

Guide to QCL Engines



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Change log

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1 About This Document

This document describes how to set up and configure the QCL Engine and as well how to troubleshoot if the QCL-Engine services are not running as expected.

2 QCL Engine Manager

The QCL Engine Manager runs instances of the QCL Engine service, which are critical to essential features like the Web Modeler, automatic diagram publishing and scheduled script execution. Furthermore, the QCL Engines queues tasks asynchronously, as to allow a faster system response time.

The QCL Engine Manager is a part of the QualiWare installation and can be accessed and configured by an administrator in the QualiWare Execution Framework (QEF) administration console, in the Modules tab:

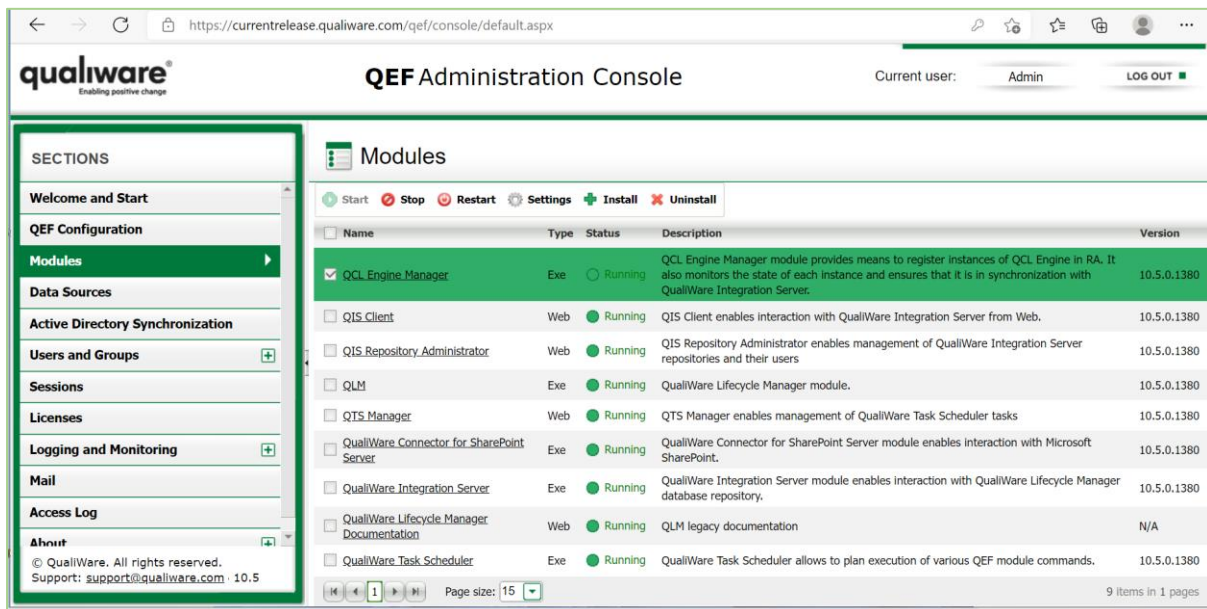


Figure 2-1: The "QCL Engine Manager" module is accessed via the QEF Console

The QCL Engine Manager module is a pre-requisite to register instances of QCL Engine in the Repository Administrator on a per-repository basis. It also monitors the state of each instance and ensures that it is in synchronization with the QualiWare Integration Server.

3 Configuration Recommendations

In one QualiWare installation, there is one QCL Engine Manager module hosting several QCL Engines. The QCL Engine Manager Module can be accessed and configured through the QEF Console, cf. Figure 2-1.

3.1 QCL Engine Module Settings in QEF Console

The settings for the QCL Engine Module can be accessed via "Settings" in the QEF Console.

