Forcepoint

Advanced Malware Detection and Protection 2.0

On-Premises Deployment Guide

Revision A

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Introduction

Forcepoint Advanced Malware Detection and Protection (AMDP) is an advanced file sandbox, sometimes referred to as a "Network Sandbox", designed to detect zero-day malicious files currently not detectable via traditional signature based solutions and static analysis alone.

AMDP is integrated into Forcepoint's Web Security and Secure SD-WAN products for fast and easy setup.

This guide describes the process to install the AMDP On-Premises Manager and Engine components on hardware provided by the customer.

The AMDP On-Premises Manager is offered as part of the on-premises deployment configuration to customers with stringent privacy and policy constraints. In this configuration, the AMDP On-Premises Manager stores, within the customer's data center, all the information regarding the detection of infected hosts and the analysis of software files.

The AMDP On-Premises Manager collects information from Forcepoint appliances, processes it, and presents it to the End User. More precisely, the AMDP On-Premises Manager receives files (i.e., executables and documents) that are received or downloaded by the users and passes them to an Analysis Engine. The results of the analysis are collected and presented to the Admin User via a web portal using an incident-centered approach in which evidence from run-time analysis, network monitoring, and anomaly detection are correlated to provide prioritized and actionable threat intelligence.

The AMDP On-Premises Engine component receives files (i.e., executables and documents) from the AMDP On-Premises Manager. It runs these files, then returns analysis results back to SWG and Secure SD-WAN. Alerts can be configured to notify when AMDP detects an issue.

The Engine is managed by the Manager. However, as an important part of the installation process, the Engine must be made known to the Manager.

Network topology

Integrating AMDP with Secure SD-WAN Engine



- P Primary / Production Network
- E- Engine Network
- S- Sandbox Network



S- Sandbox Network



Note

The Engine network should be isolated as the sandbox machines execute here.

Deployment prerequisites

The following system requirements provide the minimum specifications for optimal performance and effectiveness.

Manager

- CPU: 10 cores (20 threads) Intel Xeon, Broadwell or newer.
 For example: Xeon Silver 4114
- RAM: 64 GB
- NIC: 2
- Storage: 256 GB SSD, RAID 10 recommended

Engine

- CPU: 18 cores (36 threads) Intel Xeon, Broadwell or newer.
 For example: Xeon E5-2686 v4, or 2x Xeon Silver 4114
- RAM: 96 GB

- NIC: 2
- Storage: 256 GB SSD, RAID 10 recommended



Note

Engine cannot be installed on a VM.

Remember

AMDP requires at least NGFW and SMC version 7.1.1.

Licensing Forcepoint AMDP

Forcepoint AMDP requires a valid License Key. The License Key may be entered on installation but this step can be skipped and entered post-installation.

If an installation skips the License Key entry, the product defaults to running in an evaluation mode for a limited time and will function for a short evaluation period.



Note

Installations without a valid License Key will not receive updates.

Both the AMDP Manager and AMDP Engine require a valid License Key. Your AMDP On-Premises License Key can be found in the Support Hub Account License section.

Evaluation License

When installed without a License Key, AMDP On-Premises will automatically switch to an Evaluation License. After 60 days of evaluation, the service will no longer accept file submissions. Automatic updates are disabled in AMDP On-Premises Evaluation mode.

The service will enable automatic updates once a legitimate License Key is entered. Your AMDP On-Premises License Key can be found in the Support Hub Account License section.



Note

A valid Microsoft Office License Key is required for AMDP Engine. As Forcepoint is not a reseller of Microsoft Office License Keys, please use your organization's existing Microsoft License Keys or point AMD to your KMS. AMDP also supports O365 Licenses. This is needed to scan MS Office document types. If MS documents are not needed then this step can be skipped.

Downloading installation file

Steps

- 1) Go to Forcepoint Customer Hub
- 2) Log in using your existing user account.

 Download the Forcepoint AMDP installation (.iso) file from Downloads > All Downloads section of Forcepoint Customer Hub.

Software installation

The Advanced Malware Detection and Protection software provisions the base system from an ISO image using an automated installation process. This is a combined installation media for both the Manager and Engines. The choice of system role is configured from the console after the base system is installed during registration. Before starting the installation, you must download an official copy of the latest Advanced Malware Detection and Protection 2.0 .iso file from **Downloads** > **All Downloads** section of Forcepoint Customer Hub. The image may be burned onto a bootable DVD, or otherwise mounted to the system to be installed.

To install the Advanced Malware Detection and Protection software, boot the system from the selected medium and let it run to completion. The installation is automatic and only stops if it encounters a hardware error. The system reboots, and then presents you with a login prompt at the system console.

Installing Manager

- 1) Log into the console of the host using the following credentials:
 - a) username: admin
 - b) password: P!L)TP@ssw0rd



Important

This is the default admin login credentials for AMDP console. Change the default password to a password that is unique to your organization.

2) Run the sudo amd_register command to start the guided installation and registration process.



3) The installation process starts at the Welcome screen. When you are ready to begin the installation process, select Start. This wizard will gather information about the system role and install the appropriate components. The wizard provides the initial system configuration which is then further tailored with the amd_setup utility.

wwwwAdvanced Malware Detection and Protection On-Premises*	жжжж
The Installation Wizard will guide you through	
the installation and registration process.	
Start	

4) Read the Forcepoint Subscription Agreement and select Accept to proceed with the installation.



5) Choose the type of system to install. Select **Manager**, and select **Continue** to install and configure the **Manager**.

	- Forcepoint AMDP Regist	ration	
Type of s	ne type o⊤ system being i stem:	nstalled.	
Manage	er		
Engine	Continue		
<f1> - Help</f1>			

The below wizard checks the server for minimum hardware requirements. If the server does not meet the minimum requirements, either 5(b) or 5(c) will appear, depending on the severity of the requirement that is not met. 5(b) forces the user to cancel the wizard and address the issue, while 5(c) will allow the user to continue.

