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Oracle WebCenter Forms Recognition Runtime Server User's
Guide

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Documentation for Oracle WebCenter Forms Recognition administrators that describes how to create and configure Runtime Server instances for automated document processing.

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1 About Runtime Server

WebCenter Forms Recognition is a product suite by Oracle, for automatically processing incoming documents. In principle, Forms Recognition works with any electronically available document. This includes scanned images, faxes and files. WebCenter Forms Recognition automatically classifies these documents and extracts meaningful information from them.

WebCenter Forms Recognition uses a trainable, self-learning algorithm that minimizes user definition and intervention tasks. As part of the Forms Recognition suite, the Designer application enables you to customize the automatic processing of incoming documents: which document classes are relevant in your enterprise and which information is to be extracted from the classified documents. All custom settings are saved in a Forms Recognition project file.

To process large volumes of documents, WebCenter Forms Recognition organizes documents into batches. The Runtime Server uses the project files and stored settings for production processing.

The WebCenter Forms Recognition Runtime Server runs in the background as a server process. Multiple instances of Runtime Server can be started simultaneously in a network or on a single machine. Because all instances cooperate with each other, running multiple instances optimizes load distribution. Batches that cannot be entirely processed automatically by the Runtime Server are forwarded to the quality assurance application, Verifier, to be corrected manually.

1.1 Remote Service Administration

System administrators can remotely administer machines that run instances of WebCenter Forms Recognition Runtime Server. This Remote Service Administration feature, based on Microsoft Management Console (MMC) technology, provides a host environment for administering remote service.

1.1.1 About Microsoft Management Console

Microsoft Management Console (MMC) is a tool for creating, saving, and opening collections of administrative tools called *consoles*. The Active Directory Domains and Trusts, Active Directory Sites and Services, and Active Directory Users and Computers administrative tools are all consoles. The console does not provide management, but it is the program that hosts management applications, called *snap-ins*. MMC provides a common host environment for snap-ins from a variety of software vendors. Using snap-ins, administrators and other users can create custom management tools. Administrators can save the tools they created for other uses or share them with other administrators and users. This model enables administrators to customize tools and create multiple tools of varying levels of complexity. By creating a custom MMC, you can avoid switching between programs and preconfigured MMCs.

The purpose of MMC is to create a set of integrated tools to perform specific tasks. The snap-ins provides the actual management behavior, while the MMC environment provides seamless integration between snap-ins. On its own, MMC is only a container (known as the *tools host*). Snap-ins are extensions to the host that add management functionality. By combining snap-ins, you can create tailored administration consoles. Because a set of snap-ins can be saved into a tool, they can also be forwarded to others delegated to perform a specific task. When reopened, the tool appears in the last saved state.

With MMC, you can perform any of the following actions.

- Host software tools from one location.
- Customize the console for every administrative skill level.
- Integrate your tools using the extensible model.

1.1.2 The Role of MMC

MMC is a Windows-based multiple document interface (MDI) application. Snap-ins extend the console while they perform management tasks. MMC programmatic interfaces permit the snap-ins to integrate with the console. However, the way that each snap-in actually does a task originates from within the snap-in. The relationship of the snap-in to the console consists of sharing a common hosting environment, and with cross-application integration. The console itself offers no management behavior. Snap-ins always resides in a console and do not run independently.

MMC is an integral part of all Microsoft Windows operating systems.

1.1.3 Remote Administration Architecture

In the WebCenter Forms Recognition Service Manager MMC snap-in, a hierarchical tree structure in the tree view represents each individual machine and instance of Runtime Server. The *Runtime Server* pane displays batches for each instance.

A system administrator can perform any of the following actions:

- Control the operation of each instance of WebCenter Forms Recognition Runtime Server over an entire network.
- Change the settings of each instance, such as workflow, import/export folders, and scripting parameters.
- Monitor the progress and status of the Runtime Server instances.

2 About This User Guide

This user guide is intended for system administrators and others who will be customizing WebCenter Forms Recognition Runtime Server, or administrating its server.

Readers should have sound knowledge of the Microsoft Windows operating system they work with.

For purposes of readability, this manual occasionally shortens the term WebCenter Forms Recognition Runtime Server to *Runtime Server* or *RTS*. These terms are synonymous.

2.1 Related Documentation

In addition to this user guide, **WebCenter Forms Recognition** is provided with the following documentation:

- Oracle WebCenter Forms Recognition Installation Guide.
- Oracle WebCenter Forms Recognition Designer User's Guide.
- Oracle WebCenter Forms Recognition Verifier User's Guide.
- Oracle WebCenter Forms Recognition Web Verifier User's Guide.
- Oracle WebCenter Forms Recognition Scripting User's Guide.

All of the above mentioned documents are included on the installation media.

3 Getting Started

WebCenter Forms Recognition Runtime Server requires some configuration after installing the software, including port assignment, creation of a batch path file, and set up of the Runtime Service Manager.

Note: All configurations must be performed by a user with system administrative privileges.

Before configuring the Runtime Service Manager, ensure that the users and groups discussed in Platform Requirements in the WebCenter Forms Recognition Installation Guide exist. Specifically, check the domain user **RTSsvc**. The Forms Recognition Runtime Service Manager runs under the identity of this user. If you are in a workgroup environment, make sure this user is configured on all Forms Recognition servers.

3.1 Configuring the Batch Path File

This file is used to specify the UNC name of the machine that contains the batches. To create it, use a text editor such as Notepad to create a new file in the batch root directory (for example, **C:\WFR Projects\AP 1007G\Batch**) and name it **SrvName.dat**. In the body of the file, specify either the name of the computer or its IP address in the following format:

```
\\computer name
```

or

```
\\IP address
```

In case file system batches are used on a shared network, the file *SrvName.dat* must be configured in both the batch root folder and shared license folder.

3.2 Configure Runtime Service Manager

Below are the steps required for configuring the Runtime Service Manager. You must be logged on as a system administrator to perform these steps:

1. Start the Services management console.
 - a. Click **Start**.
 - b. Select **Run**.
 - c. In the Run dialog, enter **services.msc** and click **OK**.
2. Locate and double-click the **WebCenter Forms Recognition Runtime Service Manager** item in the list of installed services.
3. Optional: On the **General** tab, under **Startup type**, select **Automatic** from the dropdown list to start the service automatically each time the server machine is rebooted.
4. Go to the **Log On** tab.
5. Select the **This account** option.
6. Click the **Browse...** button.

7. Find and add the domain user that is appropriate and sufficient for Forms Recognition processing network access rights, such as **RTSvc**, and then click **OK**.
8. Enter and confirm the domain password for the selected user in the appropriate fields.
9. Click **OK** to save the settings and close the *Properties* dialog.
10. Close the Services management console.

