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Installation Guide for release 2.4

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Introduction

This guide is designed to assist IT staff to plan and complete the installation of RayManageSoft Unified Endpoint Manager 2.4 in their enterprise.

The document will guide through the creation of a cloud storage, a cloud- or on-premises installation, as well as the initial usage of the application.

Manual Conventions

The following typesetting conventions are used in this manual:

- Cross references to other manuals are shown in italics:

 "This can be found in the RayManageSoft Unified Endpoint Manager Release Notes."
- Cross references and external links are shown in blue and are underlined:
 "See RayManageSoft Unified Endpoint Manager for..."
- Quotations from the computer screen (titles, prompts, and so on) are shown in bold:
 "Go to **Devices** screen."
- Code syntax, file samples, directory paths, entries that you may type on screen, and the like are shown in a monospaced font:
 - "Use docker compose -up to set your instance up"
- Large blocks of code are shown in a monospaced font with a grey background:
 version: "3.7"
 services:
- Italics may also be used for emphasis: "This manual is *not* intended..."
- Bold may also be used for inline headings: "Target: Indicates a target frame..."

Two note formats are used in RayManageSoft Unified Endpoint Manager documentation

This is the basic format for giving additional information to the current topic. It can come with four different headings:



Be aware:

This note format contains important information related to your current activity. You should not skip over this text.



Note:

This format is used for items of interest that relate to the current discussion.



Best practice:

If there is a best practice approach to the current topic you can decide if you want to follow it, or stick to your own plan.





Tip

Tips are designed to help you find the easiest and quickest way to work with RayManageSoft Unified Endpoint Manager.

The second format is for very serious alerts.



WARNING

The information here may save you from data loss. Pay particular attention.

Documentation Requests

We welcome suggestions and input on the various documentation resources available with RayManageSoft Unified Endpoint Manager and its components. Comments and requests can be forwarded through the Raynet GmbH support representative.



Prerequisites

RayManageSoft Unified Endpoint Manager requires a cloud storage to store all uploaded package files and to make them available to all devices. In this version cloud storage backed by Azure infrastructure, Amazon Web Services, and MinIO is supported.

Prerequisites

- Docker Images for RayManageSoft Unified Endpoint Manager
- Docker for Linux (on-premise installation)
- Microsoft SQL Server
 - An instance of MS SQL Server or SQL Server Express must be available and the server must be reachable from the Docker environment.
- A cloud storage solution (Azure, MinIO, or Amazon Web Services)
- A valid RayManageSoft Unified Endpoint Manager license, either in form of an order number or in form of a license file



Note:

RayManageSoft Unified Endpoint Manager uses linux docker images. Make sure that Docker has been switched to **Linux Containers** mode. It is not possible to pull the images when running **Windows Containers**.

Supported Web Browsers

- Microsoft Edge version 80 and newer
- Mozilla Firefox version 74 and newer
- Google Chrome version 80 and newer

Cloud Storage

The cloud storage is used by RayManageSoft Unified Endpoint Manager to store package files and make them available to the client. Currently the following storage options are supported:

- Azure
- Amazon Web Services (AWS) storage
- MinIO

With MinIO the files can be stored on a local system.

Azure



Be aware:

Setting up an Azure Storage requires an active Azure subscription!

- 1. Create a new storage account.
 - Basics:
 - Click on the If you need to create a legacy storage account type, please click here. option.
 - Set account kind to BlobStorage.
 - Networking:
 - Set connectivity method to **public endpoint (all networks)**.
 - Advanced:
 - Disable Blob public access.
 - Set blob access tier to Hot.
- 2. Wait for the storage account to be set up.
- 3. Open the details of the storage account.
- 4. Go to the **Resource sharing (CORS)** Section.
- 5. Add a new *CORS*Entry and ensure the following configuration is used:
 - Allowed origins: *
 (For POCs and tests, putting asterisk is OK. In production, make sure that the origin is set to
 the URL under which RayManageSoft Unified Endpoint Manager will be hosted).
 - Allowed methods: DELETE, GET, HEAD, MERGE, POST, OPTIONS, PUT, PATCH
 - Allowed headers: *



- Exposed headers: *
- Max age: 0
- 6. The cloud storage should be ready to use.

AWS

To use the AWS storage, create a new user in the AWS subscription. The user needs full access to the Amazon S3 Resource. After the creation of the user an access key and a secret key are displayed. Save those values as they are required during the setup of RayManageSoft Unified Endpoint Manager.