5(a)

5(b)

P The system does not meet the minimum hardware specifications for the chosen role. See amd-wiz.log for details. Press Cancel to exit.

5(c)

	Forcepoint AMDP Registration
The sys chosen i See amd	tem does not meet the minimum hardware specifications for the role. -wiz.log for details. Press Continue if you wish to override.
=	
<tab>/<shift-ta<u>b>_Ju</shift-ta<u></tab>	mp Between Elements <space> Selects <f12> Exit Wiz<u>ard</u></f12></space>

6) Choose the preferred network configuration and select **Continue**.

Please choos use to rece	e the preferred network configuration this AMDP installation will ve its IP address.
i i	rimary network interface configuration:
	Obtain via DHCP Enter a static address
	Back
<f1> - Help</f1>	

7) Choose the interface for external access and select Continue.

Please select the	Forcepoint AMDP Registration	e for
external access.		
	Name Link	
	ens160 up (*) ens192 un ()	
<f1> - Help</f1>	Continue	

8) On the Primary network interface, enter the static IP Address, Network Mask/CIDR, Gateway, and DNS entries. Select Continue.



Note

Multiple DNS servers should be comma separated.

Please enter the sta use for external acc	orcepoint AMDP Registration atic IP address this AMDP installation cess.	n should
IP Address	s* 192.168.1.5	
Network Ma	ask* 255.255.255.0	
Gateway*	192.168.1.254	
DNS*	192.168.80.1,192.168.80.2	
Back	Continue	
<f1> - Help</f1>		

9) Select the interface for the Engine network and Continue.

Please select the the Engine network	interface this AMDP installation should use fo
	Name Link
	ens192 up (*)
Васк	Continue
<f1> — Help</f1>	

10) Enter the HTTP Proxy address for establishing connection with the update servers. Select Continue.



Note

Port 9091 needs to be reachable through the proxy for license verification.



11) Enter the NTP Server address and select Configure Network.

Please enter the N	Forcepoint AMDP Registra	ation
NTP Server		
(F1) - Help	Config	gune Network

Network connectivity test runs.



12) Update the password for the local admin user to be used for console and ssh access. Select **Continue**.

Please enter your local be used to update the s	Ladmin account information. This information wi system's admin account.
System Admin Password∗	
Verify Password*	x0x0x0x0x0x0xx
	Continue
<f1> - Help</f1>	

13) Enter your Forcepoint Manager host information and select **Continue**.

Please enter your Fo	Forcepoint AMDP Registration
be used to setup the	system.
AMDP Hostname*	AMDP-Mgr-5
AMDP FQDN*	AMDP-Mgr-5.mycompany.com
Back	Continue
<f1> - Help</f1>	

14) Enter your Forcepoint Manager License Key and select Configure System.

Please enter your Force will be used to verify	point registration your license.	information. This in	nformation
AMDP License Key	AMDPLICKEY123456		
Back		Configure System	
<f1> - Help</f1>			

If the license key is invalid or has expired, you will enter an evaluation period with reduced functionality if you decide to **Continue**. Enter a valid license key to ensure the AMDP solution receives the necessary updates to function correctly.



15) To configure the AMDP administrative portal and login account for the portal administrator, enter Organization Name, Administrator Name, Administrator Password, and Administrator Email. Select Complete Setup.

be used to setup your lo	ocal AMDP Administrative Portal account
Organization Name*	MyCompany
Administrator Name*	admin
Administrator Password*	*****
Verify Password*	жжжжжжжжж
Administrator Email*	admin@local
Back	Complete Setup
<f1> - Help</f1>	

This will configure Forcepoint AMDP components. This step may take a while to complete.



16) Select **Ok** to exit the Manager Registration wizard. Upon exiting the Manager Registration wizard, you are taken back to the command line.

AMDP Registration	Forcepoint AMDP Registration	
Please reboot and	complete post-registration st	eps.

Using a Custom Certificate check for AMDP Manager:

As part of installation, a self-signed certificate is generated for the manager. If your organization is able to generate a certificate from a trusted authority, it is possible to install it manually.

Generating a trusted certificate is outside the scope of this document. The primary requirements are three files:

- The signing Certificate Authority's public key in PEM format.
- The signed certificate of the server in PEM format.
- The private key of the server in PEM format.
- 1) Copy the certificates to the Manager.

In these examples, the files are uploaded to the home directory of the "admin" user, and are named:

- a) Server Cert: amd-manager-crt.pem
- b) Server PK: amd-manager-key.pem
- c) Signing CA: ca-cert.pem
- 2) Copy the certificate and key files to the correct locations.

```
root@amd-manager:/etc/nginx/ssl# cp ~admin/amd-manager-crt.pem tts.pem
root@amd-manager:/etc/nginx/ssl# cp ~admin/amd-manager-key.pem tts.key
```

3) Add the Signing Certificate to the web server certificate chain by concatenating files.

```
root@amd-manager:/etc/nginx/ssl# cat ~admin/ca-cert.pem >> tts.pem
```

4) Verify the certificate installation was successful.

```
root@amd-manager:/etc/nginx/ssl# nginx -t
nginx: the configuration file /etc/nginx/nginx.conf syntax is ok
nginx: configuration file /etc/nginx/nginx.conf test is successful
```

5) Restart the nginx web server.

root@amd-manager:/home/admin# systemctl restart nginx

Installing Engine

1) Run the **sudo amd_register** command to start the guided installation and registration process.



2) The installation process starts at the Welcome screen. When you are ready to begin the installation process, select Start. This wizard will gather information about the system role and install the appropriate components. The wizard provides the initial system configuration which is then further tailored with the amd_setup utility.

*****Advance	orcepoint AMDP Un- d Malware Detectio	rremises Regi n and Protect	ion On-Premis	es****
The I	nstallation Wizard	will guide y	ou through	
the	installation and	registration	process.	
	Start		Exit	
		_		

3) Read the Forcepoint Subscription Agreement and select **Accept** to proceed with the installation.



