Host Access Analyzer 1.2

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Installing HAA on Linux

Introduction

The Host Access Analyzer (HAA) installer for Linux is a `tar.gz` file that contains docker images for all required components as well as installation scripts and certificate components.

Terminology

The following terminology is used in this guide:

Single machine	When installing HAA on a single machine, the machine is referred to as *Manager*.
Three machines	When installing HAA on three machines, the machines are referred to as: • *Manager* • *Node 1* • *Node 2* Services are distributed between three different machines, including the one where setup is run.

Prerequisites

Supported operating systems:

- RHEL 7.4 and later, RHEL 8.*x*
- SUSE SLES 12, SUSE SLES 15

Hardware:

Each machine requires a minimum of:

- 16 GB RAM
- 4 CPUs

Software:

- Docker engine (minimum version 18.09.0) and docker-compose tool (minimum version 1.22.0)

Firewall:

- The following ports must be available:
  - TCP port 2377 for Manager node.
  - TCP and UDP port 7946 for all nodes.
  - UDP port 4789 for all nodes.

  Any firewall should be configured correctly. On the Manager machine, the firewall must allow either default SSL port 443, or a custom port you provide during setup, as well as port 6566.

Enhanced security features:

Enhanced security features should be turned off.

Certificates:

If you intend to replace the supplied self-signed certificates in the `cert` directory, you must prepare your own certificates.

Virtual memory for Elasticsearch node

By default, Elasticsearch uses a `mmapfs` directory to store its indexes. The default operating system limits on mmap counts is likely to be too low, which may result in out of memory exceptions. On Linux, you can increase the limits by running the following command using administrator permissions on the node where Elasticsearch is going to be installed:

```
sysctl -w vm.max_map_count=262144
```

To set this value permanently, update the `vm.max_map_count` setting in the `/etc/sysctl.conf` file. To verify after rebooting, run `sysctl vm.max_map_count`.

Memory lock limits for Elasticsearch node

Elasticsearch tries to lock memory to improve performance. We recommend removing memory lock limits to enable this. Use administrator permissions to remove the limit for docker on the Elasticsearch node:

1. Add the line `LimitMEMLOCK=infinity` to the `[Service]` section of the `/usr/lib/systemd/system/docker.service` file and `containerd.service` (if it exists).
2. Run `systemctl daemon-reload`.
3. Run `systemctl restart docker` and `containerd` (if it exists).
4. Restart HAA by running `./stop.sh` and `./start.sh` on the Manager node if it was already running.

Preparing for installation

Run `tar -xf <filename>.tar.gz` to extract the content.

Setup Script

`setup` script contains different parameters you can use. To see the usage guide, run `./setup.sh` without parameters.

--single-machine	Triggers single machine installation.
User1@HostName|IP **User2@HostName|IP**	Triggers swarm installation on three defined machines (current machine plus additional supplied machines.)
--tempdir	Specifies where the files are uploaded on the node machines. Optional. If provided, `tempdir` should be located on all nodes. If omitted, the `/tmp` directory is used by default.
--hostname	Full public host name of the Manager machine. For example, `foo.myorg.com`. Optional. If omitted, you are prompted during setup.
--port	Desired SSL port. Optional. If omitted, you are prompted during setup. Defaults to `443`.
--certfile	`/path/to/your/file.crt`. Optional. The installer supplies a self-generated certificate file. If omitted, you are prompted during setup.
--keyfile	`/path/to/your/file.key`. Optional. The installer supplies a self-generated key file. If omitted, you are prompted during setup.
--eula-accepted	Optional. If omitted, you are prompted to accept the End User License Agreement during setup.

Installing HAA Server on three machines

This is the recommended method of installing HAA Server.

Use the supplied `setup.sh` script to install HAA Server on the manager node and two specified nodes.

```
./setup.sh <User>@<NODE 1(HostName|IP)> <User>@<NODE 2(HostName|IP)> [--tempdir=<dir>>] [--hostname=<full_public_host_name_of_machine>] [--port=<port>] [--certfile=</path/to/your/file.crt>] [--keyfile=</path/to/your/file.key>][--eula-accepted]
```

During the process you might be prompted to accept the End User License Agreement, as well as for `hostname/port` and the `crt/key` file path if not entered in advance.

You might also be prompted for passwords to the other nodes.

Note: Installation starts the services automatically.

Stop services

To stop the services, run the `./stop.sh` script.

Start services

To start previously stopped services, run the `./start.sh` script.

Installing HAA Server on a single machine

Use the supplied `setup.sh` script to install HAA Server on a single machine.

```
./setup.sh --single-machine [--tempdir=<dir>>] [--hostname=<full_public_host_name_of_machine>] [--port=<port>] [--certfile=</path/to/your/file.crt>] [--keyfile=</path/to/your/file.key>][--eula-accepted]
```

During the process you might be prompted to accept the End User License Agreement, as well as for `hostname/port` and the `crt/key` file path if not entered in advance.