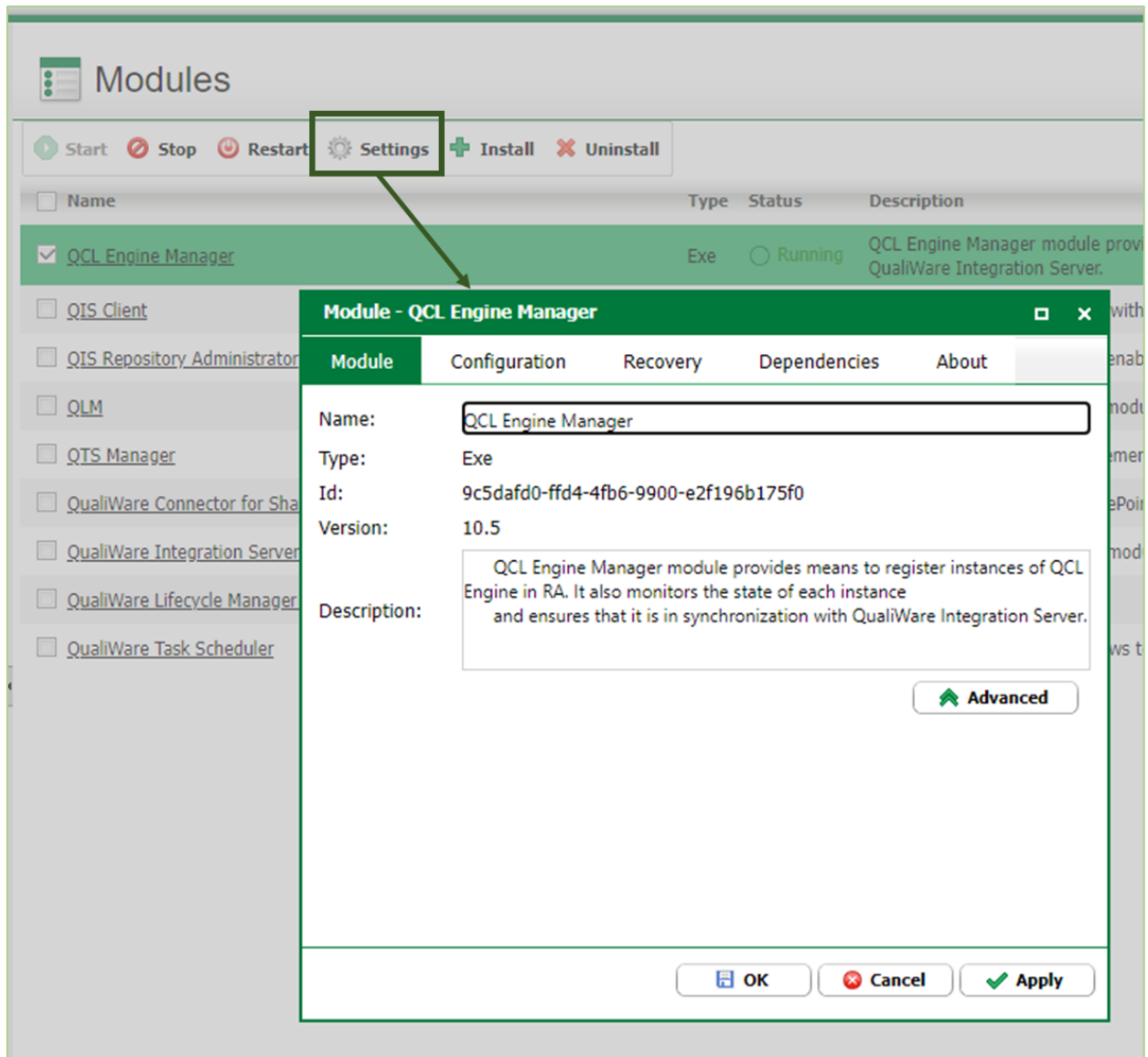


Figure 3-1: QCL Engine Manager Module settings

In the “Recovery” tab, it is recommended that the first three failures are set to “Restart the module”, cf. Figure 3-2. This setting will restart the QCL Engine Manager up to three times if it crashes for any reason, if it fails more than three times the system will leave the service in the “Stopped” state.

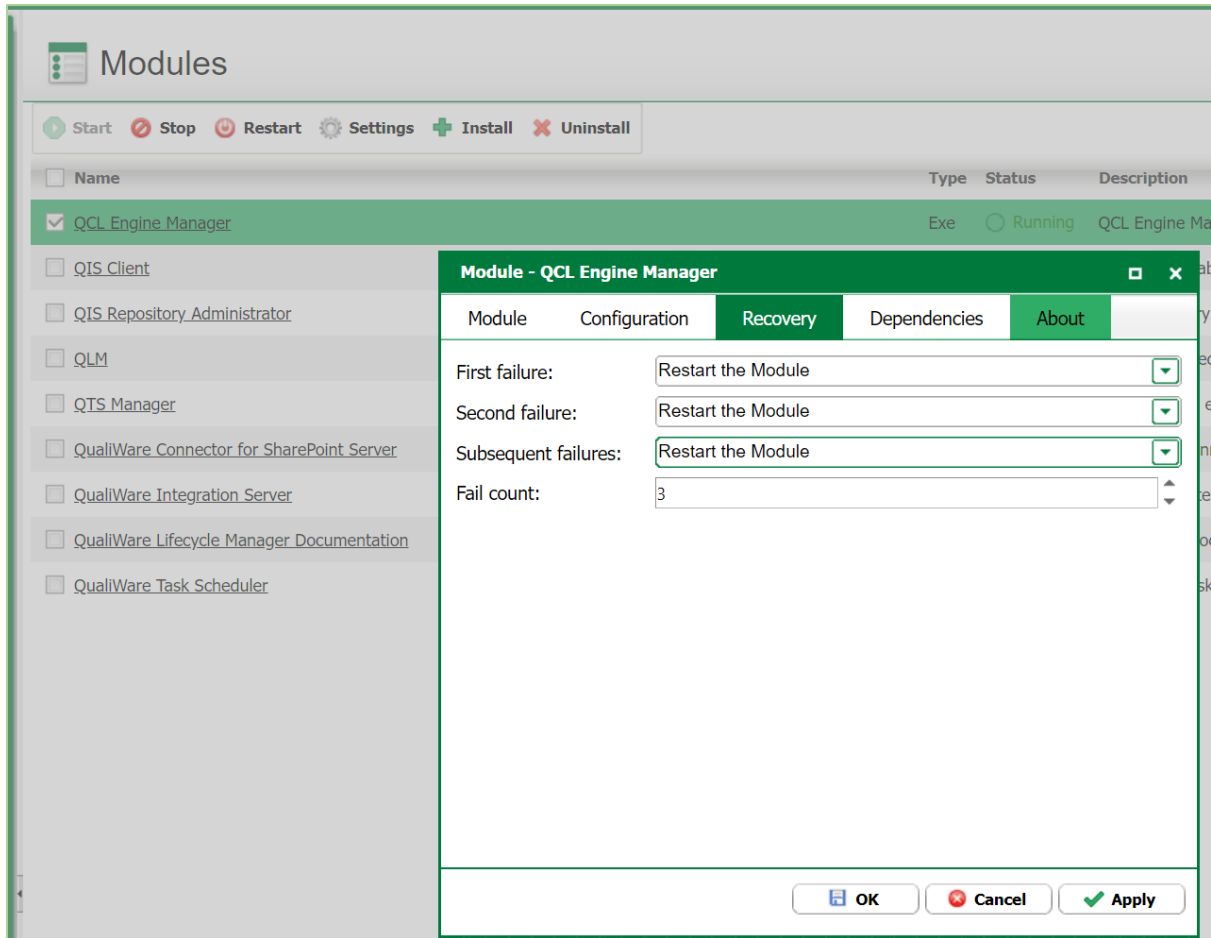


Figure 3-2: Recommended "Recovery" settings for "QCL Engine Manager" module

3.2 Number of QCL Engines

The right balanced number of QCL Engines are required to ensure a well working installation.

When it comes to the QCL Engines, the following recommendations are given:

- For a repository that is not customized, an individual QCL Engine is recommended
- For a repository with usage beyond the automatic publishing (i.e. there is a need to run many scheduled tasks), two QCL Engines should be used, one for automatic publishing and one to execute tasks
- For a repository with high usage, and multiple configurations (i.e. Base Configuration and a Development private workspace), one QCL Engine should be created per configuration for automatic publishing

3.3 Maintenance

The QCL Engines are in general quite stable, however, during various kind of maintenance on either the application server or SQL Server there can be situations where the services stop working without any further notice.

If the QCL Engines stops for the above reason it will impact the usage (i.e. diagrams will not be automatic published).

It is recommended to restart the QualiWare installation after performing maintenance on the application server or on the database server.