- 4) To install the Engine, choose **Engine** and select **Continue**.
 - 4(a)

	Forcepoint AMDP Registration
Plea	ase choose the type of system being installed.
	Type of system:
	Manager
	Continue
<f1></f1>	- Help

The below wizard checks the server for minimum hardware requirements. If the server does not meet the minimum requirements, either 4(b) or 4(c) will appear, depending on the severity of the requirement that is not met. 4(b) forces the user to cancel the wizard and address the issue, while 4(c) will allow the user to continue.

4(b)



4(c)

Fo	rcepoint AMDP Regist	tration -	
The system does not m chosen role. See amd-wiz.log for d Cancel	eet the minimum hard	dware specifications nue if you wish to c	ofor the override.

5) Choose the preferred network configuration and select **Continue**.

	Forcepoint AMOP Registration
Please cho use to rec	ose the preferred network configuration this AMDP installation will eive its IP address.
	Primary network interface configuration:
	Obtain via DHCP Enter a static address
	Back
<f1> - Hel</f1>	p

6) Choose the interface for external access and select **Continue**.

Name Link ens160 up ens192 up (*) Back
ens160 up (*) ens192 up () Back
Back
<f1> - Help</f1>

7) On the Engine network interface, enter the static IP Address, Network Mask/CIDR, Gateway, and DNS entries. Select Continue.



Note

Multiple DNS entries should be comma separated.

Please er use for e	nter the static external access.	IP address this AMDP inst	allation should
	IP Address*	192.168.1.6	
	Network Mask*	255.255.255.0	
	Gateway*	192.168.1.254	
	DNS*	192.168.80.1,192.168.80.	2
	Back	Contin	ue
<f1> - He</f1>	elp		

8) Select the interface for the Engine network and **Continue**.

the Engine network.	Forcepoint AMDP Registration
ens192 up (*) Back <f1> - Help</f1>	the Engine network.
<fi> - Help</fi>	ens192 up (*) Back
	<f1> - Help</f1>

9) Enter the static **IP Address** and select **Continue**.



Note

Select an unused IP address in the 10.0.0.0/24 subnet to communicate with the Manager. The Manager is assigned with the fixed (reserved) IP address 10.0.0.10 on the Engine network (E).

Please enter the static	oint AMDP Registratio	installation should
use for the sandbox.		instariation should
IP Address*	10.0.0.11	
Network Mask*	255.255.255.0	
Back		ontinue
<f1> - Help</f1>		

10) Enter the **HTTP Proxy** address for establishing connection with the update servers else leave it blank. Select **Continue**.

Please enter the proxy HTTP/HTTPS connections	Forcepoint AMDP Registration this AMDP installation should use for establishing (if any).	
HTTP Proxy: http://192.168	.20,1:8080	
<fi> − Help</fi>		
>/≺Shift-Tab> Jump Between Elements ≺Spa	ce> Selects <f12> Exit Wizard</f12>	

11) Enter the NTP Server address and select Configure Network.

Please enter the NTP server this system should use. NTP Server: <pre> ntp.mycompany.com Back Configure Network </pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <!--</th--><th>Please enter the NTP server this system should use. NTP Server: htp.mycompany.com Back (F1> - Help</th><th>Forcepo</th><th>int AMDP Registration</th></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre>	Please enter the NTP server this system should use. NTP Server: htp.mycompany.com Back (F1> - Help	Forcepo	int AMDP Registration
htp.mycompany.com Back Configure Network <f1> - Help</f1>	htp.myCompany.com Back <f1> - Help</f1>	Please enter the NTP serve	er this system should use.
		ntp.mycompany Back <f1> – Help</f1>	.com

Network connectivity test runs.....

Running Network Connectivity Tests	

12) Update the password for the local admin user to be used for console and ssh access. Select Continue.

⊃lease enter your lo ⊃e used to update t⊦	ocal admin account information. This informat he system's admin account.	ion will
System Admin Passwo	ord* ***********	
Verify Password∗	**************************************	
	Continue	
KF1≻ − Help		

13) Enter your Forcepoint Engine host information and select Continue.

Please enter your Fo be used to setup the	rcepoint AMDP host information. This information will system.
AMDP Hostname*	AMDP-Eng-6
AMDP FQDN*	AMDP-Eng-6.mycompany.com
Back	Continue
<f1> - Help</f1>	

14) Enter your Forcepoint Engine License Key and select Configure System.

Please enter your Forceroin	oint AMDP Registration	nis information
will be used to verify your	license.	
AMDP License Key AMDPL	ICKEY123456	
Back	Configure Syst	em
<f1> – Help</f1>		

If the license key is invalid or has expired, you will enter an evaluation period with reduced functionality if you decide to **Continue**. Since installations without a valid key will not receive updates, provide a valid, non-expired license key.

	Forcepoint AMDP Registr	ration
The license key you Please confirm tha wish to proceed you functionality.	ι have entered is invalic the key you have entere will enter an evaluatic	d or has expired. ed is correct. If you still on period with limited
Back		Continue

15) Select Ok to exit the Engine Registration wizard.



Manager configuration

This section focusses on the amd_setup command.



Note

All CLI commands must be executed either using sudo or logged in as root.

The Manager CLI is primarily concerned with Engine management. The **amd_setup** utility supports the **engines** command.

```
root@amd-mgr:~# amd_setup engines -h
usage: amd_setup engine [-h] [-l] [-a ENGINE] [-r ENGINE] [-u ENGINE] [-i IP]
optional arguments:
    -h, --help show this help message and exit
    -l, --list-engines
    -a ENGINE, --add-engine ENGINE
    -r ENGINE, --remove-engine ENGINE
    -u ENGINE, --update-engine ENGINE
    -i IP, --ip IP, --ipv4 IP
root@amd-mgr:~#
```

Adding an Engine

amd_setup engine -a sandbox1 -i 10.0.0.11

Listing Engines

amd_setup engines -1

Removing an Engine

amd_setup engine -r sandbox1

Engine configuration

This section focusses on the **amd_setup** command.



Note

All CLI commands must be executed either using sudo or logged in as root.

