot install Cyclone ENTERPRISE on the same system as JetStream Enterprise. Please see the next slide for more information.

Note: If the installation is an update on the existing Cyclone ENTERPRISE, first, STOP the server using the Cyclone ENTERPRISE Launcher (found in the system tray) to proceed with the update.

Installation & Licensing (cont'd)

Migrating JetStream Enterprise Projects

1. Uninstall JetStream Enterprise from the system. This will NOT remove your project data.
2. Install Cyclone ENTERPRISE on the same system.
3. During installation, Cyclone ENTERPRISE will detect the previous JetStream Enterprise database & migrate the Project Storage Location information into the Cyclone ENTERPRISE database.
4. After installation is complete, the Root user can login & navigate to **Administration | Server | Storage Locations**.
5. Root user can use the "Reconnect" feature for each migrated Storage Location to connect the data to the Cyclone ENTERPRISE database & make the Projects available.
6. All Projects in reconnected storage will be added to the Default Group.
7. JetStream Enterprise has no concept of Users or Groups; it is therefore recommending any user-access permissions and/or organization of Projects into Groups be conducted at this stage.

Note: JetStream Enterprise & Cyclone ENTERPRISE can NOT run simultaneously on the same machine.

Note: It is recommended to make a backup of data of your Storage Locations before proceeding.

Note: Once your JetStream Enterprise projects are "reconnected" to the Cyclone ENTERPRISE database, they will NOT be backwards compatible.

Note: The server machine hardware requirements for Cyclone ENTERPRISE are very different from the hardware requirements for JetStream Enterprise in order to support TruView LIVE.

- when it has to be **right**

Installation & Licensing (cont'd)

Installing on Amazon Web Services (AWS)

1. Create your AWS account
2. Obtain AWS API Tokens
3. Install AWS CLI v2 for Windows
4. Configure AWS CLI Tool
5. AWS Region List
6. Configure AWS Security Group for Cyclone ENTERPRISE
7. Obtain Windows Server 2019 with NVIDIA Driver AMI
8. Create New Key Pair
9. Create Storage Config File
10. Launch EC2 Instance
11. Obtain Administrator Password
12. Get Public IP Address of EC2 Instance
13. Accessing Your EC2 Instance
14. Initialize Data Storage Disk
15. Stop Your EC2 Instance
16. Restart Your EC2 Instance
17. Install Leica CLM
18. Install Leica Cyclone ENTERPRISE

Note: See Appendix A for detailed instructions.

- when it has to be **right**

Installation & Licensing (cont'd)

Installing on Microsoft Azure

1. Create a resource under Azure services in your account.
2. Create a Virtual Machine (VM):
 - Assign a name.
 - Select the Region to deploy.
 - Choose “No infrastructure redundancy”.
 - Select “Windows Server 2019 Datacenter (Gen1)”.
 - Uncheck Azure Spot instance.
 - Select a memory size.
3. Specify user credentials for connecting to VM via RDP:
 - Allow accessing ports: Select RDP (3389), HTTP (80), HTTPS (443) in the inbound ports.
4. Modify Disk Settings:
 - Select “Premium SSD (locally-redundant storage)”.
 - Choose an Encryption type selection.
 - Uncheck Ultra Disk compatibility.
 - Choose “Create and attach a new disk”.
 - Click Change and Select a size for VM.
 - Select NO for “Enable shared disk”.
5. Modify Network Settings: Accept all default values.
6. Modify Management Settings: Accept all default values.
7. Modify Advanced Settings:
 - Click “Select an extension to install”.
 - Select “NVIDIA GPU Driver Extension”.
 - Ensure “Gen 1” is selected in VM generation setting
 - Ensure that NVIDIA GPU Driver Extension is listed.
8. Click “Review” and “create”.
 - After a few moments, the summary page will be shown stating that the VM settings passed validation.
 - Once completed, a new resource containing VM will be shown on the Resource groups page
9. Obtain the VM’s IP Address
 - The IP address to be used for RDP to the VM.
10. Install Leica CLM
11. Install Leica Cyclone ENTERPRISE

Note: See Appendix B for detailed instructions.

Installation & Licensing (cont'd)

Installing Leica CLM & licensing

1. Install Leica CLM.
2. Open the Client License Manager for Floating Licenses located here in Windows: **Start Menu | All Programs | Leica Geosystems | Client License Manager** (do NOT choose the Node-locked CLM).
3. Choose the Activate new licenses option.
4. Enter your Entitlement ID (EID) in the open field. To enter multiple EIDs separate them with a semicolon ";" & NO space.
5. After you have entered your EID, choose the Check for Activatable licenses to link in the bottom right of the page.
6. Once your licenses are activated, you can start using Cyclone ENTERPRISE.

Using a Central/Remote CLM server

To use CLM on a separate machine, the following configuration file must be edited:

- "C:\ProgramData\Leica Geosystems\Cyclone ENTERPRISE\jetstreamconfig.ini"

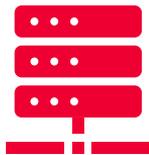
By default, the CLM server is set as the "localhost" (LicenseManagerHostName=localhost), which is the same machine. You may replace "localhost" with the IP address of the central/remote CLM server you wish to use.

Note: Cyclone ENTERPRISE supports Client License Manager (CLM), version 1.8.1 or newer.

Note: After a computer reboot, you may need to wait for a few minutes to restore the CLM server.

Note: If you want to activate a license offline, follow instructions in Leica CLM on setting up an EID (i.e., license) offline.

- when it has to be **right**



Contents:

Port Configurations

Firewall Rules

Setting up HTTPS connection...

Configuring Temporary Storage Locations...

Cyclone ENTERPRISE

Post-Installation System & Network Configurations

Post-Installation System & Network Configurations

Port Configurations

- The default port number is 5050
- The customer can change it to other ports by editing the configuration file. By default, the configuration file is named “**JetStreamConfig.ini**” & is located at “C:\ProgramData\Leica Geosystems\Cyclone ENTERPRISE”.
- See section Setting up HTTPS connection for Cyclone ENTERPRISE for more information on changing port settings.

Firewall Rules

Firewall settings are required for all server machines.

- Cyclone ENTERPRISE needs sets of firewall rules to allow required traffic by the program.
- Cyclone ENTERPRISE's installer changes Windows firewall settings to allow inbound traffic on **ports 80, 443, 5050** for both **TCP & UDP**.
- If the user modifies the port numbers, user must also update the Windows firewall rules to match the modified ports.

Note: It is strongly recommended to allocate a dedicated machine for running Cyclone ENTERPRISE to reduce the possibility of port number collision.

Post-Installation System & Network Configurations (cont'd)

Setting up HTTPS connection for Cyclone ENTERPRISE

1. Purchase a domain name from a domain name registrar.
2. On the registrar website, create a DNS "A" record pointing to the public IP address of your Cyclone ENTERPRISE server.
3. Allow inbound traffic.
4. On the Cyclone ENTERPRISE server, open the proxy configuration file "C:\Program Files\Leica Geosystems\Cyclone Enterprise\Production\caddyfile" in a text editor.
5. Replace the second line with your Cyclone ENTERPRISE URL (e.g., *cycloneenterprise.company.com*).
6. Save the configuration file.
7. Open the Windows Task Scheduler. Locate **CycloneEnterpriseHTTPSProxy** in the list.
8. Right click on **CycloneEnterpriseHTTPSProxy** & select **Enable**.
9. Right-click on **CycloneEnterpriseHTTPSProxy** again & choose **Run**.
10. Verify that HTTPS is working by opening the URL in a browser, e.g., *https://cycloneenterprise.company.com*.

