AMC Server 5.0

Administration Guide

English Edition | System Release 5.0 | March 2017

ARKOON
NETWORK SECURITY

AMC Server 5.0

Administration Guide

System Release 5.0

Published March 2017

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Preface

1. About this Document

This document describes the installation, configuration and maintenance of the AMC Platform server software.

2. About the AMC

The AMC (Arkoon Management Center) architecture enables clusters of FAST360 appliances to be managed centrally. Each AMC cluster is made up of several FAST360 appliances connected to an AMC server.

3. Audience

This AMC Installation and Management guide is intended for Linux administrators with Arkoon multi-service security appliances knowledge.

Chapter 1. Introduction

1.1. Requirements

The `arkoon-amc` installation package must meet the following hardware requirements:

- Version 6.4 of RedHat Enterprise Linux - 32 and 64 bits
- Versions 6.4 and 7.2 of CentOS Linux - 32 and 64 bits
- Intel Xeon Processor 3Ghz (Dual Core)
- 4 Gb RAM
- Version 1.0.2 and upwards of OpenSSL
- 300 Gb SAS hard disk

The information is for the following specific context:

- 1 AMC instance
- 5 to 10 standalone or cluster appliances
- 200 Mb logs per appliance and per day
- 3 days of logs in the database
- 365 days for archiving (legal period for some countries like France)

> **Note**
> The MySQL database is used by the AMC server to store logs but it is not an AMC server component. The administration of MySQL databases is not performed by the AMC server and the database administrator remains responsible for it.

1.2. Architecture

Two types of AMC architecture can be implemented:

- `Single-instance`: an AMC cluster controlling a single instance.
- `Multi-instances`: multiple FAST360 clusters can be controlled on a given AMC server.

A single AMC instance corresponds to each appliance cluster configured by the administrator. The appliances and the administrator access the AMC server instance using Arkoon tools over secure network connections with the SSL (Secure Socket Layer) V3 protocol on the basis of X.509 certificates from the same Certification Authority.

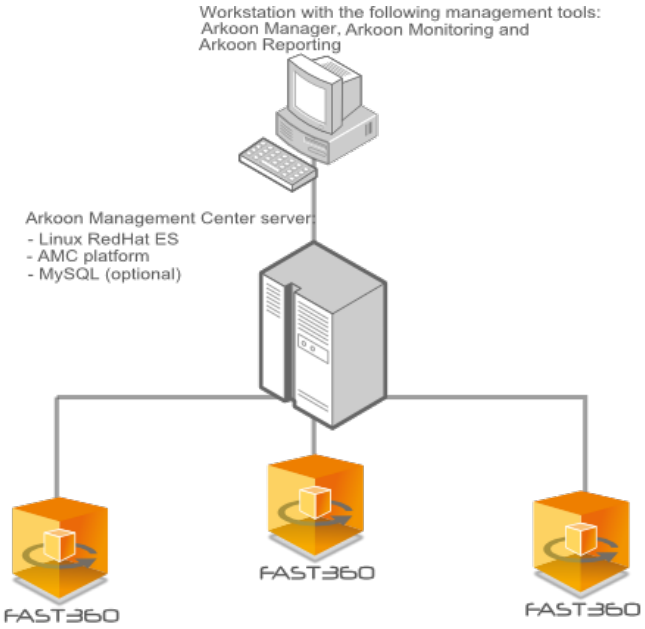
1.2.1. Single-instance Architecture

FAST360 appliances are connected to the AMC server.

You can carry out the following operations from the Management station:

- Connect Arkoon Monitoring to the AMC server to monitor the GOR (Green Orange Red) status and access the logs: Alerts, IP and IDPS Logs, HTTP relays, SMTP relays.
- Connect Arkoon Monitoring to an appliance to monitor a specific parameter.
- Connect Arkoon Monitoring to the instance created on the AMC server to configure the security policy of the cluster (policy common to all appliances in the cluster).

The following graphic is an example of a single-instance architecture with three FAST360 appliances which have a centralised management:

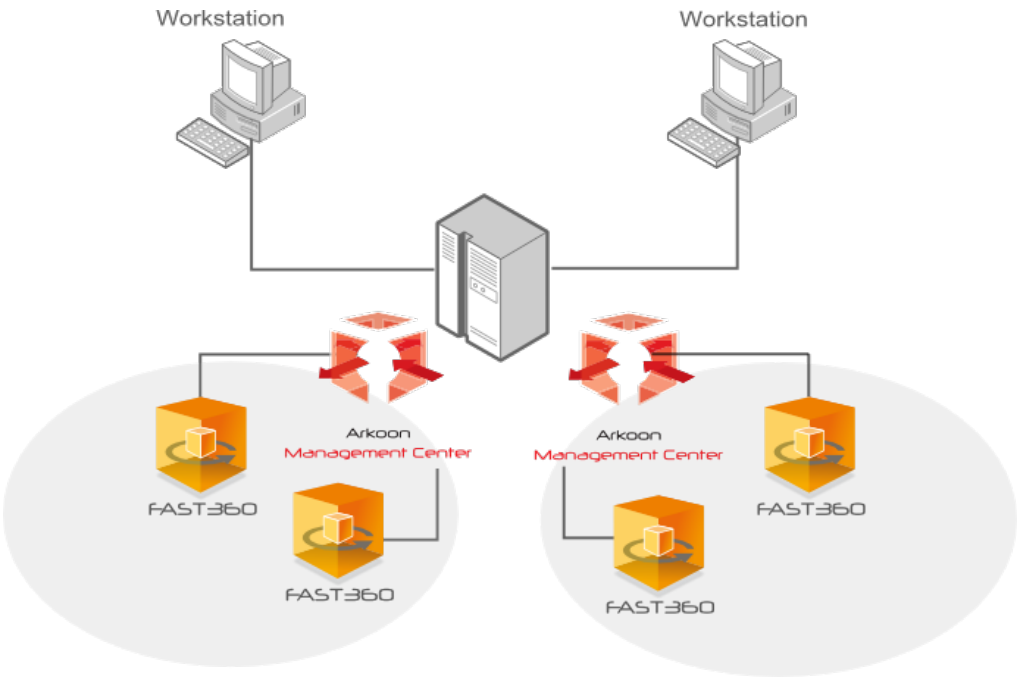


1.2.2. Multi-instances Architecture

A multi-instances architecture allows you to control several clusters, each with its own security policy. In this case, each cluster corresponds to an AMC instance on the AMC server.