You might also be prompted for passwords to the other nodes.

Note: Installation starts the services automatically.

Stop services

To stop the services, run the `./stop.sh` script.

Start services

To start previously stopped services, run the `./start.sh` script.

Accessing the server

Configuring users

For user integration with LDAP, see *LDAP configuration* on page 15.

For manual user configuration, see *Manual user configuration* on page 16.

Configuring the client

Use the Manager node IP address with port 6566.

Accessing the portal

Enter the following into a browser:

https://<manager_host_name>[:<Non-Default User Defined SSL Port>]

Accessing Identity and Access management

1. To access the **Identity and Access Management** page, enter the following URL in your browser:

   https://*<manager-host-name>*[:*<user_defined_SSL_port>*]/auth

2. Enter the following credentials:

   admin

   and:

   admin

   Change these after your first login.

Installing HAA on Windows

Introduction

The Host Access Analyzer (HAA) installer for Windows is an `.msi` file.

The `.msi` file is used to install all HAA components:

- JAVA
- HAA Server
- HAA Portal
- RabbitMQ
- Traefik Proxy
- Elasticsearch
- Kibana
- PostgresSQL
- Identity and Access Management

When you run the file, the installation files for each component are extracted to a location you select.

Installation methods

There are two ways to install HAA Server:

msi installation	When asked to run an msi installation, double-click the `.msi` file. This starts the installation wizard.
Batch installation	When asked to run a batch install, double-click the batch file with default parameters. You can also use the command prompt to run the same batch file and supply arguments based on this manual.

Note: Ensure you close the command prompt window for each completed batch execution before proceeding to the next installation step.

Terminology

The following terminology is used in this guide:

Single machine	When installing HAA on a single machine, the machine is referred to as *Manager*.
Three machines	When installing HAA on three machines, the machines are referred to as: *Manager*, *Node 1*, *Node 2*

Prerequisites

Each machine requires a minimum of:

Hardware:

- 16 GB RAM
- 4 CPUs

Software:

- Windows Server 2016 or 2019

Open firewall ports

If you are not using Windows firewall, you must open the following ports:

Note: For single machine installation, all the ports should be open for the Manager node.

Manager node	Traefik port (default 443) GRPC Port (default 6566) RabbitMQ Ports (5672 & 15672)
Node 1	ElasticSearch Port (default 9200) Kibana Port (default 5601)
Node 2	IAM Port (8081) Portal port (8080)

Installing HAA Server

Enabling .NET 3.5

Note: For 3-node setup, install on all nodes.

1. Open Server Manager from `: start Server Manager`
2. Select **2 Add roles and features**.
3. Click **Next >** four times.
4. Check **.NET Framework 3.5 Features**.
5. Click **Next >**.
6. Click **Install**.
7. When installation is complete, close the window.

Installing Java

Note: For 3-node setup, install on all nodes.

In the JAVA folder, double-click the `Install_JAVA.bat` file.

The batch file installs JAVA on the machine.

There are no arguments for this file.

Close the command prompt window when execution completes.

Installing Elasticsearch

Note: For 3-node setup, install on Node 1.

In the `Elasticsearch` folder, double-click the `Install_ES.bat` file.

The batch file installs Elasticsearch on the machine.

The following arguments can be configured:

`-Folder`	Sets the installation directory. Default is `Program Files`.
`-Port`	Sets the service listening port. Default is 9200.

To configure these arguments, run the following from a command prompt:

```
Install_ES.bat [-Folder <folder>] [-Port <port>]
```

Close the command prompt window when execution completes.

Installing Kibana

Note: For 3-node setup, install on Node 1.

In the `Kibana` folder, double-click the `Install_Kibana.bat` file.

The batch file installs Kibana on the machine.

The following arguments can be configured:

`-Folder`	Sets the installation directory. Default is `Program Files`.
`-Port`	Sets the service listening port. Default is 5601.
`-Elasticsearch`	Sets the Elasticsearch endpoint (host:port). Default is `http://localhost:9200`.

To configure these arguments, run the following from a command prompt:

```
Install_Kibana.bat [-Folder <folder>] [-Port <port>] [-Elasticsearch
<endpoint>]
```

Close the command prompt window when execution completes.

Installing RabbitMQ

Note: For 3-node setup, install on the Manager node.

1. In the `RabbitMQ` folder, install the RabbitMQ prerequisite Erlang using the `otp-22.1-win64.exe` installer file. Use all installation defaults.

   Note: You might be prompted to install Visual studio 2013 redistributable package. If so, install it by clicking install on the machine.
2. Install RabbitMQ using the supplied `rabbitmq-server-3.7.20.exe` installer file. Use all installation defaults.
3. Double-click `Configure_RabbitMQ.bat`.

   This configures RabbitMQ on the machine. No arguments are available for this file.
4. Close the command prompt window when execution completes.