The Engine CLI is primarily concerned with sandbox management. Sandbox environments are instantiated to detonate samples for particular machine types. The **amd_setup** utility supports the **sandbox** command.

```
root@amd-mgr:~# amd_setup sandbox -h
usage: amd_setup sandbox [-h] [--vms] [--vmbuild] [--vmstatus] [--fetch]
                         [--win7] [--win10] [--win10v2004] [--linux] [--android]
                         [--instances INSTANCES] [--autosize]
                         [--msofficekey MSOFFICEKEY | --office365] [--kms KMS] [--vmtimezone
TIMEZONE]
optional arguments:
 -h, --help
                        show this help message and exit
  --vms
  --vmbuild
  --vmstatus
  --fetch
  --win7
  --win10
  --win10v2004
  --linux
  --android
  --instances INSTANCES
  --autosize
  --msofficekey MSOFFICEKEY
  --office365
  --kms KMS
  --vmtimezone TIMEZONE
timezone for the sandbox virtual machine (e.g. America/Chicago ; see tzselect(8))
```

Configuring Windows VMs

```
amd_setup sandbox --win7
amd_setup sandbox --win10v2004
```

Configuring Linux VMs

amd_setup sandbox --linux

Configuring Android VMs

amd_setup sandbox --android

Sandbox engine capacity:

The Engine is capable of running a number of sandbox virtual machine environments in parallel. This capacity is determined primarily by the number of CPUs on the engine and was automatically configured by **amd_register**. Each virtual machine environment is called an *instance*.

Tailoring the instance count:

Note

You can specify an explicit instance count for a machine type (For example: win10v2004) by supplying the -**instances** parameter. In the following example, the Linux machine templates will be instantiated specifying 4 instances per machine type (Ubuntu, Debian, etc.).

Alternatively, you can specify the **--autosize** parameter to consider all the machines listed on the command line and balance the available resource among them.



Machines not listed in the command are not considered.

amd_setup sandbox --linux --instances 4

Autosize option:

The **--autosize** sandbox option can be used to balance the available parallel instance capacity among the machine types listed on the command line.



Note

--autosize will overwrite any existing sandbox machine configurations, so is best used during initial provisioning of the engine.

For example, to create a balanced configuration for all the available sandbox types use the following commands. First we check the status; the status will indicate the parallel instance capacity of the engine.

```
root@amd-eng:~# amd_setup sandbox --vmstatus
Instance capacity: 7
Total instances: 0
VM status:
No desired VMs configured.
```

Next, we create the basic configuration for each desired sandbox environment:

```
root@amd-eng:~# amd_setup sandbox --win7 --win10 --win10v2004 --linux --android --autosize
Instance capacity: 7
Added instances:
        win10:
        win10v2004: 1
        win7:
                    1
        android9:
                    1
        android10:
                   1
        android11:
                    1
        ubuntu1804: 1
Total instances: 7
Warning: Windows options require a Microsoft Office license to ensure efficacy for analysis
of Office documents; supply --msofficekey or --office365
Warning: Windows options require a Microsoft Office license to ensure efficacy for analysis
of Office documents; supply --msofficekey or --office365
```

For any sandbox environment requiring additional options such as a license or office, take note of the instance count for that machine type and reissue the setup command with an explicit instance count observed from the **--autosize** command (1 in this example):

```
root@amd-eng:~# amd_setup sandbox --win10v2004 --office365 --vmtimezone America/Chicago --
instances 1
Instance capacity: 7
Added instances:
    win10v2004: 1
Total instances: 7
```

Building VMs:

To initiate a build of the configured sandbox VM types, use the **--vmbuild** option for the sandbox command. The build will create the VM environments for each newly configured or modified machine type. The build will also update sandbox VM environments if there has been a software update applied.



Note

Building sandbox VMs can be a time consuming operation and may take several hours to complete. Once the build has started, check the status with **--vmstatus** option to see if it has completed.

amd_setup sandbox --vmbuild --vmstatus

Checking VM build status:

After allocating a virtual machine type (For example: --win10v2004), the corresponding virtual machine environment will need to be built. You can test the status of the build with the **--vmstatus** option. If the environment has not yet been built for that type or has changes pending due to a software update, the status will indicate "Build action recommended". The version will indicate "UNAVAILABLE" until the build action has completed (see Building VMs section above).

```
# amd_setup sandbox --vmstatus
sandbox: VM status: VM: win10v2004
Latest version: UNAVAILABLE
Build action recommended
```



Note

If the build status indicates "UNAVAILABLE" the VM has not been built yet. Whenever a VM configuration has been changed or the base ISO has been updated, a build action is indicated. To start the build, run **amd_setup sandbox** with a **--vmbuild** option.

Software updates

The base operating system for AMDP is currently Ubuntu focal 20.04 LTS and uses standard Ubuntu software update facilities and package management tools.

The system installation from the ISO includes baseline packages for AMDP and Ubuntu, as well as configuration for the related update repositories and the digital signatures for validating updates. The primary tool for managing updates is the standard Linux Advanced Packaging Tool (APT).

As part of the initial setup and registration, the **amd_register** tool invokes **apt** to update the system and AMDP software to the latest versions available from the update repositories.

After the system has been installed and registered, the update behavior can be changed. By default, the repositories are checked daily to see if there are available updates, and any updates which are eligible for **automatic installation** are applied. To change this behavior, use the **amd_setup updates** command.

To enable automatic updates for both AMDP and the system, use the following command:

amd_setup updates --system --amdp enable

or to disable automatic updates:

```
amd_setup updates --system --amdp disable
```

If either --system or --amdp are omitted, only the specified updates are affected by the command, so for example

amd_setup updates --amdp enable

enables updates for AMDP but doesn't change the setting for system updates.