- Each AMC instance manages the security policy of its cluster independently of the others.
- Several AMC instances can share a single log database but this is not mandatory. If the AMC instances share a single log database, all the logs are available directly via Arkoon Monitoring.
- You can create AMC instances global management. Instead of monitoring the appliances, they access the GOR status of multiple appliance clusters and centralize the logs in a given database.

The figure below shows an example of a multi-instances architecture with four FAST360 appliances which have a central management through two clusters containing two appliances. No global instance was defined.


Workstation
Workstation
Arkoon
Management Center
Arkoon
Management Center
FAST360
FAST360
FAST360
FAST360

Chapter 2. Installation

Before you install the AMC server, you must check it meets the technical specifications given in Section 1.1, "Requirements".

To install the AMC server:

1. **Install the server, hardware and system.**
2. **Install the `arkoon-amc` package.**
3. **Install the AMC license.**
4. **Optionally, install the MySQL server to enable the appliance log centralization.**

2.1. Installing the Server

The server must have a RedHat Enterprise Linux 6.4 or CentOS 7.2 distribution.

To check that the server is installed with the RedHat Enterprise Linux 6.4 distribution, enter:

```
[root@amc-server root]# cat /etc/redhat-release
Red Hat Enterprise Linux Server release 6.4
```

To check that the server is installed with the CentOS 7.2 distribution, enter:

```
[root@amc-server root]# cat /etc/redhat-release
CentOS Linux release 7.2.yymm (Core)
```

Note
Activating SELinux can lead to a malfunctioning of the AMC server. To prevent this behaviour, it is recommended to configure SELinux in permissive mode.

Note
Updating from RedHat Enterprise Linux 5 to RedHat Enterprise Linux 6 can lead to a malfunctioning of the AMC server. It is recommended to deploy a new system installation.

2.2. Installing arkoon-amc Package

Install the `arkoon-amc` package:

```
[root@amc-server root]# yum localinstall /tmp/arkoon-amc-5.X-XXXXXX_XXXX.i386.rpm
```

The AMC server does not start after installation as you have not yet configured an AMC instance.

2.3. Installing MySQL Server

The installation of the MySQL server makes the appliance log centralization feature available on the AMC server. The use of this feature is strongly recommended for the global monitoring of the logs by the appliances.

The MySQL database can be installed on the AMC server or on a remote server.

Install the MySQL server on the AMC server as follows:

1. Install the MySQL server package:

   For RedHat Enterprise Linux 6.4 :

   ```
   [root@amc-server root]# yum install mysql-server
   ```

   For CentOS 7.2 :

   ```
   [root@amc-server root]# yum install mariadb-server
   ```

2. Start the database:

   For RedHat Enterprise Linux 6.4 :

   ```
   [root@amc-server root]# service mysqld start
   Starting MySQL:                                            [  OK  ]
   ```

   For CentOS 7.2 :

   ```
   [root@amc-server root]# systemctl start mariadb
   ```

3. Configure the MySQL server:

   1. Leave the MySQL password empty:

      ```
      #/usr/bin/mysqladmin -u root password
      ```

   2. Check the connection to MySQL:

      ```
      #mysql -u root
      ```

Chapter 3. Configuring AMC Server with Minamcconf

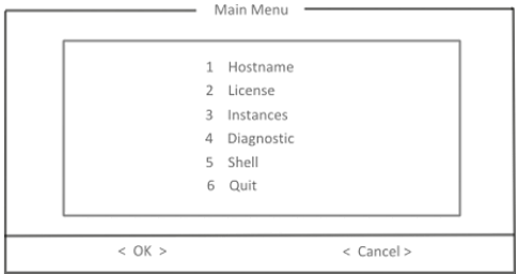
The Minamcconf tool helps the administrator to configure the AMC server and also to create and configure the instances.

The Minamcconf tool is available on the AMC server via `minamcconf`. Execute the command `/opt/arkoon/bin/minamcconf` to run the tool.

3.1. Generating the License

The AMC license is based on the main AMC server interface IP address on which the Arkoon appliances are to be connected. For example, if the connections are to be made on eth0 (or an alias of eth0), the main IP address must be entered as eth0.

At start-up, the following window is displayed:



1. Select `Hostname` to attribute a name and select `<OK>` to validate.
2. Select `License` and then `Request license`.
3. Enter the license name, the IP addresses (separated with a space), and the license request file name.
4. Validate and connect on http://license.arkoon.net with the request file and your license key to register your product and retrieve your license file.

Important

If there is no license installed, it is possible to manage a maximum of 5 appliances. In this case, the following information is displayed when starting an instance:

```
Warning: amc-license-file (/etc/arkoon-amc/amc-license.akl) not found.
```

If more than 5 instances connect to an AMC instance without a license, the new appliance connection is denied:

- a log is added to the `/var/log/messages` AMC file:

```
akslave[28029]: AMC connection refused due to maxip verification:
Maximum number of arkoons (5) reached
```

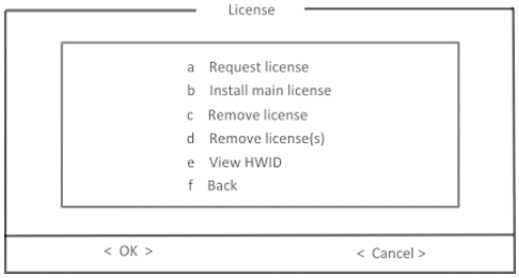
- a log is added to the `/var/log/messages` file of the denied appliance:

```
akslave[10461]: Connecting to 10.2.1.200:1754...
akslave[10461]: Connected with [CN=CERT-INSTANCE-instance_qa,OU=QA,O=Arkoon,L=Lyon,C=FR]
akslave[10461]: SSLCOM_write returns -1 [SSL operation SSL_write failed: Connection reset by peer]
akslave[10461]: SSLCOM_read returns -1 [SSL operation SSL_read failed:
SSL connection closed by peer] akslave[10461]: Master refused our UNKNOWN_CMD command (718756560)
akslave[10461]: ak_slave_start_session failed
```

3.2. Installing the License

To install the license:

1. Copy the license file on the AMC server.
2. Select `Install main license` and validate with `<OK>`.



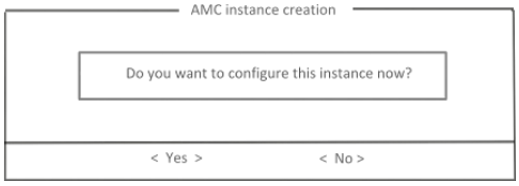
3. Enter the path to retrieve the license file and validate with `<OK>`.