Installing HAA Server

Note: For 3-node setup, run the installer twice: once on the Manager node and once on Node 2.

1. In the `Server` folder, double-click the `HAA Server-<ver>.msi` file.

   Follow the instruction up to the **Settings** page.
2. Enter the ElasticSearch host you installed ElasticSearch on, and the port you used for the installation. Default ElasticSearch port is 9200.
3. Enter the RabbitMQ host you installed RabbitMQ on. Keep the default port 5672.
4. *For 3-node setup, perform this step only on the Manager node:*

   Check **Producer Mode** and use `6566` as the default **GRPC Port**.
5. *For 3-node setup, perform this step only on Node 2:*

   Check **Consumer Mode**.
6. *For single-node setup:*

   Check **Producer Mode** and **Consumer Mode**.
7. Click **Next**, then **Install**.
8. Click **Finish** to exit the setup wizard.

Installing PostgreSQL

Note: For 3-node setup, install on Node 2.

1. In the `Postgres` folder, double-click `Install_postgres.bat`.
2. When prompted for a password, enter:

   `postgres`
3. Close the command prompt window when execution completes.

Installing Identity and Access Management

Note: For 3-node setup, install on Node 2.

1. In the `IAM` folder, run the following file:

   `Install_Iam.bat [-Folder <folder>]`

   where:

   `<folder>` specifies the installation folder. Default is `C:\IAM`.

   During installation you might be prompted to press any key to continue.
2. After installation is complete, close the command prompt window.
3. Open a browser window on the node and navigate to:

   `http://localhost:8081`
4. Click **Continue**.
5. Enter the following credentials:

   User: `admin`

   Password: `admin`

6. Click **Save**.

For user integration with LDAP, see *LDAP configuration* on page 15.

For manual user configuration, see *Manual user configuration* on page 16.

Installing the HAA Portal

Note: For 3-node setup, install on Node 2.

1. Install the server using the HAA Portal-<*ver*>.msi file.

   Follow The instruction up to the **Settings** page.
2. In the **Proxy** frame, type the Manager node IP. Use 443 for the port.
3. In the **Elasticsearch host** field, type the IP address of the Node 1 machine. Type the Elasticsearch port number in the **port** field.
4. Keep the **Port Field** as `8080`.
5. Click **Next**, then **Install**.
6. Click **Finish** to exit the setup wizard.

Installing Traefik Proxy

Note: For 3-node setup, install on the Manager node.

In the Traefik folder, locate the `env.properties` file. Use your preferred text editor to edit the file.

```
#Set the host and port of the server where Kibana  is installed.
#Example : host:5601
KIBANA_HOST_PORT=
#Set the host and port of the server where Identity Access Manager is
installed
IAM_HOST_PORT=
#Set the host and port of the server where HAA Portal is installed
PORTAL_HOST_PORT=
#Set the public host and port of the server where HAA PRODUCER server is
installed
#Default port is 6566
HAA_PRODUCER_SERVER_HOST_PORT=
```

1. After `KIBANA_HOST_PORT` add

   <*Manager_Node_DNS_for_single_node_or_node_1_DNS_for_3_node_setup*>:<*kibana_port*>

   Default Kibana port is 5601.
2. After `IAM_HOST_PORT` add

   <*Manager_Node_DNS_for_single_node_or_node_2_DNS_for_3_node_setup*>:<*iam_port*>

   Default IAM port is 8081.
3. After `PORTAL_HOST_PORT` add

   <*Manager_Node_DNS_for_single_node_or_node_2_DNS_for_3_node_setup*>:<*portal_port*>

   Default HAA Portal port is 8080.
4. After `HAA_PRODUCER_SERVER_HOST_PORT=` add

   <*Manager_Node_DNS*>:<*server_producer_port*>

5. Save the changes and close the editor.
6. Install Traefik using the `Install.Traefik.bat` file.
7. Close the command prompt window when execution completes.

Accessing the server

Configuring the client

Use the Manager node IP address with port 6656.

Accessing the portal

Enter the following into a browser:

`https://<Manager_Node_IP>`

Configuring Identity and Access Management

Opening the Identity and Access Management console

Enter the following URL in your browser:

`https://<manager-host-name>[:<User_Defined_SSL_PORT>]/auth>`

User: `admin`
Password: `admin`

Change these defaults after you first log in.