4 The Concept of Batches

A WebCenter Forms Recognition batch manages one or more documents and controls the flow of these documents through the system. Inside a batch, a second structure, called a folder, can be created for documents that are related to each other.

4.1 Concept of a Batch

All information about a batch is located in the batch repository. Only the images can be stored elsewhere. A batch has four parts, which are identified in the following list:

- Batch control file. Text files containing all information about the status of the batch, its folders, and documents. The batch control file also contains information about the WebCenter Forms Recognition project that should be used for processing. The batch is self-contained. Batch control files are saved with a **.sdb** extension.
- Fast info file. A copy of the main information from the *SDB* file. It provides a quick way to determine the status of a batch without opening the *SDB* file. When the fast info file is deleted, it is automatically recreated from the *SDB* file. The second character of the file name is the priority, and the last eight characters are the batch ID. The extension of the fast info file indicates the status of the batch as a number between **000** and **999**.
- Lock file. The lock file allows multiple instances of WebCenter Forms Recognition Runtime Server to access the batch root directory. The lock file is created and removed by the Runtime Server for the currently processed batch. It is removed by the operating system if the program terminates abnormally. Lock files are saved with a **.loc** extension.

Note: Lock files are also created in Designer and Verifier.

- Subdirectory. The subdirectory is named after the batch ID. The subdirectory contains the Workdoc (.wdc) files, usually the images (TIFF or similar) and attachments to a document, such as PD files or fax header files.

4.2 Batch Creation and Usage

In the WebCenter Forms Recognition process, batches are the primary mechanism for routing documents. They are typically created in one of two ways:

- Documents can be created by an upstream capture solution, such as WebCenter Enterprise Capture, and then imported into a WebCenter Forms Recognition batch by the Runtime Server. Refer to [Section 6.4: Import Settings](#) for further information about configuring Runtime Server to import batches.
- WebCenter Forms Recognition can create the batches from documents stored in the file system programmatically using the *Cedar BatchControl Library*. This library can be used with either Visual Basic or Visual C++, and is installed with WebCenter Forms Recognition in the following location:

`<Installation Folder>\Components\Cedar\CdrBatch.dll`

5 Runtime Server Administration

WebCenter Forms Recognition Runtime Servers are configured and administered using a snap-in for Microsoft Management Console (MMC). In the context of Forms Recognition this is referred to as the *WebCenter Forms Recognition Management Console*, and can be accessed from the Windows Start menu. The default menu location is **Start > Programs > Oracle > WebCenter Forms Recognition > Runtime Service > Management Console**.

The starting point for setting up WebCenter Forms Recognition Runtime Server administration is to create one or more machine groups in the management console. Server machines where WebCenter Forms Recognition Runtime Server is installed can then be added to a machine group, and one or more Runtime Server (RTS) instances can be added and configured on the machines in the group. Once the machines and RTS instances have been created and configured, batches can be processed through the Runtime Server. As the batches are processed, the WebCenter Forms Recognition Management Console can be used to start and stop instances, view statistics, documents, classification, extraction, and performance.

5.1 Add Machine Groups

The flexibility of WebCenter Forms Recognition Runtime Server enables you to add machine groups that include one or more server machines. Machines contain WebCenter Forms Recognition Runtime Server instances.

To add a machine group in the WebCenter Forms Recognition Management Console, complete the following steps:

1. Start the WebCenter Forms Recognition Management Console from the Windows Start menu. The default menu location is **Start > Programs > Oracle > WebCenter Forms Recognition > Runtime Service > Management Console**.
2. Select the **Runtime Server Administration** node in the navigation tree.
3. From the **Action** menu, select the **New RTS Group...** option. Alternatively, right-click the **Runtime Server Administration** node and select **New RTS Group...** from the popup menu.
4. In the *New Group* dialog, enter a name for the new machine group and click **OK**. The new machine group is displayed in the navigation tree of the console as a child of the **Runtime Server Administration** node.

5.2 Add Machines to a Group

Before a WebCenter Forms Recognition server machine can be added to a group, the **WebCenter Forms Recognition Runtime Service Manager** service must be started on that machine, otherwise the Management Console will be unable to connect to it.

To add a machine to a group in the Management Console, complete the following steps:

1. Select the machine group in the navigation tree.
2. From the **Action** menu, select the **New Machine...** option. Alternatively, right-click the machine group node and select **New Machine...** from the popup menu.

The *Group Management* dialog is displayed. It contains a list of the names of all available WebCenter Forms Recognition machines that are part of the Runtime Server domain, and the group associated with the machine.

Note: You cannot add a machine that already belongs to a different machine group.

3. Select the appropriate domain from the **Domains** dropdown list.
4. Enter the machine name in the **Available Machines** field, or select it from the list and add it to the **Monitored Machines** list.

Note: To configure Runtime Server to run as a standalone system on the local machine, enter **localhost** as the machine name.

5. Click **OK**. The new machine is displayed in the navigation tree of the console as a child of the machine group node.

5.3 Working with Runtime Server Instances

Runtime Server instances include one or more batches. With Runtime Server, you can add, delete, or modify the characteristics of instances to customize a Runtime process. Each instance has Runtime Services, which are options for monitoring each step of the processing. The number of instances that you can run at one time depends on CPU utilization.

5.3.1 Add Instances to a Machine

In the WebCenter Forms Recognition Management Console, instances are displayed as child nodes of the machine where they are configured. Instances can be added, modified or deleted to further configure the machine.

To add an RTS instance to a machine, complete the following steps:

1. In the WebCenter Forms Recognition Management Console, select the machine node in the navigation tree.
2. From the **Action** menu, select the **New** option, then select **RTS Instance...** from the secondary menu. Alternatively, right-click the machine node and select **New > RTS Instance...** from the popup menus.
3. On the *New RTS Instance* dialog, enter a name for the new instance.

Note: Instance names can have a maximum length of 32 characters, except when using cloned instances, where the maximum length is 22 characters. For more information about cloning instance, refer to [Section 5.3.3: Cloning Instances](#).

The chosen name should be representative of the documents being processed and the workflow steps the instance will be processing. For example, **AP Invoices Import, Export**.

RTS instance names must not contain multi-byte characters.

4. Click **OK**. The new instance is displayed in the navigation tree of the console as a child of the machine node.

5.3.2 Delete Instances

To delete an instance from a machine, complete the following steps:

1. Launch the WebCenter Forms Recognition Management Console.
2. Select the instance to delete in the navigation tree.
3. From the **Action** menu, select the **Delete** option. Alternatively, right-click the instance node and select **Delete** from the popup menu.

5.3.3 Cloning Instances

The workflow steps OCR, Classification and Extraction are those with the most load workforce. You can share the workload and make the application faster by cloning an RTS instance that is already created and properly configured.

This saves time, as you are able to clone an instance multiple times using the same settings.

