Adding Additional IDOL (OEM) Content Engines

HP Records Manager (HPRM) 8.2

Introduction

Out of the box, HP Records Manager 8.2 installs one (1) IDOL (OEM) Content Engine, allowing indexing and searching the content of up to 10 Million documents. For smaller sites this may be adequate for their HPRM Production usage for the foreseeable future. For larger sites, an analysis of their needs may indicate this will not be sufficient.

The HPRM IDOL OEM licence allows for creation of more than one IDOL content engine as needs dictate. This guide explains two methods for adding additional IDOL content engines to an existing installation:

Option 1 – Creating an Additional Content Engine Using HPRM_IDOL_Components_x64.msi and HPRM Enterprise Studio (HPRMES) (for one additional content engine on any one server). Recommended for those who are more comfortable using graphical interfaces.

Option 2 – Creating Additional Content Engines Manually (for any number of additional content engines on any one server). Recommended for more experienced users and those who are comfortable working with file systems and command prompts.

Assumptions

For simplicity and brevity's sake, this article assumes:

a. A single server is hosting all HPRM and IDOL components (although in a typical Production implementation this will not be the case).

b. A 64-bit HP Records Manager Workgroup Server installation is already functioning properly on the server.

c. The HPRM IDOL Service and one (1) HPRM IDOL Content Engine were installed and are properly functioning (with default settings) as part of the workgroup server installation.

d. The organisation has already determined server and storage requirements for their HPRM IDOL (OEM) implementation, and has made an informed decision regarding their requirement for more than one HPRM IDOL content engine. This article does not discuss server sizing or requirements analysis.

e. This article demonstrates the addition of one (1) additional HPRM IDOL (OEM) Content Engine to the existing environment. Procedures detailed herein can be applied to the addition of any number of content engines.

Terminology

- The term "**Content *Engine***" refers to the sum of all components comprising a working HPRM IDOL (OEM) index, i.e.:
  a. A Windows service
  b. Application and configuration files
  c. Index files & directories
  d. Log files

- The term "**Content *Service***" refers to only the Windows service component of a HPRM IDOL (OEM) content engine.

- The term "**IDOL database instance**" refers to a logical segregation of data within an IDOL content engine's index. One IDOL content index may contain many database instances. In a HPRM IDOL (OEM) installation, the IDOL index will typically contain a database instance for each HPRM dataset for which content indexing is enabled. It is

necessary to create HPRM-specific database instances in an IDOL index, as content queries sent from HPRM include the database identifier to ensure only results for the correct database are returned.

Target Audiences

- Customer IT Support

- HP Records Manager implementation specialists

- HP Support engineers

Prerequisite Knowledge

- Experience in creating and managing datasets in HPRM Enterprise Studio (HPRMES)

- Experience installing and configuring IDOL (OEM) as provided with HPRM

- The following knowledge base articles should be read and understood:

    o KM01924119 – HP Records Manager IDOL (OEM) – Initial Setup Overview

    o KM01724810 – HPRM 8.2 IDOL and Document Content Indexing Installation and Configuration

Procedure

Option 1 - Creating an Additional Content Engine Using HPRM_IDOL_Components_x64.msi and HPRMES