LDAP configuration

1. Open the **Identity and Access Management** console.
2. On the **Realm Settings** page, verify that the **haa** realm is selected from the top left drop-down.
3. Click **Clients** and verify that **haa-portal** appears in the list.
4. Click **User Federation**. On the **Settings** page:
   a) Add a **User Federation** provider of type **ldap**.
   b) For **Vendor**, select **Active Directory**.
   c) Populate the required fields with information provided by your system administrator.
5. To use the domain user name in portal authentication, replace the value **cn** with **sAMAccountName** in the following fields:

   Username LDAP attribute
   RDN LDAP attribute
6. Click **Save**.
7. To see the user avatar in the HAA portal:
   a) Select **User Federation** > **Ldap** > **LDAP Mappers**.
   b) Click **Create**.
   c) In the **Name** field, type **picture**.
   d) From the **Mapper Type** drop-down list, select **user-attribute-ldap-mapper**.
   e) Click **Save**.
   f) Select **picture**. The **Picture** window appears.
   g) Complete the fields in the **Picture** window, then click **Save**.

   Notes:

   - The **User Model Attribute** field picture must be **picture**.
   - The default Active Directory attribute name that holds the user picture is **thumbnailPhoto**. If you have custom settings, or using a different LDAP server, you must provide the attribute name for thumbnail picture.
8. Click **Settings**.

9. Click **Synchronise all users** to import all Active Directory users into Identity and Access Management.

Manual user configuration

1. From the left menu select **Users**.
2. Click **Add user**.
3. Type **user** for **User Name** and click **Save**.
4. Navigate to the **Credentials** page.
5. Type **user123** in the **New Password** and **Password Confirmation** fields.
6. Toggle **Temporary** to **OFF**.
7. Click **Reset Password**.
8. Select **Change Password** from the pop-up menu.

Installing and Configuring the HAA Client

System Requirements

Operating systems, applications, and environments

Host Access Analyzer operates on PCs with the following operating systems, applications, and environments:

- Windows 7, 8.1, and 10

  Note: Windows 8.1 requires the Windows 8.1-KB3094199 update. If your machine requires the update, install the update, then restart your machine.

  If you install the update on a machine where it is already installed, the following message appears:

  ```
  The update is not applicable to your computer
  ```

Prerequisite software

The following software is required for the Host Access Analyzer Client to install:

- Microsoft .NET Framework 4.5

  If not already installed, Host Access Analyzer installs it automatically, if the installer is able to download the required files.
- Microsoft Visual C++ 2015-2019 Redistributable (x86 and/or x64)

  If not already installed, Host Access Analyzer installs it automatically.

Installation

The installer automatically installs a new service, Host Access Analyzer Service, which runs under the System account.

The Host Access Analyzer client installer for windows is a `.exe` file that allows both silent and wizard installation.

In silent installation mode, you can use a command line parameter to avoid starting the service automatically after installation. For example, to allow configuration modifications to be made first. In this case, the service either starts after the next reboot or can be started manually.

Installing the service silently

Run `haa-client-installer-<ver>.exe` as an administrator.

Command line parameters

<*haa-server-hostname*> The IP or host name of the HAA producer server.
<*haa-server-port*> The port of the HAA producer server.
<*silent*> Runs installation without user interaction with the installation progress window displayed.
<*verysilent*> Runs installation without user interaction, without the installation progress window displayed.
<*nostart*> Does not start the service automatically after installation.
<*norestart*> Does not restart Windows, even if the installer requires a system restart.

For more parameters, see *https://jrsoftware.org/ishelp/index.php?topic=setupcmdline*.

Examples:

`haa-client-installer-<ver>.exe /haa-server-hostname=10.10.13.102 /haa-server-port=6566 /silent /nostart`

This installs silently with progress displayed with the provided hostname and port.

`haa-client-installer-<ver>.exe /silent`

This installs silently with progress displayed. If a restart is required, a restart message prompt is displayed at the end.

`haa-client-installer-<ver>.exe /silent /norestart`

This installs silently with progress displayed. No restart message prompt is displayed at the end, even if needed by the installer.

`haa-client-installer-<ver>.exe /verysilent /norestart`

This installs silently without progress displayed. No restart message prompt is displayed at the end, even if needed by the installer.

`haa-client-installer-<ver>.exe /verysilent`

This installs silently without progress displayed. If required, the system restarts automatically without a message prompt.

Uninstalling the service silently

From the install location, run the following command:

`unins000.exe /silent`

Installing the service using the wizard

Double-click the `haa-client-installer-<ver>.exe` file.

Modifying configurations

Note: To change client configurations on all clients, refer to the HAA Portal Guide.

To modify individual client-side behavior manually (for example, for debugging purposes):

In the install location, edit the `HostAccessAnalyzerService.exe.config` file and set `ConfigurationUpdaterFeature` to false (to prevent overrides by the configuration stored on the server).

Edit the configuration files, followed by a service restart.

There are three separate configuration files, controlling server connectivity, service-wide configurations, and user-specific configurations.

Note:

Product configurations and logs can be found under the product configuration location at `%ProgramData%\Micro Focus\HostAccessAnalyzer`.

User configurations are located in the user's private dir, `C:\Users\<user_name>\AppData\Local\Micro Focus\HostAccessAnalyzer`.

The default product installation location is `%ProgramFiles(x86)%\Micro Focus\Host Access Analyzer`.