4 How To Configure Individual QCL Engines

The QCL Engines for each repository can be configured in the Repository Administrator and added to the HTMLpublisher in QLM:

4.1 Open the Repository Administrator (RA)

Go to QEF Admin Console -> Modules -> Repository Administrator

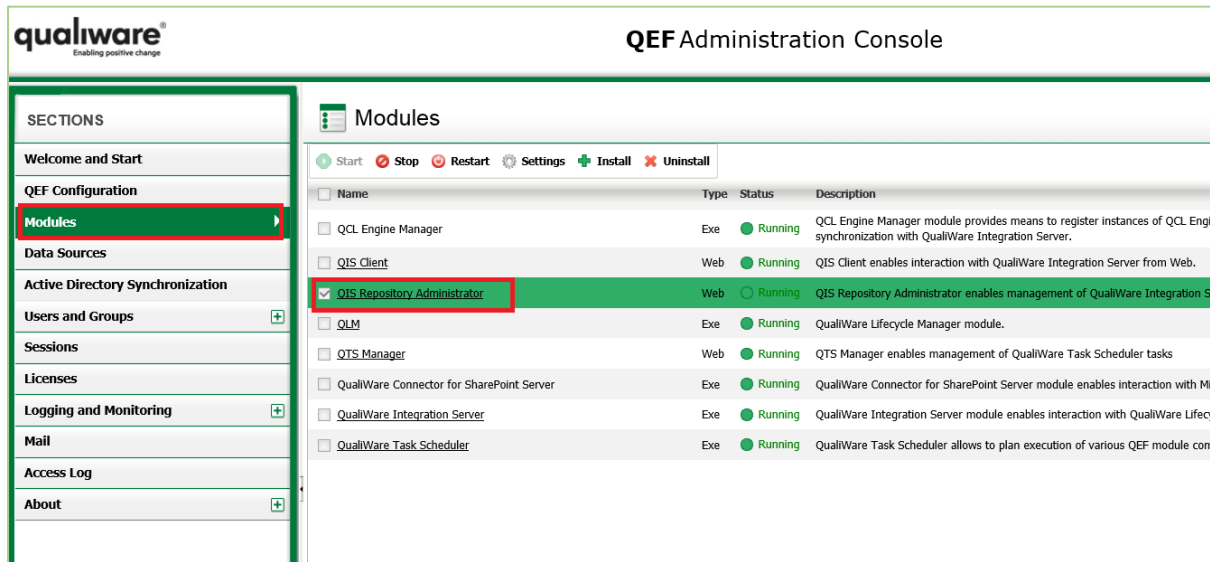


Figure 4-1: QEF Administration Console -> Modules

Click on QIS Repository Administrator and another tab will open like below

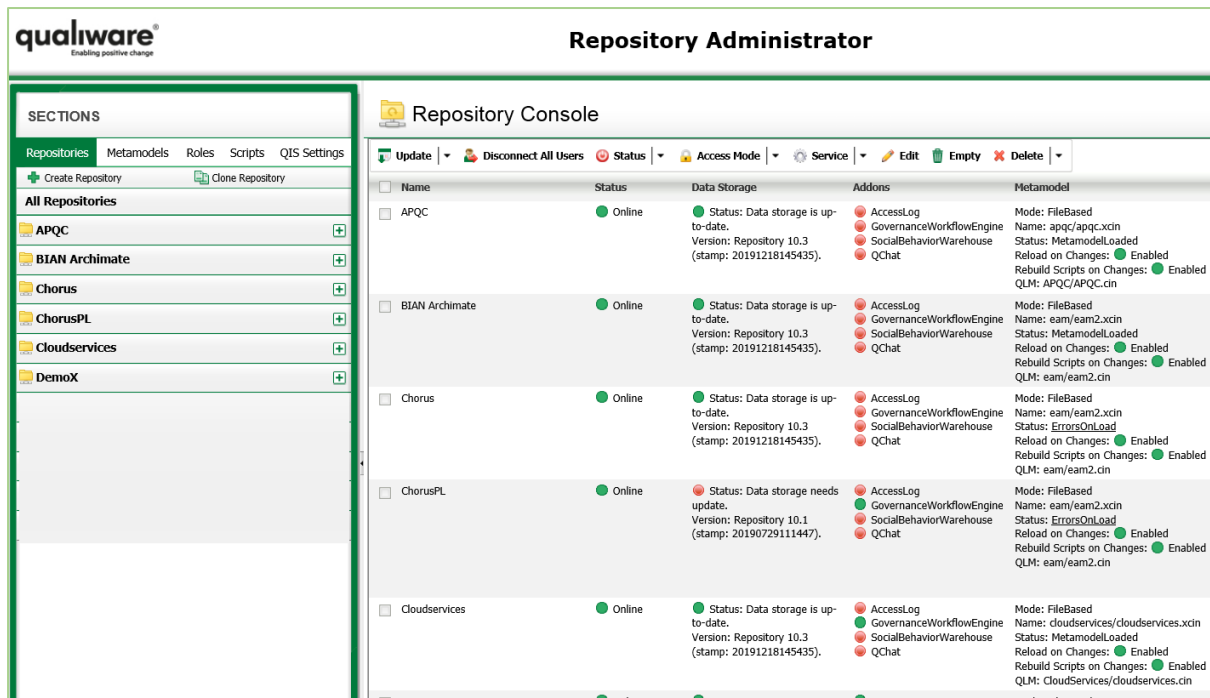


Figure 4-2: Repository Administrator (RA) view on Repositories

4.2 Add QCL Engine instances to repository

Expand your repository and go to the QCL Engine Manager.