Best practice:

Raynet recommends turning on the **Block Public Access settings for account** for the S3 account.

For further instructions regarding these settings please refer to https://docs.aws.amazon.com/ AmazonS3/latest/userguide/configuring-block-public-access-account.html.

MinIO

MinIO is an open source object storage which supports storing files in the cloud or on a local file system. MinIO can be hosted on multiple platforms.



Best practice:

For easy installation, Raynet recommends the usage of the MinIO Quickstart Guide.

The configured username and password will later be required by RayManageSoft Unified Endpoint Manager in order to connect to the MinIO server.



Installation

Installing on Azure Portal

1. Create an SQL Server

Create a simple MS SQL Server using the Azure Portal or use an existing MS SQL Server which is accessible over the internet.

2. Install RayManageSoft Unified Endpoint Manager Backend

Create a new container instance using the following suggested parameters:

Basics:

- Image source: Docker Hub or another registry
- Image Type: Public
- Image: raynetgmbh/raymanagesoft-uem-backend: 2.4-stable-linux
- OS type: Linux



Be aware:

It is possible to look up the latest images at https://hub.docker.com/r/raynetgmbh/raymanagesoft-uem-backend.

Networking:

- Networking type: Public
- DNS name label: your Dns Name
- Ports: 80 TCP

Advanced:

- Restart Policy: Always
- Environment variables
 - ConnectionStrings__System="server=myServer; database=myRMSUEMDb; u
 id=myUser; password=myPass;"
 - ConnectionStrings__ResultDatabase="server=myServer; database=master; uid =myUser; password=myPass;"





Be aware:

Refer to Appendix A: Environment variables to find out more about these values.

Once the container is up and running, make sure to note the DNS name of the instance. You will need this value in the next step.

3. Install RayManageSoft Unified Endpoint Manager Web UI

Create a new container instance, using the following suggested parameters:

Basics:

- Image source: Docker Hub or another registry
- Image Type: Public
- Image: raynetgmbh/raymanagesoft-uem-frontend: 2.4-stable-linux
- OS type: Linux



Be aware:

It is possible to look up the latest images at https://hub.docker.com/r/raynetgmbh/raymanagesoft-uem-frontend.

Networking:

- Networking type: Public
- DNS name label: your Dns Name
- Ports: 80 TCP

Advanced:

- Restart Policy: Always
- Environment variables:
 - ConnectionStrings__System="server=myServer; database=myRMSUEMDb; u
 id=myUser; password=myPass;"
 - ConnectionStrings__ResultDatabase="server=myServer; database=mast er; uid
 - =myUser;password=myPass;"
 - BackendConfig__Endpoint:yourBackendDnsName This should be the DNS name of your backend component.
 - BackendConfig__Port: 80 For a production environment a more advanced setup using the 443 Port and HTTPS is highly recommended.
 - BackendProtocol:http
 - BackendConfig_Authentication:false
 After all managed devices have been upgraded and user/password for download and upload have been configured, BackendConfig Authentication can be set to



true.



Be aware:

After changing an environment variable, it is necessary to restart the container.



Package Store:

- Integration __PackageStore __Endpoint=
 "http://packages.packagestore.com/RayPackageService"
- Integration __PackageStore __Url=
 "https://packaging.packagestore.com"
- Integration PackageStore ParallelProcessing=3



Be aware:

Do not change this configuration. It is possible to adjust these settings with the assistance of a Raynet consultant. These settings will be used during the creation of the integration and will be permanently saved during the creation of the integration.

Changes of the environment variables do not change the already saved settings of an already created integration.

Catalog:

- Integration Catalog Url="https://rayventorycatalog.raynet.de"
- Integration Catalog ConfidenceRange = 90
- Integration Catalog Timeout = 200000
- Integration Catalog MaxAttempts = 3
- Integration Catalog DevicesBatchSize = 10
- Integration Catalog FingerprintBatchSize = 100
- Integration Catalog TotalNumberOfDevices = 0



Be aware:

Do not change this configuration. It is possible to adjust these settings with the assistance of a Raynet consultant. These settings will be used during the creation of the integration and will be permanently saved during the creation of the integration.

Changes of the environment variables do not change the already saved settings of an already created integration.