Note: Any configuration change requires a service restart to take effect.

Server configuration

The server configuration defines how the client connects to the server.

The `HostAccessAnalyzerUserConfiguration.conf` file in the *product configuration location* contains the default server configuration. The following shows an example configuration:

```
{
  "Host": "10.141.11.231",
  "Port": 6566,
  "Security": {
    "EnableSSL": true,
    "HostOverride": "haa",
    "CertificatePath": ""
  }
}
```

The host and port are assigned during installation. The connection is set to be secured by default. Otherwise, you need not change anything.

Service configuration

The service configuration includes tasks for uploading scan results and monitoring TCP connections to specific hosts.

Uploading scan results

The `HostAccessAnalyzerUserConfiguration.conf` file in the *product configuration location* contains the service configuration:

```
{
    "tasks": [
        {
            "cronSchedulerExpression": "0 0 2 * * ?",
            "offsetInHours": 3,
            "uploadImmediately": false,
            "taskConfiguration": {
                "@type": "type.googleapis.com/
com.microfocus.tecom.rpc.api.management.MessagesUploaderTaskConfiguration"
            }
        }
    ],
    "connectionMonitoring": {
        "enabled": true,
        "monitoredHosts": {},
        "connectionPollingInterval": 5
    },
    "tempMessagesStorageLocation": "%programdata%\\Micro Focus\
\HostAccessAnalyzer\\Requests"
}
```

`cronSchedulerExpression` defines the task schedule:

This value ...	Starts the schedule ...
`0`	After 0 seconds.
`0`	After 0 minutes.
`2`	At 2 AM.

This value ...	Starts the schedule ...
*	Every day.
*	Every month.
?	Any year.

`MessagesUploaderTaskConfiguration` defines when to upload scan results to the server (see *User Configuration*). By default, the task runs at 2 AM each day, as defined by `cronSchedulerExpression`, then picks a random time from zero minutes to 3 hours (`offsetInHours`) and begins uploading. The aim is to reduce network load while uploading across the organization. You can modify this as desired.

Note: If a task misses its schedule, for example, if a machine is offline, it runs automatically at the first available opportunity.

Monitoring connections

HAA monitors all TCP connections to a set of defined hosts. The hosts list is configured at the machine level in the `HostAccessAnalyzerServiceConfiguration.conf` file in the *product configuration location*.

To add hosts to the list, edit the file and apply your changes to the `monitoredHosts` entry. For example:

```
    "connectionMonitoring": {
    "enabled": true,
    "monitoredHosts": {
        "Popeye": "*",
        "Olive": "23",
        "Bluto": "22, 23",
        "Wimpy": "20 - 30",
        "10.10.10.100": "*"
    },
    "connectionPollingInterval": 5
}
```

where:

This line ...	Means ...
`"enabled": true,`	Enable/disable all connection monitoring.
`"Popeye": "*",`	Monitor all ports of a host.
`"Olive": "23",`	Monitor a specific port of a host.
`"Bluto": "22, 23",`	Monitor a comma-separated list of ports of a host.
`"Wimpy": "20 - 30",`	Monitor a range of ports of a host.
`"10.10.10.100": "*"`	Monitor all ports of a host address.

Notes:

- If a task misses its schedule, for example, if a machine is offline, it runs automatically at the first available opportunity.
- To turn off monitoring, you can either delete all hosts from this list or change the `enabled` setting to `false`.
- `connectionPollingInterval` is a setting that applies to how often, in seconds, monitoring TCP connections executes on Windows 7. It should be left unchanged unless a valid reason exists to the contrary.

User configuration

User configuration defines which terminal emulator content should be collected for the specific user, Initially, for each user a copy of the default user configuration file, `HostAccessAnalyzerUserConfiguration.conf` is placed in the *user's private directory*.