Note: See Cyclone ENTERPRISE Help document for full instructions.

- when it has to be **right**



Post-Installation System & Network Configurations (cont'd)

Configuring Temporary Storage Locations for Import and Export

- The storage location can be modified within the “**config.json**” file in the “C:\Program Files\Leica Geosystems\Cyclone ENTERPRISE\Production” folder.

```
"filestore": {  
  "path": "C:/ProgramData/Leica Geosystems/Cyclone ENTERPRISE",  
  "resources": "C:/ProgramData/Leica Geosystems/Cyclone ENTERPRISE/Resources",  
  "upload": "C:/ProgramData/Leica Geosystems/Cyclone ENTERPRISE/upload",  
  "export": "C:/ProgramData/Leica Geosystems/Cyclone ENTERPRISE/export"  
}
```

Note: See Cyclone ENTERPRISE Help document for full instructions.

- when it has to be **right**





Contents:

Scalability

Configurable Settings

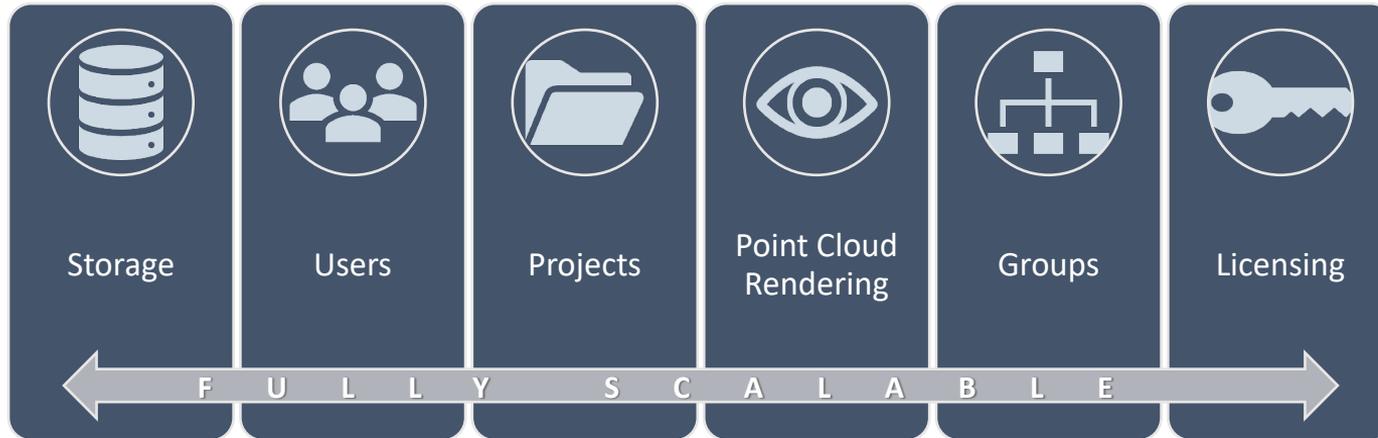
Cyclone ENTERPRISE

Server Configurations & Scalability

Server Configurations & Scalability

Scalability

- Cyclone ENTERPRISE is scalable to support enterprise-level needs. Cyclone ENTERPRISE can render an unlimited number of points, store unlimited number of projects, & manage unlimited number of Users, & Groups*.



Note: Please refer to scalability whitepaper & help document for more details.

Note: Groups are controlled by licensing, but any quantity can be purchased. has to be right

Server Configurations & Scalability (cont'd)

Configurable Settings

- The configurable server settings allow customization based on performance & scalability needs.
- The scalability of a deployment depends on the number of concurrent users, workflows, & the server hardware.
 - **Streaming in TruView LIVE:** It requires all computation & rendering to be handled by Cyclone ENTERPRISE. Therefore, TruView LIVE is the most substantial consumer of server-side system resources.
 - **Streaming into Desktop Client Applications:** Desktop client applications (e.g., CloudWorx, Cyclone 3DR, & others) rely mostly on some computational power on the client machine, reducing dependency on server-side resources. However, for running certain algorithms in CloudWorx server side, CPU and memory resources are used.
 - **Number of cores per TruView LIVE session:** Assigning a lower number of cores per TruView LIVE session can assist with the larger volume of concurrent user; however, it may result in increased latency & degraded performance per-user.
 - **Number of TruView LIVE sessions:** Cyclone ENTERPRISE allows users to limit the number of TruView sessions to prevent overloading the system & degrading performance.

Note: Please refer to Cyclone ENTERPRISE Scalability whitepaper & the application Help for more details.

- when it has to be **right**

Server Configurations & Scalability (cont'd)

Configurable Settings (cont'd)

- Based on benchmark test results, default values are set for these parameters to ensure the performance of the system.
- The following table provides the default values:

Parameter	Description	Default Value
Cores	Number of CPU Cores per TruView LIVE session	4
SharedCores	Number of shared CPU Cores for TruView LIVE 'processor overflow' & reserved cores for other processes	4
DynamicPixel	Dynamic Resolution during movement (e.g., 3D orbit or flythrough modes)	250,000 pixels
CachedSetups	Number of Cached Neighboring Setups to improve setup-to-setup transitioning	20

Note: Please refer to Cyclone ENTERPRISE Scalability whitepaper & Help documentation for more details.

- when it has to be **right**

Server Configurations & Scalability (cont'd)

Configurable Settings (cont'd)

- The TruView LIVE parameters can be modified by editing the **TruViewLIVE.ini** configuration file in “C:\ProgramData\Leica Geosystems\Cyclone ENTERPRISE” folder.

```
Cores=4
SharedCores=4
DynamicPixel=250000
CachedSetups=20
```

- The number of TruView LIVE sessions is controlled by defining the range of accessible ports under the “FrameServer” configuration list of “ports”. This is found in the **config.json** file located in the “C:\Program Files\Leica Geosystems\Cyclone ENTERPRISE\Production” folder.

```
"server": {
  "host": "localhost",
  "port": 5050
},
"frameserver": {
  "path": "../FrameViewer.exe",
  "ports": [
    | 9061, 9062, 9063, 9064, 9065, 9066, 9067, 9068, 9069, 9070
  ]
},
"jetstreamserver": {
  "path": "../JetStreamSrv.exe",
  "port": 9050
},
```

Note: See Cyclone ENTERPRISE Help documentation for full instructions.

- when it has to be **right**

Server Configurations & Scalability (cont'd)

Configurable Settings (cont'd)

Parameters	Qty or Size	Latency
Number of CPU Cores	▲	▼
	▼	▲
Shared number of CPU Core	▲	▼
	▼	▲
Dynamic frame resolution	▲	▲
	▼	▼
Number of Cashed Setups	▲	▼
	▼	▲

Legend:

- ▲ Increases by increasing the parameter value
- ▼ Decreases by increasing the parameter value
- Favorable impact
- Unfavorable impact

Note: Please refer to [Cyclone ENTERPRISE Scalability & High-Performance whitepaper & Help documentation](#) (post installation) for more details.



