

# Media Management and Analysis Platform

Software Version 12.1

## Installation Guide



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This product includes components that use Twitter Bootstrap (<http://getbootstrap.com/>), by @mdo (<https://twitter.com/mdo>) and @fat (<https://twitter.com/fat>).

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# Contents

Chapter 1: Introduction .....	5
Media Management and Analysis Platform (MMAP) .....	5
IDOL Media Server .....	5
The MMAP REST API .....	6
Micro Focus Media Player .....	7
Media Player Supported Browsers .....	7
Chapter 2: Install Media Management and Analysis Platform .....	8
System Requirements .....	8
Dependencies .....	8
Prerequisites .....	9
Install Media Management and Analysis Platform .....	10
Configure a PostgreSQL Event Datastore .....	11
Prerequisites .....	11
Install PostgreSQL .....	11
Configure MMAP to use PostgreSQL .....	12
Create the MMAP Database Schema in PostgreSQL .....	14
Configure Media Application .....	15
Chapter 3: Start Media Management and Analysis Platform .....	17
Verify MMAP is Running .....	17
Troubleshooting .....	18
Next Steps .....	18
Chapter 4: Upgrade MMAP .....	19
Before You Begin .....	19
Perform the Upgrade .....	19
Upgrade the Database Schema .....	20
Send documentation feedback .....	21



# Chapter 1: Introduction

This section provides an overview of the Micro Focus Media Management and Analysis Platform (MMAP).

## Media Management and Analysis Platform (MMAP)

The Media Management and Analysis Platform (MMAP) is a media analytics platform designed for viewing, searching, and analyzing video footage from a variety of sources, typically CCTV surveillance camera footage and broadcast footage from IP streams.

MMAP offers source management features, where you can organize cameras or TV channels in folders and sub-folders. You can record and view video footage from any supported source at a later point.

Clients use a rich set of REST APIs to access and modify source, recorder, and video stream information. You can then view live and archive video streams from a web browser, with advanced playback capabilities such as fast forward, fast rewind, live pause, and fast seeking.

MMAP combines these video stream viewing capabilities with the video analytics capabilities of IDOL Video, where you can create events based on object detection and scene analysis. You can retrieve these events by using the REST API, and you can view the associated video footage in a web browser.

You can analyze video that contains audio (for example, broadcast footage), and extract audio transcripts. You can then use the Optical Character Recognition (OCR), face recognition, and Automatic Number Plate Recognition (ANPR) features of IDOL Video to further enhance the information extracted from the footage.

The purpose of the Media Management and Analysis Platform is to provide a standard interface for these tasks.

## IDOL Media Server

IDOL Media Server can ingest video from files and IP streams. Many devices (such as IP cameras, network encoders, and IPTV devices) can produce IP streams. Media Server can also request video from third-party video management systems, such as Milestone XProtect. Media Server provides automatic processing that reduces the operator's workload and can help them respond to suspicious events.

Media Server can run many types of analysis, including:

- Automatic Number Plate Recognition (ANPR)
- Barcode recognition
- Color analysis
- Face detection, recognition, demographic, and expression analysis

- Scene analysis
- Keyframe analysis
- Object recognition and object class recognition
- Image classification
- Optical Character Recognition (OCR)
- Speaker identification
- Speech-to-text
- Vehicle Model identification

Media Server can encode the video that it ingests, so that operators can review suspicious events at a later time and video is available to prosecute offenders. Media Server can output the metadata that it extracts to many formats and systems, including:

- IDOL Server
- Vertica
- XML

For more information about IDOL Media Server, refer to the *Media Server Administration Guide*.

## The MMAP REST API

The Media Management and Analysis Platform includes a REST API that can be used to:

- Manage video sources (for example, cameras and channels), organized in a hierarchical tree structure
- Manage video recorders, by assigning recorders to video sources
- Store custom metadata associated with the sources or recorders (for example, camera model and manufacturer)
- Play back archive and live footage by using HTTP Live Streaming (HLS) or Real Time Streaming Protocol (RTSP), and pause live content
- Start and stop recording on demand
- View video streams with varying speed (fast or slow), forwards or backwards
- Extract frames from video and save them as images
- Generate video clips from archive footage
- Use the Micro Focus Media Player browser plugin to watch video in the Google Chrome and Internet Explorer web browsers. Alternately, the Micro Focus Media Element can use the browser's own native HTML5 player for MIME types that it understands

## Micro Focus Media Player

MMAP includes the Micro Focus Media Player component that allows for live and archive video of the managed sources in the system.