This is the default user configuration:


```
{
  "tasks": [
    {
      "cronSchedulerExpression": "0 0 12 2 * ?",
      "offsetInHours": 0,
      "uploadImmediately": true,
      "taskConfiguration": {
        "@type": "type.googleapis.com/
com.microfocus.tecom.rpc.api.management.InstalledProductsTaskConfiguration",
        "filters": [
          {
            "vendorNameRegEx": [
              "(?i)(Micro Focus|Attachmate)"
            ],
            "productNameRegEx": [
              "(?i)(.*)?Extra!(.*)?"
            ],
            "addon": false,
            "mappedFamily": {
              "microfocus": {
                "product": "EXTRA"
              }
            }
          },
          {
            "vendorNameRegEx": [
              "(?i)(Micro Focus|Attachmate)"
            ],
            "productNameRegEx": [
              "(?i)(.*)?Infoconnect(.*)?"
            ],
            "addon": false,
            "mappedFamily": {
              "microfocus": {
                "product": "INFOCONNECT"
              }
            }
          },
          {
            "vendorNameRegEx": [
              "(?i)(Micro Focus|Attachmate)"
            ],
            "productNameRegEx": [
              "(?i)(.*)?Reflection(?!((.*)FTP))(.*)?"
            ],
            "addon": false,
            "mappedFamily": {
              "microfocus": {
                "product": "REFLECTION"
              }
            }
          },
          {
```

```
            "vendorNameRegEx": [
              "(?i)(Micro Focus|Attachmate)"
            ],
            "productNameRegEx": [
              "(?i)(.*)?Reflection(.*)FTP(.*)?"
            ],
            "addon": false,
            "mappedFamily": {
              "microfocus": {
                "product": "REFLECTION_FTP_CLIENT"
              }
            }
          },
          {
            "vendorNameRegEx": [
              "(?i)Micro Focus"
            ],
            "productNameRegEx": [
              "(?i)(.*)?Rumba(?!((.*)FTP|(.*)VB|(.*)Script engine)|(.*)TP
Director|(.*)Developers Edition)(.*)?"
            ],
            "addon": false,
            "mappedFamily": {
              "microfocus": {
                "product": "RUMBA"
              }
            }
          },
          {
            "vendorNameRegEx": [
              "(?i)Micro Focus"
            ],
            "productNameRegEx": [
              "(?i)(.*)?Rumba(.*)FTP(.*)?"
            ],
            "addon": false,
            "mappedFamily": {
              "microfocus": {
                "product": "RUMBA_FTP_CLIENT"
              }
            }
          },
          {
            "vendorNameRegEx": [
              "(?i)Micro Focus"
            ],
            "productNameRegEx": [
              "(?i)(.*)?Rumba((.*)VB|(.*)Script engine|(.*)TP Director|
(.*)Developers Edition)(.*)?"
            ],
            "addon": true,
            "mappedFamily": {
              "microfocus": {
                "product": "RUMBA"
              }
            }
          },
          {
            "vendorNameRegEx": [
              "(?i)IBM"
            ],
            "productNameRegEx": [
              "(?i)(.*)?IBM Personal Communications(.*)?"
            ],
```

```
            "addon": false,
            "mappedFamily": {
              "ibm": {
                "product": "PCOMM"
              }
            }
          }
        ]
      }
    },
    {
      "cronSchedulerExpression": "0 0 12 2 * ?",
      "offsetInHours": 0,
      "uploadImmediately": false,
      "taskConfiguration": {
        "@type": "type.googleapis.com/
com.microfocus.tecom.rpc.api.management.FileSystemScanTaskConfiguration",
        "includesExpression": [
          "%localDrives%"
        ],
        "excludesExpression": [
          "%windir%",
          "%recycleBins%",
          "%networkDrives%",
          "**node_modules**"
        ],
        "maxFileSize": 50
      }
    }
  ],
  "pluginFamilies": [
    {
      "microfocus": {
        "product": "RUMBA"
      }
    },
    {
      "microfocus": {
        "product": "EXTRA"
      }
    },
    {
      "microfocus": {
        "product": "REFLECTION"
      }
    },
    {
      "microfocus": {
        "product": "INFOCONNECT"
      }
    },
    {
      "ibm": {
        "product": "PCOMM"
      }
    }
  ]
}
```

`cronSchedulerExpression` defines the task schedule:

This value ...	Starts the schedule ...
`0`	After 0 seconds.

This value ...	Starts the schedule ...
`0`	After 0 minutes.
`12`	At noon.
`2`	On the 2nd of each month.
`*`	Every month.
`?`	Any year.

Note: Host Access Analyzer currently covers Micro Focus (Rumba+ Desktop, Extra!, InfoConnect, and Reflection) and IBM (PComm) terminal emulator products.

By default, the user configuration file includes several sections:

- A periodic task to scan for installed terminal emulator products. This task is currently set to execute monthly (at noon on the 2nd of the month).
- A periodic task to scan for the terminal emulator files (workspaces, sessions, macros, keyboard maps, and toolbar definitions). All files are verified before being uploaded to the server.

  This task is currently set to execute monthly (at noon on the 2nd of the month). To specify the search or exclude locations for this task:

  - You must specify one or more locations, separated by commas.
  - Escape explicit paths. For example,

    `C:\\Temp`
  - Ant Path format is supported. For example, `C:\\**\\Macros`.
  - You can use environment variables (inside %%), as well as these predefined tokens:

    ```
    %localDrives%
    %networkDrives%
    ```
- A list of the enabled terminal emulator products to monitor. For example, Rumba+ Desktop and Reflection. You can change the list to enable and disable monitoring of specific products.

Notes:

- If a task has not run before, it runs automatically on launch.
- If a task misses its schedule, for example, if a machine is offline, it runs automatically at the first available opportunity.
- To run all scans again, delete the `HostAccessAnalyzerTaskExecutions.conf` file in the *product configuration location*, and restart the service.