3.3. Creating an AMC Instance

1. Select `Instances` from the main menu and then choose `Create AMC instance`.
2. Enter a name for the instance to create and validate with `<OK>`.

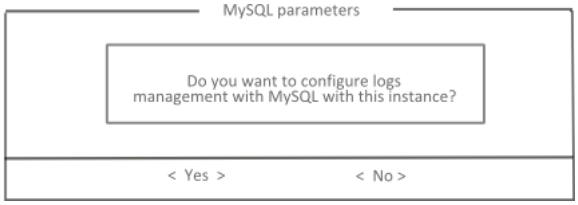
   Note
   Only the following characters are valid: `0-9`, `a-z`, `A-Z`, _ and `-`

   The following window is displayed:



3. Validate with `<Yes>`.

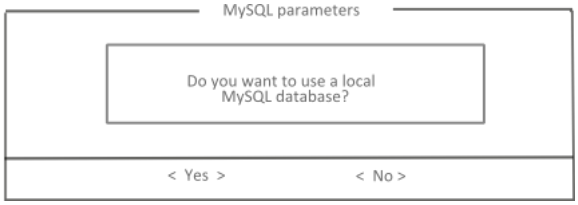
   The following window is displayed:



4. Click on `<Yes>` to carry on the procedure described in Section 3.3.1, “Configuring MySQL Parameters”.

3.3.1. Configuring MySQL Parameters

The following window is displayed:



- If you validate with `<Yes>`, the **IP** and **Port** fields are not required.
- If you validate with `<Yes>`, you must enter the following fields:
  - IP
  - Port
  - Remote base name
  - User
  - Password (optional)

1. If you use a local database (most common case), you can then enter the MySQL database name to manage logs and alerts, then click on `<OK>`.
2. Provide the database user name and click on `<OK>`.
3. Click on `<OK>` to enter a user password and validate with `<OK>`.

   The MySQL database has been correctly created.

3.3.2. Configuring Certification Authority Parameters

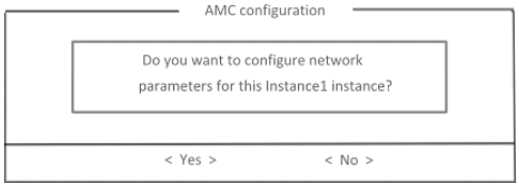
To configure the Certification Authority parameters:

1. Enter the required parameters and validate with `<OK>` to end the configuration and access the **Certification Authority** creation window.
2. Select `<Yes>` from the `Certification Authority` window.
3. Enter a password and validate with `<OK>`.
4. Enter the required fields and validate with `<OK>`.

   The `Certification Authority` is created. You must now create the certificate.
5. Select `<Yes>` to create the certificate, and then enter the required fields.

3.3.3. Configuring Network Parameters

When the AMC creation is finished, the Minamcconf tool displays the following window to configure the network parameters for the created instance:



1. Validate with `<Yes>`.
2. Enter the IP address and validate with `<OK>`.

   The following parameters are required:

   - Manager port: `1750`
   - Monitoring port: `1751`
   - Master/Slave Signal Port: `1754`
   - Master/Slave Data Port: `1759`

   Note
   You must choose an available port.

3.3.4. Initializing the AMC server in "Consolidated security"

To guarantee the highest level of security, it is recommended to initialize the AMC server in “Consolidated security”. To do so:

1. Add the following keys to the configuration file of the AMC server:

   - `arkoon-ca.key-numbits = 4096`
   - `arkoon-ca.algo-hash = sha256`
2. Start/Restart the AMC server.
3. Create a Certification Authority as well as certificates for the slaves.
4. Configure Arkoon Manager and Monitoring administration tools so that they are compatible with the “Consolidated security”.
5. Access **minamcconf**, then in the instance configuration, section **Certificates**, initialize a new Certification Authority.

Warning
All the appliances which are part of the instance must be configured in “Consolidated security”.

3.4. Creating a Super AMC Instance

To create a Super AMC instance, go to the main menu and select `Create Super AMC instance`. The first steps of the procedure are equivalent to the AMC instance procedure (see Section 3.3, “Creating an AMC Instance”).

The last step requires you specify the AMC instance managed by the Super AMC instance.

Note
The manager port is configured but not used.

Important
To access and manage the logs of the instances with Arkoon Monitoring, the Super AMC instance database must be the same as the instances database.

Chapter 4. Configuring AMC Server Manually

This chapter describes how to configure the AMC server manually.

4.1. Workflow

From version 5.0, the AMC server is configured with the minamconf tool. This chapter details how to configure the AMC server without minamconf.

The AMC server configuration is contained in one main configuration file, `/etc/arkoon-amc/config/amc-instances`, and one configuration file per instance, `/etc/arkoon-amc/config/<instance_name>`. Carry out the configuration as follows:

1. Create an AMC instance.
2. Create a Certification Authority (CA) if required.
3. Install the certificate for the instance.

   Note
   The following steps depend on the features and are optional.
4. Configure the log centralization.
5. Configure the system logs notification.

   Note
   For a multi-instances architecture, you can configure one global instance to monitor multiple instances from FAST360 Monitoring.
6. Configure the network parameters.
7. Configure a global monitoring instance.

4.2. Creating an AMC Instance

To create an AMC instance:

1. Choose a unique instance identifier.

   This identifier is used to refer to the instance in configuration files and audit trails.

   Caution
   The identifier for an instance is limited to 16 characters and must contain only the characters 0-9, a-z, A-Z, '_' and '-'. E.g. 'amc-main'.
2. Create a configuration file for the instance.

   The name of the created file must be the same as the name of the instance. Place it into the `/etc/arkoon-amc/config/` folder. At a minimum, it must include the `/opt/arkoon/etc/arkoon-config` default configuration file and define the `arkoon-amc.instance-name` parameter with the instance name:

```
# Arkoon Management Center (AMC) 'amc-main' configuration
# /etc/arkoon-amc/config/amc-main

include /opt/arkoon/etc/arkoon-config

arkoon-amc.instance-name = "amc-main"
```

Note

The `/opt/arkoon/etc/arkoon-config` default configuration file does not contain a certificate or a database. It is included in the configuration file for each instance and its parameters can be altered. This file is provided as an example in Section B.1, "Configuration File for an Instance Example".

Caution

The configuration file contains the passwords protecting the certificate files in clear text. Protect its security by restricting the Unix rights on the file.