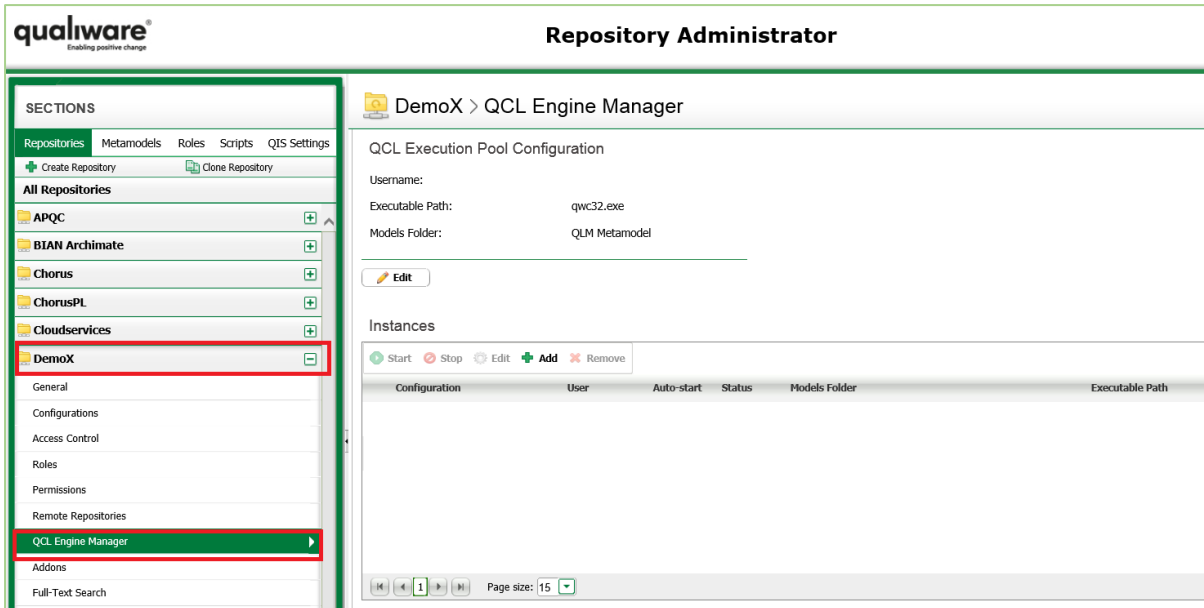


Figure 4-3: QCL Engine Manager in the Repository Administrator, is located under each Repository

Click on Add.

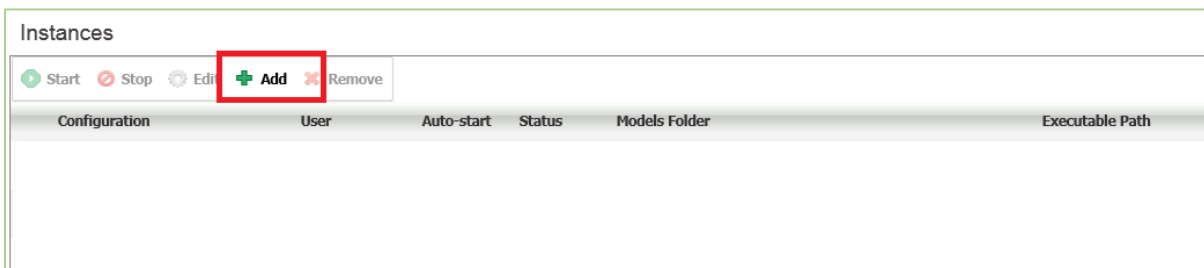
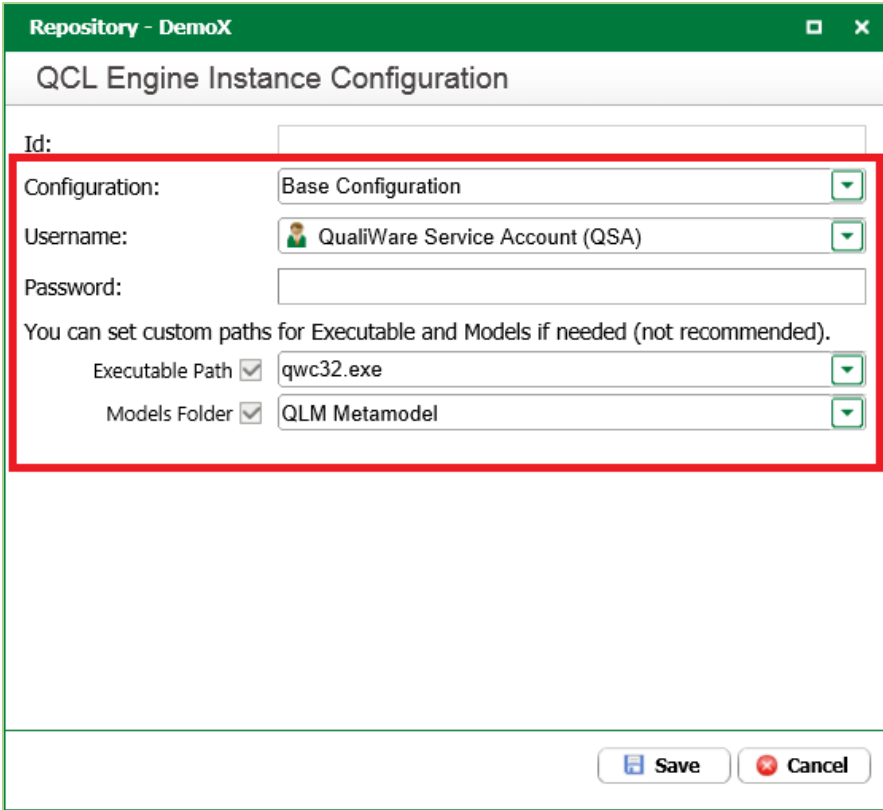


Figure 4-4: Add QCL-Engine instance in RA

A popup will appear and apply settings as shown in Figure 4-5 and click Save.

NOTE: It is recommended to use the built-in service accounts QSA and QSM to configure QCL Engines. QualiWare uses the QSA account for automatic publishing, and QSM for scheduled tasks and other script executions. In an installation with many repositories, it is also recommended to create one QSA and one QSM account per repository.

NOTE: If you see nothing under Configuration in the Repository Administrator, then you need to Open QLM and connect to the repository, as to allow the system to create the Base Configuration.