Azure AD Import

- Integration Azure AzureApiUrl="https://graph.microsoft.com/"
- Integration Azure AzureInstance="https://login.microsoftonline.com/{0}"

Database Cleanup:

- DbMaintenanceConfig FileStorageCleanupJob="0 0 3 1/1 * ?"
- DbMaintenanceConfig SystemLogCleanupJob="0 0 4 1/1 * ?"
- DbMaintenanceConfig ActivityLogCleanupJob="0 0 5 1/1 * ?"
- DbMaintenanceConfig DeviceInventoryCleanupJob="0 0 6 1/1 * ?"



The following parameters depend on the chosen storage hoster:

Azure:

- StorageConfig Default:Azure
- StorageConfig_Azure_Endpoint: yourStorageEndpoint
 This is the connection string property of Azure Storage. It can be found in the Azure Portal > Storage Accounts > Security + Networking > Access Keys > Connection String (key1 or key2).
- StorageConfig_Azure_EndpointUrl:yourStorageEndpointUrl
 This is the primary endpoint property of your Azure Storage. It can be found in the Azure
 Portal > Storage Accounts > Settings > Endpoints > Blob Service.
- StorageConfig Azure TokenTimeout:60

AWS:

- StorageConfig Default:AWS
- StorageConfig_AWS_AccessKey=yourAWSAccessKey
 This is the access key received during the setup of the AWS IAM user.
- StorageConfig_AWS_SecretKey=yourAWSSecretKey
 This is the secret key received during the setup of the AWS IAM user.
- StorageConfig_AWS_Region=eu-central-1
 This is the region which should be used to host the storage.
 A full list of the regions can be found here: https://docs.aws.amazon.com/AmazonRDS/latest/UserGuide/Concepts.RegionsAndAvailabilityZones.html.

MinIO:

- StorageConfig Default:MinIO
- StorageConfig_MinIO_Endpoint=yourMinIOEndpoint (e.g. play.min.io:80)
 The endpoint of the used MinIO instance (ip:port) or (fqdn:port)
- StorageConfig_MinIO_AccessKey=yourMinIOAccessKey The access key/user that has been configured during the MinIO setup.
- StorageConfig_MinIO_SecretKey=yourMinIOSecretKey The secret key/password that has been configured during the MinIO setup.
- StorageConfig_MinIO_SSL=true A boolean value indictating whether the MinIO server requires/uses an https connection or not (the usage of an https connection is recommended).
- Be aware:

Refer to Appendix A: Environment variables to find out more about these values.

No

Note:

Using the provided connection string, all necessary databases will be automatically set up, once RayManageSoft Unified Endpoint Manager is launched for the first time. Each tenant in RayManageSoft Unified Endpoint Manager will receive its own database. It is



necessary to ensure, that the user that is used on the backend has access to the database and permissions for the creation of new databases.

Installing On-Premise

Hardware Requirements

The following requirements need to be met in order to host the RayManageSoft Unified Endpoint Manager container image. The minimum requirements are:

- 4 CPUs
- 8 GB RAM
- 50 GB disk space

1. Create an SQL Server

Set-up a new MS SQL Server or use an existing MS SQL Server which is accessible from the hosting environment.

2. Install Container Images

The installation on an on-premises environment is straightforward with the usage of the compose file, which requires only minimal adjustment.

docker-compose.yml

The file has the following content:

```
version: "3.7"
services:
  frontend:
      image: raynetgmbh/raymanagesoft-uem-frontend:2.4-stable-linux
     hostname: "rmsc frontend"
     ports:
        - "80:80"
     restart: always
     networks:
        - app-tier
     env file:
        - env.list
 backend:
      image: raynetgmbh/raymanagesoft-uem-backend:2.4-stable-linux
      hostname: "rmsc backend"
      depends on:
```



```
- frontend
ports:
    - "8080:80"
restart: always
networks:
    - app-tier
env_file:
    - env.list
```

Additionally, one file called env.list which contains environment variables is needed:

env.list

The file has the following content:

```
ConnectionStrings System="server=myServer; database=myRMSUEMDb;
   uid=myUser;password=myPass;"
ConnectionStrings ResultDatabase="server=myServer; database=master;
   uid=myUser;password=myPass;"
BackendConfig Endpoint="yourBackendDnsName"
BackendConfig__Port="8080"
BackendConfig Protocol="http"
BackendConfig Authentication="false"
Integration PackageStore Endpoint="http://packages
   .packagestore.com/RayPackageService"
Integration PackageStore Url="https://packaging.packagestore.com"
Integration PackageStore ParallelProcessing=3
Integration Catalog Url="https://rayventorycatalog.raynet.de"
Integration__Catalog__ConfidenceRange = 90
Integration Catalog Timeout = 200000
Integration__Catalog__MaxAttempts = 3
Integration Catalog DevicesBatchSize = 10
Integration Catalog FingerprintBatchSize = 100
Integration Azure AzureApiUrl="https://graph.microsoft.com/"
Integration Azure AzureInstance="https://login.microsoftonline.com/
   { O } "
DbMaintenanceConfig FileStorageCleanupJob = "0 0 3 1/1 * ?"
DbMaintenanceConfig SystemLogCleanupJob = "0 0 4 1/1 * ?"
DbMaintenanceConfig ActivityLogCleanupJob = "0 0 5 1/1 * ?"
DbMaintenanceConfig DeviceInventoryCleanupJob = "0 0 6 1/1 * ?"
```

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Be aware:

The BackendConfig_Authentication variable should be set to false at the start. After all managed devices have been upgraded and user/password for download and upload have been configured the value can be set to true.



Depending on the storage hoster, one of the following set of parameters needs to be added to the env.list file:



Azure:

- StorageConfig Default:Azure
- StorageConfig_Azure_Endpoint: yourStorageEndpoint
 This is the connection string property of Azure Storage. It can be found in the Azure Portal > Storage Accounts > Security + Networking > Access Keys > Connection String (key1 or key2).
- StorageConfig_Azure_EndpointUrl: yourStorageEndpointUrl
 This is the primary endpoint property of your Azure Storage. It can be found in the Azure
 Portal > Storage Accounts > Settings > Endpoints > Blob Service.
- StorageConfig Azure TokenTimeout:60

AWS:

- StorageConfig Default:AWS
- StorageConfig_AWS_AccessKey=yourAWSAccessKey
 This is the access key received during the setup of the AWS IAM user.
- StorageConfig_AWS_SecretKey=yourAWSSecretKey This is the secret key received during the setup of the AWS IAM user.
- StorageConfig_AWS_Region=eu-central-1
 This is the region which should be used to host the storage.
 A full list of the regions can be found here: https://docs.aws.amazon.com/AmazonRDS/latest/UserGuide/Concepts.RegionsAndAvailabilityZones.html.

MinIO:

- StorageConfig Default:MinIO
- StorageConfig_MinIO_Endpoint=yourMinIOEndpoint (e.g. play.min.io:80)
 The endpoint of the used MinIO instance (ip:port) or (fqdn:port)
- StorageConfig_MinIO_AccessKey=yourMinIOAccessKey The access key/user that has been configured during the MinIO setup.
- StorageConfig_MinIO_SecretKey=yourMinIOSecretKey The secret key/password that has been configured during the MinIO setup.
- StorageConfig_MinIO_SSL=true A boolean value indictating whether the MinIO server requires/uses an https connection or not (the usage of an https connection is recommended).

Save all files in the same folder, so that the folder contains the following files:

- docker-compose.yml
- env.list

Adjust the values accordingly, paying attention to connection strings and storage credentials.

Refer to Appendix A: Environment variables to find out more about these values.



Once both files are ready, open a PowerShell window or a terminal of your choice, navigate to the folder where both files exist and execute the following command:

Ensure that no container is running:

docker-compose down

Ensure that the newest version of the image is used:

docker-compose pull

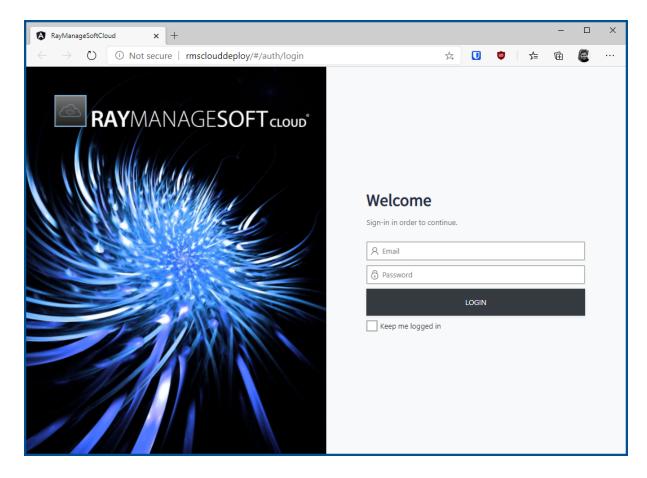
Start all required containers and let them run in the background (deamon):

docker-compose up -d

These steps can be repeated in the future to perform an update of the instances with a minimal downtime.