3. Add the new AMC instance to the list of configured instances.

   The `/etc/arkoon-amc/config/amc-instances` file contains the list of instances configured as a list of instance names separated by spaces as follows:

   ```
   AMC_INSTANCES="amc-main amc-secondary"
   ```

4. Restart the`arkoon-amc` service.

   Once installed and configured, the `arkoon-amc` service starts automatically at machine start-up and stops when the machine is stopped or rebooted. You can force it to start using the following command:

   ```
   [root@amc-server root]# /etc/init.d/arkoon-amc restart
   Stopping arkoon-amc server:
   Starting arkoon-amc server:
     Starting [amc-main]:
       Checking database: no database configuration
       Starting akserver: amc-main:akserver
       Starting amanagerd: no certificate defined
       Starting srvmon: no certificate defined
       Starting akslave: no certificate defined
       Starting akstatsd: no certificate defined
     Creating cron config file: done
   ```

   At this stage of the configuration, the start command shows that no log database has been configured for the instance. Moreover, no certificate has been defined to enable the management and monitoring services to communicate with the appliances and management station.

   To restart the `arkoon-amc` service for the 'amc-main' instance only, use the following syntax:

   ```
   [root@amc-server root]# /etc/init.d/arkoon-amc restart amc-main
   ```

4.3. Creating a Certification Authority (CA)

The appliances and the administrator access the AMC server instance using Arkoon tools over secure network connections with the SSL (Secure Socket Layer) V3 protocol on the basis of X.509 certificates from the same Certification Authority.

Each AMC instance depends on a CA, which can be created especially for the instance on the AMC server. Otherwise, the instance can depend on a previously-defined CA. If this is the case, go directly to Section 4.4, “Installing a Certificate for the Instance”.

The Certification Authority on which the AMC instance depends is used to create certificates associated with the following:

- The AMC instance
- A different AMC instance
- A FAST360
- An administrator
- A user

Create the CA on the command line as follows:

```
[root@amc-server root]# /opt/arkoon/bin/arkoon_ca --amc-instance
<INSTANCE-NAME> -initca <CA-PEM-PHRASE> \
 <DN-O> <DN-OU> <DN-L> <DN-C> [<DN-CN>]
```

where, in general, DN-O is the name of the organization represented by the CA, DN-OU the department within the organization, DN-L the town and DN-C the country code (FR for example). CA-PEM-PHRASE is the passphrase (password) protecting access to the CA.

Caution

Since the password is given in a shell command, you may need to use an escape character before characters reserved by the shell (such as *, !, >, &, etc.).
Choose complex passwords and either remember them or keep them in a location with a high level of security (avoid post-it notes or saving in a non-protected file).

```
[root@amc-server arkoon]# /opt/arkoon/bin/arkoon_ca --amc-instance amc-main \
  -initca<my-secret-password>" "Arkoon Network Security" "AMC - amc-main" \
  "Lyon" "FR" "AMC CA [amc-main]"
                              Arkoon CA [v2]
                              --------------


Creation of /var/arkoon-amc/amc-main/arkoon-ca...ok
Creation of the other files and directories...ok
Random file initialisation (8192b of /dev/urandom)...ok
Private key generation (1024 bits)...
8192 semi-random bytes loaded
Generating RSA private key, 1024 bit long modulus
........++++++
..............................++++++
e is 65537 (0x10001)
Private key generation (1024 bits)...ok
Config file generation...ok
Self signed Certificate creation...
Self signed Certificate creation...ok
Config file generation...ok
New CRL generation...
Using configuration from /tmp/.arkoon-ca.JNsZwW
New CRL generation...ok
New CRL (/var/arkoon-amc/amc-main/arkoon-ca/crl.pem)...ok
CA Initialization...ok
```

A FIREWALLP certificate must then be created for the AMC instance. A FIREWALLS certificate must be created for each appliance to be connected to the instance. An ADMINRW certificate must be created for the instance administrator.

Note

The appliance certificates must be imported on each appliance to be connected to the instance. Refer to the FAST360 Administration guide for this procedure.

The appliances in HA (High Availability) mode will be configured with a unique appliance certificate.

The syntax of the command to create a certificate is:

```
[root@amc-server root]# /opt/arkoon/bin/arkoon_ca --amc-instance
<INSTANCE-NAME> -newcert <CA-PEM-PHRASE> \
 <DN-CN> <DN-M> <DN-O> <DN-OU> <DN-L> <DN-C> <DAYS> <PKCS12-FILE>
<PKCS12-PASSWD> \
  USER|ADMIN|ADMINRW|FIREWALLP|FIREWALLS
```

In addition to the parameters which are similar to those used to initialize the CA, DAYS is the number of days for which the certificate is valid, PKCS12-FILE is the name of the file in which the certificate is to be stored and PKCS12-PASSWD is the password protecting the PKCS#12 file.

Caution

The generation of a certificate in PKCS#12 format requires you choose a secure password to protect the certificate and the file is stored in a safe location. The PKCS#12 file generated contains information which is strictly confidential such as the private key used for authenticating and negotiating secure SSL connections. If divulged to a third-party, the certificate should be revoked.

```
[root@amc-server arkoon]# /opt/arkoon/bin/arkoon_ca --amc-instance amc-main \
  -newcert<my-secret-password>" "AMC server [amc-main]" "" "Arkoon Network Security" \
  "amc-main" "Lyon" "FR" 3650 /etc/arkoon-amc/certs/cert-amc-main.p12 \
  "<my-p12-secret>" FIREWALLP
                              Arkoon CA [v2]
                              --------------


Random file initialisation (8192b of /dev/urandom)...ok
Private key generation (1024 bits)...
8192 semi-random bytes loaded
Generating RSA private key, 1024 bit long modulus
....++++++
.....++++++
e is 65537 (0x10001)
Private key generation (1024 bits)...ok
Config file generation...ok
Request creation...
Request creation...ok
Config file generation...ok
Signing request file...
Using configuration from /tmp/.arkoon-ca.f1wC7n
Check that the request matches the signature
Signature ok
The Subject's Distinguished Name is as follows
countryName           :PRINTABLE:'FR'
localityName          :PRINTABLE:'Lyon'
organizationName      :PRINTABLE:'Arkoon Network Security'
organizationalUnitName:PRINTABLE:'amc-main'
commonName            :T61STRING:'AMC server [amc-main]'
Certificate is to be certified until Mar  5 10:49:41 2015 GMT (3650 days)

Write out database with 1 new entries
Data Base Updated
Signing request file...ok
Config file generation...ok
New CRL generation...
Using configuration from /tmp/.arkoon-ca.aJ8yCw
New CRL generation...ok
New CRL (/var/arkoon-amc/amc-main/arkoon-ca/crl.pem)...ok
Creating PKCS#12 file /etc/arkoon-amc/certs/cert-amc-main.p12...ok
```

Note
Once the certificates have been created for the AMC instance and the administrator, new certificates can be created using the Arkoon Manager graphic management interface.
For the management of certificates and administrator roles, refer to Section 4.5, “Initializing Administration Rights”.