Plug-in configurations

For each plug-in (monitored emulator), the configuration defines which files should be collected for a specific product, and how to verify their relevance before uploading.

The configuration also lists all the processes that the emulator launches, and how they should be monitored.

Note: To modify a plug-in configuration, you must edit the file placed in the install location's `Plugins` directory, not the default file in the *product configuration location*.

This is the default Micro Focus Extra! configuration:

```
{
  "family": {
    "microfocus": {
      "product": "EXTRA"
    }
```

```
  },
  "pluginDefinition": {
    "extensions": [
      {
        "ext": "ebm",
        "resourceType": "MACRO",
        "compound": {
          "xpathExpression": "CxMacro"
        }
      },
      {
        "ext": "edp",
        "resourceType": "SESSION_PROFILE",
        "content": {
          "regexExpression": "CPType=SESSION"
        }
      },
      {
        "ext": "elf",
        "resourceType": "WORKSPACE",
        "content": {
          "regexExpression": "(?i)layout.*Sub Main"
        }
      },
      {
        "ext": "epp",
        "resourceType": "SESSION_PROFILE",
        "content": {
          "regexExpression": "CPType=SESSION"
        }
      },
      {
        "ext": "ekm",
        "resourceType": "KEYBOARD",
        "binary": {
          "tokens": [
            {
              "offset": "0",
              "content": "S01BUA=="
            }
          ]
        }
      },
      {
        "ext": "ebh",
        "resourceType": "MACRO",
        "content": {
          "regexExpression": "(?i)(sub|function|dim)"
        }
      },
      {
        "ext": "etb",
        "resourceType": "TOOLBAR",
        "binary": {
          "tokens": [
            {
              "offset": "0",
              "content": "UVBBRA=="
            }
          ]
        }
      }
    ],
    "processes": [
```

```
      {
        "name": "Extra.exe",
        "type": {
          "existence": false,
          "internal": true,
          "connectivity": true
        }
      }
    ]
  }
}
```

Working Offline

If you want to configure clients that do not upload directly to the server, go through the following steps:

1. If needed, set the server IP address in `HostAccessAnalyzerServerConfiguration.conf` to `127.0.0.1`, then restart the service.
2. Work normally. Uploads remain on disk in the `Requests` folder in the Pg. 6 Add a link to the *product configuration location*.
3. When you want to upload, stop the service and move all content from the `Requests` folder to a connected client's `Requests` folder.
4. Edit the connected client's `HostAccessAnalyzerTaskExecution.conf` file and delete the `MessagesUploaderTask` block so the upload task executes immediately.
5. Restart the service.

Using the HAA Portal

Introducing the Host Access Analyzer Web Portal

The Host Access Analyzer (HAA) web portal shows you inventory statistics on the assets, users, and machines installed in your enterprise.

Supported browsers

Supported browsers for the HAA web portal are:

- Chrome Version 78 and later
- Firefox Version 70 and later

Portal Dashboards

The HAA portal dashboards contain a number of visualizations that show the current state of the various elements in your enterprise. Here you can view and customize the presented data. You can also filter the data in some visualizations

Defining users and devices

The **Monitored Users** and **Monitored D evices** visualizations on the default dashboard show the progress of the enrollment of user and devices in your enterprise. You can define the total number of users and devices. To do this:

1. Click the ellipsis in the top right corner of the visualization.
2. Select **Configure total users** or **Configure total devices** as appropriate.

   The **Configure total** dialog box appears.
3. Type the number you want in the **Total** field, then click **Save**.

   The visualization shows the percentage of enrolled users, devices, or both.

Customizing a dashboard

You can customize a dashboard and its visualizations. To do this:

1. Click the ellipsis in the upper-right corner of the Overview Dashboard and select **Edit** from the pop-up menu.

   A new browser instance opens showing the dashboard in edit mode.
2. Click the wheel icon in the upper right corner of a visualization to open the **OPTIONS** menu.
3. Select the appropriate option for the task you want to perform.
4. After you have finished editing, click **Save** on the toolbar, then go back to the main portal browser window.

To revert to the default view, click the ellipsis in the top right of the dashboard, then select **Restore to factory version** from the pop-up menu.

Creating your own dashboard

You can create your own dashboard either by using the current dashboard as a template or by starting from an empty dashboard.

1. Click **Overview Dashboard** and select **+ Create New** from the drop-down list.

   The **Create New Dashboard** dialog box appears.
2. Type a name for the dashboard and select either:
   - **Use current Dashboard as template**
   - **Empty Dashboard**
3. Click **CREATE**. The new dashboard opens.
4. Make your changes to the dashboard.

Managing reports

HAA provides a set of predefined reports . You can also create your own custom reports.