> Note: At time of writing, only one (1) additional content engine can be added on any one server using this installation method. No option is provided in the installation wizard to create multiple engines. If the installer is run a second time on the same server, only Repair or Uninstall options are provided.
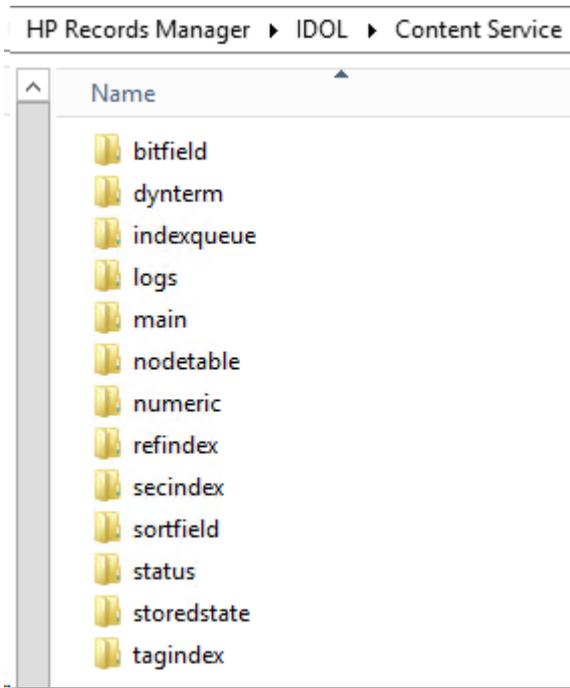
Install the Additional IDOL Content Engine

1. To begin the installation of an additional content engine, please follow the steps in RM8.2_IDOL_DCI_Install_Config.pdf: "Installing additional HP RM IDOL content services – Installation Steps." This results in a default installation; the customisation of which is detailed in the following steps.

   > Note: Early releases of the installer, and hence the corresponding section of the abovementioned manual, contain references to 'CFS connector' installation options. This source of confusion should be rectified in later releases.

   This default installation will perform the following operations:

   a. Create the folder "C:\Program Files\Hewlett-Packard\HP Records Manager\IDOL\TRIM Content Service" containing TRIM Content Service.exe, TRIM Content Service.cfg, and other files used by the Windows service.

   b. Create the folder "C:\HP Records Manager\IDOL\Content Service"

   c. Create *and start* a Windows service named "HP Records Manager IDOL Content Service"

   d. Automatically create (upon service startup) a number of sub-folders under "C:\HP Records Manager\IDOL\Content Service", containing the index and log files for the new content engine.

HP Records Manager ▸ IDOL ▸ Content Service

^	Name
	📁 bitfield
	📁 dynterm
	📁 indexqueue
	📁 logs
	📁 main
	📁 nodetable
	📁 numeric
	📁 refindex
	📁 secindex
	📁 sortfield
	📁 status
	📁 storedstate
	📁 tagindex

Note: This installation configures this engine with the default ports (9100/9101/9102). If another content engine is already running on the server you must ensure the ports for this new engine are different to those of the other engine(s), or errors such as "…Could not create TCP listener…" will prevent this new content service from running. Modifying the port numbers is covered later in this article.

Rename the Newly Installed Windows Service (optional)

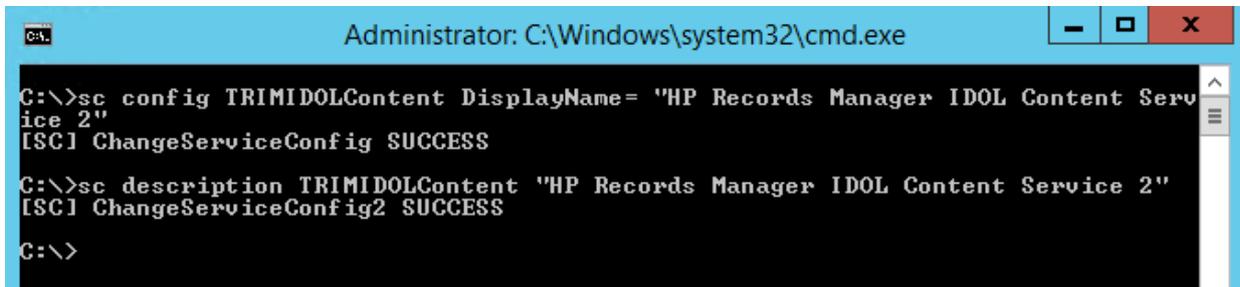| ⚙ HP Records Manager IDOL Content Service	HP Records Manager IDOL Content Service	Automatic
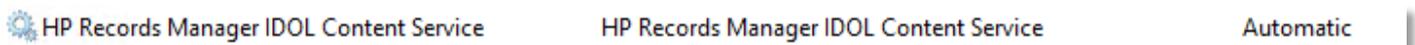
2. To maintain consistency with other HPRM content services, it may be desirable to change the way the new content service's Name and Description appear in the Windows services console. To achieve this:

   a. If the new content service is running, stop it. Although normally this should be done using an action=stop command from a browser, in this instance it is OK to stop the service using the Windows Services console, as the new content engine will not be performing any indexing tasks at this stage.

   b. Open a command prompt using "Run as Administrator".

   c. To change the **Display Name**, issue the following command:

> *sc config TRIMIDOLContent DisplayName= "HP Records Manager IDOL Content Service 2"*

d. To change the **Description**, issue the following command:
   sc description TRIMIDOLContent "HP Records Manager IDOL Content Service 2"

> Note: These commands may not run if copied and pasted directly from this document to a command prompt window. It may be necessary to type them (in particular the quotation marks) manually.

Modify New Content Service's Configuration

3. If pre-existing HPRM IDOL (OEM) content engines have already been customised to suit the needs of the organisation, a configuration file from one of these can be used to replace the new engine's configuration file in "C:\Program Files\Hewlett-Packard\HP Records Manager\IDOL\TRIM Content Service\". Be sure to name the copied file "TRIM Content Service.cfg" to match the executable name.

4. Recommended changes to "TRIM Content Service.cfg" are: (customise to suit individual requirements)

   a. **Ports** – If necessary, to avoid conflict with other HPRM IDOL content services on the *same* server, change:

      i. ServicePort=9102 to **ServicePort=9202** (or any other available port of your choice)

ii. Port=9100 to **Port=9200** (or any other available port of your choice)

iii. IndexPort=9101 to **IndexPort=9201**(or any other available port of your choice)

b. **MaxDocumentCountLower** and **MaxDocumentCountUpper**: These parameters are most likely still commented out in the configuration file.

It is a good idea now to enable these parameters with appropriate values in **all** content engines. These parameters, when used in conjunction with the CollectChildFullness and RespectChildFullness parameters in the HPRM Records Manager IDOL Service, will ensure the number of documents in each content engine remains between these values.

When an engine reports it has reached its MaxDocumentCountUpper limit, the HPRM IDOL Service will flag it as full, and only send index additions to engines that are available for new content. If the number of documents in an engine subsequently falls below the MaxDocumentCountLower value (e.g. due to documents being removed from the index as a result of disposal actions in HPRM), the engine will once again be flagged by the IDOL service as available for new content. The defaults of 7000000 and 8000000 respectively are merely suggestions based on the maximum licensed number of documents in a single content engine being 10 Million.

> Note: The MaxDocumentCount parameter, although present (but commented out) in the default configuration file, is not needed if MaxDocumentCountLower and MaxDocumentCountUpper are being used.

c. **Paths** – By default, all paths in the new content engine configuration will be prefixed with "C:\HP Records Manager\IDOL\Content Service\". This means all logs and index files will be created in this location (as witnessed following the initial installation and automatic service start). These paths can be amended in the [Paths] and [Logging] sections to point to the desired locations for this content engine.

> Note: The set of index and log folders that were created in "C:\HP Records Manager\IDOL\Content Service" when the new content service was first started will no longer be required if the paths were changed at this step, hence they may be deleted. New folders will be created at the specified locations upon next service start.

d. **Databases** – When a new content engine is created, the index is not aware of any HPRM IDOL database instances. If a configuration file is copied from another content engine it will already contain the relevant information about the HPRM_*nn* database instance(s), hence no further action is required. E.g.:

```
[Databases]
NumDBs=1
0=HPRM_nn

[HPRM_nn]
DatabaseReadOnly=FALSE
Internal=FALSE
InvertedAgent=FALSE
```

However, if using the out of the box configuration file the databases section will look like:

```
[Databases]
NumDBs=0
```

In this case, creation of an IDOL database instance is typically achieved via one of two methods:

i. Copy the entire [Databases] section from another content engine's configuration file, save the changes, and restart the service.

ii. For those who prefer using the HPRMES interface rather than manually editing configuration files: Populate the database information using HPRMES. This method is covered in a later step.