Note
To change the PEM phrase of your certificate authority:
`/opt/arkoon/bin/arkoon_ca --amc-instance "instance_name" -passwd <OLD-CA-PEM-PHRASE><NEW-CA-PEm-PHRASE>`

4.4. Installing a Certificate for the Instance

An AMC instance must have a FIREWALLP certificate to establish secure SSL connections with the appliances and the management station. The various services for an instance will not start up without a certificate.

The certificate must have the following characteristics:

- Extension X509v3: Arkoon Firewall Certificate

  The X509v3 Arkoon Firewall Certificate extension is fixed when you create the certificate from a FAST360 appliance or the AMC server with FIREWALLP usage. If a third-party PKI is used, the following extension must be added to the certificate: `iso.org.dod.internet.private.enterprise.arkoon.sslcom.akCertUsage (1.3.6.1.4.1.8628.2.1)` with value 0x12.

- PKCS#12 Package

  The X509 certificate, the private key and the CA certificate which issued the certificate must be stored in a PKCS#12 package.

  Caution
  The generation of a certificate in PKCS#12 format requires a secure password to protect the certificate. The file must be stored in a safe location. The PKCS#12 file generated contains information which is strictly confidential such as the private key used for authenticating and negotiating secure SSL connections. If divulged to a third party, the certificate should be revoked.

The PKCS#12 file and the associated CRL (Certificate Revocation List) (if present) are configured as follows in the configuration file for the instance:

```
arkoon-amc.certificate.pkcs12 = /etc/arkoon-amc/certs/cert-amc-main.p12
arkoon-amc.certificate.passwd = "<my-secret-pkcs12-passwd>"
arkoon-amc.certificate.crl = /var/arkoon-amc/<instance_name>/arkoon-ca/crl.pem
```

Caution
Since this file contains the password to the PKCS12 file, its security must be protected and its access limited, for example by giving it restricted Unix rights such as 600/root/root.

You must then restart the arkoon-amc service for the changes to take effect.

4.5. Initializing Administration Rights

To remotely manage an instance of the AMC server using the Arkoon tools applications, an administrator needs a certificate signed by the instance's trusted Certificate Authority and administration roles be associated to this certificate.

The Administrator Access Control database of the instance is first initialized from the command line interface by associating the "All Permissions" role with a Management Certificate.

Note
The administrator whose certificate is provided during this procedure will have all the administration permissions and will perform any administration operation on the instance from Arkoon tools. Specifically, this administrator will be authorized to define administration authorizations to new administrators.

1. Copy the certificate of the main administrator in PEM format to the AMC server.
2. Enter the following command:

   ```
   /opt/arkoon/bin/access-control.sh --amc-instance <instance name> –init <certificate path>
   ```

   Now, the certificate has all permissions when you connect to Arkoon Manager.

The following example is for an instance with its own Certification Authority and the administrator's certificate being 02.pem:

```
---
root@amc-server root# /opt/arkoon/bin/access-control.sh --amc-instance amc-main -init
/var/arkoon-amc/amc-main/arkoon-ca/certs/02.pem
Access control
-----------------
Access control initialization with /var/arkoon-amc/amc-main/arkoon-ca/certs/02.pem
CN=MainAdministrator,OU=amc-main,O=Arkoon Network Security,L=Lyon,C=FR succeeded
---
"
```

4.6. Configuring the Log Centralization

This configuration is optional. If you want to activate it, the database server must previously have been installed as described above.

Centralizing the appliance logs for an AMC cluster requires a database is configured for the associated instance. In a multi-instances architecture, multiple instances can share the same database.

The example below shows how to initialize a database `amcdb`, which is accessible to the `amc-server` user (password `amc-password`):

Note
The user is specific to the MySQL database and is not necessarily a system user.

```
[root@amc-server root]# mysql -u root mysql
Reading table information for completion of table and column names
You can turn off this feature to get a quicker startup with -A

Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 40 to server version: 5.1.x

Type 'help;' or '\h' for help. Type '\c' to clear the buffer.

mysql> CREATE DATABASE amcdb;
Query OK, 1 row affected (0.00 sec)

mysql> GRANT ALL ON amcdb.* TO 'amc-server'@localhost IDENTIFIED BY 'amc-password';
Query OK, 0 rows affected (0.00 sec)

mysql> FLUSH PRIVILEGES;
Query OK, 0 rows affected (0.00 sec)

mysql> QUIT
Bye
```

To associate the database with an AMC instance, add the following lines in the configuration file for the instance:

```
arkoon-amc.db.enable = yes
arkoon-amc.db.database = "amcdb"
arkoon-amc.db.user = "amc-server"
arkoon-amc.db.password = "amc-password"
```

For example, to install the database on a remote server at IP address `192.168.1.20` on port `3306`, you would add the following lines to the configuration file for the instance:

```
arkoon-amc.db.host = 192.168.1.20
arkoon-amc.db.port = 3306
```

The AMC instance stores the alerts issued in the log database.

A log purge mechanism (similar to the one for FAST360 appliances) is available to control the size of the database. By default, this mechanism is disabled. You can enable it the following way:

```
arkoon-amc.akdbpurge.enable = yes
```

Caution

In a multi-instances architecture, multiple instances can share the same log database. The log purge mechanism must only be activated on one of the AMC instances.