Note: Instances created for the workflow steps Import and Cleanup should not be cloned. Only one instance of Cleanup is needed per batch job. An Import instance is unique in its settings to import files from one import folder.

If you modify an instance's settings, the clone instances will inherit these changes. Note that an RTS restart is required to apply the changes.

Enable the cloning of Runtime Server instances by adding **InstanceCount** in the Windows registry. The value must be located within the registry key for the instance to be cloned, as described in the following steps:

1. Open the Windows Registry Editor.
2. Navigate to **HKEY_LOCAL_MACHINE\Software\Oracle\Services\<instance name>** on a 32-bit system, or **HKEY_LOCAL_MACHINE\Software\Wow6432Node\Oracle\Services\<instance name>** on a 64-bit system.
3. If a value named **InstanceCount** already exists for this key, go to step 5 below, otherwise right-click the instance key and select **New > DWORD (32-bit) Value** from the popup menus.
4. Enter **InstanceCount** for the value name.
5. Right-click the new value and select **Modify** from the popup menu.
6. Enter an integer value representing the number of the instances required.

Note: Entering **0** (zero) in this DWORD value will delete the existing instance.

7. Restart the WebCenter Forms Recognition Runtime Service Manager.

6 Configure Runtime Server

Configuring WebCenter Forms Recognition Runtime Server enables you to generate new batches, and to specify processing options for existing batches.

6.1 Administration Access

Usually, the WebCenter Forms Recognition Runtime Service Manager is started as a service through the Windows Services console. It can also be started by executing a batch file called **Start RTS as NT Service.bat**, which can be found in the following location:

```
<Installation Folder>\Bin\bin
```

Once the RTS Manager service is started, RTS instances can be added as described in [Section 5.3.1: Add Instances to a Machine](#) and configured as follows:

1. Launch the WebCenter Forms Recognition Management Console.
2. Locate and select the RTS instance to be configured in the navigation tree.
3. From the **Action** menu, select the **Properties...** option. Alternatively, right-click on the RTS node and select **Properties...** from the popup menu, or click the *Properties* button on the toolbar.
4. The *WebCenter Forms Recognition Runtime Service Properties* dialog is displayed.

6.2 General Settings

For general settings, such as referenced directories, files and program control options, select the **General** tab.

6.2.1 Project File

The individual settings that comprise the **Project File** group are described below:

Use Project File	Lets you select path and file name of the Forms Recognition project that is used to process the documents. Select this option if WebCenter Forms Recognition Runtime Server creates the batches or to import existing batches without project specification in the batch control file.
------------------	--

Use Batch Specific Project File	Uses the Forms Recognition project referenced in the batch control file. Select this option to import existing batches where the project is already specified in the batch control file.
---------------------------------	--

6.2.2 Directories

The individual settings that comprise the **Directories** group are described below:

Use Database	Uses the Forms Recognition Database as the source. This option is enabled by default if user is configuring a new instance.
--------------	---

Select Job	<p>Select the desired job from the dropdown list or create a new job by clicking the Create Job button. A job can be thought of as a 'job queue' with batches pending for verification.</p> <p>When creating a database job, its name must not contain multi-byte characters.</p>
Batch Root	<p>This is the directory where the batch control file will be written. Subdirectories for the Workdocs are created there.</p>
Image Root	<p>This is the directory where subdirectories with the scanned images will be created. As a rule, the batch root and the image root should be the same directory. In special cases, such as for security reasons, the image root can be different from the batch root. The image path can also be stored as an absolute path in the Workdoc. If so, the image root directory is ignored. This option cannot be used if using the database for batch storage.</p>
Export	<p>This is the directory used to export the results of the process. Exporting is normally script-controlled. The export directory is the standard path.</p>

6.2.3 Batch Scanning Delay and Mode

The individual settings that comprise the **Batch Scanning Delay and Mode** group are described below:

Wait	<p>WebCenter Forms Recognition Runtime Server constantly polls the batch root directory. This parameter specifies the seconds between two polling cycles. Use a defined polling interval for permanent operation. The value should not be too small to restrict the network load. To prepare batches for WebCenter Forms Recognition Designer, scanning once is sufficient.</p>
Activate High Priority Mode	<p>If this option is checked, the processing order is determined according to priority and then input state. Otherwise it is determined according to input state and then priority (0 – highest priority). The benefit of this option is to easily determine urgent/ immediate batches for processing. This setting is typically reserved in configurations where Batch Priority is used in processing urgent/ immediate batches.</p> <p>For cleanup instances, it is recommended to disable the High Priority Mode to maximize performance.</p>

6.2.4 Logging Level

The individual settings that comprise the **Logging Level** group are described below:

No Logging, Info, Warning, Error	<p>Sets the scope of logging. The log file is created in the directory <i><Installation Folder>\Bin\bin\Log</i>. A new log file is created daily.</p>
Delete Log Files After	<p>Sets the number of days after which log files are deleted automatically.</p>

6.2.5 Automatic Start / Stop

The individual settings that comprise the **Automatic Start / Stop** group are described below:

Start At	This setting can be used to configure specific Runtime Server processes to be started at certain time of the day, for example, when the overall system's workload is not that high at night time.
Terminate At	Sets the time for automatic shutdown. The program is blocked for a certain amount of time after the automatic shutdown. If the shutdown occurs during the first three quarters of an hour, you cannot activate the program within the same hour. If the shutdown occurs during the last quarter of an hour, you cannot activate the program within the same and the next hour.

6.2.6 Client

WebCenter Forms Recognition Designer may use global variables in scripts that affect document processing. For each variable, it is possible to use client-specific values. In this box, you can enter the client name that must match one of the client names used by Designer. With the default entry, global variables do not vary by client.

6.2.7 Automatic Restart

The individual settings that comprise the **Automatic Restart** group are described below:

After Timeout	In error situations, WebCenter Forms Recognition Runtime Server can restart itself after a certain timeout. If the program gets stuck, it will mark the current document as processed with status invalid and restart automatically after the timeout you specify.
After ... Hours	In this case, an automatic shutdown and restart occurs after the specified period of time in hours, regardless of whether an error has occurred. This option can be used to prevent error situations. In the event that an automatic restart occurs during an import, the application is designed to maintain batch integrity.
After ... Documents	In this case, an automatic shutdown and restart occurs after a certain number of documents have been processed, regardless of whether an error occurred. This option can also be used to prevent error situations.
After ... + Pages Document	In this case, an automatic shutdown and restart occurs after a document containing the specified number of pages (or more) has been processed, regardless of whether an error occurred. This option can also be used to prevent error situations.

6.2.8 Automated System Updates

The individual settings that comprise the **Automated System Updates** group are described below:

Update System Security	Allows Runtime Server to update the system security according to the time configured by users.
<hr/>	
Automatic Pool Update	Allows Runtime Server to automatically update the pool according to the time configured by users.