Repository - DemoX

QCL Engine Instance Configuration

Id:

Configuration:

Username:

Password:

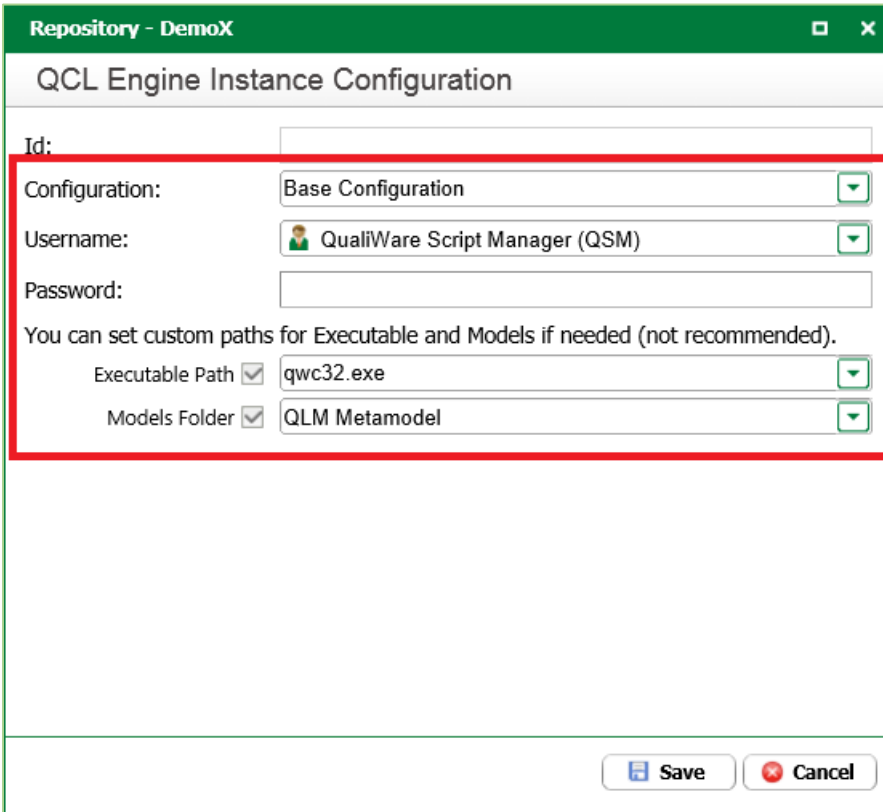
You can set custom paths for Executable and Models if needed (not recommended).

Executable Path

Models Folder

Figure 4-5: Settings for QCL Engine Instance – QualiWare Service Account (QSA)

Add another instance but this time using QSM login.



Repository - DemoX

QCL Engine Instance Configuration

Id:

Configuration:

Username:

Password:

You can set custom paths for Executable and Models if needed (not recommended).

Executable Path

Models Folder

Figure 4-6: Settings for QCL Engine Instance – QualiWare Script Manager (QSM)

You will see two instances like below

Instances						
Start Stop Edit Add Remove						
Configuration	User	Auto-start	Status	Models Folder	Executable Path	
Base Configuration	QSA	Disabled	Stopped	C:\Program Files\QualiWare\Hardik_QEFX\Modules\QLM\10.3\App\Models	qwc32.exe	
Base Configuration	QSM	Disabled	Stopped	C:\Program Files\QualiWare\Hardik_QEFX\Modules\QLM\10.3\App\Models	qwc32.exe	

Figure 4-7: List of QCL Engine Instances in RA

Except for the names two QCL Engines are the same. There are two to balance the load in the installation, cf. section 3.2.

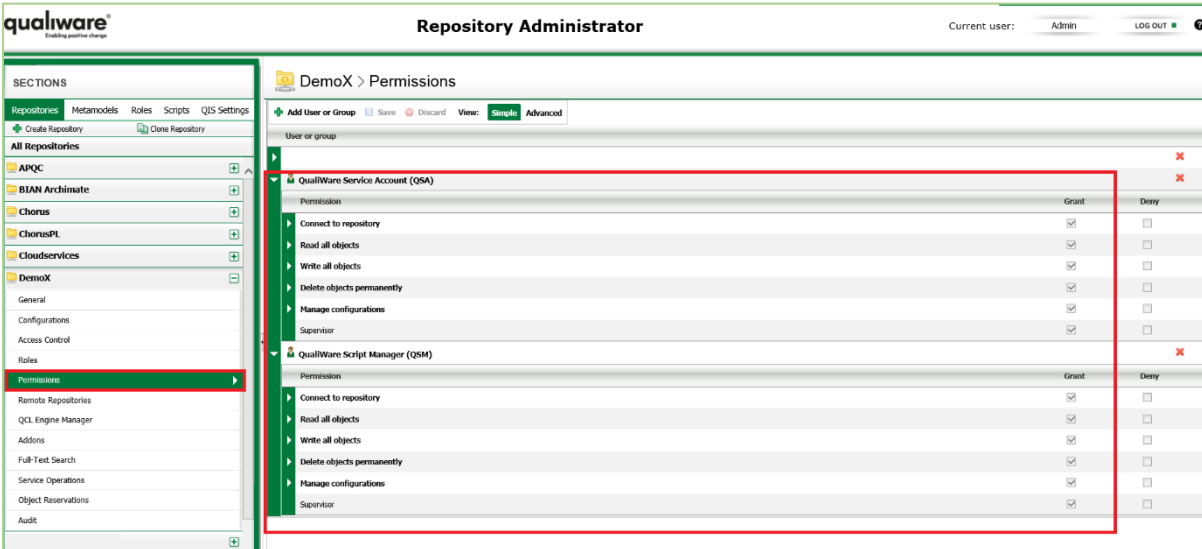
4.3 Verify Supervisor Permission For QSA And QSM Accounts

NOTE: The QSA and QSM users need Supervisor Permission to run the QCL Engine instances.

Permissions are handled from the Repository Administrator -> Permissions, cf. Figure 4-8.

NOTE: It is HIGHLY RECOMMENDED to only assign the Supervisor permission exclusively to dedicated users and not assign it to “All Users”, as to maintain an appropriate level of permissions for regular users.

Hence, the Supervisor Permissions should be assigned to the QSA and QSM user accounts, cf. Figure 4-8.



The screenshot shows the 'Repository Administrator' interface. The left sidebar has 'Permissions' selected under the 'DemoX' section. The main area shows the 'Permissions' configuration for 'DemoX > Permissions'. Two users are listed: 'QualiWare Service Account (QSA)' and 'QualiWare Script Manager (QSM)'. For each user, a list of permissions is shown with 'Grant' and 'Deny' checkboxes. The 'Supervisor' permission is checked in the 'Grant' column for both users.

User or group	Permission	Grant	Deny
QualiWare Service Account (QSA)	Connect to repository	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	Read all objects	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	Write all objects	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	Delete objects permanently	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	Manage configurations	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	Supervisor	<input checked="" type="checkbox"/>	<input type="checkbox"/>
QualiWare Script Manager (QSM)	Connect to repository	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	Read all objects	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	Write all objects	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	Delete objects permanently	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	Manage configurations	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	Supervisor	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Figure 4-8: Permission Settings for the QSA and QSM – should be supervisors

4.4 Set Up QCL-Engine Services In QLM Through The HTMLPublisher

Once permissions are set then login to QLM and add the QCL-Engines service in QLM via the HTMLPublisher on the “Add ons” tab, cf. Figure 4-9.