By default, the logs less than 30 days old are kept in the database. This can be changed adding the following line to the instance configuration file:

```
arkoon-amc.akdbpurge.table.pxlogs.db-days = 10
arkoon-amc.akdbpurge.table.smtplogs.db-days = 10
arkoon-amc.akdbpurge.table.alerts.db-days = 40
arkoon-amc.akdbpurge.table.ids_alerts.db-days = 10
arkoon-amc.akdbpurge.table.logs.db-days = 20
```

Besides, the logs backups are kept 20 additional days. The log purge mechanism is triggered every day at 4 am. This time can be modified as follows:

```
arkoon-amc.akdbpurge.periodicity = 23:30
```

Restart the `arkoon-amc` service for the changes to take effect, and to initialize the database:

```
[root@amc-server root]# /etc/init.d/arkoon-amc restart
```

4.7. Configuring the System Logs Notification

By default, the system logs are not sent back to Arkoon Monitoring by an instance in real time. If you want to send the system logs in real time, you need to create a FIFO (First In, First Out) file and configure syslog and the AMC instance to use it as shown below:

1. Create a FIFO file:

   ```
   [root@amc-server root]# mknod /var/log/arkoon-syslog p
   ```

2. Change the ownership of the FIFO file (required if the AMC instance does not run as root. In this example, the AMC instance uses the privileges of the "arkoon" user):

   ```
   [root@amc-server root]# chown arkoon:arkoon /var/log/arkoon-syslog
   ```

3. Configure syslog to use the FIFO file. To do this, the line below must be added to the `/etc/syslog.conf` file :

   ```
   *.* |/var/log/arkoon-syslog
   ```

4. Configure the instance to use the FIFO file.

   ```
   arkoon-amc.srvmon.syslog-fifo-file = /var/log/arkoon-syslog
   ```

   Afterwards, the syslog and `arkoon-amc` services must be restarted for the changes to be taken into account.

5. Restart the syslog service:

   ```
   [root@amc-server root]# /etc/init.d/syslog restart
   ```

6. Restart the `arkoon-amc` service:

   ```
   [root@amc-server root]# /etc/init.d/arkoon-amc restart
   ```

4.8. Configuring the Network Parameters

By default, AMC instance services listen to all IP server addresses (0.0.0.0) and on the default TCP ports: 1750 (Administration, `amanagerd`), 1751 (Supervision, `srvmon`), 1754 (FAST360 appliances, `akslave`) and 1759 (Arkoon Super Server over SSL, `akserver-over-ssl`).

For multiple AMC instances to co-exist on the same server, this default configuration must be changed so that each instance uses distinct IP addresses or ports.

Configure the IP address to listen to in the AMC instance configuration file, for example:

```
arkoon-amc.bind-ip = 192.168.1.30
```

Configure the TCP ports in the AMC instance configuration file, for example:

```
arkoon-amc.akman_port = 2750
arkoon-amc.akmon_port = 2751
arkoon-amc.akslave_port = 2754
arkoon-amc.akstats_port = 2757
arkoon-amc.akserver_ssl_port = 2759
```

Restart the `arkoon-amc` service for the changes to take effect.

4.9. Configuring Arkoon Reporting Data Management

The Arkoon Reporting tool uses XML data to generate reports. These XML data are automatically generated daily based on databases logs.

Four parameters enable to configure XML data management:

- `# max xml data size in Mo store on AMC arkoon-amc.akstatsd.xml-max-size = 200`
- `# max duration for xml data store on AMC arkoon-amc.akstatsd.xml-max-days = 60`
- `# daily time of xml data check (size and duration) arkoon-amc.akstatsd.cleanperiodicity = 01:00`
- `# daily time of xml data generation arkoon-amc.akstatsd.xml-periodicity = 01:05`

Note
The Arkoon Reporting tool enables to generate statistics based on a limited number of data logs coming from the FAST360 appliance.
If you want to analyze a large number of FAST360 logs, contact the Arkoon Technical Support Service to have a list of interoperable products.

4.10. Configuring a Global Monitoring Instance

A global monitoring instance monitors the status of FAST360 appliances on multiple AMC clusters from a single Arkoon Monitoring connection. A global monitoring instance monitors the FAST360 appliances GOR status on multiple AMC clusters from a single Akoon Monitoring connection.

To configure it, specify the global instance network parameters and the parameters for monitored instances in the configuration file for the global instance:

```
arkoon-amc.bind-ip = 192.168.1.30

arkoon-amc.akmon_port = 3751
arkoon-amc.akstats_port = 3757

arkoon-amc.srvmon.objects-file.0 = /var/arkoon-amc/france/srvmon.conf
arkoon-amc.srvmon.slaves-dir.0 = /var/arkoon-amc/france/slaves

arkoon-amc.srvmon.objects-file.1 = /var/arkoon-amc/usa/srvmon.conf
arkoon-amc.srvmon.slaves-dir.1 = /var/arkoon-amc/usa/slaves

arkoon-amc.srvmon.objects-file.2 = /var/arkoon-amc/japan/srvmon.conf
arkoon-amc.srvmon.slaves-dir.2 = /var/arkoon-amc/japan/slaves

arkoon-amc.srvmon.objects-file.3 = /var/arkoon-amc/germany/srvmon.conf
arkoon-amc.srvmon.slaves-dir.3 = /var/arkoon-amc/germany/slaves

[...]
```

Note
In this example, `france`, `usa`, `japan` and `germany` are the names of the monitored instances. The numbering has no functional meaning and is only used to distinguish the instances in this file.

If the instances being monitored are not started by the same user, the user specified for the global monitoring instance must have the right to access the user files for these instances. Refer to the RedHat documentation for instructions on changing the access rights.

Restart the `arkoon-amc` service for the changes to take effect:

```
[root@amc-server root]# /etc/init.d/arkoon-amc restart
```

Note

For the Super instance to access the instance log, you must configure the same database in the Super instance as in any other instance. All the logs are then stored in the same database.

Chapter 5. Using AMC Server

5.1. Starting and Stopping

Once installed and configured, the `arkoon-amc` service starts automatically at machine start-up and stops when the machine is stopped or rebooted.

For a configuration change to take effect, the `arkoon-amc` service must be restarted using the following command:

```
[root@amc-server root]# /etc/init.d/arkoon-amc restart
Stopping arkoon-amc server:
Stopping [amc-main]:
Stopping akserver: amc-main:akserver Stopping amanagerd: amc-main::amanagerd
Stopping srvmon: amc-main::srvmon
Stopping akslave: amc-main::akslave
Stopping akstatsd: amc-main::akstatsd
Starting arkoon-amc server:
Starting [amc-main]:
Checking database [amcdb]: done
Syncing IDPS profiles and rules in database: done
Starting akserver: amc-main:akserver
Starting amanagerd: amc-main::amanagerd
Starting srvmon: amc-main::srvmon
Starting akslave: amc-main::akslave
Starting akstatsd: amc-main::akstatsd
Creating cron config file: done
```

Note

To restart a single instance (for example 'amc-main') specify its name on the command line:

```
[root@amc-server root]# /etc/init.d/arkoon-amc restart amc-main
```

5.2. Connecting Arkoon tools to an AMC Instance

Connecting to an AMC server instance from the Arkoon Manager, Arkoon Monitoring and Arkoon Reporting tools requires an administrator certificate (ADMIN or ADMIN/RW) and uses the ports defined in the configuration.