Cyclone ENTERPRISE

Compatibility

Contents:

Features

Importing Project Files

Compatibility

Features

Feature vs Product	Cyclone CORE	Cyclone REGISTER 360 (including BLK Ed.)	CloudWorx (All Modules)	TruView (f.k.a., JetStream Viewer)	TruView LIVE	Rithm powered by JetStream
Publish to Cyclone ENTERPRISE	2021.0 & higher	2021.0 & higher	n/a	n/a	n/a	n/a
Open Cyclone ENTERPRISE Projects	n/a	n/a	2021.0 & higher	2021.0 & higher	2021.0 & higher	2021.0 & higher
Add Models	n/a	n/a	n/a	2021.0 & higher	n/a	n/a
Edit Models	n/a	n/a	n/a	2021.0 & higher	2021.0 & higher	n/a
Add GeoTags	*	*	2021.0 & higher	2022.0 & higher	2022.0 & higher	n/a
Edit GeoTags	n/a	n/a	2021.0 & higher	2021.0 & higher	2021.0 & higher	n/a
Add/Edit Snapshots	n/a	n/a	2021.0 & higher	2021.0 & higher	2021.0 & higher	n/a
Access & Download Assets	n/a	n/a	2021.0 & higher	2021.0 & higher	2021.0 & higher	n/a

* GeoTags can be added from Cyclone CORE and Cyclone REGISTER 360 prior to publishing to Cyclone ENTERPRISE.

Compatibility (cont'd)

Import Project Files

LGS	Cyclone ENTERPRISE 2021.0 & higher
-	-
1.5.1	✓
1.6.0	✓
1.6.2	✓
2020	✓
2020.1	✓
2021	✓

JSA	Cyclone ENTERPRISE 2021.0 & higher
1.4.1	✓
1.5.1	✓
1.6.0	✓
1.6.2	✓
2020	✓
2020.1	✓
-	-



Cyclone ENTERPRISE

First-Time Login

Contents:

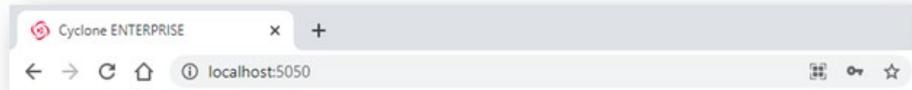
Launch Cyclone ENTERPRISE

First-time Login Credentials

First-Time Login

Launch Cyclone ENTERPRISE

- Cyclone ENTERPRISE can be opened using any supported web browser.
- The default address and port for Cyclone ENTERPRISE are as follows:
 - **Address:** localhost
 - **Port:** 5050
- To access the address, type `http://localhost:5050/` in the browser



Note: See the list of supported browsers in the Software Requirements section.

Note: The `http://localhost:5050/` is for accessing Cyclone ENTERPRISE on the **machine on which it is installed**.

Note: If you are accessing Cyclone ENTERPRISE from another machine on the same network, replace "localhost" with the IP address of the Windows machine Cyclone ENTERPRISE is installed on (e.g., `http://192.0.0.0:5050`).

First-Time Login (cont'd)

First-time Login Credentials

- During installation, a default Root user is created.
- The Root user credentials are required when logging into Cyclone ENTERPRISE for the first time.
- The username and password for the "Root" user account are as follows:
 - **Username:** root
 - **Password:** root

Note: Once logged in for the first time as Root, you may begin creating other users.

Note: You will be required to change the default password for the Root user upon first login.

Note: The default root user password ("root") is only valid for **48 hours** after Cyclone ENTERPRISE is installed and the server is initiated. If you do not login within this period, you will be required to reset the root user's password by running the "ResetPassword.exe" utility in the application's installation directory.



Cyclone ENTERPRISE

Additional Features

Additional Features

To setup and run Cyclone ENTERPRISE, additional features are provided. Please refer to Cyclone ENTERPRISE **Help Document** and published **Whitepapers** for more details.

Some of the important features include:

- Creating and Editing Users
- Publishing and Uploading to Cyclone ENTERPRISE
- Managing Projects in Cyclone ENTERPRISE
- Checking license status
- Customizations
- Downstream Consumption
- and more



Appendix A:

Installing & Licensing on Amazon Web Services (AWS)

Contents:

- Introduction
- Create AWS account
- Obtain AWS API Tokens
- Install AWS CLI v2 for Windows
- Configure AWS CLI Tool
- AWS Region List
- Configure AWS Security Group for Cyclone ENTERPRISE
- Obtain Windows Server 2019 with NVIDIA Driver AMI
- Create New Key Pair
- Create Storage Config File
- Launch EC2 Instance
- Obtain Administrator Password
- Get Public IP Address of EC2 Instance
- Accessing Your EC2 Instance
- Initialize Data Storage Disk
- Stop Your EC2 Instance
- Restart Your EC2 Instance
- Installing Leica CLM & licensing
- Installing Leica Cyclone ENTERPRISE

Installing & Licensing on Amazon Web Services (AWS)

Introduction

This section provides instructions for deploying Cyclone ENTERPRISE on the cloud when running the Cyclone ENTERPRISE server on Amazon Web Services (AWS).

Note: This guide assumes you have experience with the Windows command-line interface.

Note: Prior experience with AWS is not required but is helpful.

Note: Customers with an existing AWS account can skip section Create your AWS account and proceed to section Obtain AWS API Tokens. As a best security practice, we recommend that you create a new IAM user specifically for Cyclone Enterprise. Instructions for this task are in the section.



Installing & Licensing on Amazon Web Services (AWS)

Create AWS account

1. Open <https://aws.amazon.com>.
2. Select Create an AWS Account at the top right corner of the page.
3. Enter your account information, and then choose Continue. Ensure that your account information is accurate.
4. Select Professional.
5. Enter your company information.
6. Accept the AWS Customer Agreement.
7. Choose Create Account and Continue.
8. Enter your credit card information. Your AWS usage expenses will be charged on this card. Click Verify and Add.
9. Choose SMS or Voice call and your mobile phone number to confirm your identity.
10. Select Basic Plan for the support plan.

Note: Account activation may take up to an hour. You will be notified by email when your account is ready.

Note: For more information on the AWS signup process, see <https://aws.amazon.com/premiumsupport/knowledge-center/create-and-activate-aws-account/>.

Installing & Licensing on Amazon Web Services (AWS)

Obtain AWS API Tokens

Once you receive an email indicating that your account is ready, follow these instructions to get API tokens needed for Cyclone ENTERPRISE deployment.

1. Open <https://console.aws.amazon.com/>
2. Select the Root User.
3. Enter the email address that you used for AWS registration. Click Next.
4. Enter the password. Click Sign In.
5. Enter “iam” in the search at the top of the page. You will immediately see the IAM entry under Services. Click IAM.
6. Select Users on the left panel.
7. Click Add User.
8. Enter your username.
9. Select both Programmatic access and AWS Management Console access.
10. Choose a Custom password and enter your password. Security best practice dictates that you should pick a new password that is different from that of your root username account.
11. Uncheck User must create a new password at next sign-in.
12. Click Next: Permissions.



