Hewlett Packard
Enterprise

HPE Media Server

Software Version: 11.4.0

Release Notes

Document Release Date: June 2017

Software Release Date: June 2017

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New in this Release

This section lists the enhancements to HPE Media Server version 11.4.0.

Media Server Core

- Media Server can send records to another Media Server for further processing. This feature (chaining) can help you to make most efficient use of your hardware. For example, you might have several Media Servers running face detection on video streamed from cameras. These Media Servers can send detected faces to a single Media Server that runs face recognition. This Media Server might have a more powerful CPU, be equipped with a graphics card, or have access to a larger face recognition database. Media Server has a new ingest engine (`Type=Receive`) to receive records, and a new output engine (`Type=Post`) to send records to another Media Server.

- GPU acceleration is now available on Windows in addition to Linux. HPE Media Server can use a graphics card (GPU) to significantly increase the speed of some tasks, including face recognition, image classification, object detection, and vehicle make recognition.

- GPU Media Server uses cuDNN to provide an average 50% improvement in performance, when you set `GPUNumParallel` > 8.

- Media Server can load OCR languages and number plate formats on startup, rather than when an analysis task begins. Pre-loading this information can increase throughput when you run many `process` actions that complete quickly, for example if you are processing batches of images or many individual frames that you have extracted from a video. To specify what to load, set the new configuration parameters `OCRLanguages` and `NumberPlateLocation`, in the `[PersistentData]` section of the configuration file.

- Additional macros have been added to provide properties of the media source. This means that you can output analysis results or encoded media to a file that has a similar file name to the media source. Additional date and time macros have been added.

- The action `ListEngines` has been added. This returns a list of the ingest, analysis, encoding, transform, ESP, and output engines that are included in your HPE Media Server license.

- You can now configure action authorization more flexibly. The `[AuthorizationRoles]` configuration section has been added. You can add subsections to create roles, which can use a combination of existing roles (equivalent to the existing `AdminClients`, `QueryClients`, and so on), or a specific set of actions. For each role, you can specify the client IPs and hosts, SSL identities, and GSS principals to use to identify users that have particular permissions to run actions.

  If you want to use only SSL and GSS authorization, you can disable the client settings by setting the appropriate client configuration parameters to `""`. For example, `AdminClients=""` disables client authorization for administrative actions, and ensures that users must meet the SSL or GSS requirements.

- You can now set `SSLCertificate` to be a chain certificate in PEM format (consisting of the end-entity certificate, any intermediate certificates, and ending with the root CA certificate). This option allows a complete certificate to be returned to the connected peer.

- You can now set `SSLCheckCerticate` to **False** even when `SSLCACertificate` or `SSLCACertificatePath` are set. This allows the component to fill in any chain required for the

`SSLCertificate` by using the certificates that you specify in `SSLCACertificate` and `SSLCACertificatePath`, without requiring a certificate from the connected peer.

- The `GSSAPILibrary` configuration parameter has been added to the `[Paths]` section. You can set this parameter to the path to the GSSAPI shared library or DLL that the application uses. Depending on your system configuration, HPE Media Server attempts to detect the appropriate library to use. However, if you use Kerberos or GSSAPI security in your setup, HPE recommends that you set an explicit value for this parameter.

Ingest

- The `MaxNumParallel` parameter has been added to the `LibAV` ingest engine. This limits the number of threads used for decoding the source media.
- Media Server can ingest Mobotix MxPEG video (but not the audio) from a file or stream. This feature is provided by a new ingest engine (`Type=MxPEG`).

Analysis

- Media Server includes a new analysis engine (`Type=TextDetection`) for identifying regions of images and video frames that contain text.
- OCR accuracy has improved for color images of scanned documents (when processed with `OCRMode=document`), for text that appears in a general scene (`OCRMode=scene`), and for scrolling text, such as the text in news tickers.
- Speaker identification supports `iVector` models, which are available in Speech Server 11.3 and later.
- Language identification supports `boundary` mode. In this mode, language identification seeks to determine when the language changes, and returns results for the time between these boundaries.
- The speech-to-text analysis engine can periodically poll IDOL Speech Server to determine whether a custom language model has been updated. If the language model has been updated it can restart the task (on the Speech Server) so that the updated language model is used for subsequent transcription of speech to text. This feature is most useful when you are processing a long or continuous video stream, such as a television news broadcast.
- Scene analysis algorithms have been improved and now provide better object-background separation, shadow removal, and track history.
- Scene analysis supports the configuration parameter `NumParallel`. This specifies the maximum number of CPU threads to use for scene analysis.
- The actions `MoveFace`, `MoveObject`, `MoveVehicleModel`, and `MoveImageComparisonReference` have been added. These actions move faces, objects, vehicle models, and image comparison references between databases.
- The `GetFaceImage`, `GetObjectImage`, `GetVehicleModelImage`, `GetClassImage`, and `GetImageComparisonReferenceImage` actions can return images in a specific format and at a custom size. If you are developing a front-end application you might use this feature to obtain thumbnail images instead of the original training images.
- Barcode analysis, face detection, object detection, object recognition, and OCR support the configuration parameter `RestrictToInputRegion`, so that you can analyze a region of the input image or video frame that was identified by another analysis task.