5.3. Connecting a FAST360 Appliance to an AMC Instance

The connection from a FAST360 appliance to an AMC instance is configured on the appliance in minarkconf (Configuration / Master/Slave (Config) menu). The appliance must be configured as "slave", the AMC server is the "master".

This minarkconf option allows you to:

1. Specify the slave status for the FAST360 appliance.

   To highlight the status required, use the keyboard arrows.

   To activate your selection, press the space bar. When the highlighted option is activated, a cross is displayed between the option's square brackets.
2. Specify the address of the AMC server (which is to play the role of "master") in the dialog box which follows (admin from). If the AMC server can be accessed by multiple IP addresses, you can specify all of them by separating them with spaces.

Note
For more details on master/slave configuration, refer to the Multi-Fast360 section in the *FAST360 Administration guide*.

Once connected to the server, the FAST360 appliance appears in the Arkoon Manager.

You need to configure the FAST360 appliance again before installing the configuration (for more information, refer to the *FAST360 Administration guide*).

5.4. Flushing MySQL Database

Important
The MySQL database is used by the AMC server to store logs but it is not an AMC server component. MySQL databases administration is not performed by the AMC server, and the database administrator remains responsible for it.

The data can be cleared from each database (IP, Alert, SMTP relay, and HTTP relay) via Arkoon Monitoring by clicking on  : the data are cleared but not the database indexes.

In order to clear the data and the database indexes:

- Connect on the AMC server using the console.
- Execute the following commands:
  - Stop AMC service: `/etc/init.d/arkoon-amc stop`
  - Stop mysqld service: `/etc/init.d/mysqld stop`
  - Clear instance tables: `rm -rf /var/lib/mysql/<instanceDBName>/*`

    Note
    Replace <instanceDBName> by the name of the instance database for which you want to flush the logs.
  - Start mysqld service: `/etc/init.d/mysqld start`
  - Start AMC service: `/etc/init.d/arkoon-amc start`

The tables are recreated while the service restarts.

5.5. Restarting an AMC Service

To stop, start or restart an AMC service, you can browse to the **Maintenance/Diagnosis** window in Arkoon Monitoring.

You can also use the following command line with the `srvmon/akserver` services:

```
ARKOON_AMC_INSTANCE=<instance_name>  /opt/arkoon/init.d/<service>  [stop|start|restart]
```

5.6. Managing appliances Updates

The AMC server cannot be used as an update server for FAST360 appliances. However, you can launch modules or system updates for the appliances from the **Arkoon Monitoring Update** window.

To do so, you must select the appliances to update from the hierarchical view and then launch the update: the AMC requests the update to the appliances.

It is not possible to follow the update progress and result from the AMC Arkoon Monitoring.

For a system update, you must select the appliances sharing the same distribution.

Note
For a cluster, only the active appliance is updated. You must manually log on the second node to update it.

Chapter 6. Auditing the AMC Server

The `arkoon-amc` package has a diagnostic command which analyzes the status and configuration of the package. The following is checked:

- **Package integrity (compared with a reference database contained within the package)**
- **Server status**
- **Validity of configured instances**
  - **Configuration validity**
  - **Connection with the database**
  - **Status of daemons**

The server and AMC instances can generate alerts concerning their own operation which can be displayed from Arkoon Monitoring (Malfunction of a service, Management connection, Creation/ Revocation of a certificate, etc.).

6.1. Diagnostic Command

To carry out a diagnostic from the command line:

```
[root@amc-server root]# /opt/arkoon/bin/amc-diag.sh
arkoon-amc package diag
-----------------------

Version: 3.2AMC-050302_1740
Distrib: Red Hat Enterprise Linux ES release 3 (Taroon Update 4)
Package: arkoon-amc-3.2AMC-050302_1740

Checking package integrity: done (success)

Checking amc server status: started

Configured AMC instance(s): amc-main
Running AMC instance(s): amc-main

Instance 'amc-main':
  Checking instance name: done
  Checking configuration: done
  Checking database: done
  Status: running
    akserver          started [20001 20002]
    amanagerd         started [20017]
    srvmon            started [20042 20060 20061 20062 21738]
    akslave           started [20070]
    akstatsd          started [20097]

Success - no error found
```

6.2. Alerts

By default, the alerts are sent to the system logs using syslog with the name of the instance:

```
Mar  7 12:45:10 amc-server srvmon[28584]: ALERT - amc-instance:'arkoon'
type:'Admin Connection' level:'None (Information)' descr:'Monitoring:
10.10.192.34:58634' admin:'/C=FR/L=Lyon/O=Arkoon Network Security/OU=IP
- MLA/CN=User Name'
```

If you have defined a database, the alerts issued by the AMC server are also stored in the database belonging to its instance.

Chapter 7. Maintaining AMC Server

To maintain the AMC server :

- **Back up the AMC server data**
- **Restore the AMC server data**
- **Update the `arkoon-amc` package**
- **Remove the `arkoon-amc` package**

7.1. Backing up AMC Server Data

It is recommended to backup the AMC server data in case of a crash of the server hardware or operating system. The AMC server data is stored in the following directories:

- `/etc/arkoon-amc`
- `/var/arkoon-amc`
- `/var/lib/mysql`

Caution
The database stored in `/var/lib/mysql` may require a large amount of backup storage space.

7.1.1. Backing up All Configuration Files

Use the following command to backup the AMC server and all configured instances:

```
amc-backup
```

7.1.2. Backing up Certificate Authority only

Use the following command to backup the Certificate Authority for an instance:

```
tar czvf /tmp/CA_AMC.tgz /var/arkoon-amc/"instance_name"/arkoon-ca
```

7.1.3. Backing up Role Management Database only

Use the following command to backup the roles database for an instance:

```
cd /var/arkoon-amc/"instance_name"/

tar czvf /tmp/Acces_Control_Database.tgz roleconfig roleconfig_history role_current
```

7.2. Restoring AMC Server Data

In order to restore an AMC server, you have to stop `arkoon-amc` and `mysq` servicesl, and restore the backup up directory content in their original directories. Then, you only have to restart mysql and `arkoon-amc` services to have a working AMC server.