The Media Player consists of a browser plugin for Google Chrome that allows for playback of video within the browser, as well as AngularJS directives which you can use to embed the player (with custom drawn playback controls) into a HTML5 page.

The AngularJS directives use the Media Element internally, which is a JavaScript wrapper that mimics the HTML 5 MediaElement API. This means that to use the Media Player, you can write normal HTML 5 `<video>` elements, and depending on the MIME type of the source, it will display the correct player.

The Media Player supports the following types of content:

- **Content natively supported by browser's HTML 5 player.** The Media Element uses the browser's own native player for MIME types that the browser's own native player understands. Media Element acts as a polyfill around the native media element, to add functionality such as switching the Media Element implement when changing source.
- **Live and Archive HLS streams generated by IDOL Media Server.** Media Player uses Google Native Client for its playback functionality. No additional download and installation process is required to use the player in any Google Chrome supported webpage when playing HLS streams generated by IDOL Media Server.

## Media Player Supported Browsers

The Micro Focus Media Player is supported on the following browsers:

- Google Chrome - supports only HLS playback and any video stream that the browser native player supports.

# Chapter 2: Install Media Management and Analysis Platform

This section describes how to install the Media Management and Analysis Platform (MMAP).

## System Requirements

This section describes the system requirements for the Media Management and Analysis Platform. The Media Management and Analysis Platform must be hosted by:

- A JBoss enterprise application server (JBoss EAP 6.2.0).
- A fully compliant Java 7 or later Runtime Environment.

### NOTE:

Check the Red Hat JBoss EAP documentation for information on supported versions of Java Runtime for JBoss EAP 6.2.0.

## Dependencies

This section describes the dependencies for the Media Management and Analysis Platform:

- IDOL Media Server version 12.1. MMAP 12.1 is not compatible with earlier versions of IDOL Media Server.

## Minimum Server Requirements

The minimum server requirements depend on many variables, such as the frequency of requests that Media Management and Analysis Platform must serve. The following are minimum requirements but there may be additional requirements. Micro Focus recommends that you refer to the documentation for JBoss EAP 6.2.0.

- 1.4 GHz dual-core processor
- 4 GB RAM
- 20 GB free disk space



## Prerequisites

Before installing the Media Management and Analysis Platform, collect the following components. You must use the same versions as shown below:

- **Media Management and Analysis Platform**

File name: `mmap-all-12.1.0.zip`  
Download from: Micro Focus [MySupport portal](#)

- **Java Runtime Environment (JRE)**

A fully compliant Java 7 (or later) Runtime Environment is required.

**NOTE:**

Check the Red Hat JBoss EAP documentation for information on supported versions of Java Runtime for JBoss EAP 6.2.0.

Download from: <http://www.oracle.com/technetwork/java/javase/downloads>

- **JBoss EAP 6.2.0 (exact version)**

JBoss EAP is an enterprise application server that is used to host the Media Management and Analysis Platform.

File name: `jboss-eap-6.2.0.zip`  
Download from: <http://www.jboss.org/products/eap/overview/>  
MD5: `03ec01654cf4aee8c8e26313fae68c16`

- **ModeShape 3.8.1.Final subsystem for EAP 6.2.0.GA (exact version)**

ModeShape is a content repository that stores information for the Media Management and Analysis Platform.

File name: `modeshape-3.8.1.Final-jbosseap-dist.zip`  
Download from: <http://modeshape.jboss.org/downloads/downloads3-8-1-final.html>  
MD5: `67eec4695d4b30b8e8706dff01676f24`

- **RestEasy JBoss Modules 3.0.5 (exact version)**

RestEasy JBoss Modules provide features required to host the application's REST API.