5. Start the new content service. Check application.log for the new service to ensure successful startup.

6. If running, stop the HP Records Manager IDOL Service using a stop command issued from a browser, e.g.: http://localhost:9002/action=stop (where 9002 is the service port of the HP Records Manager IDOL Service)

7. Using a text editor, make the following change to the IDOL Service's configuration file (By default at C:\Program Files\Hewlett-Packard\HP Records Manager\IDOL\TRIM IDOL Service\TRIM IDOL Service.cfg):

    a. The **CollectChildFullness** and **RespectChildFullness** parameters work in conjunction with the MaxDocumentCountUpper and MaxDocumentCountLower parameters in the content engines. If those options were enabled in the content engines at an earlier step, enable these parameters for the HPRM IDOL Service (they may currently be commented out):

    ```
    CollectChildFullness=true
    RespectChildFullness=true
    ```

8. Start the HP Records Manager IDOL service.

> **Important**: At time of writing, there is an issue under investigation where sometimes the HP Records Manager IDOL Service's *dih_application.log* file displays a warning on startup similar to:
> *"…Warning: Engine 0 (ContentServer1:9100) ACI GetStatus did not report a full_ratio. From now on, the engine will be considered full with full_ratio 1.00."*
>
> This will result in **no** index additions being sent to Engine 0. If this occurs prior to a full reindex, the result will be Engine 0 receiving *no* index data. The dih_application.log should be checked for this warning whenever the HP Records Manager IDOL Service is started. If the above message is present, the following *may* resolve the issue:
>   a. Stop all HPRM IDOL services (using action=stop commands from a browser)
>   b. Start the HP Records Manager IDOL Service
>   c. Start all HPRM content services
>   d. Check dih_application.log for the *absence* of the above message
>   e. If this message continues, disable the Child Fullness parameters and restart the HPRM IDOL Service.

Add New Content Engine Using HPRMES

> Note: This can also be achieved by manually editing the HPRM IDOL Service's configuration file. This is covered in the "Adding additional content engines manually" section later in this document. The following instructions are for those who prefer using the HPRMES interface to manually editing configuration files.

9. In HPRMES:

   a. Right-click on the dataset and select Content Index – Properties.

   b. Select the IDOL Configuration tab. Any previously existing content engines and their current online status will be displayed here.

   c. Click the Add button to enter the details of the newly installed content engine. For example:
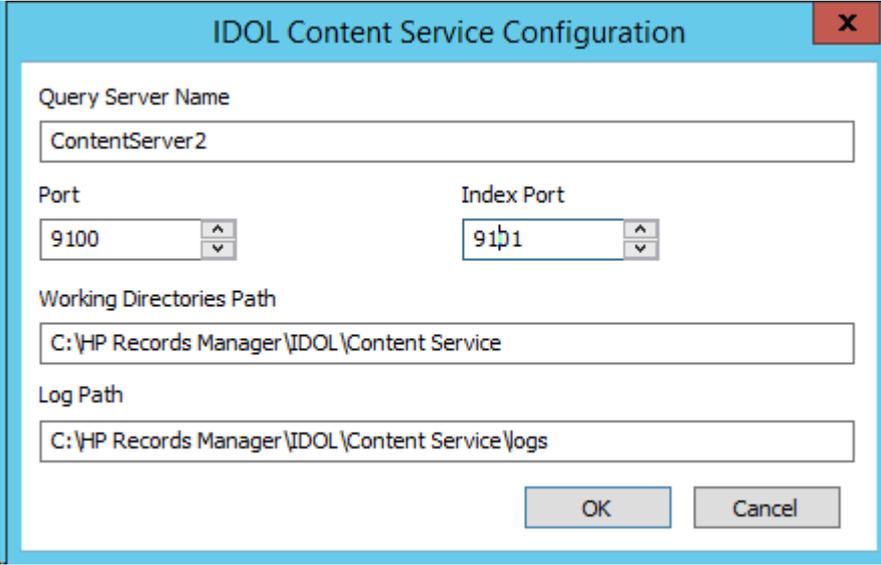
IDOL Content Service Configuration