NOTE: Add QCL engines services in Base Configuration

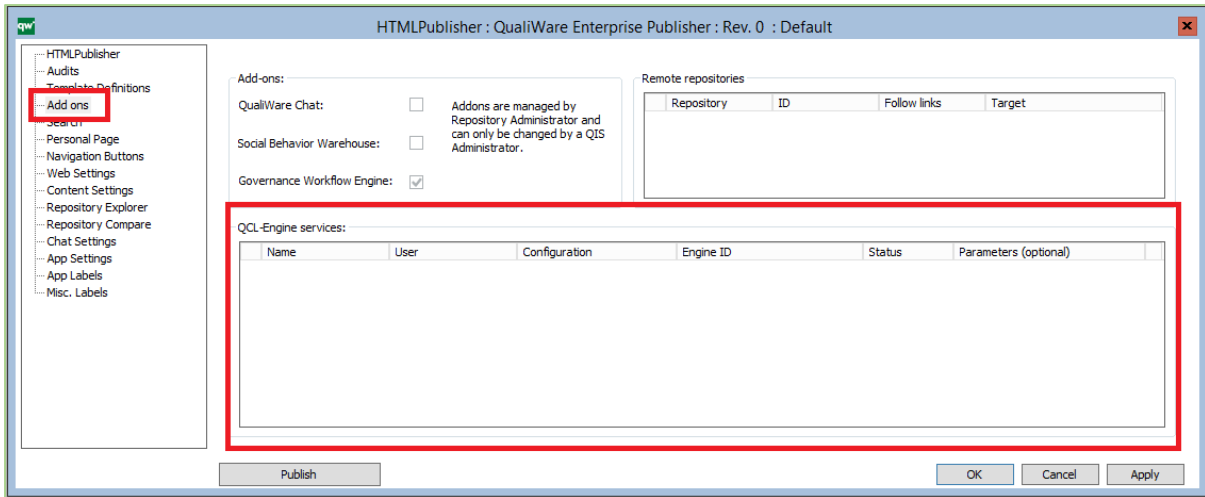


Figure 4-9: The QCL-Engine services are on the Add ons tabs in the HTMLPublisher

Inside QCL Engine Services Right Click and Insert Add Event Publisher

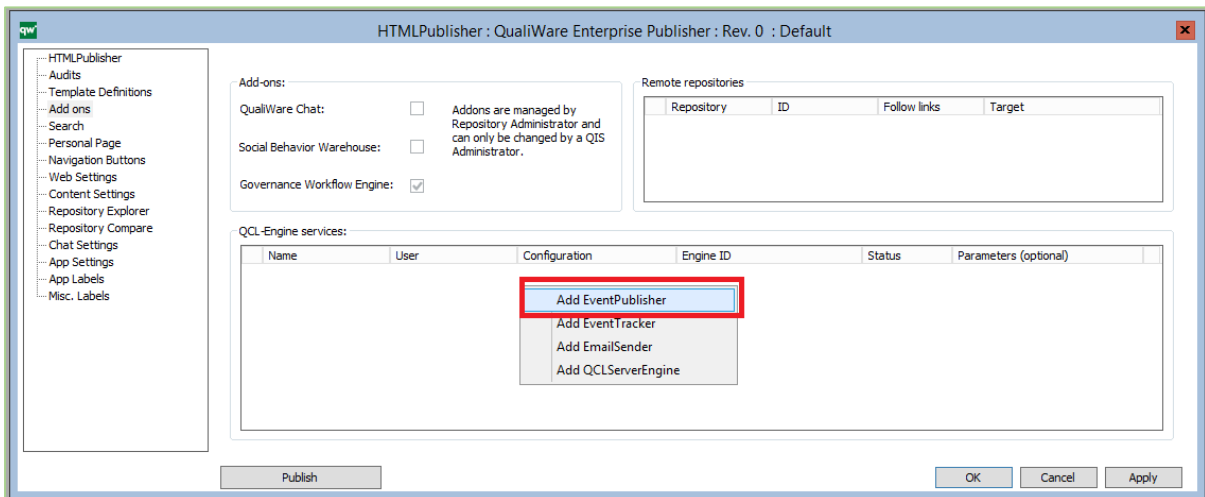


Figure 4-10: Add QCL-Engine service by right-clicking and select the relevant service.

Another Popup will appear asking you to select which user, select “QSA” and Click OK.

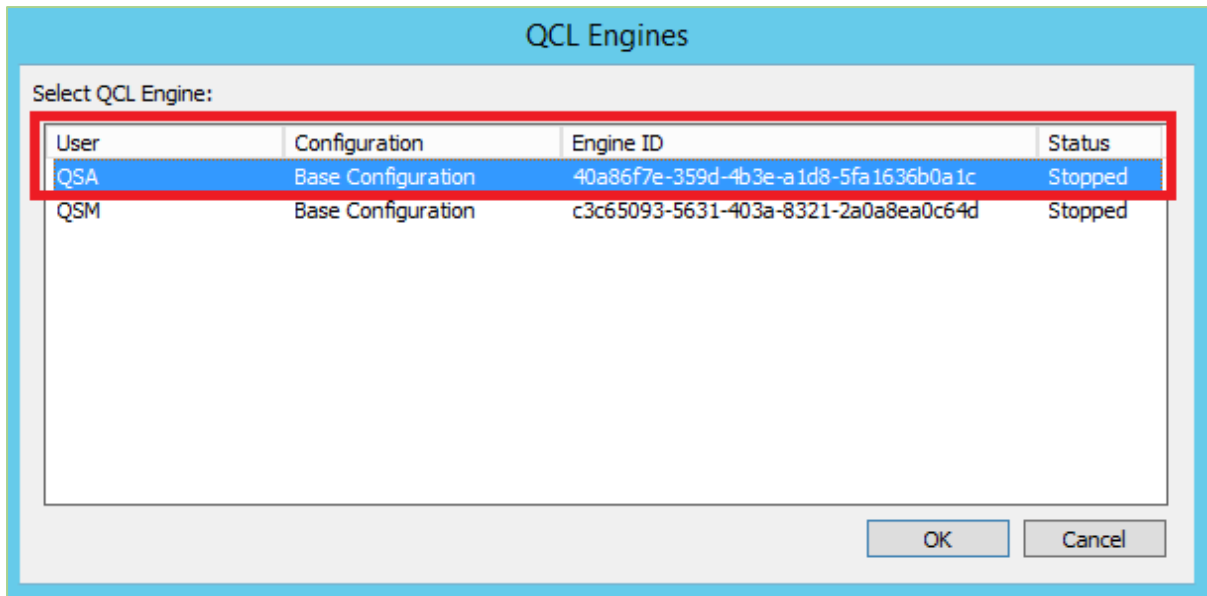


Figure 4-11: Select user to the QCL Engine.