File name: `resteasy-jaxrs-3.0.5.Final-all.zip`

Download from: <http://sourceforge.net/projects/resteasy/files/Resteasy%20JAX-RS/3.0.5.Final/>

MD5: `6b30e854b4c873ab117e348a1700c4a6`

- Extract the following file from the `resteasy-jaxrs-3.0.5.Final-all.zip` archive for use in step 6 of the MMAP installation. See [Install Media Management and Analysis Platform, below](#).

File name: `resteasy-jboss-modules-3.0.5.Final.zip`

MD5: `467891e4e3f1c2bb92a981ecbc8c4e6a`

## Install Media Management and Analysis Platform

Extract the contents of the prerequisite archive files into the indicated directories.

### To install MMAP

1. Install the Java 7 or later Runtime Environment.

**NOTE:**

Check the Red Hat JBoss EAP documentation for information on supported versions of Java Runtime for JBoss EAP 6.2.0.

2. Ensure that all IDOL Media Servers in the MMAP environment are running version 10.11 or later. [Dependencies, on page 8](#)
3. Create a directory path for the MMAP installation.

### Windows

`x:\mmap`

where `x`: is a volume letter.

### UNIX

`/mmap`

4. Extract the JBoss EAP 6.2.0 archive (`jboss-eap-6.2.0.zip`) into the `/mmap` directory.  
This creates a directory named `jboss-eap-6.2`.
5. Extract ModeShape 3.8.1.Final archive (`modeshape-3.8.1.Final-jbosseap-dist.zip`) into the `/mmap/jboss-eap-6.2` directory.  
When prompted to allow the merging of directories and replacing of files, click **OK**.
6. Extract the RestEasy JBoss Modules 3.0.5 files to a temporary location.

This creates a directory named `resteasy-jaxrs-3.0.5.Final`.

- a. Navigate to the `resteasy-jaxrs-3.0.5.Final` directory.

This directory contains the RestEasy JBoss Modules 3.0.5 (`resteasy-jboss-modules-3.0.5.Final.zip`) archive file.

- b. Extract the RestEasy JBoss Modules 3.0.5 archive (`resteasy-jboss-modules-3.0.5.Final.zip`) into the `/mmap/jboss-eap-6.2/modules/system/layers/base` directory.

When prompted to allow the merging of directories and replacing of files, click **OK**.

7. Extract the MMAP 12.1 archive (`mmap-all-12.1.0.zip`) into the `/mmap/jboss-eap-6.2` directory.

When prompted to allow the merging of directories and replacing of files, click **OK**.

## Configure a PostgreSQL Event Datastore

MMAP uses a database to store analytic events generated by Media Server (for example, transcription data). By default, MMAP is configured to use an embedded H2 database that can be used for initial testing purposes; however, you must install and configure a PostgreSQL event datastore for use in production systems.

### Prerequisites

- **PostgreSQL**

To use PostgreSQL for the event datastore, you must install the PostgreSQL for your platform. For installation instructions, see your PostgreSQL documentation.

Download from: <http://www.postgresql.org/>

- **PostgreSQL JDBC driver**

The PostgreSQL JDBC driver version binary JAR file must match the database server being used.

Download from: <https://jdbc.postgresql.org/download.html>

### Install PostgreSQL

Install the PostgreSQL database server for your platform. For more information, see your PostgreSQL documentation.

During installation and configuration of PostgreSQL, take note of the following items. These items are required later during configuration of MMAP to use the PostgreSQL server.

- Database name
- Host
- Port
- User name
- Password

## Configure MMAP to use PostgreSQL

Configure MMAP to use PostgreSQL as its event datastore.

### To configure MMAP to use PostgreSQL

1. In the /mmap/jboss-eap-6.2 directory created in step 1 of [Install Media Management and Analysis Platform, on page 10](#), navigate to the modules/org subdirectory.
2. In the modules/org directory, create a directory structure as follows:  
postgresql/main
3. Copy the PostgreSQL JDBC driver .jar file into the postgresql/main directory.
4. In the main directory, create a file named module.xml with the following content:

```
<?xml version="1.0" encoding="UTF-8"?>
<module xmlns="urn:jboss:module:1.0" name="org.postgresql">
  <resources>
    <resource-root path="postgresql-9.1-903.jdbc4.jar"/>
  </resources>
  <dependencies>
    <module name="javax.api"/>
    <module name="javax.transaction.api"/>
  </dependencies>
</module>
```

**NOTE:** The `<resource-root path="postgresql-9.1-903.jdbc4.jar"/>` parameter is the .jar file name for the PostgreSQL JDBC driver version. Replace resource-root path with the .jar file name downloaded in [Prerequisites, on the previous page](#).