Query Server Name

ContentServer2

Port
9100

Index Port
9101

Working Directories Path

C:\HP Records Manager\IDOL\Content Service

Log Path

C:\HP Records Manager\IDOL\Content Service\logs

OK   Cancel

- **_Query Server Name_** = the name of the server on which the new content engine was installed.

- **_Port_** = the action port specified in the content engine's 'Port' parameter.

- **_IndexPort_** = the content engine's index port as defined in the 'IndexPort' parameter.

- **_Working Directories Path_** = the _top-level_ path specified in the new content engine's configuration file where the index folders reside. E.g.: If BitFieldPath=C:\HP Records Manager\IDOL\Content Service\bitfield, the working directory specified here would be "_C:\HP Records Manager\IDOL\Content Service_".

> Note: At time of writing, the need to specify a working directory path here is not clear, as the path entered will not replace the existing paths in the configuration file.

- **_Log Path_** = the _full_ path specified in the new content engine's configuration where the log files will reside. E.g.: LogDirectory=_C:\HP Records Manager\IDOL\Content Service\logs_.

> Note: The Log Path entered in this dialog will replace the log path in the new content engine's configuration. Please ensure it is correct before proceeding to the next step.

d. Click OK to return to the IDOL Configuration tab, where you will see the new content engine and its status displayed.

e. Before navigating to any other tabs in this dialog, click the **Update** button at the bottom under "IDOL Components Configuration", and select 'Yes' to deploy changes to IDOL components (no confirmation dialog is displayed after this is complete). This will make the following changes:

i. Update "TRIM IDOL Service.cfg" with the new engine's host name and port in [DAHEngines] and [DIHEngines].

ii. Update "TRIM Content Service.cfg" with the specified index port

> Note: At time of writing, the value specified for Index Port is incorrectly written by this process to the [Service] section of the content engine's configuration file, and will have no effect, i.e. the original value for IndexPort in the [Server] section will continue to be used unless manually changed. The 'indexport' parameter should be removed from the [Service] section to avoid future confusion.

iii.　Update "TRIM Content Service.cfg" with the specified LogDirectory path.

f.　Click OK to close the "Content Index Properties" window in HPRMES.

g.　Stop all HPRM IDOL services (using action=stop commands from a browser).

h.　Start all HPRM IDOL services.

Create IDOL Database Instance(s) Using HPRMES

If the new content engine is still using the default database configuration from the initial installation (i.e. the [Databases] section of the configuration file has *not* been copied from another content engine), HPRM is unable to work with this index until at least one database instance is specified. This is evidenced by the warnings "No database found" and "No databases are configured" in the content engine's application.log file on startup.

If your preference for populating this information is to use the HPRMES interface, this can be achieved using the following steps:

10.　Ensure the HP Records Manager IDOL Service is running.

11.　Ensure the *newly created* HPRM IDOL Content Service is running.

12.　Stop <u>any other</u> HPRM content services (using action=stop commands from a browser). This is necessary in order for the Content Index "Create" option to become available in HPRMES.

13.　Right-click on the database in HPRMES and select Content Index – Properties.

14.　Select the "Content Index" tab. The Create button will be available for selection only if HPRMES has <u>not</u> detected an existing HPRM database instance in any *online* content engines, and this new content engine's configuration is set to 'NumDBs=0'.