6.2.9 Extended Settings

The individual settings that comprise the **Extended Settings** group are described below:

Enable Script Debugging	<p>Some script options, for instance export over folders, can only be tested with Runtime Server. This option enables script debugging with Runtime Server (for expert users only).</p> <p>This configuration option is only available when you start the WebCenter Forms Recognition Runtime Server as an application and not as a service.</p> <p>Refer to the <i>Oracle WebCenter Forms Recognition Scripting Guide</i> for information on how to activate this option.</p>
<hr/>	
Automatic Start	Allows Runtime Server to restart after a system reboot.
<hr/>	
Min Free Storage	Stops processing when the specified minimum free hard disk space has been reached. The system will remain idle until new resources are available.
<hr/>	
Min Free RAM	Stops processing when the specified minimum available RAM has been reached. The system will remain idle until new resources are available.
<hr/>	
Enable Batch Integrity Verification	This setting is used to keep integrity of file system batches. It must be enabled on one instance. It is not used if database batches are used.

6.3 Workflow Settings

To specify the steps that should be carried out when processing documents, select the **Workflow** tab.

6.3.1 Process Step

The settings on the **Workflow** tab define the processing steps that will be performed by the RTS instance.

A process step is enabled if the corresponding button appears depressed; it is disabled if the corresponding button does not appear to be depressed. Only enabled process steps will be performed by this instance of WebCenter Forms Recognition Runtime Server.

For example, prepare batches for **Forms Recognition Designer** by activating the **Import** and the **OCR** steps, or import and process batches by activating all steps.

The Runtime Server has a *Database Export workflow step* that allows the administrator or project developer to migrate file system batches into the database. The **Database Export** button is only enabled if the **Use Database** checkbox is deselected on the **General** tab.

The *Custom Processing* workflow step allows the configuration of an additional custom workflow step that can be launched between existing workflow steps. For example, the RTS can be configured to import, OCR and classify batches, and then prior to extraction, to have a custom processing option to review all classification results. The RTS will then loop through all available batches at the defined input state and execute the project-level *ProcessBatch* event, allowing script to apply the required re-batching procedures, for example, resorting of documents within the next processed batch.

When *Custom Processing* is performed, the RTS will only update the output state to the defined value if the documents' batch state remained the same (equal to the input state) after completion of the script processing.

6.3.2 Input State and Output State

WebCenter Forms Recognition Runtime Server polls the batch root directory or database job, and processes batches only if their current state corresponds to one of the defined input states.

When a processing step is completed, the batch state value is assigned the corresponding defined output state for that step. For some processing steps, there are two possible output states that indicate success or failure.

If the batch status indicates a failure, the batch will normally be handed to WebCenter Forms Recognition Verifier, where the error can be manually corrected. When the batch is verified, it again changes its status value to a valid input state for the Runtime Server, which will then resume processing. The WebCenter Forms Recognition Management Console displays the last 10 error messages in a table that includes the time that the error message appeared.

The status of the batch is calculated from the status of the folders within it. The status of the folders is in turn calculated from the status of the documents within them. At the batch level, processing steps are considered to have succeeded only if they were successful for all documents in all folders in the batch.

Use the appropriate **Input State** and **Output State** fields on the Workflow tab to control the flow of batches through the system. For successful steps, define output states with matching input states to ensure further processing. For failed steps, define output states that make sure that the system stops processing these batches, so appropriate action can be taken to rectify the failure.

The **Input State** and **Output State** values can be any integer between **0** and **999**, and should be entered into the appropriate fields for the respective processing steps. The suggested state values for the various processing steps are shown in the table below, although the actual values used for a given implementation can be defined as appropriate for the particular project and processing requirements. Notice how the *Success Output State* of a process step corresponds to the *Input State* of the next logical step in the process.

Process Step	Input State	Success Output State	Failure Output State
Import		100	50
OCR	100	200	150
Document Separation	200	230	215
Classification	200	300	250
Extraction	300	700	550
Export	700	800	750
Custom Processing	650	700	690
Database Export	450	800	760

Clean Up	800		
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6.3.3 Perform Advanced Import Failure Processing

This option is only available when **Import** process step is selected. If enabled, any documents that fail the import step are still organized into batches, but the batch state value will be set to that defined as the **Failed** output state for the *Import* step.

If this option is disabled, the failing documents are not imported into batches and will be moved to a folder called **import_bad_images**.

Note: It is recommended to activate this option where RTS instances are configured to restart automatically after a defined time period. This will ensure that batch integrity will be maintained. Refer to [Section 6.2.7: Automatic Restart](#).

6.3.4 Perform Folder Based Classification and Extraction Step

In the context of WebCenter Forms Recognition, a *folder* is a structure within a batch that can be used for documents that are related to each other. For example, several TIFF images may be stored as multiple files, but actually belong to the same document.

Enable the **Perform Folder Based Classification and Extraction Step** option to control batch classification and extraction processing using folders instead of batches.

When this option is enabled, the workflow steps are serialized per folder. This means that all documents within a folder are loaded at once, prior to the start folder of processing. Classification and extraction are then performed on all documents in a folder before the next folder is processed.

Additionally, the *pWorkdoc.Folder* and *pWorkdoc.FolderCount* script methods are available, and can be utilized to access neighbor documents that belong to the same folder of the batch.

Note: This must be enabled for any kind of document separation, regardless of whether it is script-based, phrase-based or engine-based, or any combination of these.

This option must also be enabled for phrase-based multipage detection. With multipage detection, classification and extraction must be performed together. Refer to the *Oracle WebCenter Forms Recognition Designer User's Guide* for more information about multipage detection.

If this option is not enabled, the classification step is first performed on all documents in all folders before extraction is performed.

6.3.5 Perform Folder Based Serial Processing

Enable the **Perform Folder Based Serial Processing** option to control serial processing using folders instead of batches. This affects the interrupting options.

With this option enabled, it is possible to perform the classification and extraction workflow steps separately.

6.3.6 Corrupted Document Failure State

This is a special output state indicating that processing failed because of an unexpected error; probably a damaged document. In this case, the document's status, and therefore the status of the corresponding batch, is reset to 0.

6.4 Import Settings

The WebCenter Forms Recognition Runtime Server creates batches during the import step. In this case, the RTS must be configured to define when documents should be imported and how they should be organized in batches.

To specify the import options for documents, select the **Import** tab.

Note: Prior to importing images, ensure that the image file names do not contain curly brackets or braces ({}). Images with these characters in their file name cannot be opened in the Web Verifier application. Rename files containing these characters where necessary.

WebCenter Forms Recognition does not support importing documents where the file name contains multi-byte characters. Rename files where the file name contains these characters prior to import.

6.4.1 Import Directory

Define the directory path where documents to be imported are stored. This is typically the same location where the capture solution, for example, WebCenter Enterprise Capture, commits or saves documents.