7.2.1. Restoring All Configuration Files

Use the following command to restore the server AMC configuration:

```
tar xzvf /tmp/AMC_full_backup.tgz -C /
```

7.2.2. Restoring Certificate Authority only

Use the following command to restore the CA of an instance:

```
tar xzvf /tmp/CA_AMC.tgz -C /
```

7.2.3. Restoring Role Management Database only

Use the following command to restore the roles database of an instance:

```
tar xzvf /tmp/Access_Control_Database.tgz -C /var/arkoon-amc/"instance_name"/
```

7.3. AMC Server update

The AMC Server update procedure can be generated via the Update and Migration Help tool, available from the Customer Area: http://client.arkoon.net/.

On page “Update and Migration Help”, select the following criteria to generate the procedure:

- Is your appliance connected to the Internet?: Connected or Disconnected
- What action do you wish to perform?: Update
- Current topology: An AMC server acts as configuration master
- Current architecture: AMC Server. Select the current version of your AMC server
- Target architecture: AMC Server

7.4. Removing arkoon-amc Package

To remove the `arkoon-amc` package, use the following command:

```
[root@amc-server root]# rpm -e arkoon-amc
Stopping arkoon-amc server:
  Stopping [amc-main]:
    Stopping akserver: amc-main:akserver
    Stopping amanagerd: amc-main:amanagerd
    Stopping srvmon: amc-main:srvmon
    Stopping akslave: amc-main:akslave
    Stopping akstatsd: amc-main:akstatsd
warning: /etc/arkoon-amc/config/amc-instances saved as /etc/arkoon-amc/config/amc-instances.rpmsave
```

The configuration files (`/etc/arkoon-amc`) and directories (`/var/arkoon-amc`) are not deleted when the package is removed. If you want to delete them, do so after the package has been removed:

```
[root@amc-server root]# rm -rf /etc/arkoon-amc /var/arkoon-amc
```

Chapter 8. Terminology

8.1. Terminology

This section introduces the terminology specific to the AMC architecture which is used throughout the document.

Administrator. Person who works on a FAST360 appliance or AMC server to initialize and configure them, install the security policies to be implemented and carry out monitoring and maintenance. In the documentation, these tasks are assumed to be carried out by a single person – the administrator. In practice, the various management tasks on a FAST360 system may be shared among several administrators.

AMC server. Server management and monitoring platform for FAST360 appliances on which the AMC platform, supplied as the `arkoon-amc` installation package, has been installed and configured. It manages and monitors one or more AMC clusters made up of FAST360 multiservices security appliances.

AMC cluster. Specified group of FAST360 appliances managed and monitored under the control of a given Certification Authority. A single configuration file stored on the AMC server is shared by the appliances in a cluster.

AMC instance. Software service on the AMC server responsible for controlling an AMC group. Each instance is configured and installed independently on the AMC server.

arkoon-amc. Installation package containing the software components required for the operation of the AMC server.

Global AMC instance. AMC instance which consolidates the information from multiple AMC instances. A global AMC instance allows a group of AMC clusters to be monitored.

GOR (Green – Orange – Red) status. Status of a FAST360 appliance. Green status indicates normal operation. Orange status corresponds to a warning (e.g. license about to expire). Red status means a critical problem (e.g. defective service on the appliance).

Management station. Workstation on which the FAST360 monitoring and management tools (Arkoon Manager, Arkoon Monitoring and Arkoon Reporting) are installed. These tools interface directly with a FAST360 appliance or an AMC instance to manage AMC clusters.

Appendix A. Migration Cases

A.1. Migrating from an AMC server to a new AMC or VAMC server

In case you wish to change the machine of your AMC server or if you wish to switch from a physical server to a virtual server, the migration procedure can be generated via the Update and Migration Help tool, available from the Customer Area: http://client.arkoon.net/.

On page “Update and Migration Help”, select the following criteria to generate the procedure:

- Is your appliance connected to the Internet?: Connected or Disconnected
- What action do you wish to perform?: Hardware migration (or migration to AMC Server)
- Current topology: an AMC server acts as configuration master
- Current architecture: AMC Server. Select the current version of your AMC server
- Target architecture: AMC Server or Virtual AMC Server

A.2. Migrating the master role from the Fast360 appliance to an AMC server

The migration procedure of a master/slave architecture to an architecture with an AMC server can be generated via the Update and Migration Help tool, available from the Customer Area: http://client.arkoon.net/.

On page “Update and Migration Help”, select the following criteria to generate the procedure:

- Is your appliance connected to the Internet?: Connected or Disconnected
- What action do you wish to perform?: Hardware migration (or migration to AMC Server)
- Current topology: an appliance acts as configuration master
- Current architecture: select the model and current version of your master appliance
- Target architecture: AMC Server

A.3. Migrating from a standalone appliance to a slave appliance of a new AMC instance

The procedure can be generated via the Update and Migration Help tool, available from the Customer Area: http://client.arkoon.net/.

On page “Update and Migration Help”, select the following criteria to generate the procedure:

- Is your appliance connected to the Internet?: Connected or Disconnected
- What action do you wish to perform?: Hardware migration (or migration to AMC Server)
- Current topology: Standalone appliance
- Current architecture: select the model and current version of your appliance
- Target architecture: AMC Server

Appendix B. Configuration file

B.1. Configuration File for an Instance Example

This example shows how the configuration file for an instance should be written. The `include` line is mandatory. It includes into the configuration all the default parameters from the `/opt/arkoon/etc/arkoon-config` file shown in the following section. The default parameters may be redefined with new values.

```
# Arkoon Management Center (AMC) 'sample' configuration

include /opt/arkoon/etc/arkoon-config

arkoon-amc.instance-name = sample
arkoon-amc.user = root

arkoon-amc.certificate.pkcs12 = /etc/arkoon-amc/certs/cert_amc.p12
arkoon-amc.certificate.passwd = "my-secret-password"
arkoon-amc.certificate.crl = /var/arkoon-amc/<instance_name>/arkoon-ca/.pem

# enable amc server alerts to be logged inside database
arkoon-amc.db.enable = yes
arkoon-amc.db.database = amcdb
arkoon-amc.db.user = amc-server
arkoon-amc.db.password = "my-db-password"

# if this instance is the first using this database, activate nightly
# database exports and flush
arkoon-amc.akdbpurge.enable = yes
```

B.2. Configuration File to Be Included: arkoon-config

Using the `include` command to include the `/opt/arkoon/etc/arkoon-config` file in the instance configuration file initializes the default parameters.

You can open the file to see all the default parameters.


Fast360
NETWORK SECURITY


ARKOON
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