15.　Click the Create button. This will send a command to the HPRM IDOL Service to create the HPRM_*nn* database instance in *all* HPRM content engines (where *nn* is the HPRM dataset ID). The index.log file for the new content engine will show entries such as:

"…Normal: Index Queue Command: DRECREATEDBASE?&DREDbName=HPRM_nn"
"…Normal: Index command finished. Took 0.00 s"

HPRMES will display the message "N*ew IDOL instance creation is taking longer than expected. Please check back later."* This is because HPRMES is waiting for a confirmation from the HPRM IDOL Service that the database instance has been successfully created in *all* engines. This response will not be received at this time because not all engines are currently running, hence this message is expected and can safely be ignored.

This process will update TRIM Content Service.cfg with the new database information. E.g.:

```
[Databases]
NumDBs=1
0=HPRM_nn

[HPRM_nn]
DatabaseReadOnly=FALSE
Internal=FALSE
InvertedAgent=FALSE
```

(Where *nn* is the HPRM database identifier)

16.   Click OK, and optionally view the log file produced.

Start Services and Verify Operation

17.   Start all other HPRM content services.

> Note: Although the *DRECREATEDBASE* command was queued by the IDOL service for issuing to *each* content engine as it comes online, the application.log file for the other engines will merely report an error such as: "…Error: Database HPRM_*nn* already exists."
>
> This error is expected at this time and can safely be ignored.

18.   An additional HPRM IDOL (OEM) content engine has been added to the environment. HPRM is now ready to resume normal content indexing operations.

Option 2 - Creating Additional Content Engines Manually

The process below describes the addition of a single HPRM IDOL (OEM) content engine. These steps can be repeated to create as many additional engines as required.

Copy and Rename an Existing Content Engine's Application Files

1. Stop all running IDOL services (using action=stop commands from a browser).

2. Copy the entire program folder from an existing IDOL content engine, e.g. "C:\Program Files\Hewlett-Packard\HP Records Manager\IDOL\TRIM Content Service 1" (including subfolders & contents).

3. Locate this copy of the folder and its contents in the desired location on your chosen server.

   > Note: For simplicity's sake, the following instructions assume the content service application folder was copied to the same parent folder on the same server as the source engine, i.e. to "C:\Program Files\Hewlett-Packard\HP Records Manager\IDOL\").

4. Rename the copied folder to "C:\Program Files\Hewlett-Packard\HP Records Manager\IDOL\TRIM Content Service **2**".

5. Rename the files within the folder to:

   a. TRIM Content Service **2**.cfg

   b. TRIM Content Service **2**.exe

   c. TRIM Content Service **2**.log (or simply delete TRIM Content Service 1.log, as a new log file will be created upon next service start)

   d. (If present, TRIM Content Service 1.lck can either be deleted or re-named to TRIM Content Service 2.lck)

Configure the New Content Engine

6. Open TRIM Content Service 2.cfg using a text editor (e.g. Notepad).

7. Modify the following entries:

   a. **Ports** – If necessary, to avoid conflict with other HPRM IDOL content services on the same server, change:

      i. ServicePort=9102 to **ServicePort=9202** (or any other available port of your choice)

      ii. Port=9100 to **Port=9200** (or any other available port of your choice)

      iii. IndexPort=9101 to **IndexPort=9201** (or any other available port of your choice)

   b. **MaxDocumentCountLower** and **MaxDocumentCountUpper**: These parameters are most likely still commented out in the configuration file.

      It is a good idea now to enable these parameters with appropriate values in **all** content engines. These parameters, when used in conjunction with the CollectChildFullness and RespectChildFullness parameters in the HPRM Records Manager IDOL Service, will ensure the number of documents in each content engine remains between these values.