Run amd_setup updates -h to see the available options for the command:

```
root@amd-mgr:~# amd_setup updates -h
usage: amd_setup updates [-h] [--system] [--amdp] {enable,disable}
positional arguments:
    {enable,disable} Choose whether to enable or disable automatic updates
optional arguments:
    -h, --help show this help message and exit
    --system base system software updates
    --amdp AMDP software updates
```

Automatic updates

The following package types are eligible for automatic update:

- Security updates for system packages
- AMDP administrative tools (wizard, cli)
- AMDP services and health monitors
- Threat Detection and Malware signatures (manager); (autoinstalled, but need to reload)
- Sandbox VM monitors (engine); (autoinstalled, but VMs may need be rebuilt)

Manual updates

For updates which are not automatically applied, the following CLI command will upgrade all available packages to the most recent version.



Note

Some AMDP packages require special handling prior to upgrade (see *Upgrade Special Handling Steps* below).

```
apt update # updates the information about available updates
apt list --upgradeable # lists packages eligible for update
apt upgrade # upgrade and install all eligible packages
```

or

apt install package(s) # upgrade and install a particular package (or packages)



Note

The **apt upgrade** command will install non-security related system packages as well as the AMDP packages.

Check for available updates on the manager once a week for signature updates, and every few weeks for other updates.

Upgrade special handling steps

Some packages require special handling prior to and/or after upgrading, so we strongly recommend to use the **apt list** command to see what changes will be affected prior to deciding to use the apt upgrade command.

Malware signatures (Manager)

The malware signature package for the manager is updated frequently, so weekly you should check if the package (hatching-triage-processing) has been changed. In order for the signatures to be active, the triage processes need to be signaled to reload.

killall -HUP triage



CAUTION

Avoid restarting the hatching-triage or hatching-triage-processing services until the signatures have been reloaded if there are active analysis in progress.

Static analysis service (Manager)

Prior to upgrading the hatching-triage package, it's desirable to quiesce the processing of new samples and finish ones in progress. Use the following command:

killall -TERM triage; while pidof triage >/dev/null; do echo -n .; sleep 1; done

Restart the service now:

systemctl restart hatching-triage

VM monitors and services (Engine)

Virtual machine monitors include some components which are installed in the virtual machine environments for the sandbox. While the monitor packages are automatically installed, the corresponding VMs may need to be rebuilt. When checking for general updates, run the following command to check if the VMs need to be rebuilt:

amd_setup sandbox --vmstatus

See Engine configuration for additional information on building VMs.

Sandbox manager and services (Engine)

Prior to upgrading the hatching-sandbox and hatching-sandbox-net packages, it's desirable to quiescent the processing of new samples and finish ones in progress. Use the following command:

killall -HUP sandbox; while pidof sandbox >/dev/null; do echo -n .; sleep 1; done

Restart the services now:

systemctl restart hatching-sandbox hatching-sandbox-net

After updating HatchVM (hatching-hatchvm and hatching-hatchavd packages), the hatchng-vms service must be restarted.



Note

Do not restart this service if there is an active VM build (see amd_setup sandbox --vmstatus).

Packages requiring reboot

Some updates require the system to be rebooted to complete the installation, typically associated with a new kernel or core service. Generally, AMDP updates do not require a reboot, but a reboot is the easiest way to ensure all the associated services have been restarted following an upgrade.

General notes about package naming

AMDP package names start with "amd", "python3-amd", "hatching" or "tts".

Related concepts Engine configuration on page 28

Backup and Restore

The **amd_backup** tool creates a backup of the AMDP configuration files and log files that can be restored through the **amd_restore** command on a freshly installed machine that has gone through the initial registration.

Usage and options for the backup command are as follows:

```
root@amd-mgr# amd_backup -h
usage: amd_backup [-h] [--logs-only] [--no-sql-backup] [--template TEMPLATE] [--list] [--dry-run]
optional arguments:
    -h, --help show this help message and exit
    --logs-only Only backup logs
    -no-sql-backup Don't backup the Triage database
    --template TEMPLATE Provide a custom backup template
    --list List available backup files
    --dry-run Do a dry-run backup
```

Usage and options for the restore command are as follows:

```
root@amd-mgr# amd_restore -h
usage: amd_restore [-h] -f FILE
optional arguments:
    -h, --help show this help message and exit
    -f FILE, --file FILE Backup file to restore
```

Usage

To provide the backup logs to Forcepoint Support, you may wish to use the **--logs-only** option to exclude samples.

```
root@amd-mgr:# amd_backup --logs-only
Space required for backup: 54369 KB
Available Space: 38294704 KB
Creating backup
Created backup at /var/spool/amd/backups/amdp-backup 20231129-160139-logs.tar.gz
root@amd-mgr:# amd_backup --list
Available backups:
/var/spool/amd/backups/amdp-backup 20231129-160139-logs.tar.gz
root@amd-mgr:~# amd_backup --list
Available backups:
/var/spool/amd/backups/amdp-backup_20231129-160139-logs.tar.gz
root@amd-mgr:~# amd_restore -f /var/spool/amd/backups/amdp-backup_20231129-160139-logs.tar.gz
Extracting /var/spool/amd/backups/amdp-backup_20231129-160139-logs.tar.gz
Validating backup compatibility
Stopping services
Restoring backup
Cleaning up temp directory
Initial restore complete. Restart the system to finish the restore operation.
root@amd-mgr:~#
```

Microsoft Office licensing

```
Ę
```

Note

Windows 10 VM requires Microsoft Office 2019

Windows 7 VM requires Microsoft Office 2010

There are 2 options for Microsoft Office licensing:

```
    root@amd-eng:~# amd_setup sandbox --[vm type][--msofficekey MSOFFICEKEY]
where MSOFFICEKEY is a license key for Microsoft Office.
```

2) root@amd-eng:~# amd_setup sandbox --[vm type][--msofficekey MSOFFICEKEY][--kms KMS] where KMS is an optional key management server.