Note: WebCenter Forms Recognition does not support *Import Directory* names that contain multi-byte characters.

6.4.2 Document Type

The individual settings that comprise the **Document Type** group are described below:

Automatic	If selected, all documents are imported, regardless of their type, and the system will determine whether they are images or CI documents, based on their file extensions. They will be OCR'd accordingly. Refer to Section 6.4.2.1: Notes for Using the Automatic Document Type Feature below for further information regarding this option.
Skip	Defines a system file extension that will not be imported, for example, sys . The extensions <i>add</i> and <i>rdy</i> are always considered to be system extensions and will always be ignored. This setting is only enabled when the <i>Automatic</i> option (described above) is selected.
Type	Select or type the file extension for the document types that should be processed. Supported file types include tif , doc and msg . Other file types may work, but require individual testing.

CI Documents	If documents have been generated electronically (for instance, using a word processor) a text representation is required to process them, but not a complete OCR like the one for images. Select this option to process such files.
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Note: Do not enable this option where the RTS instance will be used to process scanned images or faxes.

6.4.2.1 Notes for Using the Automatic Document Type Feature

When the **Automatic** checkbox is activated, the *Import* workflow step will import all available documents, and will distinguish between image and CI document types automatically using an internal predefined list of document extensions.

In this regard, the subsequent OCR process is not dependent on the *CI Docs Only* option (on the *OCR + Export + Clean Up* tab) being enabled, and only depends on what type of document is being processed (i.e. *image* or *CI document*). Moreover, it is possible, to have multiple document files of different types (multiple *image* files and multiple *CI document* files) attached to a single Workdoc. For such a Workdoc, the Runtime Server is going to use appropriate OCR engine(s) when processing the document page-by-page.

When importing image files into WebCenter Forms Recognition, the system can automatically convert the imported image documents into one of 39 currently supported image formats. If the imported document is a multipage document, the system automatically splits the image pages into separate files in cases where the desired image format does not support multiple pages, or combines them in one single image file if it is supported by their format. Refer to the *Automatic Conversion of Documents During Import* section of the *Oracle WebCenter Forms Recognition Designer User's Guide* for further information.

6.4.3 Document Grouping

The options in the **Document Grouping** group define the structure that will be used when creating batches from files and subdirectories within the defined import directory. These options are described below:

1 Folder per Batch (No Subdirectories)	This option is appropriate where the import directory contains no subdirectories. A single batch with a single folder will be created from all the documents in the import directory. Additional batches will only be generated if the number of documents within a batch is restricted.
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1 Folder per Document (No Subdirectories)	This option is appropriate where the import directory contains no subdirectories. A single batch will be created from the documents. Within the batch, a separate folder will be created for each document.
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Note: You cannot use multipage detection if you select this option.

1 Batch per Subdirectory, 1 Folder per Batch	<p>This option is appropriate where the import directory contains subdirectories.</p> <p>A separate batch will be created for each subdirectory. Each batch will contain a single folder.</p>
1 Batch per Subdirectory, 1 Folder per Document	<p>This option is appropriate where the import directory contains subdirectories.</p> <p>A separate batch will be created for each subdirectory. Within the batch, a separate folder will be created for each document.</p>
<p>Note: You cannot use multipage detection if you select this option.</p>	

6.4.4 Import Condition

The options in the **Import Condition** group define the conditions that must be met for the *Import* processing step to begin. These options are described below:

Always Import Documents	<p>All files that exist in the defined import directory and that match the <i>Document Type</i> definition will be imported when the RTS polls that directory.</p>
Import Only if Ready File Available in Directory	<p>Files in the defined import directory will only be imported if a file of the defined name exists in the import directory or a subdirectory. The default name of this file is import.rdy, but this can be defined in the corresponding text input field for this option. The ready file itself will not be imported into the resulting batch.</p> <p>The ready file is created by an external system at the end of the data transfer to the import directory, for example, when all image files for a given batch have been successfully written to that directory or subdirectory. The Runtime Server will delete the ready file after the import step has been successfully completed.</p>
Import Only if Minimal Number of Documents Are Available in Directory	<p>Files will only be imported when the defined minimum number of documents that match the <i>Document Type</i> definition exist in the import directory and/or its subdirectories. The appropriate minimum number of documents can be defined in the corresponding text input field for this option.</p>
Import Only if All Files Older Than	<p>Files will only be imported if all files in the import directory and/or its subdirectories, that match the <i>Document Type</i> definition, are older than the defined time period. If one or more documents do not meet the defined age criteria, no documents will be imported.</p> <p>The required age of the documents can be defined in seconds, minutes or hours using the corresponding text input and dropdown fields for this option.</p>

Import if Min. No. Docs Available OR All Files Older Than Specified Timespan	This option combines the two options described above. Field will be imported if either of the defined conditions is true.
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Import Only Files Which Are Older Than Specified Timespan	This option works similarly to the <i>Import Only of All Files Older Than</i> option described above. However, in this case, files that meet the age condition will be imported, even if other files that do not meet the age condition exist in the import directory and/or subdirectories. Those files that do not meet the age condition will remain in the import directory (or subdirectory) until such time that they do meet the defined condition, at which point they will be imported.
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6.4.5 Extended Settings

The individual settings that comprise the **Extended Settings** group are described below:

Limit Batch Size	<p>Creates an additional batch if the total number of documents exceeds the specified number of documents. The specified number will be the maximum number of documents per batch.</p> <p>Choose this option if you have large input directories and want to create small batches that can be better distributed.</p>
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Import *.wtx Files	Use this option to process <i>.wtx</i> files generated by eRecognize. In the <i>Workflow</i> options, you can skip the <i>OCR</i> step.
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Import Priority	<p>Sets the batch priority and thus the processing order. Enter an integer value between 0 (highest priority) and 9 (lowest priority).</p> <p>The default value is 5.</p>
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Batch Prefix	<p>Sets a prefix for the batch name that will be supplemented by an incremental number.</p> <p>The batch name is visible in WebCenter Forms Recognition Runtime Server and in Designer.</p> <p>The <i>Batch Prefix</i> must not contain multi-byte characters.</p>
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Folder Prefix	<p>Sets a prefix for the folder name that will be supplemented by an incremental number.</p> <p>The folder name is visible in WebCenter Forms Recognition Designer.</p> <p>The <i>Folder Prefix</i> must not contain multi-byte characters.</p>
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File Transfer Mode	Specifies whether documents will be copied from the import directory to the batch root, or if they will be moved. If documents are copied, they will remain in the import directory, and this can cause continuous batch generation unless the files are removed by another process.
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6.4.6 Additional File Import

The settings for the **Additional File Import** feature can be used alone, or in conjunction with the [Import Only if Ready File Available in Directory](#) option, to check for additional associated files.