- when it has to be **right**

Installing & Licensing on Amazon Web Services (AWS)

Obtain AWS API Tokens (cont'd)

Set user details

You can add multiple users at once with the same access type and permissions. [Learn more](#)

User name*

[+ Add another user](#)

Select AWS access type

Select how these users will access AWS. Access keys and autogenerated passwords are provided in the last step. [Learn more](#)

Access type* **Programmatic access**
Enables an **access key ID** and **secret access key** for the AWS API, CLI, SDK, and other development tools.

AWS Management Console access
Enables a **password** that allows users to sign-in to the AWS Management Console.

Console password* Autogenerated password
 Custom password

Show password

Require password reset User must create a new password at next sign-in
Users automatically get the [IAMUserChangePassword](#) policy to allow them to change their own password.

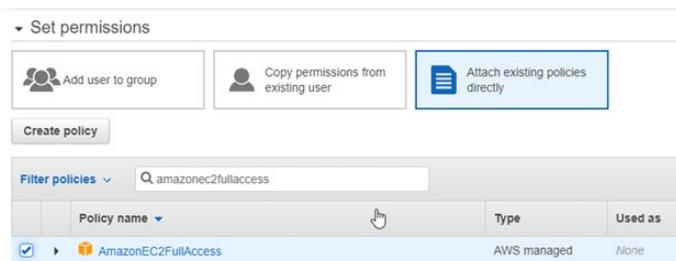
* Required

[Cancel](#) [Next: Permissions](#)

Installing & Licensing on Amazon Web Services (AWS)

Obtain AWS API Tokens (cont'd)

13. Select Attach existing policies directly.



14. Per good security practices, users should be given the lowest level of permissions to get their job done. We suggest creating a new IAM user that has access to EC2 resources only. Enter "amazonec2fullaccess" in the search box.

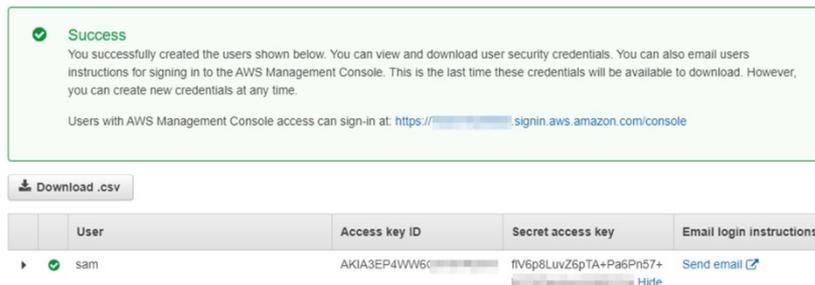
15. Select AmazonEC2FullAccess entry in the Policy name table.

16. Click Next: Tags.

17. Click Next: Review.

18. Click Create User.

19. Click the Download .csv button. Keep the .csv file in a safe location. The file contains your Access key ID, Secret access key, and your Management Console access



- when it has to be **right**

Installing & Licensing on Amazon Web Services (AWS)

Obtain AWS API Tokens (cont'd)

20. Access key ID and Secret access key are your API tokens. This is the only time AWS displays your API tokens. Make sure you write them down.
21. Note: Do NOT share the Access key ID and Secret access key with ANYBODY.
22. Save the URL for accessing AWS Management Console.
23. Click Close.

Installing & Licensing on Amazon Web Services (AWS)

Install AWS CLI v2 for Windows

The AWS CLI tool is a command-line tool to manage your AWS services. The AWS CLI tool greatly simplifies AWS operations including EC2 instance deployment.

1. Download the AWS CLI MSI installer for Windows:
<https://awscli.amazonaws.com/AWSCLIV2.msi>
2. Run the MSI installer and follow the on-screen instructions.
3. To verify the installation, open the Command Prompt window and type "aws --version".

```
C:\>aws --version  
aws-cli/2.1.9 Python/3.7.9 Windows/10 exe/AMD64 prompt/off
```

Note: The provided sample commands are not compatible with PowerShell unless noted.

Note: Your version may vary, but this will ensure the CLI tools is correctly installed.

Installing & Licensing on Amazon Web Services (AWS)

Configure AWS CLI Tool

1. Enter “aws configure” in the Command Prompt window.
2. Enter the Access Key ID and Secret Access Key that you obtained earlier.
3. Press Enter again to accept "None" for "Default output format".

Note: Refer to the AWS Region List table in the following section. Look up the Region ID (e.g., eu-west-2) of the city closest to you.

Installing & Licensing on Amazon Web Services (AWS)

AWS Region List

Region Name	Region ID
Virginia	us-east-1
Ohio	us-east-2
Oregon	us-west-2
N. California	us-west-1
Canada - Central	ca-central-1
Frankfurt	eu-central-1
Ireland	eu-west-1
London	eu-west-2
Milan	eu-south-1
Paris	eu-west-3

Region Name	Region ID
Hong Kong	ap-east-1
Mumbai	ap-south-1
Seoul	ap-northeast-2
Singapore	ap-southeast-1
Sydney	ap-southeast-2
Tokyo	ap-northeast-1
Bahrain	me-south-1
São Paulo	sa-east-1
Cape Town	af-south-1
Stockholm	eu-north-1

Note: Note: Please check AWS resources for possible changes.

Installing & Licensing on Amazon Web Services (AWS)

Configure AWS Security Group for Cyclone ENTERPRISE

An AWS Security Group is a firewall for your EC2 instance to control inbound and outbound traffic.

1. Create a new security group named "secgroupcyent"

- `aws ec2 create-security-group --group-name secgroupcyent --description security-group-for-Cyclone-Enterprise`

Note: Continuing in the command prompt, enter the following.

Note: It is highly recommended to copy and paste the commands into a text editing program, e.g., Notepad ++, to review the code (e.g., remove empty lines) before entering in the command line.

Note: The placeholders in the code that are tagged by "<>" should be revised to match your information such as IP address, AMI ID, Instance ID, etc.

```
C:\>aws ec2 create-security-group --group-name secgroupcyent
--description security-group-for-Cyclone-Enterprise
{
  "GroupId": "sg-0cf234d7f[REDACTED]"
}
```

- when it has to be **right**

Installing & Licensing on Amazon Web Services (AWS)

Configure AWS Security Group for Cyclone ENTERPRISE (cont'd)

2. Create rules that control incoming traffic to your EC2 instance. By default, only three ports are open for inbound traffic: 3389 (remote desktop), 443 (https), and 80 (http).
 - `aws ec2 authorize-security-group-ingress --group-name secgroupcyent --protocol tcp --port 3389 --cidr <your IP address>/32`
 - `aws ec2 authorize-security-group-ingress --group-name secgroupcyent --protocol tcp --port 443 --cidr 0.0.0.0/0`
 - `aws ec2 authorize-security-group-ingress --group-name secgroupcyent --protocol tcp --port 80 --cidr 0.0.0.0/0`
3. Optionally, create a rule that allows inbound traffic on Cyclone ENTERPRISE's default port 5050.
 - `aws ec2 authorize-security-group-ingress --group-name secgroupcyent --protocol tcp --port 5050 --cidr 0.0.0.0/0`

```
C:\>aws ec2 authorize-security-group-ingress --group-name secgroupcyent --protocol tcp
--port 3389 --cidr [redacted] 2/32

C:\>
C:\>aws ec2 authorize-security-group-ingress --group-name secgroupcyent --protocol tcp
--port 443 --cidr 0.0.0.0/0

C:\>
C:\>aws ec2 authorize-security-group-ingress --group-name secgroupcyent --protocol tcp
--port 80 --cidr 0.0.0.0/0
```

- when it has to be **right**

Installing & Licensing on Amazon Web Services (AWS)

Obtain Windows Server 2019 with NVIDIA Driver AMI

Use the following command to find the latest Microsoft Windows Server 2019 with NVIDIA driver AMI ID for your region.