If you want to specify --instances to tailor the instance count that must be supplied with the Windows VM type and the license key then,

```
root@amd-eng:~# amd_setup sandbox --[vm type][--msofficekey MSOFFICEKEY][--instances count]
```

Below warning message is displayed if MS license key is **not** supplied: root@amd-eng:~# amd_setup sandbox -win10



Warning

Windows options require a Microsoft Office license to ensure efficacy for analysis of Office documents; supply --msofficekey

Office 365 configuration

Steps

 Add a Windows 10 sandbox with Office 365 support with following command. Make sure to insert the correct timezone for your location.

sudo amd_setup sandbox --win10v2004 --office365 --vmtimezone <tzselect style>

A <tzselect style> would be in this format: America/New York or Europe/London for example.

```
admin@bt-amdp-eng-159:~$ sudo amd_setup sandbox --win10v2004 --office365 --vmtimezone
America/Denver
[sudo] password for admin:
Instance capacity:15
No instance count specified, defaulting to 8
Added instances:
    win10v2004: 8
Total instances: 8
```

Run sudo amd_setup sandbox --vmbuild to start building the sandbox VM.

```
admin@bt-amdp-eng-159:~$ sudo amd_setup sandbox --vmbuild
Instance capacity:15
Total instances: 8
VM build:
Building all desired VMs
{}
```

Waiting for Office to be ready for manual action...

a) When the Office 365 script is ran, the hatching-vms logs will log the used host and port. This log message looks like:

```
The current script may need manual interaction. VNC is enabled. script=office365new vnc_host=0.0.0.0 vnc_port=29023 ..
```

b) Find it by running:

```
journalctl -u hatching-vms | grep "script may need manual" | tail -1
```

c) The Office 365 script will first install Office 365. When it is ready to be activated, the following log messages will appear:

```
script=office365new script-message="Waiting for manual activation of Office 365. Connect with VNC and manually activate.n" ..
```

d) Find it by running:

Note

```
journalctl -u hatching-vms | grep "Waiting for manual activation of Office 365" | tail -1
```

The **vnc_port** is listed in the first log message.

- 3) On a separate host, use a VNC client to connect to the IP of the engine on the port listed previously.
- 4) Once connected via VNC, you will be presented with a prompt to enter a product key for Office. Select **Back** on this menu.

Microsoft		
	Enter your product key	
	(TMVB)	
	Enter an Office product key:	
	See product key examples Back	

5) A new pop-up appears asking to Sign in to get started with Office. Select Sign in or create account.



6) Enter the email address of the user that will be used with the sandboxes and select Next.



7) Enter the password for the user entered previously.

Microsoft	
Enter password	.com
Forgot my password Sign in with another account	
	Sign in

Once signed in, select No, sign in to this app only on the pop-up that says Stay signed in to all your apps.

Stay signed in to all your apps
Windows will remember your account and automatically sign you in to your apps and websites on this device. This will reduce the number of times you are asked to login.
N
No, sign in to this app only $\sqrt{3}$
ОК

9) Select Account in the Microsoft Word menu and verify that Office is activated. You should see a section related to your subscription on the right side of the screen.

	Word	0 R ? - 0 X
Word	Good evening	
^	~ New	
G Home	Take a tour	Among Hit Contexts
New	Blank document Welcome to Word Inserty	Exert Siles, Sing Terre Exert Siles, Sing Terre Exert Siles, Sing Terre Horizontal calendar (Sunday
		More templates $ ightarrow$
Dpen (Search Recent Pinned Shared with Me You haven't opened any documents recently. Click Open to browse for a document.	
		More documents \rightarrow
Account		
Feedback		
Options		
Word	Account	
	User Information	Product Information
Home		Microsoft
New	Com Change photo About me Sign.tod Sentch account Account Privacy	Subscription Product for .com Microsoft 365 Apps for enterprise This product contains
	Manage Settings	
	Office Background:	manage Account Change License
Open	Clouds • Office Theme: Colorful •	Microsoft 365 and Office Updates Update Options -
	Connected Services:	About Word
Account	 OnęDrive - Geordle .com 	Learn more about Word, Support, Product ID, and Copyright information. About Version 2304 (Build 16327.20264 Click-to-Run)
Feedback	Sites - Geordle	Current Channel
Options	Add a service ~	What's New See the most recently installed updates.

 In the taskbar, find the window that has Waiting for manual activation in the text field and select OK. Select Yes on the next pop-up to confirm that the activation is complete.



11) Close the VNC session and wait for the VM to finish building.

Web Security licensing and configuration

The Web Security License Key is entered in the Web section of Forcepoint Security Manager (FSM) under Settings > General > Account > Subscription Key.

WEB	-		
Main 🔨	Account		
	About Account Setting	S	
-₩- Status	Enter and view subscription	n information and indicate whether to submit category and protocol usage data to	
ы	Subscription Key		
Reporting Enter your subscription key exa		ly as you received it. After the first Master Database download, this area displays	
¢	Subscription key:	Apply	
Report Center	Product Level:	Forcepoint Web Security	
	Key expires:	2024-05-09	
≡,	Subscribed Users:	25	
Policy Subscribed Features			
Management	Web Security Hybrid Module		
Settings ~	Web Security DLP Module		
•	Advanced Malware Detection		
General	Protected Cloud Apps		
G.	Block users when subscription	expires	

AMDP configuration for Web Security is done in the Web section of Forcepoint Security Manager under **Settings** > **Scanning > Scanning Options > Advanced File Analysis**. The only configuration needed, is the IP address of the AMDP Manager.

Settings 🔺	Scan rich Internet applications embedded in web content and block malicious content (de		
General	Scan inbound FTP files and apply policy (default)		
٥	Outbound Scanning		
Scanning	 Analyze for and block outbound security threats (and enable Social Web Controls if Conte For each Security Threats scanning option enabled above, outbound security will also be a Z Data theft protection (default) 		
CASB Configuration	Analyzes outbound content for encrypted files, password files, and sensitive content. Sen suspicious destinations, as defined by Security Labs. Information from this scan is used in		
_	Advanced Options		
Hybrid Configuration	Advanced File Analysis		
•	Advanced file analysis is performed by a Forcepoint Advanced Malware Detection solution. It analysis (Content Categorization, Security Threats: Content Security, or Antivirus Scanning r		
Alerts	Enable email or SNMP alerts on the Settings > Alerts > Enable Alerts page, then enable Adv. file analysis detection messages.		
1	Enable Advanced File Analysis		
Network Agent	File analysis platform: On Premises 🗸		
ц¢	Controller IP address: Check Status		
Reporting			

For detailed information, refer to Advanced File Analysis section and Configuring your account information section in Forcepoint Web Security Administrator Help.