- Face recognition and object recognition can recognize faces or objects against a subset of the trained faces or objects, across one or more databases, that are identified by a metadata field with a specific value. To constrain recognition in this way, use the new configuration parameter `Metadata`.

- Clothing analysis can accept records that are produced by object detection, when the object detection task is configured to detect people with the pre-trained person detector. This allows you to locate the clothing of people who are facing away from the camera.

- The action `ListDatabases` has been added. This returns a list of the databases, classifiers, and detectors that exist in the Media Server training database.

- The action `ListNumberPlateLocations` has been added. This provides a list of supported locations for number plate recognition, with ISO-3166 codes that you can use to set the `Location` configuration parameter.

- Number plate recognition supports the following locations:

  - Georgia (`Location=GE`).
  - Pakistan (`Location=PK`).

  To use number plate recognition in an unsupported location, you can set `Location=NOF` (to recognize number plates without matching detected characters to number plate formats). If you can provide sufficient training data, HPE might be able to add new locations for number plate recognition. To request new locations, contact HPE support.

- A new pre-trained object detector for detecting and counting people has been released and is available from the Big Data Download Center. The new detector, `ObjectDetector_HeadAndShoulder.dat`, differs from the existing detector because it has been trained to detect only the head and shoulder region. This is useful when the media does not include the full body or you want to detect people in a crowded area.

- The vehicle make and model recognition engine now attempts to identify the vehicle make using additional search regions if the first is not successful.

Event Stream Processing

- The Combine ESP task can combine records from multiple tracks with records from the `Input0` input track.

Transformation

- Media Server includes a new transformation engine (`Type=Rotate`) to rotate images. If you ingest images that are not upright, you can rotate them before analysis. You can also rotate images based on the result of analysis, for example if OCR detects text that is upside down you can rotate the image so that the text is in the correct orientation before the image is encoded.

Output

- The `Labels` configuration parameter supports all system, session, and source macros.

User Interfaces

- User interface enhancements in the Scene Analysis training utility.

- The initial scene analysis configuration is less likely to filter out alarms, providing more data for you to use to optimize the configuration.

Resolved Issues

This section lists the resolved issues in HPE Media Server version 11.4.0.

- Number plate recognition accepted the location code `SL` for Slovenia. The correct ISO-3166 code for Slovenia is `SI`.

- In the scene analysis training utility, the velocity indicators in the training preview were not displayed correctly when the orientation characteristic was disabled.

- The `GetVersion` action could incorrectly report their operating system on Microsoft Windows 10 and Microsoft Windows Server 2016 platforms.

Supported Operating System Platforms

The following operating system platforms are supported by HPE Media Server 11.4.0.

- Windows x86 64
- Linux x86 64

The documented platforms are the recommended and most fully tested platforms for HPE Media Server. The following sections provide more information about the most fully tested versions of these platforms.

Windows

- Windows Server 2012
- Windows Server 2008
- Windows 7

Linux

The minimum recommended versions of particular distributions are:

- CentOS 6
- Ubuntu 14.04

Supported Platforms with GPU support

The following operating system platforms are supported by HPE Media Server 11.4.0 with GPU support.

- Windows x86 64. The only requirement for GPU Media Server is that NVIDIA driver 352.07 (or later) is installed on the machine, so any Windows operating system on which you can successfully install this driver is supported.
- Linux x86 64

The most fully tested versions of these platforms are:

Windows

- Windows Server 2012 R2

Linux

- Ubuntu 16.04
- Ubuntu 14.04

Notes

This section contains information that is important if you are upgrading from an earlier version of HPE Media Server.

Licensing Changes

- The licensing model for surveillance channels has changed. If you are using surveillance channels you must now allocate one surveillance channel for each analysis task such as face detection, number plate recognition, scene analysis, or text detection. If you are running actions that include more than one of these tasks you might need to obtain a new license and increase the value of the `SurveillanceChannels` parameter in your Media Server configuration file.

- Ingest, Encoding, Transformation, Event Processing, and Output tasks now require a video management channel license. These tasks are included in visual channels and surveillance channels, but if you are running actions that do not contain any tasks that are covered by either a surveillance or visual license, then you will need a video management channel to run these operations.

New Database Schema

- The Media Server database schema has changed. If you are using an internal database, the schema upgrade is performed automatically when you start the new version of Media Server. If you are using an external PostgreSQL or MySQL database you must run an upgrade script, which is included in the Media Server 11.4.0 installation. For more information about upgrading the database schema, refer to the *Media Server Administration Guide*.

API and Configuration Changes

- The response to the `GetStatus` action no longer includes information about the engines that are included in your HPE Media Server license. To retrieve this information use the new action `ListEngines`.

- The `process` action does not start if a non-existent track is used as the input for an output task. Previous versions of Media Server ignored the missing input and began processing anyway.

- The `Location` configuration parameter, for number plate recognition, now accepts a comma-separated list of values. If you specify a single location, number plate recognition now recognizes number plates for that location only and does not include neighboring locations.