- `aws ec2 describe-images --filters "Name=name,Values=*windows-server-2019-vGaming*" --output json --query "sort_by(Images, &CreationDate)[-1].[ImageId]"`

```
C:\>aws ec2 describe-images^
--filters "Name=name,Values=*windows-server-2019-vGaming*"
--output json
--query "sort_by(Images, &CreationDate)[-1].[ImageId]"
[
  "ami-0dd72aaea6cfc25f1"
]
```

In the above example, the AMI ID is “ami-0dd72aaea6cfc25f1”.

Alternatively, you can locate the region in the table below that is closest to you and its AMI ID

Note: Search online for “NVIDIA Gaming PC - Windows Server 2019”

- when it has to be **right**

Installing & Licensing on Amazon Web Services (AWS)

Obtain Windows Server 2019 with NVIDIA Driver AMI (cont'd)

Currently, some of the regional AMI IDs are as the followings (subject to change):

Region	AMI ID
Virginia	ami-0b66e8e7b0afc8be2
Ohio	ami-0147100c2f00ccb9
Oregon	ami-04308b8ea71bf4d67
N. California	ami-0dd72aaea6cfc25f1
Canada - Central	ami-0be1644c5e0af3d05
Frankfurt	ami-0d1e1c5d07d06bcf3
Ireland	ami-0bdd2f8c63e3cd8c1

Region	AMI ID
London	ami-097dc276efcc881f6
Paris	ami-0d541568461085683
Stockholm	ami-08315628a321d0f62
Singapore	ami-0186e18f594075934
Sydney	ami-07b464682a7ef0108
Tokyo	ami-0f8a3a1d1446b963d
Seoul	ami-093179249cbbb7d04

Note: NVIDIA regularly publishes new updated AMIs and so the list of AMI IDs will constantly change.

- when it has to be **right**

Installing & Licensing on Amazon Web Services (AWS)

Create New Key Pair

A key pair is a set of credentials that you use to authenticate your identity to gain access to a computer.

This step creates a key pair file called "cyent-key-pair" that you will use to access your EC2 instance. Ensure you keep the output file 'cyent-key-pair.pem' in a safe location.

```
aws ec2 create-key-pair --key-name cyent-key-pair --output text --  
query KeyMaterial > cyent-key-pair.pem
```



Note: DO NOT LOSE THIS FILE!

Installing & Licensing on Amazon Web Services (AWS)

Create Storage Configuration File

Create a new text file named "**blockdevice.json**" with the following contents:

The following configuration creates a 100GB C drive (DeviceName: /dev/sda1) and 300GB D drive (DeviceName: /dev/sda2) for your EC2 instance. We recommend that you use the D drive as a data storage location. You can adjust the "VolumeSize" value (in GB) for /dev/sda2 to meet your data storage requirement.

```
{
  "DeviceName": "/dev/sda1",
  "Ebs": {
    "DeleteOnTermination": false,
    "VolumeSize": 100,
    "VolumeType": "gp2"
  }
},
{
  "DeviceName": "/dev/sda2",
  "Ebs": {
    "DeleteOnTermination": false,
    "VolumeSize": 300,
    "VolumeType": "gp2"
  }
}
```

Note: Please reference the section on Initialize Data Storage Disk in this document for details.

Note: A 3rd device will be also listed on the server. This device is called an EC2 instance storage volume, which accompanied with the GPU instance. The data on this device is only stored temporarily, and all the data will be deleted after restarting or shutting down the EC2. For more information, please see the following links:

- <https://docs.aws.amazon.com/whitepapers/latest/aws-storage-services-overview/amazon-ec2-instance-storage.html>
- <https://aws.amazon.com/premiumsupport/knowledge-center/instance-store-vs-ebs/>

Installing & Licensing on Amazon Web Services (AWS)

Launch EC2 Instance

Cyclone ENTERPRISE requires a GPU-based instance such as 'g4dn' to function.

For best performance, we recommend 'g4dn.2xlarge' as the **minimum instance type** for the Cyclone ENTERPRISE server. EC2 pricing varies based on several factors including region, upfront payment amount, and duration.

Launch a new EC2 instance using the AMI ID from a previous step.

```
aws ec2 run-instances --instance-type g4dn.2xlarge --  
image-id <AMI ID> --key-name cyent-key-pair --block-  
device-mappings file://blockdevice.json --security-  
groups secgroupcyent
```

```
C:\>aws ec2 run-instances --instance-type g4dn.xlarge --image-id ami-0dd72aaea6cfc25f1  
--key-name cyent-key-pair --block-device-mappings file://blockdevice.json  
--security-groups secgroupcyent
```

Note: The placeholders in the code that are tagged by "<>" should be revised to match your information such as IP address, AMI ID, Instance ID, etc.

Note: For complete EC2 pricing information, please refer t:
<https://aws.amazon.com/ec2/pricing/reserved-instances/pricing/windows/#ris-nav>

- when it has to be **right**

Installing & Licensing on Amazon Web Services (AWS)

Launch EC2 Instance (cont'd)

If you see this error, open the link shown in a browser.

An error occurred (OptInRequired) when calling the RunInstances operation: In order to use this AWS Marketplace product you need to accept terms and subscribe. To do so please visit <https://aws.amazon.com/marketplace/pp?sku=eg29gsv7egae1ip4ff8by2vjx>

Click Continue to Subscribe.



The screenshot shows the AWS Marketplace product page for "NVIDIA Gaming PC - Windows Server 2019". On the left is the NVIDIA logo. The product title is "NVIDIA Gaming PC - Windows Server 2019". Below the title, it says "By: NVIDIA" with a checkmark icon and "Latest Version: 445.87". The category is "GPU-Accelerated Cloud Gaming". It is listed for "Windows" and has a rating of four stars with "14 AWS reviews". On the right side, there is a yellow "Continue to Subscribe" button, a white "Save to List" button, and a pricing section showing a "Typical Total Price" of "\$0.71/hr". Below the price, it states "Total pricing per instance for services hosted on g4dn.xlarge in US East (N. Virginia). View Details".

Click Accept Terms.

Note: For security purposes, you may have to re-authenticate by logging into the AWS Management website again. Login using the credentials you used in the Create Your AWS Account section.

- when it has to be **right**

Installing & Licensing on Amazon Web Services (AWS)

Launch EC2 Instance (cont'd)

Wait a few moments. The following screen will appear. You can log out from the AWS Management website at this point.



Additional taxes or fees may apply.

NVIDIA Gaming PC - Windows Server 2019	
EC2 Instance Type	Software/hr
g4dn.xlarge	\$0
g4dn.2xlarge	\$0
g4dn.4xlarge	\$0
g4dn.8xlarge	\$0
g4dn.12xlarge	\$0
g4dn.16xlarge	\$0

[End User License Agreement](#)

Note: Verify that the Software/hr prices are all zero. The Windows Server 2019 with NVIDIA Driver AML is provided at no cost. However, you are still responsible for AWS charges for all AWS resources used.