Now repeat the Process and add QCLServerEngine but select QSM as user. It will look something like below

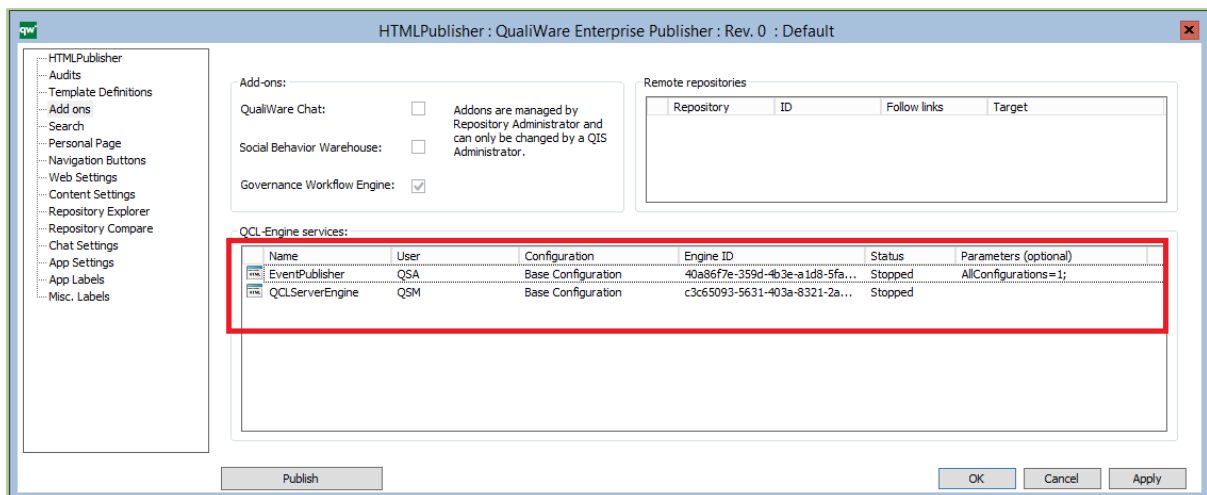


Figure 4-12: QCL-Engine services in the HTMLPublisher

4.5 Start QCL Engine instances in the Repository Administrator (RA)

Now Go to Repository Administrator -> QCL Engine Manager and Start the Instances

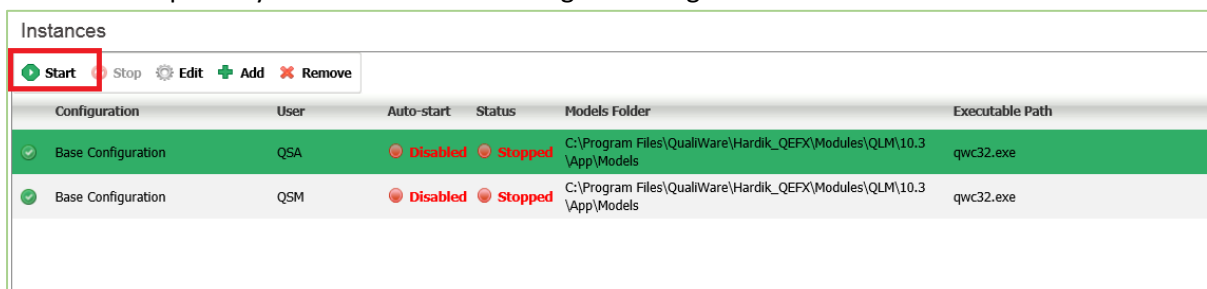


Figure 4-13: Start the QCL Engine instances in RA -> QCL Engine Manager

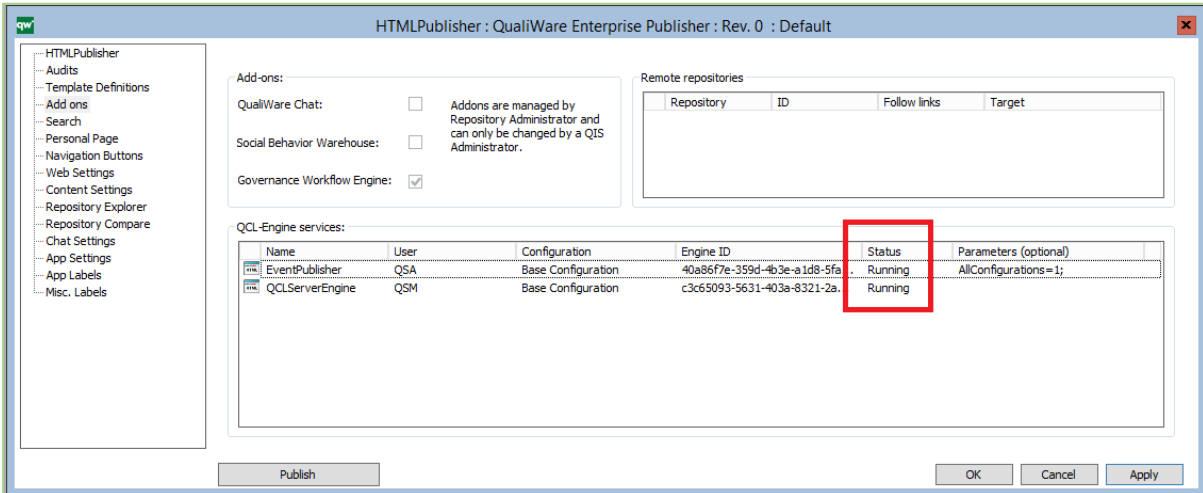
Once Started the Status should read Running after a while, which means it is successful.