5. Save the module.xml file.
6. In the /mmap/jboss-eap-6.2 directory, navigate to the standalone/configuration directory and open avalanche.xml in a text editor.
  - a. Add three new system properties in the `<system-properties>` section:

```
<property name="hibernate.dialect"
value="org.hibernate.dialect.PostgreSQL82Dialect"/>
```

```
<property name="avalanche.vms.database.timezone" value="UTC"/>
<property name="hibernate.hbm2ddl.auto" value=""/>
```

- b. Replace the following `<datasources>` section that uses H2:

```
<datasource jndi-name="java:/datasources/EventsDS" pool-name="EventsDS"
enabled="true" use-java-context="true">
  <connection-url>jdbc:h2:file:${jboss.server.data.dir}/h2/events;AUTO_
SERVER=TRUE;
INIT=runscript from
'classpath:/com/autonomy/avalanche/persistence/h2/init.sql'\;</connectio
n-url>
  <driver>h2</driver>
  <security>
    <user-name>${avalanche.vms.database.user:sa}</user-name>
    <password>${avalanche.vms.database.password:sa}</password>
  </security>
</datasource>
```

with the following `datasource` that uses PostgreSQL:

```
<datasource jndi-name="java:/datasources/EventsDS" pool-name="EventsDS"
enabled="true" use-java-context="true">
  <connection-url>jdbc:postgresql://host:port/events</connection-url>
  <driver>postgresql</driver>
  <security>
    <user-name>${avalanche.vms.database.user:sa}</user-name>
    <password>${avalanche.vms.database.password:sa}</password>
  </security>
</datasource>
```

In the `connection-url` section, replace the following settings with the information that you saved when you installed PostgreSQL.

- Replace `host` with the host name of your server.
- Replace `port` with the port number that the PostgreSQL communicates on.
- Replace `events` with the database name.

In the `security` section, replace the following settings with the information that you saved.

- Replace `user-name` with the user name of a user account created for the PostgreSQL database.
- Replace `password` with the password of the user account.

For example:

```
<datasource jndi-name="java:/datasources/EventsDS" pool-name="EventsDS"
enabled="true" use-java-context="true">
  <connection-url>jdbc:postgresql://localhost:5432/postgres</connection-
```

```
url>
  <driver>postgresql</driver>
  <security>
    <user-name>${avalanche.vms.database.user:postgres}</user-name>
    <password>${avalanche.vms.database.password:myPassword}</password>
  </security>
</datasource>
```

- c. Add a new driver property in the `<drivers>` section:

```
<driver name="postgresql" module="org.postgresql">
  <xa-datasource-class>org.postgresql.xa.PGXADatasource</xa-datasource-
class>
</driver>
```

7. Save the `avalanche.xml` file.
8. Restart the JBoss application server.

## Create the MMAP Database Schema in PostgreSQL

The MMAP archive contains the following SQL scripts that create the MMAP database schema in PostgreSQL:

- `schema.sql`
- `stored-procedures.sql`
- `searchable-text.sql`
- `partition-word-table.sql`

### To run the SQL scripts on Windows

- Open a command-line window and use the tool `psql.exe` (supplied in the `bin` directory of your PostgreSQL installation) to run each script. Ensure that you run `schema.sql` first. You can use the following command:

```
psql.exe -f <path-to-script> -d<database> --username=<user>
```

where,

- `<path-to-script>` is the path of the script.
- `<database>` is the database name.
- `<user>` is the user account created for the PostgreSQL database.

This will run the script against the PostgreSQL instance listening on the default port (5432).