Note: If this feature is used in conjunction with the *Import Only if Ready File Available in Directory* option, **WebCenter Forms Recognition** Runtime Server will delete the *rdy* file first, and then it will check for additional files and will import them.

Although most often used with an *rdy* file, you can also use this feature independently, even if there are no additional files.

The available settings are described below:

Import 1
Additional File
per Imported
Document

This method checks for additional files that might be associated with documents, and makes sure that you import only the desired associated files. Additional files could be, for example, faxes and associated header files.

There must be a well-defined relationship between the file name of the image and the name of the associated file. To express this relationship, use literal characters, the * as a wildcard character that represents the base name without the extension, and the special characters # and ?.

Example 1:

Image Filename: 204_ABC123_20150101.tif
Attachment Filename: 204_ABC123_20150101.doc
Additional Filename: *.doc

Example 2:

Image Filename: 204_ABC123_20150101.tif
Attachment Filename: 204_ABC123_supp.doc
Additional Filename: #####_supp.doc

Import Document
Only if Additional
File Exists

If this option is enabled, the image will only be imported if the defined additional file exists. If the image file is present in the import folder, but the defined additional file is not present, the image will not be imported, and will remain in the import directory.

In any case, the *.rdy file will be deleted by the *Import* process, even if no files had been imported.

6.5 OCR Settings

In general, OCR settings are defined in the WebCenter Forms Recognition project through the Designer application. Some of the OCR options defined within the project can be overridden from within WebCenter Forms Recognition Runtime Server.

To change OCR settings, select the **OCR + Export + Clean Up** tab.

6.5.1 Page Restrictions for Multipage Documents

With WebCenter Forms Recognition, by default, a full-page OCR is performed during the first processing step for all document pages, and the OCR results are stored in the workdoc. Using page restrictions for multipage documents it is possible to restrict the initial OCR to specified pages. If additional OCR results are required later, the recognition is performed on demand during the *Classification* and *Extraction* processing steps.

To specify the page range for the initial OCR, enter the appropriate values in the *First Page(s)* and *Last Page(s)* fields as required. The default value for both of these fields is 0 (zero), meaning that OCR is performed on all pages.

Note: It is not required that a non-zero value be entered in both of the fields mentioned above. For example, if only the first five pages of a multipage document should have OCR performed, the value 5 should be entered in the *First Page(s)* field and the default value of 0 should be left in the *Last Page(s)* field.

6.5.2 CI Docs Only

This option can be selected to skip the layout analysis for electronically generated documents. However, the following considerations must be taken into account when enabling this option:

- The extraction may not work properly.
- Scripts that are using geometrical structures such as blocks will not work.
- Lightweight OCR works without detection of positional information. Therefore, the highlighting of words, blocks and lines will not be available.

6.5.3 Verify OCR Processing Time-Out for Each Page

This option can be used in conjunction with the *After Timeout* automatic restart option in the *General* settings of the RTS instance. Refer to [Section 6.2.7: Automatic Restart](#) for further information about using and configuring the automatic restart features.

If the timeout occurs during the OCR process for a particularly large document, this could cause the document to 'hang' and result in the loss of its partial OCR results. When this option is enabled, the system will perform a timeout check after the processing of each page to OCR.

6.6 Export Settings

In general, export settings are defined in the WebCenter Forms Recognition project through the Designer application. Some of the export options defined within the project can be overridden from within WebCenter Forms Recognition Runtime Server.

To change export settings, select the **OCR + Export + Clean Up** tab.

6.6.1 Perform Export Step on Batches or Folders

This option is used to specify whether the *Export* process should be performed each time a folder within a batch reaches the appropriate state, or whether the entire batch must be at the appropriate state for export. By default, a state of 700 indicates that a folder or batch is ready to be exported.

6.6.2 Trigger Script Based Export

This option must be enabled to execute any export scripts within the project. If this option is disabled, the *Export* process will be performed but any associated scripts will not be executed. This may prove useful for testing and troubleshooting the project and scripts.

6.6.3 Generate Protocol File for Each Exported Batch

When this option is selected, a tab-delimited text file, with a **.dpf** extension, is created for each batch during the *Export* process. This file contains the following information for each document in the exported batch:

- Original document file name.
- Document classification result.
- Extracted field values, in the order in which the fields are defined in the document class.

6.6.4 Copy Documents to Export Directory

When this option is selected, the original document file is copied to the defined export directory during the *Export* process.

6.6.5 Generate PDF File on Export

When this option is selected, a searchable PDF file is created from the original image and its associated workdoc during the *Export* process. The original document layout is preserved, and the OCR results are included within the resulting PDF file to enable full-text search. The workdoc is not visible within the PDF.

6.7 Clean Up Settings

The *Clean Up* process is performed on successfully exported batches. It is the automatic removal of batch files from the batch root directory if they are no longer required. Only batches whose state indicates that they have been successfully exported will be removed. By default, this is indicated by a state value of **800**.

Note: If an RTS instance performs only the *Clean Up* process step, it is recommended that the **High priority Mode** option is not enabled in the *General* tab.

However, if an RTS instance is configured to process the *Clean Up* step as well as any other process steps except *Import*, it is highly recommended that **High Priority Mode** be activated.

To change export settings, select the **OCR + Export + Clean Up** tab.

6.7.1 Always Clean Up Batches

If this option is selected, the *Clean Up* process will be performed on batches as soon as they reach the state indicating that they have been successfully exported.

6.7.2 Clean Up Batch Only if Ready File Available

If this option is selected, the *Clean Up* process will only be performed if a file with the name that is defined in the associated text field is present in the batch root directory.

Note: This option is only available if the **Use Database** option is unchecked on the *General* tab.

6.7.3 Clean Up Batch Only if All Files Are Older Than

If this option is selected, the *Clean Up* process will only be performed on a batch if all exported files for the batch are older than the number of hours specified in the associated text field.

6.7.4 Clean Up if Ready File Available or All Files Older Than

If this option is selected, the *Clean Up* process will be performed for batches that meet either of the criteria described for the previous two options.

Note: This option is only available if the **Use Database** option is unchecked on the *General* tab.

6.8 Extended Processing Settings

6.8.1 File Replacement

If a project implementation uses information from external files to process batches, and these files need to be periodically updated, or if you want to synchronize **WebCenter Forms Recognition** project files with a Verifier workstation, the *File Replacement* feature can be used to achieve this. Any number of target files can be configured to be updated or replaced.

The individual settings that comprise the **File Replacement** group are described below:

Perform File Replacement	Select this option to replace the target file with the source file. Clear this option if you only want to generate the target file, i.e. if it does not yet exist.
Source File	Select the file that contains up-to-date information.
Target File	Select the file that is to be updated with information from the source file.
File Operation	Select whether you want to copy or to move the source file to the target file.
Add	Click this button to add a pair of source and target files to the list box.
Remove	Click this button to remove the selected entry from the list box.
Update	Click this button to perform the update for the selected entry in the list box.