Configuration	User	Auto-start	Status	Models Folder	Executable Path
Base Configuration	QSA	Enabled	Running	:\Program Files\QualiWare\Hardik_QEFX\Modules\QLM\10.3 App\Models	qwc32.exe
Base Configuration	QSM	Enabled	Running	:\Program Files\QualiWare\Hardik_QEFX\Modules\QLM\10.3 App\Models	qwc32.exe

Figure 4-14: The QCL Engine instances should have status "Running"

4.6 Check QCL-Engine service status in QLM

In the HTMLPublisher in QLM you can also check the status for the QCL-Engine Services under the Add ons tab, cf. Figure 4-15.



Name	User	Configuration	Engine ID	Status	Parameters (optional)
EventPublisher	QSA	Base Configuration	40a86f7e-359d-4b3e-a1d8-5fa	Running	AllConfigurations=1;
QCLServerEngine	QSM	Base Configuration	c3c5093-5631-403a-8321-2a	Running	

Figure 4-15: Check status for QCL-Engine services in the HTMLPublisher

NOTE: If you change QSA and QSM password please make sure QCL engines are running as it might stop and you would require change passwords in the Instances

5 How To Handle Problems

5.1 Check Application Logs

If features related to QCL Engines stop working as expected, the application log can be checked to see if the QCL Engine has stopped. You need access to the application server to check this. If access, find the logs and check the last update time. If the update time is old the QCL Engine has failed.

The logfiles can be found in the LOG folder, e.g.:

C:\Program Files\QualiWare\QEF[version number]\Web\WebModules\QIS Client\[version number]\GeneratedHtml\[repository name]\Base Configuration\LOG

5.2 Restart QCL Engines manually from QLM

If the QCL Engine has failed a first step could be to restart the QCL Engines manually in QLM.

In QLM open the HTMLPublisher (CTRL H) and go to the "Add on" tab, see Figure 5-1. Delete all QCL Engine Services and add them again. Remember to note the combination and re-establish these in the exact same way.

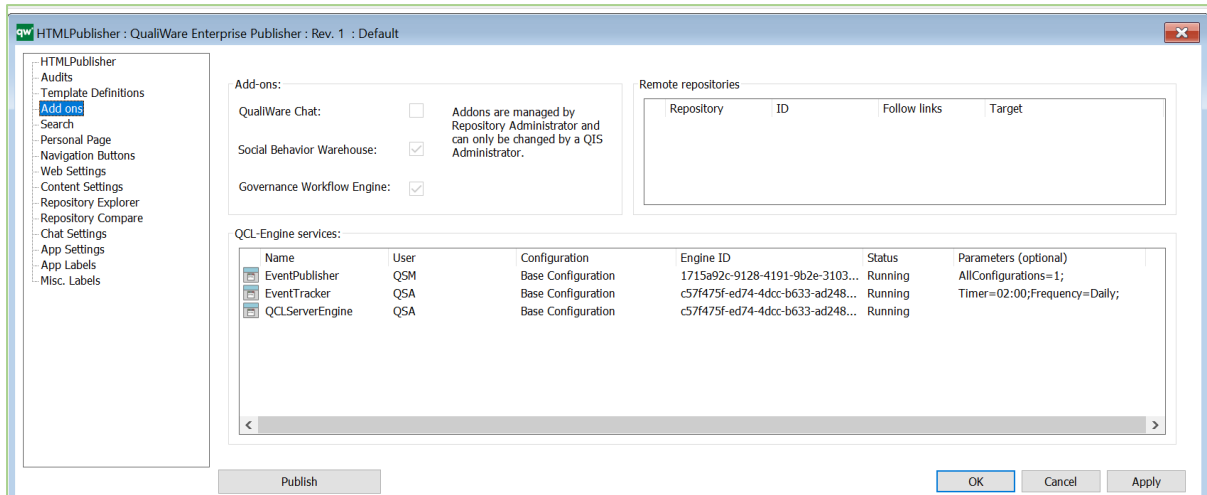


Figure 5-1: Remove and re-establish QCL-Engine services in HTMLPublisher

Note: The services should have status “Running”.

Removing and adding the QCL-Engine services again manually as described above, is a quick fix, and will in practice not disturb the production environment. If a user e.g., saves a diagram at the exact same time, the diagram will not be published. The work around will be to save it once again. Having said that, it is important not to overdue this feature, as this affects the possibility to identify a possible root cause.

If this manual restart from QLM doesn’t work, the QCL Engines needs to be restarted from the Repository Administrator. This is explained in the next section.

5.3 Restart QCL Engines From The Repository Administrator (RA)

The status of the QCL Engine must be Running. If they are in the status “Starting” or “Stopped” for a long time, additional investigation is required, first in the logs as per section 5.1, and then in QEF Console’s Logs.

Restarting a single engine is done by selecting the engine and then clicking “Stop” and “Start”.

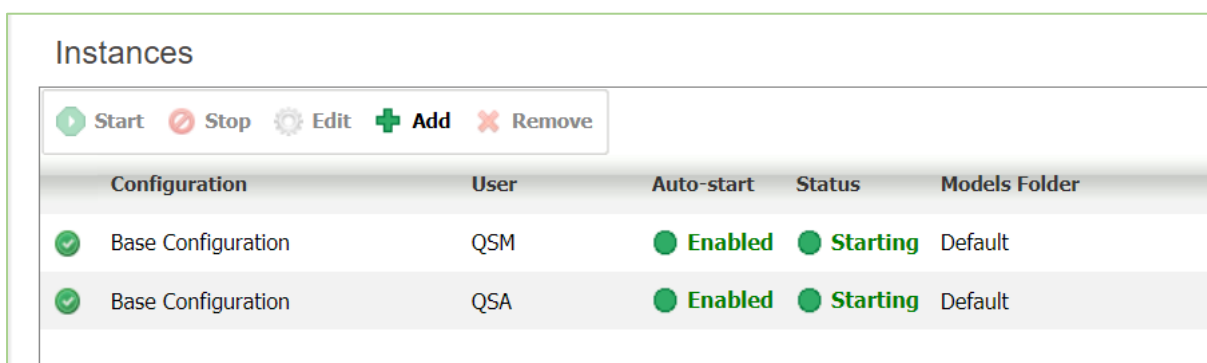


Figure 5-2: QIS/RAR – Administration of QCL Engines