Installing & Licensing on Amazon Web Services (AWS)

Launch EC2 Instance (cont'd)

Repeat the EC2 launch command.

```
aws ec2 run-instances --instance-type
g4dn.2xlarge --image-id <AMI ID> --key-name
cyent-key-pair --block-device-mappings
file://blockdevice.json --security-groups
secgroupcyent
```

A screen similar to the following will appear after a few moments. Note the “InstanceId” value (e.g., “i-0e51c56d597c3f5c6”).

AWS is provisioning your EC2 instance at this time. After a few minutes, run the following command to check the status of your EC2 instance.

```
aws ec2 describe-instance-status --instance-
ids <instance id >
```

```
C:\>aws ec2 run-instances --instance-type g4dn.2xlarge --image-id ami-0dd72aaea6cfc25f1
--key-name cyent-key-pair --block-device-mappings file://blockdevice.json
--security-groups secgroupcyent
{
  "Groups": [],
  "Instances": [
    {
      "AmiLaunchIndex": 0,
      "ImageId": "ami-0dd72aaea6cfc25f1",
      "InstanceId": "i-0e51c56d597c3f5c6",
      "InstanceType": "g4dn.2xlarge",
      "KeyName": "cyent-key-pair",
      "LaunchTime": "2021-01-09T01:02:15+00:00",
      "Monitoring": {
        "State": "disabled"
      },
      "Placement": {
        "AvailabilityZone": "us-west-1a",
        "GroupName": "",
        "Tenancy": "default"
      },
      "Platform": "windows",
      "PrivateDnsName": "ip-172-31-8-215.us-west-1.compute.internal",
      "PrivateIpAddress": "172.31.8.215",
      "ProductCodes": [],
      "PublicDnsName": "",
      "State": {
        "Code": 0,
        "Name": "pending"
      }
    }
  ],
}
```

- when it has to be **right**

Installing & Licensing on Amazon Web Services (AWS)

Launch EC2 Instance (cont'd)

Run the following command

```
aws ec2 describe-instance-status --instance-ids  
<instance id >
```

Verify that all Status values are “passed”. If either Status shows “initializing”, wait a few minutes and repeat the command until both Status show “passed”.

Note: The placeholders in the code that are tagged by "<>" should be revised to match your information such as IP address, AMI ID, Instance ID, etc.

```
"InstanceStatus": {  
  "Details": [  
    {  
      "Name": "reachability",  
      "Status": "initializing"  
    }  
  ],  
  "Status": "initializing"  
},  
"SystemStatus": {  
  "Details": [  
    {  
      "Name": "reachability",  
      "Status": "initializing"  
    }  
  ],  
  "Status": "initializing"  
}
```

Installing & Licensing on Amazon Web Services (AWS)

Obtain Administrator Password

Locate the 'cyent-key-pair.pem' key file that you created in the Create New Key Pair section above. To retrieve your administrator password, you need to specify both your "Instanceid" and your key file.

```
aws ec2 get-password-data --instance-id  
<InstanceId> --priv-launch-key <your cyent-key-  
pair.pem>
```

If PasswordData is empty (as shown below), AWS is still provisioning your EC2 instance. Wait 5-10 minutes and repeat the command.

Once EC2 provision is complete, the PasswordData string is the Windows' administrator password for your EC2 instance.

Note: The placeholders in the code that are tagged by "<>" should be revised to match your information such as IP address, AMI ID, Instance ID, etc.

```
C:\>aws ec2 get-password-data --instance-id i-0e51c56d597c3f5c6  
--priv-launch-key cyent-key-pair.pem  
{  
  "InstanceId": "i-0e51c56d597c3f5c6",  
  "PasswordData": "",  
  "Timestamp": "2021-01-09T01:07:19+00:00"  
}
```

- when it has to be **right**

Installing & Licensing on Amazon Web Services (AWS)

Get Public IP Address of EC2 Instance

```
aws ec2 describe-instances --instance-ids  
<InstanceId> --  
query "Reservations[].Instances[].PublicIpAddress"
```

```
C:\>aws ec2 describe-instances --instance-ids i-0e51c56d597c3f5c6 --query  
"Reservations[].Instances[].PublicIpAddress"  
[  
  "54.183.243.9"  
]
```

Note: The placeholders in the code that are tagged by "<>" should be revised to match your information such as IP address, AMI ID, Instance ID, etc.

Note: In most cases, AWS will assign a new public IP address to your EC2 instance after rebooting.

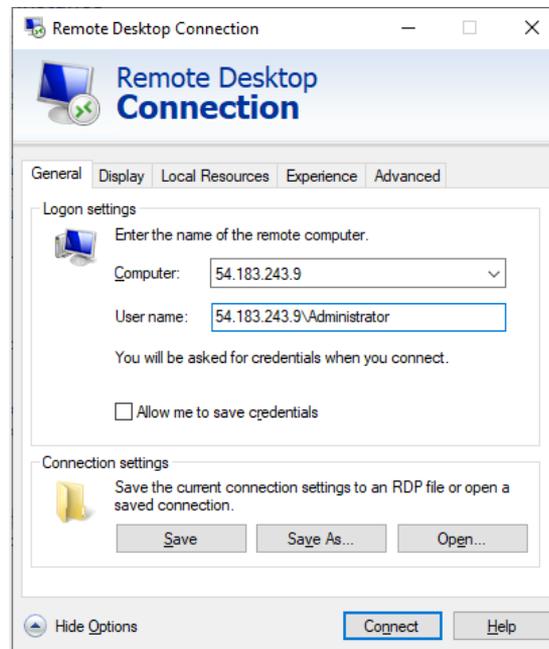
Note: For instruction on how to get an Elastic IP, please see AWS documentation.

Installing & Licensing on Amazon Web Services (AWS)

Accessing Your EC2 Instance

Once the administrator password and the public IP of the EC2 instance are set, you can access the instance

1. Running the Remote Desktop Connection program.
2. Click Show Options.
3. Enter your EC2 instance's IP in the Computer box.
4. Enter <your EC2 instance's IP>\Administrator in the User name box.
5. Click Connect.
6. Enter your password from the previous step.
7. Click OK.
8. On the next dialog, select Don't ask me again for connections to this computer. Click Yes.
9. The Remote Desktop window will open after a few seconds.
10. Follow Cyclone ENTERPRISE installation instructions to install Cyclone ENTERPRISE on your EC2 instance.



- when it has to be **right**

Installing & Licensing on Amazon Web Services (AWS)

Initialize Data Storage Disk

By default, AWS doesn't automatically initialize a second storage drive (i.e., the 300GB D drive). Perform these steps to initialize the data drive:

1. Connect to your EC2 instance using Remote Desktop Connection.
2. Open PowerShell window (press the Windows key and type powershell). Select "**Windows PowerShell**" in the context menu.
3. Initialize the second disk.



```
Initialize -Disk -Number 1 -  
PartitionStyle MBR
```

4. Create a new partition on the second disk.
5. Format the new partition.

A screenshot of a Windows PowerShell terminal window. The title bar reads 'Administrator: Windows PowerShell'. The window content shows the following text:

```
Windows PowerShell  
Copyright (C) Microsoft Corporation. All rights reserved.  
  
PS C:\Users\Administrator> Initialize-Disk -Number 1 -PartitionStyle MBR  
PS C:\Users\Administrator> █
```

- when it has to be **right**

Installing & Licensing on Amazon Web Services (AWS)

Stop Your EC2 Instance

In some cases, you may wish to stop your EC2 instance to reduce your AWS charges when you know the system will not be in use. To do so, please follow these steps:

1. Access your server via Remote Desktop Connection.
2. Click the Windows button
3. Select Power.
4. Select Shut down.
5. Select Continue.