First Login

Once both Docker containers are up and running, the FQDN of the hosting machine can be used to access the login page using a web browser of your choice. If RayManageSoft Unified Endpoint Manager has been installed in Azure, the FQDN of the machine can be found in the container instance details page.



The initial login information to the system are:

E-mail:

root@raynet.de

Password:

raynet

After the first login please visit the **Site-Administration / System Settings** page. There are a few important checks to be done:

• Ensure that the backend URL, port, and protocol defined in the settings page are valid and match the parameters of the backend container. When a local installation is used, the FQDN of



the backend will most likely be the same as the web UI, with the only difference in port numbers. Should there be any mismatch, make sure to adjust the values as required.

- Change the initial password of the root user to something secure, using a long sequence of letters, numbers, and special characters.
- Download the Managed Device Agent source from the Endpoint > Desktop devices page and install it on the clients/servers you want to be managed by RMS UEM. Once the agent requests a policy or generates an inventory file, the device will be displayed on the Desktop devices page.



Be aware:

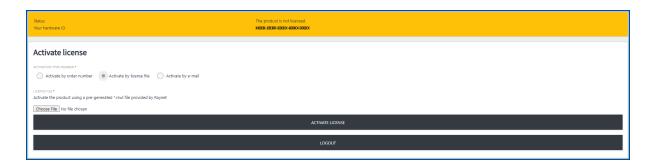
Use "start ndschedag /t machine" to get the available schedules displayed. Then run "Apply machine policy" to speed things up.

License Activation

RayManageSoft Unified Endpoint Manager needs a valid license to run. If there is no valid license, RayManageSoft Unified Endpoint Manager will open the activation screen.

The product can be activated using one of the following methods.

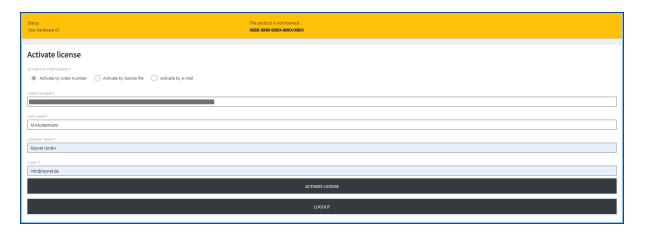
- By supplying the order number.
- By supplying an already created license file (.rswl).
- By supplying a license string.



The currently selected option is marked in the selection field next to the name of the option.

Activation by Order Number

If this activation method is used, the order number that has been delivered by Raynet is used for the activation of RayManageSoft Unified Endpoint Manager.



Enter all necessary information into the fields and choose the **ACTIVATE LICENSE** button. RayManageSoft Unified Endpoint Manager will check the validity of the information and then activate the product for the hardware ID which can be found at the top of the screen.

Activation by License File

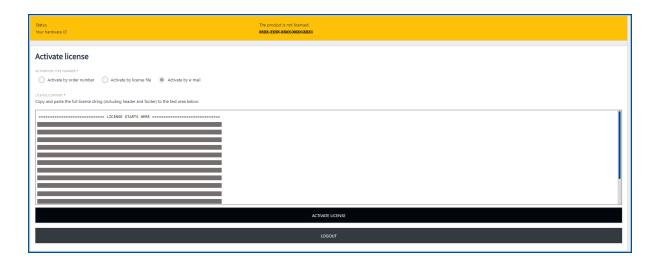
This method can be used if there is already a valid license file (.rswl) for the hardware ID of the machine that is used for the installation of RayManageSoft Unified Endpoint Manager. The hardware ID of the machine can be found on the top of the screen.



Select the **Choose File** button and browse for the license file. After the license file has been added and it is shown next to the **Choose File** button, choose the **ACTIVATE LICENSE** button to activate RayManageSoft Unified Endpoint Manager.

Activation by Email

If this method is chosen, RayManageSoft Unified Endpoint Manager can be activated by entering a license string into the text area that is shown when the option is selected. To receive this string, please contact your Raynet Support representative. It will then be delivered by email.