      When an engine reports it has reached its MaxDocumentCountUpper limit, the HPRM IDOL Service will flag it as full, and only send index additions to engines that are available for new content. If the number of documents in an engine subsequently falls below the MaxDocumentCountLower value (e.g. due to documents being removed from the index as a result of disposal actions in HPRM), the engine will once again be flagged by the IDOL service as available for new content. The defaults of 7000000 and 8000000 respectively are merely suggestions based on the maximum licensed number of documents in a single content engine being 10 Million.

> Note: The MaxDocumentCount parameter, although present (but commented out) in the default configuration file, is not needed if MaxDocumentCountLower and MaxDocumentCountUpper are being used.

c. **Paths** – All paths in the [Paths] and [Logging] sections of this new content engine's configuration **must** be modified to point at the required location for this new engine's index and log files.

> Note: If these paths are left pointing to the same location as the original content engine's index and log files, errors will occur and there is a risk of corruption to the original engine's index.

d. **Databases** – Database instance information is already present, as it was copied from another working engine. This database information will be used by the new engine, and hence should be left in the configuration file. E.g.:
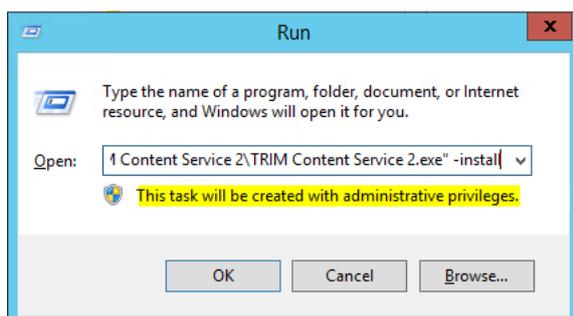
```
[Databases]
NumDBs=1
0=HPRM_nn

[HPRM_nn]
DatabaseReadOnly=FALSE
Internal=FALSE
InvertedAgent=FALSE
```

Create and Configure a Windows Service for the New Content Engine

8. Using the Windows Run dialog, execute the following command:

   "C:\Program Files\Hewlett-Packard\HP Records Manager\IDOL\TRIM Content Service 2\TRIM Content Service 2.exe" -install

> Note: This command may not run if copied and pasted directly from this document to a command prompt window. It may be necessary to type it (in particular the quotation marks) manually.

This will install TRIM Content Service 2 as a service (named "TRIM Content Service 2"):
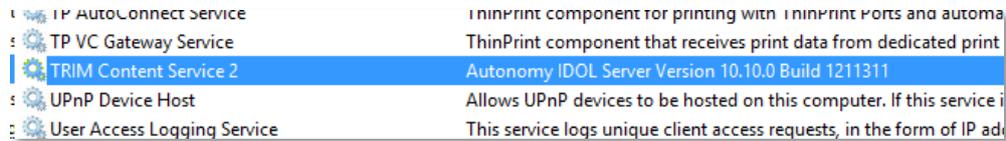
9. To maintain consistency with other HPRM content services, it may be desirable to change the way the new content service's Name and Description appear in the Windows services console. To achieve this:

   a. If the new content service is running, stop it. Although normally this should be done using an action=stop command from a browser, in this instance it is OK to stop the service using the Windows Services console, as the new content engine will not be performing any indexing tasks at this stage.

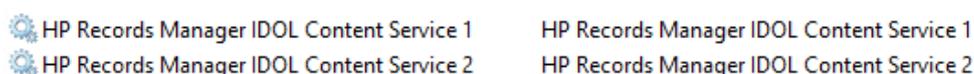   b. Open a command prompt using "Run as Administrator".

   c. To change the **Display Name**, issue the following command:

   sc config "TRIM Content Service 2" DisplayName= "HP Records Manager IDOL Content Service 2"
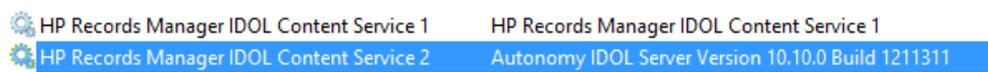
   d. To change the **Description**, issue the following command:

   sc description "TRIM Content Service 2" "HP Records Manager IDOL Content Service 2"

> Note: These commands may not run if copied and pasted directly from this document to a command prompt window. It may be necessary to type them (in particular the quotation marks) manually.