Note: Your EC2 instance will be stopped after a few minutes.

Installing & Licensing on Amazon Web Services (AWS)

Restart Your EC2 Instance

To restart your existing Cyclone ENTERPRISE EC2 instance:

1. Open the command prompt window.
2. Start your instance using the AWS CLI command. You will need your instance ID from the Launch Your EC2 Instance section.

```
aws ec2 start-instances --instance-ids <instance id>
```

3. After a few minutes, run the following command to check the status of your EC2 instance.

```
aws ec2 describe-instance-status --instance-ids <instance id>
```

4. Verify that all Status values are “passed”. If either Status shows “initializing”, wait a few minutes and repeat the command until both Status’ show “passed”.
5. In most cases, AWS will assign a new public IP address to your EC2 instance. Refer to the Get Public IP Address of EC2 Instance section for instructions to query an instance’s public IP address.

Note: The placeholders in the code that are tagged by "<>" should be revised to match your information such as IP address, AMI ID, Instance ID, etc.

Note: You can use the same Windows administrator password to log on to your EC2 instance via Remote Desktop Connection.

Installing & Licensing on Amazon Web Services (AWS)

Installing Leica CLM & licensing

- Same as the regular installation in the Installing Leica CLM and Licensing Section.

Installing Leica Cyclone ENTERPRISE

- Same as the regular installation in the Installing Leica Cyclone ENTERPRISE section.





Appendix B:

Installing & Licensing on Microsoft Azure

Contents:

- Introduction
- Create Resource in Azure
- Setup Virtual Machine
- Create New Disk
- Network Settings
- Management Settings
- Advanced Settings
- Review & Finalize
- Obtain the VM IP Address
- Installing Leica CLM & Licensing
- Installing Leica Cyclone ENTERPRISE

Installing & Licensing on Microsoft Azure

Introduction

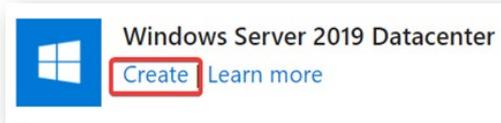
This section provides instructions for deploying Cyclone ENTERPRISE on Microsoft Azure.



Installing & Licensing on Microsoft Azure

Create Resource in Azure

1. Log into your Azure account.
2. On the main page, select “Create a resource” under Azure services.



3. Under Windows Server 2019 Datacenter, select Create.
4. On Create a virtual machine page, select your active subscription.
5. Leave the default value in the Resource group box as “(New) Resource Group”.

Note: An active Azure account with a valid subscription is required.

- when it has to be **right**

Installing & Licensing on Microsoft Azure

Setup Virtual Machine

1. Enter the virtual machine name, e.g., vmcyent1
2. Select the Region where you want to deploy the VM.
3. Choose “No infrastructure redundancy required” in the Availability options.
4. Select “Windows Server 2019 Datacenter – Gen1”
5. Uncheck Azure Spot instance.
6. In the Size dropdown box, select “Standard_NV12s_v3 – 12 vcpus, 112 GiB memory (your estimated monthly cost)”.

Note: If you don't see this option, click “See all sizes” and search for NV in the table. You may need to request cores quota to be able to select a GPU VM type.

Note: By default, an Azure subscription doesn't have enough cores quota to launch any GPU-powered VMs. You will need to increase the cores quota in your Azure subscription for NVv3 series to 12 cores. To request a quota increase, refer to instructions at <https://docs.microsoft.com/en-us/azure/azure-portal/supportability/per-vm-quota-requests>.

Note: The selected region must support NVv3-series VMs.

Note: NV-series VMs are only available in select region. For availability of NV-series VMs, see <https://azure.microsoft.com/en-us/global-infrastructure/services/?products=virtual-machines>.

Note: Cyclone ENTERPRISE has been tested on NVv3-series virtual machines powered by Intel Xeon E5-2690 v3 and NVIDIA Tesla M60 GPU.

Installing & Licensing on Microsoft Azure

Setup Virtual Machine (cont'd)

7. You may select a larger size (e.g., Standard_NV24s_v3). Generally, a larger size VM delivers better visualization experience.

Note: Cyclone ENTERPRISE is NOT compatible with NVv4- and NC-series.

8. Specify user credentials in the "Administrator account" section.

Note: You will be using these credentials to connect to your VM via RDP.

9. Select "Allow selected ports".

Note: Select RDP (3389), HTTP (80), HTTPS (443) in the Select inbound ports.

10. Depending on your corporate IT policy, you may be able to use your existing Windows Server license. If that's the case, check the "Would you like to use an existing Windows Server license?" box.
11. Click "Next : Disks >".

- when it has to be **right**

Installing & Licensing on Microsoft Azure

Setup Virtual Machine (cont'd)

Project details

Select the subscription to manage deployed resources and costs. Use resource groups like folders to organize and manage all your resources.

Subscription * ⓘ

Resource group * ⓘ [Create new](#)

Instance details

Virtual machine name * ⓘ ✓

Region * ⓘ ✓

Availability options ⓘ ✓

Image * ⓘ [See all images](#)

Azure Spot instance ⓘ

Size * ⓘ [See all sizes](#)

Administrator account

Username * ⓘ ✓

Password * ⓘ ✓

Confirm password * ⓘ ✓

Inbound port rules

Select which virtual machine network ports are accessible from the public internet. You can specify more limited or granular network access on the Networking tab.

Public inbound ports * ⓘ None
 Allow selected ports

Select inbound ports * ✓

⚠ This will allow all IP addresses to access your virtual machine. This is only recommended for testing. Use the Advanced controls in the Networking tab to create rules to limit inbound traffic to known IP addresses.

Licensing

Save up to 49% with a license you already own using Azure Hybrid Benefit. [Learn more](#) ⓘ

Would you like to use an existing Windows Server license? * ⓘ

- when it has to be **right**



Installing & Licensing on Microsoft Azure

Create New Disk

1. Select “Premium SSD (locally-redundant storage)”.
2. Accept default Encryption type selection. You can optionally choose to manage encryption key yourself.
3. Leave Ultra Disk compatibility unchecked.
4. Choose “Create and attach a new disk”.
5. On Create a new disk page, accept default Name and Source type.
6. Click Change size and select the desired data disk size for your VM.
7. Select No for “Enable shared disk”.
8. Click OK.
9. Click “Next : Networking >”.

Installing & Licensing on Microsoft Azure

Create New Disk (cont'd)

Create a new disk ...

Create a new disk to store applications and data on your VM. Disk pricing varies based on factors including disk size, storage type, and number of transactions. [Learn more](#)

Name *

Source type *

Size *
Premium SSD LRS
[Change size](#)

Encryption type *

Enable shared disk Yes No

Basics **Disks** Networking Management Advanced Tags Review + create

Azure VMs have one operating system disk and a temporary disk for short-term storage. You can attach additional data disks. The size of the VM determines the type of storage you can use and the number of data disks allowed. [Learn more](#)

Disk options

OS disk type *

Encryption type *

Enable Ultra Disk compatibility
Ultra disk is not supported for the selected VM size Standard_NV12s_v3 in westus.