Configuring AMDP on Secure SD-WAN via SMC GUI

Follow the instructions listed below to configure AMDP on the Secure SD-WAN using the SMC GUI:



Note

The menu options described in the numbered list below are only present on SMC version 7.1.1 and above.

1) Open the engine editor for a firewall and navigate to Add-Ons > Sandbox.

2) Under Sandbox Type select Local Sandbox - Advanced Malware Detection & Protection.

≡ Forcepoint _{Secure} SD-WAN Manager	CQ. Search (Ctrl+F)
✤ Forcepoint Engine	Forcepoint Engine (EDIX) +
> General	Forcepoint Engine (EDIT)
> Routing	Sandbox Type: None
 Add-Ons Anti-Malware 	None Cloud Sandbox - Advanced Malware Detection & Protection
Data Protection	Local Sandbox - Advanced Malware Detection & Protection
Endpoint Integration	Cloud Sandbox - Advanced Malware Detection
File Reputation	Local Sandbox - Advanced Malware Detection
IPv6 Transition Me	
OPC UA Inspection	
QUIC Inspection	
Sandbox	

3) Select the Sandbox Service field and create a New Sandbox Service element in the pop-up that appears.

Forcepoint En	gine (EDL.X) +			
Forcepoint E	ngine (EDIT)			
Sandbox Type:	Local Sandbox - Advanced Malware Detection & Pro	tection		
Sandbox Service:	<select></select>			
HTTP Proxies:	<select></select>		F Select Element	×
				₹ ि :
		Name 🔨	Category	Comment
		< 💊 New Sandbox Servic	e	_
		0 (of 3) elements		Select Cancel

4) Under Host Name field add the domain name or IP address of the AMDP Manager and under API Key field, enter your AMDP License. Under TLS Profile, click Select and create a new TLS Profile.

	🟟 Shared Domain - Sandbox Service Properties	×
<u>N</u> ame:	amdp sandbox]
<u>D</u> ata Centers:	Local Sandbox - Advanced Malware Detection & Protection)
<u>H</u> ost Name:	amdp-manager.forcepoint.com)
<u>S</u> erver URL:	https://amdp-manager.forcepoint.com)
<u>P</u> ortal URL:	https://amdp-manager.forcepoint.com/report/[file_id]?report_type=html&id)
API Key:	8361e123111e77a1a634b0a11963408434262dc0)
<u>T</u> LS Profile:	AMDP TLS Profile Select	
Comm <u>e</u> nt:)
Category:	Not Categorized	
	OK <u>C</u> ancel Help	

5) Select an appropriate Cryptographic Suite such as NIST (SP 800-52 Rev. 2). Either use Trust any under Trusted Certificate Authorities or upload the AMDP Manager certificate to the SMC and add that to the trusted CA list. Select OK to finish creating the Sandbox Service element.

	🔞 Shared Domain - TLS Profile Properties		×
			_
<u>N</u> ame:	AMDP TLS Profile		
TLS Cryptography Suite Set:	I NIST (SP 800-52 Rev. 2) Compatible TLS Cryptographic	S <u>e</u> lect]
Trusted Certificate Authorit	ies		
◯ Trust <u>a</u> ny			
Trust <u>s</u> elected			
😭 AMDP CA		<u>A</u> dd	
		<u>R</u> emove	
			_
Version:	TLS 1.2	-	
Use Only Subject Alt Nan	ne		
Accept Wildcard Certific	ate		
Check Revocation			
Delay Fetching CRL for		0 h	
Ignore OCSP failures for		0 h	
	ek Feilunge if These Are Compositivity Dephases		
Ignore Revocation Che	ck Failures if There Are Connectivity Problems		
Category:	🏷 Not Categorized	S <u>e</u> lect	
Comm <u>e</u> nt:]
	OK <u>C</u> ance	el Help]

6) Select the newly created Sandbox Service element from the list and save your engine configuration.

Porcepoint Er	ngine IEDLX (+	
Forcepoint E	Engine (EDIT)	◎ 🛱 🛱 :
Sandbox Type:	Local Sandbox - Advanced Malware Detection & Protection	*
Sandbox Service:	le andp sandbax	a Sglect
HTTP Proxies:	<skd></skd>	Add
		Remove

Admin Web Portal

The Admin Web Portal user interface allows you to verify the state of the sandbox machine availability, to manually submit samples (useful for troubleshooting), to view and edit the default analysis profile, to view reports, and to administer the Admin account (add/remove other accounts).

Log into the Admin Web Portal with the email address and password of the user you added on the Manager in the Organization screen of the wizard.

Forcepoint	Login	
		Login Log in to your Sandbox account. Email
		Next
		Can't login?

The dashboard is the initial view when logging into the portal.

orcepoint	Submit	Organization	Reports	Q, Sear	rch			÷
Quick Submi	t		La	atest I	News			
Drop a file for analysis submit page. Drop a file for analy	s, for more submis	sion options go to the	Ma	Iware Tren	nds, Updates, News Triage Thursda Changelog coverin changes from July	and more. by Ep. 94 • 0 g all sandbox of 28th to Augus	3-08-20 detection it 3rd 202)23 n 23.
	a	ear Submit			Triage Thursda Changelog coverin changes from Febr week-by-week.	y Ep. 93 • 2 g all sandbox o ruary to July 20	8-07-20 detection 023, brok	23 h ken dov
Malware Tre	nds				Triage Thursda Update patch note the sandbox detec 2022, broken down	tions since each by week.	2-01-202 changes ily Decer	23 made t mber
	t)				Triage Thursda Week's update blo and configuration of new extractor for L detections, and up new variants of Sn Stealer.	y Ep. 91 • 0 gpost covering extraction for 2 ucaStealer to dates to our ru akeKeylogger	1-12-202 new sig (Worm R expand o les to ha and Erbin	2 natures AT, a existing andle um
	Loading Trends D	iata		×	Triage Thursda Update blogpost o Bluefox and Laplas Zeon, Royal and Ve Android stealer. Al: Gozi, njRAT, Colibri Amadey configurat detections for Red families.	y Ep. 90 • 2 overing new si i stealers; Rekk enus ransomwi so includes imp i, AgentTesta, I tion extractors line, Vidar, Icee	24-11-202 upport for pobe Linu ares; and provement Phorphies ; plus up dID and J	22 or Strela ux trojai 1 TianSp nts for x and dates to Joker