6.8.2 Verifier Project Reference

For Verifier instances referencing projects across mapped network drives, these options enable the system to substitute local mapping for the network mapping. Working with a local copy of the global project speeds up processing time by circumventing potential network bottlenecks.

Additionally, these paths are references to the local and global projects for the Supervised Learning Workflow. These options enable Verifier to use different global projects with a local project.

Typically, these options are used where there is a requirement to use different project files with similar Verifier or RTS configurations. For example, consider a project that uses one *Import* RTS instance to process U.S. invoices and another *Import* RTS instance to process German invoices,

which have distinct formats for dates. Although the project imports all American and German invoices to the same batch root, one *Import* RTS instance looks to a project settings file called **US.sdp** to validate and extract U.S. dates, and the other instance looks to another file, **DE.sdp**, to validate and extract German dates.

The folders supplied for these paths may not exist when the RTS Import instance is working; they are created when the system writes this information into the batch structure in the ***.sdp** file during batch creation. If *Use Batch Specific Project File* is enabled in the Verifier settings, the system automatically loads either the U.S. or German project settings file, depending on the location of the imported documents source.

6.8.3 Document Separation

The Runtime Server configuration has a section in the *Extended Processing* tab for automatic document separation. The settings in this section allow the user to configure a different project to use during processing to perform the *Document Separation* workflow step.

Refer to [Section 6.9: Prepare an Instance for Automatic Document Separation](#) for further information.

6.8.4 Display Format

During processing using the Web Verifier, document images are converted to JPEG format on the browser workstation by default. To improve Web Verifier performance is it possible to configure the Runtime Server to store converted images in the database, thus eliminating the requirement for this to be performed at the client workstation and improving performance of the Web Verifier.

The RTS instance can be configured to store converted images to the database in cases where the document will be presented to the Web Verifier user for classification verification, or extraction verification, or both.

The individual settings that comprise the **Display Format** group are described below:

Convert Image ... After Failed Classification	When this option is selected, converted images are stored in the database for documents that have failed classification.
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Convert Image ... After Failed Extraction	When this option is selected, converted images are stored in the database for documents that have failed data extraction.
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There is no further configuration required for the Web Verifier. When the Web Verifier opens a batch for verification, when the document is displayed to the user, the application will immediately use the rendered document existing within the database.

Note: If the settings are not used, and the Web Verifier opens a document, the rendering of the image will be done in real time on the client workstation where Web Verifier is running.

The *Display Format* settings are only applicable to Web Verifier. These settings have no effect on the Verifier application, the Learn Set Manager or Designer.

6.9 Prepare an Instance for Automatic Document Separation

To configure an RTS instance for automatic document separation (ADS), the filename of the ADS project must be specified on the *General* tab of the RTS instance properties. For more information, refer to the *Oracle WebCenter Forms Recognition Designer User's Guide*.

Additionally, the batch root folder that contains the single-page documents for merging must be referenced.

6.9.1 Batch Properties

To create a batch for the Document Separation feature, configure an RTS instance to perform the *Import* and *OCR* workflow steps. The following considerations must be observed:

- The documents to import must be single-sided documents.
- The *Import* process creates batches with one folder per document.
- The workflow states should be different to the default workflow states, otherwise, there will be conflicts with the other RTS instances that have their own state numbers defined.

6.9.2 Workflow for Automatic Document Separation

For automatic document separation, it is essential that the **Perform Folder Based Serial Processing** option is enabled on the *Workflow* tab in the instance properties.

Note the *Input State* and *Output State* values. These state numbers must be different to those used by the other RTS instances. With two Runtime Servers being used, both *Failed Output States Classification* and *Extraction* failures will have to be set to a special state allocated specifically for the manual validation of document separation required case. Extraction is successful, when the Document Separation Engine makes a secure split/merge decision. Extraction will be unsuccessful, when the automatic document separation is unable to make a confident decision based on the learn set. For more information, refer to the *Project Properties for Page Separation* section in the *Oracle WebCenter Forms Recognition Designer Guide*.

6.9.3 Run the Automatic Document Separation Instance

The first run of the automatic document separation instance can take some time. There are two main reasons for this:

- Before the document separation can start, the ADS learn set must be generated. The documents in the prepared ADS learn set folder must be parsed and the learn set information must be stored in the files **Ads.dsf**, **Ads.ptb**, and **LearnTemp.ptb**, within that folder. This task is executed only once before first-time processing, when no learn set information exists.
- The processing is folder based. This means that all documents of the batch are loaded to memory before the processing starts.

After the automatic document separation, followed by the manual validation of its results in *Verifier*, has finished the batch goes to a *Document Separation Succeeded* state. The system is now ready to apply the next workflow steps. These workflow steps must start from the defined *Document Separation Succeeded* state as the input.

7 Processing Batches

7.1 Batch View

Within the WebCenter Forms Recognition Management Console, the *Batch View* displays a list of all batches for the selected RTS instance, with the following information for each batch:

Column Name	Description
Batch ID	The unique batch identifier.
State	The current state of the batch.
Priority	The batch priority.
Name	The name given to the batch. If a batch has been manually renamed, for example, by a user in the Verifier application, that name is displayed. Otherwise, the system generated name for the batch is displayed.
Folders	The total number of folders in the batch.
Documents	The total number of documents in the batch.
Client	<i>(Not used)</i>
Last User	The name of the last user who processed or opened the batch.
Last Module	The name of the last WebCenter Forms Recognition module that processed or opened the batch. In the case of the Runtime Server, the name of the RTS instance will be displayed in this column. In the case of Verifier, the name of the machine where the Verifier application was run will be displayed. In the case of Web Verifier, the name of the WebCenter Forms Recognition Web Server will be displayed.
Locked	Displays Yes if the batch is currently being accessed by another instance of WebCenter Forms Recognition Runtime Server, or by an instance of WebCenter Forms Recognition Verifier. Otherwise, this column displays No .
External Group ID	Optional and not displayed by default. Refer to Section 6.9 of the <i>Oracle WebCenter Forms Recognition Installation Guide</i> for information about configuring and populating this column.
External Batch ID	Optional and not displayed by default. Refer to Section 6.9 of the <i>Oracle WebCenter Forms Recognition Installation Guide</i> for information about configuring and populating this column.
Transaction ID	Optional and not displayed by default. Refer to Section 6.9 of the <i>Oracle WebCenter Forms Recognition Installation Guide</i> for information about configuring and populating this column.
Transaction Type	Optional and not displayed by default. Refer to Section 6.9 of the <i>Oracle WebCenter Forms Recognition Installation Guide</i> for information about configuring and populating this column.

The WebCenter Forms Recognition Management Console user can filter batches by performing a query to retrieve a subset of records that match the filter criteria. The subset can be further filtered by specifying that the WebCenter Forms Recognition Management Console only displays a specified number of records as opposed to the entire result list.