Data disks

You can add and configure additional data disks for your virtual machine or attach existing disks. This VM also comes with a temporary disk.

LUN	Name	Size (GiB)	Disk type	Host caching
<input type="text" value="0"/>	vmcyent1_DataDisk_0	256	Premium SSD LRS	<input type="text" value="None"/>

[Create and attach a new disk](#) [Attach an existing disk](#)

- when it has to be **right**



Installing & Licensing on Microsoft Azure

Network Settings

1. Accept all default values on Networking page.
2. Accept all default values on Networking page.

Basics Disks **Networking** Management Advanced Tags Review + create

Define network connectivity for your virtual machine by configuring network interface card (NIC) settings. You can control ports, inbound and outbound connectivity with security group rules, or place behind an existing load balancing solution. [Learn more](#)

Network interface

When creating a virtual machine, a network interface will be created for you.

Virtual network * [Create new](#)

Subnet * [Create new](#)

Public IP [Create new](#)

NIC network security group None Basic Advanced

Public inbound ports * None Allow selected ports

Select inbound ports *

⚠ This will allow all IP addresses to access your virtual machine. This is only recommended for testing. Use the Advanced controls in the Networking tab to create rules to limit inbound traffic to known IP addresses.

Accelerated networking

Load balancing

You can place this virtual machine in the backend pool of an existing Azure load balancing solution. [Learn more](#)

Place this virtual machine behind an existing load balancing solution?

Installing & Licensing on Microsoft Azure

Management Settings

1. Accept all default values on Management page.
2. Click “Next : Advanced >”.

Basics Disks Networking **Management** Advanced Tags Review + create

Configure monitoring and management options for your VM.

Azure Security Center
Azure Security Center provides unified security management and advanced threat protection across hybrid cloud workloads. [Learn more](#)

✔ Your subscription is protected by Azure Security Center basic plan.

Monitoring

Boot diagnostics Enable with managed storage account (recommended)
 Enable with custom storage account
 Disable

Enable OS guest diagnostics

Identity

System assigned managed identity

Azure AD

Login with Azure AD

Auto-shutdown
Enable auto-shutdown

Backup
Enable backup

Site Recovery
Enable Disaster Recovery

Guest OS updates
Enable hotpatch (Preview)

Patch orchestration options

i Some patch orchestration options are not available for this image. [Learn more](#)

i RBAC role assignment of Virtual Machine Administrator Login or Virtual Machine User Login is required when using Azure AD login. [Learn more](#)

Installing & Licensing on Microsoft Azure

Advanced Settings

1. On Advanced page, click “Select an extension to install”.
2. Select “NVIDIA GPU Driver Extension”. Click Create. Click OK.
3. Ensure “Gen 1” is selected in VM generation setting.
4. Ensure that NVIDIA GPU Driver Extension is listed in the Extensions section.

Basics Disks Networking Management **Advanced** Tags Review + create

Add additional configuration, agents, scripts or applications via virtual machine extensions or cloud-init.

Extensions

Extensions provide post-deployment configuration and automation.

Extensions ⌵

NVIDIA GPU Driver Extension Microsoft Corp.	 
--	---

[Select an extension to install](#)

Custom data

Pass a script, configuration file, or other data into the virtual machine **while it is being provisioned**. The data will be saved on the VM in a known location. [Learn more about custom data for VMs](#)

Custom data

 Your image must have a code to support consumption of custom data. If your image supports cloud-init, custom-data will be processed by cloud-init. [Learn more about custom data for VMs](#)

User data

Pass a script, configuration file, or other data that will be accessible to your applications **throughout the lifetime of the virtual machine**. Don't use user data for storing your secrets or passwords. [Learn more about user data for VMs](#)

Enable user data

Host

Azure Dedicated Hosts allow you to provision and manage a physical server within our data centers that are dedicated to your Azure subscription. A dedicated host gives you assurance that only VMs from your subscription are on the host, flexibility to choose VMs from your subscription that will be provisioned on the host, and the control of platform maintenance at the level of the host. [Learn more](#)

Host group ⌵

Proximity placement group

Proximity placement groups allow you to group Azure resources physically closer together in the same region. [Learn more](#)

Proximity placement group ⌵

VM generation

Generation 2 VMs support features such as UEFI-based boot architecture, increased memory and OS disk size limits, Intel® Software Guard Extensions (SGX), and virtual persistent memory (vPMEM). [Click here to learn more about Gen2 virtual machine capabilities.](#)

VM generation ⌵

Gen 1
 Gen 2

Installing & Licensing on Microsoft Azure

Review & Finalize

1. Click “Review + create”. After a few moments, the summary page will be shown stating that the VM settings passed validation.
2. Click Create (deployment takes a few minutes).
3. Once deployment is completed, Azure displays the following screen.
4. You will see a new resource group containing your VM on the Resource groups page (e.g., vmcyent1_group_06161051 in the screenshot below).

Create a virtual machine ...

Validation passed

Basics Disks Networking Management Advanced Tags **Review + create**

PRODUCT DETAILS

Standard NV12s_v3 by Microsoft
[Terms of use](#) | [Privacy policy](#)

Subscription credits apply ⓘ
1.6920 USD/hr
[Pricing for other VM sizes](#)

TERMS

By clicking "Create", I (a) agree to the legal terms and privacy statement(s) associated with the Marketplace offering(s) listed above; (b) authorize Microsoft to bill my current payment method for the fees associated with the offering(s), with the same billing frequency as my Azure subscription; and (c) agree that Microsoft may share my contact, usage and transactional information with the provider(s) of the offering(s) for support, billing and other transactional activities. Microsoft does not provide rights for third-party offerings. See the [Azure Marketplace Terms](#) for additional details.

⚠ You have set RDP port(s) open to the Internet. This is only recommended for testing. If you want to change this setting, go back to Basics tab.

Basics

Subscription	
Resource group	(new) vmcyent1_group
Virtual machine name	vmcyent1
Region	West US
Availability options	No infrastructure redundancy required
Image	Windows Server 2019 Datacenter - Gen1
Size	Standard NV12s_v3 (12 vcpus, 112 GiB memory)
Username	leica
Public inbound ports	RDP, HTTP, HTTPS
Already have a Windows license?	No
Azure Spot	No

Disks

OS disk type	Premium SSD LRS
Use managed disks	Yes
Data disks	1
Ephemeral OS disk	No

Networking

Virtual network	(new) vmcyent1_group-vnet
Subnet	(new) default (10.1.0.0/24)
Public IP	(new) vmcyent1-ip
Accelerated networking	On
Place this virtual machine behind an existing load balancing solution?	No

Installing & Licensing on Microsoft Azure

Obtain the VM IP Address

1. Open the new resource group page.
2. Select the VM.
3. Note the VM's public IP address.
4. With the IP address, you can RDP to the VM using the credentials specified earlier.

Installing & Licensing on Microsoft Azure

Installing Leica CLM & licensing

- Same as the regular installation in the Installing Leica CLM and Licensing Section.

Installing Leica Cyclone ENTERPRISE

- Same as the regular installation in the Installing Leica Cyclone ENTERPRISE section.