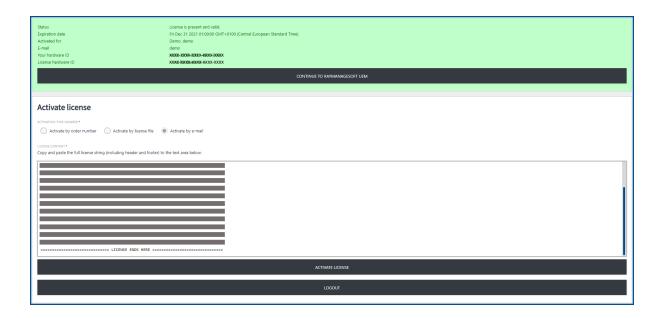
It is necessary to copy and paste the full license string including the header and the footer.

• Header:

If the information that has been entered is incorrect, an **Invalid license data** message will be shown on the top right side of the window. When the correct information has been entered, choose the **ACTIVATE LICENSE** button to continue with the activation.

Successful Activation

After RayManageSoft Unified Endpoint Manager has been successfully activated, the following window will be shown.





Either continue to RayManageSoft Unified Endpoint Manager by selecting the **CONTINUE TO RAYMANAGESOFT UEM** button, change the used license by selecting another license or entering different license information, or log out by selecting the **LOGOUT** button.



Troubleshooting

Application logs are available in the **Site-Administration** / **System Settings** section or in the Azure container details page (**Container instances** > **Deployment** > **Deployment Center** > **Logs**).



Appendix A: Environment Variables

Docker images support a set of environment variables which can either be passed by an environment list file or directly as parameter to the docker command. The following is a reference of them.

ConnectionStrings_System

This is an MS SQL connection string to the database where all system relevant data will be stored. The required tables will be created on the initial start-up. In case the database does not exist yet, the user provided in the connection string requires the right to create databases.

$Connection Strings_Result Database$

This is an MS SQL connection string. It needs to point to the master database of an MS SQL Server and needs the permission to create new databases. Every time a new tenant is created from the RayManageSoft Unified Endpoint Manager web UI, a new database will be created. The default tenant that is created on start-up will use the RMSC default database.

BackendConfig_Endpoint

This property describes the DNS name of the backend server which is used to communicate with the managed device agents. No protocol or port should be provided here.

BackendConfig_Port

This property describes the Port of the backend server which is used to communicate with the managed device agents.

BackendConfig Protocol

This property describes the protocol used to communicate with managed device agents (http and https are supported).

BackendConfig Authentication

Basic authentication for the managed device to the backend server communication can be deactivated. This is recommended during migration.

StorageConfig Default

The default hoster for the storage of package files.

StorageConfig_Azure_Endpoint

The default hoster specific configuration if Azure has been defined as the default hoster. This must be set to the Azure Storage Endpoint. It can usually be found within the **Security + Networking** > **Access Keys** section of your Azure Blob Storage.



StorageConfig_Azure_EndpointUrl

The default hoster specific configuration if Azure has been defined as the default hoster. This must be set to the primary endpoint for the cloud storage. It can usually be found within the **Settings** > **Endpoints** section of your Azure Blob Storage. The property name within this tab is **Blob Service**.

StorageConfig_Azure_TokenTimeout

This value defines how long access tokens to upload/download packages from the cloud storage are valid. We recommend the value of 60.

StorageConfig_AWS_AccessKey

If AWS has been chosen as the default storage hoster, this is the access key that was received during the setup of the AWS IAM user for the default instance.

StorageConfig_AWS_SecretKey

If AWS has been chosen as the default storage hoster, this is the secret key that was received during the setup of the AWS IAM user for the default instance.

StorageConfig_AWS_Region

If AWS has been chosen as the default storage hoster, this defines the region that is used to host the storage.

StorageConfig_MinIO_Endpoint

If MinIO has been chosen as the default storage hoster, this must be set to the endpoint of the used MinIO instance (ip:port) or (fqdn:port).

StorageConfig_MinIO_AccessKey

If MinIO has been chosen as the default storage hoster, this is the access key/user that has been configured during the MinIO setup.

StorageConfig_MinIO_SecretKey

If MinIO has been chosen as the default storage hoster, this is the secret key/password that has been configured during the MinIO setup.

StorageConfig_MinIO_SSL

If MinIO has been chosen as the default storage hoster, this defines whether the MinIO server is using an https connection. If set to true, https is used. If set to false, https is not used.





Why Raynet

As a global software vendor with market-leading solutions and complementary managed services, we make successful end-to-end management of IT projects and operations possible.

Following the mission "Discover to Manage", our vision is that all companies worldwide achieve transparency and security as well as optimization of their IT investments by using our technologies...

Get in touch

For more information, call our sales team at +49 5251/54009-0 or write to sales@raynet.de.