10. In the Windows services console, right click on the service "HP Records Manager IDOL Content Service 2", select Properties, and then configure the following:

    a. General tab - Startup type = Automatic (if not already)

    b. Log On tab – for "This account", enter the user name and password for the account you wish to run the service (usually the same account as the HPRM Workgroup and other HPRM IDOL services)

Add New Content Engine to HPRM IDOL Service

11. The following changes will add the new content engine to the HPRM IDOL Service's configuration file (C:\Program Files\Hewlett-Packard\HP Records Manager\IDOL\TRIM IDOL Service\TRIM IDOL Service.cfg):

Example additions/changes in **bold**:

```
[DAHEngines]
Number=2

[DAHEngine0]
Host=ContentServer1
Port=9100

[DAHEngine1]
Host=ContentServer1
Port=9200

[DIHEngines]
Number=2

[DIHEngine0]
Host=ContentServer1
Port=9100

[DIHEngine1]
Host=ContentServer1
Port=9200
```

> Note: The port numbers in this section must match the value specified in the content engine's 'Port' parameter. (It's OK to use the *same* port number for more than one content engine if they are running on different servers.)

> **Important**: At time of writing, there is a known bug (QCCR2D56359) in HPRM 8.20, where all content engines **must** reside on the <u>same server</u> as the HPRM IDOL Service; otherwise errors will occur when attempting to update the Content Index properties in HPRM Enterprise Studio (HPRMES), and when attempting to perform any reindexing from a HPRM client.

Enable Child Fullness Checking in the HPRM IDOL Service

12.   Make the following change to the IDOL Service's configuration file (by default at C:\Program Files\Hewlett-Packard\HP Records Manager\IDOL\TRIM IDOL Service\TRIM IDOL Service.cfg):

    a. The CollectChildFullness and RespectChildFullness parameters work in conjunction with the MaxDocumentCountUpper and MaxDocumentCountLower parameters in the content engines. If those options were enabled in the content engines at an earlier step, enable these parameters for the HPRM IDOL Service (they may currently be commented out):

```
CollectChildFullness=true
RespectChildFullness=true
```

Start Services and Verify Operation

13.   In the Windows services console, start the HP Records Manager IDOL service.

> **Important**: At time of writing, there is an issue under investigation where sometimes the HP Records Manager IDOL Service's *dih_application.log* file displays a warning on startup similar to:
> *"…Warning: Engine 0 (ContentServer1:9100) ACI GetStatus did not report a full_ratio. From now on, the engine will be considered full with full_ratio 1.00."*
>
> This will result in **no** index additions being sent to Engine 0. If this occurs prior to a full reindex, the result will be Engine 0 receiving *no* index data. The dih_application.log should be checked for this warning whenever the HP Records Manager IDOL Service is started. If the above message is present, the following *may* resolve the issue:
> f. Stop all HPRM IDOL services (using action=stop commands from a browser)
> g. Start the HP Records Manager IDOL Service
> h. Start all HPRM content services
> i. Check dih_application.log for the *absence* of the above message
> j. If this message continues, disable the Child Fullness parameters and restart the HPRM IDOL Service.

14. Start all HP Records Manager IDOL content services. Check application.log for the new content service for any unexpected errors.

15. In HPRMES, right-click on the dataset and select Content Index – Properties.

16. Verify that the new content engine is now listed under "IDOL Content Engines" and its status is 'Online'.

17. Click OK, and optionally view the log file.

18. An additional HPRM IDOL (OEM) content engine has now been added to the environment. HPRM is now ready to resume normal content indexing operations.