Profiles control various aspects for control of the sandbox detonation. Select the Organization tab, then select Profiles. The default profile used for sample analysis is called "Forcepoint". The default for Internet access is OFF to enhance the security of the system. There is a trade off in setting internet access to off in a loss of efficacy and each customer should determine what best suites their needs.

Languages

A	CAUTION			
	The default profile	e (Forcepoint) should not be dele	ted.	
Force	Point Submit	Organization Reports Q. Search Vara Profiles Profile Editor Profile Name Forcepoint Platforms	Settings Users Invites	

Here we modify the Forcepoint profile to enable Internet access (setting changed to ON).

🌐 🛛 U & C

	Number of the second	
	Tara Profiles Se	ttings Users Invites
New Profile	Profile Editor Profile Name	
	Forcepoint	
	Platforms	
	Languages	
	Internet Access	
	ON OFF Tor 200 404 DNS Disabled	
	Timeout	
	30 1 2 2.5 5 10 20 30 Sec Min Min Min Min Min Min Min	
	Browser	
	🌐 🛛 U & C	
	Delete Pro	lodate Profile

The Machines tab is selected via the icon highlighted in red below (just left of the docs/help icon). Here is the initial configuration after an Engine has been configured and added to the Manager. The Environments count reflects the total of the instance counts for each configured virtual machine. The Parallel count is the number of environments which can be executed simultaneously. That value is set when the Engine is initially configured and based on the number of CPUs in the Engine.

Forcepoint	Submit	Organization	Reports	Q	Search			÷	€
sandbox1					Environments	0 Para	allel: 2	2 ^	
Name	Lan	guage		OS	Capacity				

Once the VMs have been built, the available machine types are shown on the **Machines** tab. Note for this example, there are 6 environments available (3 windows 10, 3 windows 7), and 2 VMs can operate in parallel. If an analysis requires a machine type but all the parallel slots are in use, the analysis will be queued until a parallel slot becomes available.

Forcepoint	Submit	Organization	Reports	Q, Search	≣ ∎ ± ⊡
sandbox1				Environments:	6 Parallel: 2 🔺
Name		Language		OS	Capacity
win10v2004-20230	0807-en	English (United	States)	Windows 10 2004 ×64	3
win7-20230807-en	1	English (United	States)	Windows 7 ×64	3

Selecting the Reports tab shows the samples which have been submitted and the associated analysis.
 My Samples only shows samples for the user logged into the portal. To see samples/reports which were submitted to the Manager, select the Organization Samples tab.

Forcepoint	Submit	Organization	Reports	Q, Search		⊥ ⊡
				My Samples	Organizatio	n Samples
Created		Filename	Tags	Status/Score	SHA256	
No reports found.						

Selecting the Users tab allows you to view the configured Users for the system. There is a reserved user "shim@triage.local" which is used to relay the samples received by the Manager. You should not modify or delete this user. The user with (you) indicates the currently logged in user, which is the user created in the registration wizard on the Organization (web portal) screen for the Manager.

Forcepoint	Submit	Organization	Reports	Q, Search	🗄 📖 🚣 G
				Yara Profiles Setting	s Users Invites
Company Me	embers				Send invite
Created At	Name	Email	Submissions	Tokens	Role
07-08-2023 15:06	shim	shim@triage.local	0	1, never used	Basic
07-08-2023 15:06	admin (you)	admin@local	0	1, last used at 07-08-2023 15:06	Admin
<					>

The Submit tab allows for manual upload and analysis of files.

Upload file Upload a sample from your local machine for analysis. Drop a file for analysis here, or <u>Browse</u> Upload a sample for analysis here, or <u>Browse</u> Upload a s	File Code				
Upload file Submit from URL Upload a sample from your local machine for analysis. Via URL submit you can retrieve These are the available options Drop a file for analysis here, or <u>Browse</u> • URL: This is to directly analysis browser.					
Upload a sample from your local machine for analysis. Via URL submit you can retriev. These are the available options Drop a file for analysis here, or <u>Browse</u> • URL: This is to directly analysis browser.					
Drop a file for analysis here, or <u>Browse</u> • URL: This is to directly analysis here, or <u>Browser</u> , browser,	a files and URLs in various ways.				
	URL: This is to directly analyze a URL that will be opened in the browser. Fetch: This fetches a file and executes the file in the sandbox.				
http://example.com / http://e	kample.com/malware.exe				
ADI Keys	URL Fetch				
You can retrieve your API key below. For more information about API check out the <u>docs</u> .					
Default API key Last used: 07-08-2023 15:06 Created: 07-08-2023 15:06					

Note

Files submitted through the Admin Web Portal will not generate a score visible to other products integrating with AMDP.

The Invites tab is used to craft an invitation with initial login details for a newly created user. The primary use case is to add other Portal Administrator accounts.

Delivering invitations via the email channel is not supported. An Admin should select a pending invitation and click the clipboard icon to copy the invite URL. The Admin should then send the invite URL to the intended new user using their email application or some other method.

The new user then follows the link provided in the invite to setup their new account.

Forcepoint	Submit	Organization	Reports	Q, Search			
				Yara Profiles	Settings	Users	Invites
Pending invi	tations					Sen	d invite
Name			Email	Invite URL	Role	Actions	
There are no pendi	ng invitations.						

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