For example:

```
psql.exe -f c:\mmap\jboss-eap-6.2\sql\postgresql\schema.sql -dpostgres --
username=postgres
```

```
psql.exe -f c:\mmap\jboss-eap-6.2\sql\postgresql\stored-procedures.sql -dpostgres  
--username=postgres
```

```
psql.exe -f c:\mmap\jboss-eap-6.2\sql\postgresql\searchable-text.sql -dpostgres -  
-username=postgres
```

```
psql.exe -f c:\mmap\jboss-eap-6.2\sql\postgresql\partition-word-table.sql -  
dpostgres --username=postgres
```

When prompted, type the password for the user.

### To run the SQL scripts on UNIX

1. Run the script `schema.sql` by typing the following commands, where `<database>` is the database name.

```
sudo su - postgres  
psql -hlocalhost -d<database> -f schema.sql
```

**TIP:** The `-f` parameter accepts either an absolute path or a path relative to the current directory. For more information about `psql` parameters, refer to the PostgreSQL documentation.

The script runs against the PostgreSQL instance listening on the default port (5432).

2. Run the scripts `stored-procedures.sql`, `searchable-text.sql`, and `partition-word-table.sql`:

```
psql -hlocalhost -d<database> -f stored-procedures.sql  
psql -hlocalhost -d<database> -f searchable-text.sql  
psql -hlocalhost -d<database> -f partition-word-table.sql
```

## Configure Media Application

You can configure the Media application by using a custom `config.json` file.

Set the `com.hpe.media.api.config.path` system property to an absolute path to the location of your `config.json` file. For example, you can do this by using JBoss CLI:

```
./<JBoss dir>/jboss-cli.sh -c "/system-property=com.hpe.media.api.config.path:add  
(value=/path/to/your.json)"
```

If you use JBoss CLI to set a system property, you do not need to restart JBoss.

### NOTE:

The contents of the `config.json` file must match the JSON specification. The JSON specification does not allow comments, and strings must be enclosed with double quotation marks, not single quotation marks.

The JSON included can contain the following properties (not all properties need to exist). The following example code shows the default values if they are not set:

```
{
  "version": "11.3.0",
  "app": {
    "name": "IDOL Find",
    "url": "http://demo.havendemo.com/bifhi/"
  },
  "search": {
    "url": "http://demo.havendemo.com/bifhi/public/search/query/{{query |
encodeURIComponent}}"
  },
  "player": {
    "src": "../player/plugins/mediaElement.nmf"
  },
  "mmap": {
    "api": "../vms/api/v1"
  }
}
```

where:

- `version` is the version number of the application. This is currently unused.
- `app.name` is the application name, which is displayed in the bar at the top of the Media application.
- `app.url` is the URL you are redirected to if you click on the hyperlink in the top bar, specified by `app.name`.
- `search.url` is the URL you are redirected to when you press **Enter** in the search box at the top of the Media application.
  - `{{query | encodeURIComponent}}` denotes the point at which the query that you entered will be inserted into the URL. The query will be URI-escaped using the `window.encodeURI` JavaScript function.
  - You can use `{{query | encodeURIComponent}}` if the query that you entered needs to be inserted as a URL parameter. The query will be URI-escaped using the `window.encodeURIComponent` JavaScript function. For example:  
  
`http://mysearchapplication/mywebpage?query={{query | encodeURIComponent}}`
- `player.src` is the URL where the Media Player Chrome plugin is located.
- `mmap.api` is the URL of the MMAP API.



# Chapter 3: Start Media Management and Analysis Platform

To start the JBoss application server that hosts the Media Management and Analysis Platform, use the following procedure.

**TIP:**

Before starting, ensure that the `JAVA_HOME` environment variable has been set correctly.

## To start the Media Management and Analysis Platform

1. Create a file named `avalanche.properties` and set the relevant properties to customize the Media Management and Analysis Platform for your environment. An example file is included in the installer in the `standalone\configuration\` folder.
2. Run the following command:

- **For Windows:**

```
%JBOSS_BASE_DIR%\bin\standalone.bat -c avalanche.xml -P=avalanche.properties
```

- **For Unix:**

```
%JBOSS_BASE_DIR%/bin/standalone.sh -c avalanche.xml -P=avalanche.properties
```

where `%JBOSS_BASE_DIR%` is the directory location where you installed MMAP.

and `avalanche.properties` is your properties file.