Viewing a report

1. Click the **Reporting** icon from the side panel. The **Reports** page appears, showing a list of reports.

   Note: Predefined reports are marked with a lock icon.
2. Click a report to open it in view mode.
3. Click the ellipsis in the upper right of the view to open the **Actions** menu.
4. Select an option to:
   - Edit the report.
   - Rename the report.
   - Duplicate the customized reports to create a copy of the report.
   - Revert to factory version (predefined reports)
   - Delete (custom reports)

You can also view reports for visualizations on predefined dashboards and for predefined reports:

1. Click the ellipsis in the top right of the visualization.
2. Select **View report** from the pop-up menu.

   The corresponding report opens, using any selected filters.

Creating a report

1. Click the **Reporting** icon from the side panel. The **Reports** page appears
2. Click the plus sign (**+**) at the top of the page. The **Create new report** dialog box appears.
3. Type and a name ad description for the report, then click **CREATE**. The new report appear in the reports list and is opened automatically in view mode.

Specifying time ranges and intervals

You can specify the time range and time interval for some visualizations

Specifying the time range

1. In the visualization, click the time range tab.

   The **Customize panel time range** dialog box appears.
2. Select the time range you want.
3. If you want to apply the time range to all visualizations on the dashboard, click **Update**.
4. If you want to apply the update to only the one visualization, select **Apply for current visualization only**, then click **Update**.

Specifying the time interval

1. In the visualization, click the time interval tab.

   The **Change Time Interval** dialog box appears.
2. Select the time interval from the **Choose time interval** drop-down list.
3. Click **Update**.

   The time interval is applied to the visualization.

Exporting dashboard data

You can export aggregated and raw data from each visualization.

Exporting aggregated data

1. Click the ellipsis in the upper right of a visualization.
2. Click **Inspect** from the pop-up menu.

   A dialog box appears where you can save the data by exporting it as a `.csv` file.
3. Specify a name for the file and save it.

Exporting raw data

1. Click the ellipsis in the upper right of a visualization.
2. Click **Explore data** from the pop-up menu.

   A pop-up opens with a raw data table.
3. Click **Export data** from the table context menu. A notification appears showing the request has been queued. When the file is ready, another notification appears providing a download link for the file. You can also see the data by clicking the **Exported Data** icon from the side panel.

Modifying client configuration files

You can edit the following client configuration files:

- Service configuration
- User configuration
- Configuration files for any installed plug-ins

To edit a configuration file:

1. From the side panel, select **Settings** > **Client Configuration**.

   The **Client Configuration** page appears.
2. Select the configuration file you want to edit from the drop-down list.

   For information about configuration settings, see *Installing and Configuring the HAA Client*.
3. After editing the configuration with the embedded JSON editor, click **SAVE**.

   The modified configuration is updated on the server and is applied when the client updater service is run by the scheduler. By default, the scheduler runs every 60 minutes.

Side panel

The side panel contains the following elements:

Select this ...	To do this ...
Dashboards	Display the portal dashboards.
Reports	Display a list of reports.
Exported Data	View data exported from dashboard visualizations.
Settings	
Client Configuration	Modify the HAA client configuration files.

Menu options

There are two menu icons in the top right of the HAA portal:

Select this ...	To do this ...
Log out	Log out of the HAA portal.
Help	View the online Help and About information.

Contacting Micro Focus

Our Web site gives up-to-date details of contact numbers and addresses.

Further information and product support

Additional technical information or advice is available from several sources.

The product support pages contain a considerable amount of additional information, such as:

- The *Product Updates* section of the Micro Focus SupportLine Web site, where you can download fixes and documentation updates.
- The *Examples and Utilities* section of the Micro Focus SupportLine Web site, including demos and additional product documentation.
- The *Support Resources* section of the Micro Focus SupportLine Web site, that includes troubleshooting guides and information about how to raise an incident.

To connect, enter *https://www.microfocus.com/en-us/support* in your browser.

Note: Some information may be available only to customers who have maintenance agreements.

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Information we need

However you contact us, please try to include the information below, if you have it. The more information you can give, the better Micro Focus SupportLine can help you. But if you don't know all the answers, or you think some are irrelevant to your problem, please give whatever information you have.

- The name and version number of all products that you think might be causing a problem.
- Your computer make and model.
- Your operating system version number and details of any networking software you are using.
- The amount of memory in your computer.
- The relevant page reference or section in the documentation.
- Your serial number. To find out this number, look in the subject line and body of your Electronic Product Delivery Notice email that you received from Micro Focus.

Contact information

Our Web site gives up-to-date details of contact numbers and addresses.

Additional technical information or advice is available from several sources.

The product support pages contain considerable additional information, including the *Product Updates* section of the Micro Focus SupportLine Web site, where you can download fixes and documentation updates. Go to *Micro Focus Product Updates*.

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Host Access Analyzer 1.2

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“HAA User” means a specific individual designated by Licensee to be able to access and use the Licensed Software from any addressable entity, physical or virtual, including but not limited to server, PC, laptops, handheld device.

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“Instance” means each Implementation of the application installed on a Server.

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