- Action and configuration parameters that specify time durations now accept time-duration values. For example, you can set `GPUBatchingDuration=1s` or `SampleInterval=125ms`. Setting a number without any units specifies the value in the same units as earlier versions of Media Server, but this functionality is deprecated and HPE recommends that you specify the relevant units. This change affects the following parameters:

Actions	Action parameters
Rolling buffer actions	`Duration` GetPlaylist action: `Offset`, `SegmentLength`

Tasks	Configuration parameters
Ingest	`StreamTimeout` LibAv: `MaximumDuration`, `OpenSourceTimeout` Milestone: `StartTimeout`

Analysis	`GPUBatchingDuration`
	 `SampleInterval`
	 Keyframe analysis: `ForceAfter`, `QuietPeriod`
	 New segmentation: `MaxNoTopicDuration`, `MaxShortStoryDuration`, `MaxStoryDuration`
	 Number plate recognition: `RepeatDelay`
	 Scene analysis: `TimeBetweenAlarms`
	 Text segmentation: `MaximumDuration`

Encoding	MPEG encoder: `SegmentDuration`
ESP	`MaxTimeInterval` `MinTimeInterval`
Output	`OutputInterval`

- The following changes have been made to `NumberPlateResult` and `NumberPlateResultAndImage` records:

  - The `binarizethreshold` and `platecenter` elements have been deprecated.

  - The possible values for the `platetype` element now have initial capitals ("Regular" or "Square").

  - The `minscore` element has been removed.

  - The `horiztransscore` and `verttransscore` elements have been removed and replaced by a single element, `sensitivityscore`.

- The following features have been deprecated:

  - The `Bayesian` and `Maxvote` classifier types, for image classification. HPE recommends that you use Convolutional Neural Network (CNN) classifiers instead. The default classifier type has been changed to `CNN`, so if you have classifiers where the `classifierType` training option has not been set, they will be retrained as `CNN` classifiers the next time you build them.

  - The configuration parameter `IngestTime`, for the LibAv ingest engine. HPE recommends that you use the new configuration parameter `IngestDateTime` instead. The new parameter accepts values in a greater number of formats.

  - The configuration parameters `ANPRFormatsDirectory` and `ANPRWeightsDirectory`. You can set the path for all static data folders by setting the configuration parameter `StaticDataDirectory`.

  - The configuration parameters `OutputAllIntResults` and `PlateSizeUnit`, for number plate recognition, have been deprecated. HPE recommends using the new parameters `OutputAlternativeResults` and `CharHeightUnit`, respectively.

  - The configuration parameter `ImageBinarizeMethod`, for OCR.

  - Speaker Identification with GMM models has been deprecated in IDOL Speech Server 11.4. As a

result, the option to use Speaker Identification with GMM models has also been deprecated in IDOL Media Server. HPE recommends that you use Speaker Identification with `iVector` models instead. As a result of this change, the default type of language model has changed from `GMM` to `iVector`. Unless you update your Speech Server language models, you might need to modify your Media Server speaker identification task by adding the parameter `ModelType=GMM`.

- The configuration parameter `CumulativeMode`, for language identification. HPE recommends that you use the parameter `Mode` instead.

- The action parameter `name`, available on the actions `AddStream`, `EditStream`, `GetStreamInfo`, `PreAllocateStorage`, and `RemoveStream`. HPE recommends that you use the new parameter `stream`, instead.

- The action parameters `OldName` and `NewName`, on the action `RenameStream`. HPE recommends that you use the new parameters `Stream` and `NewStream` instead.

- The following features have been removed:

  - The Color Cluster (Region) analysis engine. To perform analysis on a region, you can use the `ColorCluster` analysis engine with the configuration parameter `RestrictToInputRegion=TRUE`.

  - The Broadcast Monitoring output engine.

  - The ODBCdeprecated output engine.

  - The configuration parameter `FrameRate`, which was available for some analysis tasks. HPE recommends that you use the parameter `SampleInterval` instead.

  - The configuration parameters `KeyAtLeastSec` and `KeyAtMostSec`, from the keyframe analysis engine. You can use the parameters `ForceAfter` and `QuietPeriod` instead.

  - The configuration parameter `Perspective`, from the object recognition analysis engine.

  - The configuration parameters `Crop`, `CropBorder`, and `CropBorderUnit`, from the image encoder. HPE recommends using the `Crop` transformation engine to crop images.

  - The option `FaceAnalyze`, from the `Enable` configuration parameter.

  - The configuration parameters `FormatsFile` and `WeightsFiles`, from the number plate recognition analysis engine.

  - The configuration parameter `AstPath`, from the speaker identification analysis engine. You can use the parameter `TemplateSet` instead.

  - The deprecated elements `identifier` and `confidence` have been removed from image classification results. This information is still available in the `classification` element.

  - The "Reset Background" options, in the scene analysis training utility, because improvements in the scene analysis algorithms make scene analysis more tolerant to lighting changes.

Documentation

The following documentation was updated for this release.

- *Media Server Administration Guide*
- *Media Server Reference*