## Verify MMAP is Running

The JBoss application server can take a few minutes to deploy the app. To check that Media Management and Analysis Platform is running, you can open a Google Chrome browser window, and navigate to <http://localhost:8080>.

When the application is running, this page displays the Media Management and Analysis Platform Getting Started Guide.

**NOTE:**

MMAP does not run as a service; after verifying that MMAP is running, you must not close the process.

## Troubleshooting

This section provides troubleshooting and error code information to help you identify and resolve issues that you may encounter when installing MMAP.

### Description

JBoss displays the following error in `server.log` when starting up MMAP:

Error occurred during initialization of VM. Could not reserve enough space for object heap

### Solution

Modify `%JBASS_BASE_DIR%\bin\standalone.conf.bat` (in Windows) or `standalone.conf` (in UNIX) and reduce the `Xms` and `Xmx` values as follows:

#### For Windows:

Add the following line to `standalone.conf.bat`:

```
set "JAVA_OPTS=-Xms512M -Xmx512M -XX:MaxPermSize=256M"
```

#### For UNIX:

Add the following line to `standalone.conf`:

```
JAVA_OPTS=-Xms512M -Xmx512M -XX:MaxPermSize=256M"
```

After modifying the file, restart JBoss.

## Next Steps

### To view the MMAP Getting Started Guide

From a Google Chrome browser window, navigate to <http://localhost:8080>.

The Media Management and Analysis Platform Getting Started Guide displays in the browser window.

From here, you can explore the REST API calls to manage media sources, create recordings and analytics and play video.

You can also view the MMAP API documentation, follow the instructions to set up a Media Server analysis and recording process and view a live demo with the channel you set up.

# Chapter 4: Upgrade MMAP

This section describes the process to upgrade the Media Management and Analysis Platform from previous versions to version 12.1.

## Before You Begin

Perform the following tasks before you begin the upgrade of the Media Management and Analysis Platform.

1. Download the MMAP 12.1 software from the [MySupport portal](#).
2. Upgrade IDOL Media Servers to version 12.1. Upgrade all IDOL Media Servers that Media Management and Analysis Platform uses.

## Perform the Upgrade

Upgrading the Media Management and Analysis Platform environment includes backing up the current configuration and creating a clean JBoss directory for MMAP 12.1.

**NOTE:** The `\mmap\jboss-eap-6.2\standalone\data\modeshape` directory contains all of the channels, cameras, and recorders previously created using the MMAP REST API. In order to preserve your history, after upgrading to 12.1, you must copy back this repository to the clean JBoss directory.

### To upgrade

1. On the JBoss server, rename the original JBoss directory to `jboss-eap-6.2_old`.  
For example:  
Rename `C:\mmap\jboss-eap-6.2` to `C:\mmap\jboss-eap-6.2_old`
2. Repeat steps 3 through 6 of the [Install Media Management and Analysis Platform](#) procedure to create a clean JBoss directory.  
For example:  
`C:\mmap\jboss-eap-6.2`
3. After the new JBoss directory is prepared with all of the software components, copy the backed-up `modeshape` directory to `\mmap\jboss-eap-6.2\standalone\data\modeshape`.

## Upgrade the Database Schema

The MMAP database schema has been updated to support new features in MMAP 12.1. If you do not wish to keep existing analytics, you can delete the database and recreate it from scratch.

To keep existing analytics for each channel and camera in the database, run the upgrade script to upgrade from version 12.0.0 to 12.1.0. The script is available in the installation at `sql\postgresql\upgrade-12.0.0-12.1.0.sql`.

### To upgrade the database schema

- Run the database upgrade script, for example on Windows:

```
psql.exe -f c:\mmap\jboss-eap-6.2\sql\postgresql\upgrade-12.0.0-12.1.0.sql  
-dpostgres --username=postgres
```

where the `-d` option specifies the name of the database to use (in this example, "postgres"), and `username` specifies the name of the user to use when connecting to the database. You might also need to specify the database server hostname and port if you are not using the default values.

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If you have comments about this document, you can [contact the documentation team](#) by email. If an email client is configured on this system, click the link above and an email window opens with the following information in the subject line:

**Feedback on Installation Guide (Micro Focus Media Management and Analysis Platform 12.1)**

Add your feedback to the email and click **Send**.

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