To apply a filter, enter the query in the **WHERE** field using the syntax shown in the following examples:

- Batch ID = <criteria>

- State = <criteria>
- Priority = <criteria>
- Last Module = <criteria>

If the RTS instance is stopped, the WebCenter Forms Recognition Management Console user may right-click any entry in the list view, and perform the following actions by selecting the appropriate option from the popup menu as follows:

Change Priority	Displays the <i>Change Batch Settings</i> dialog allowing the WebCenter Forms Recognition Management Console user to manually change the priority of the selected batches.
Change State	Displays the <i>Change Batch Settings</i> dialog allowing the WebCenter Forms Recognition Management Console user to manually change the state of the selected batches.
Delete Selected Batches	Deletes the selected batches, including their associated batch control files and the contained documents. If batches are stored on the file system and the image root directory is different to the batch root directory, the images will not be deleted.
Refresh	Updates the entire list view with new batch information.

Note Runtime Server records information on users and machines that perform batch changes. Each time one of the above operations takes place, the user name is recorded for auditing purposes.

7.2 Start the Process

After one or more WebCenter Forms Recognition Runtime Server instances are correctly configured, it can be used for processing documents and batches.

To start an RTS instance processing, perform one of the following actions in the WebCenter Forms Recognition Management Console:

- Select the RTS instance node in the navigation tree, then, from the **Action** menu, select the **Start** option.
- Select the RTS instance node in the navigation tree, then click the *Start* button in the toolbar.
- Right-click the RTS instance node in the navigation tree and select **Start** from the popup menu.

7.2.1 Processing Projects Containing SaxBasic Scripts

WebCenter Forms Recognition version 11.1.1.9.0 does not support the SaxBasic scripting engine. Any attempt to start an RTS instance using an older project that contains SaxBasic engine scripts will result in an error similar to the following example being displayed:

```
Project <project path> is using an unsupported Sax Basic engine and cannot be used.
```

Open this project in the Designer application to upgrade to the newer engine for custom scripting (WinWrap Basic).

The RTS instance stops immediately.

The project scripts must be migrated to the supported WinWrap scripting engine through the Designer application.

7.3 Stop the Process

To stop an RTS instance processing, perform one of the following actions in the WebCenter Forms Recognition Management Console:

- Select the RTS instance node in the navigation tree, then, from the **Action** menu, select the **Stop** option.
- Select the RTS instance node in the navigation tree, then click the *Stop* button in the toolbar.
- Right-click the RTS instance node in the navigation tree and select **Stop** from the popup menu.

7.4 Refresh RTS Groups

To refresh RTS groups when processing, perform one of the following actions:

- Select the RTS group node in the navigation tree, then, from the **Action** menu, select the **Refresh** option.
- Right-click the RTS group node in the navigation tree and select **Refresh** from the popup menu.

8 Monitor the Process

8.1 Monitor the Process with Runtime Server

The *View* window of the WebCenter Forms Recognition Management Console contains several windows that display information about the current processing state. This window allows administrators to monitor local and remote WebCenter Forms Recognition machines.

8.1.1 Statistics View

To access the *Statistics* view, select the **Statistics** child node of the desired RTS instance in the navigation tree. The *Statistics* view displays the following information:

Project	The full path and filename for the currently used project file.
Batch	The name and ID of the batch that is currently being processed, or was last processed, by the RTS instance.
Document	The filename of the workdoc for the document that is currently being processed, or was last processed, by the RTS instance.
Statistics	<p>This table displays the count of batches and documents that have been processed by the RTS instance since it was started. The columns show the counts for each processing step.</p> <p>To reset the counts in this table to zero, right-click the Statistics node in the navigation tree, then select Reset from the popup menu.</p>
Status	A status message displaying the task that is currently being performed by the RTS instance. The list below shows past status messages stating which tasks have been completed and whether any errors occurred.

8.1.2 Document View

The *Document* view displays the first page of the document that is currently being processed by the RTS instance. Options for viewing the document are available in the toolbar above the document.

To access *Document* view, select the **Documents** child node of the appropriate RTS instance in the navigation tree.

8.1.3 Classification View

The *Classification* view displays a continuously updated diagram showing the classification result for the documents processed by the RTS instance that is performing the *Classification* workflow step. The nodes in the diagram can be expanded or collapsed by double-clicking them.

To access *Classification* view, select the **Classification** child node of the appropriate RTS instance in the navigation tree.

Additionally, the first page of the document being processed can also be displayed. To display or hide the image, right-click the **Classification** node and select or deselect the **View Image** option from the popup menu.

8.1.4 Extraction View

The *Extraction* view displays the extraction results for the document that is currently being processed by the RTS instance. The first page of the current document can also be optionally displayed. If displayed, valid fields are highlighted on the document in green, and invalid fields are highlighted in red. A full list of fields and the extracted value for each field is also displayed.

To access *Extraction* view, select the **Extraction** child node of the appropriate RTS instance in the navigation tree.

To display or hide the image, right-click the **Extraction** node and select or deselect the **View Image** option from the popup menu.

8.2 Event Viewer

Using the event logs in the RTS Event Viewer, an administrator can review information about RTS errors, warnings and successful processes.

To access the Event Viewer, select the **Event Viewer** child node of the appropriate RTS instance in the navigation tree.

Events are separated into pages within the event viewer. Directional arrow buttons in the toolbar allow the administrator to move from one page to another.

8.2.1 Event Log

Information about RTS events is stored in a log file in the following directory:

<Installation Folder>\Bin\bin\Log

A new log file is created daily for each RTS instance, and is named as follows:

H_*<RTS Instance Name>*_*<System Date in YYYYMMDD Format>*.log

The event log records three types of events:

- Errors
- Warnings
- Information

An error is a significant problem, such as loss of functionality.

A warning is an event that, while not necessarily significant, may indicate a possible future problem.

An information event describes the successful completion of a major processing step that would otherwise have an adverse effect on the system if it had failed.

8.2.2 Event Properties

Each event displayed in the Event Viewer includes a description that can be used for troubleshooting or information gathering. To view the *Event Properties* dialog for a particular event, double-click the event in the Event Viewer.

8.3 Centralized Remote System Monitoring

WebCenter Forms Recognition Runtime Server can cumulatively monitor all critical events in a distributed Runtime Server environment. Errors, warnings and information messages can be stored and filtered by date and type, and emails can be sent automatically to notify an administrator of critical events.

8.3.1 Configure System Monitoring Without Email Notification

The steps required to start System Monitoring without email notification are as follows:

1. Start the Services management console.
 - a. Click **Start**.
 - b. Select **Run**.
 - c. In the Run dialog, enter `services.msc` and click **OK**.
2. Locate and select the **WebCenter Forms Recognition System Monitoring** item in the list of services.
3. From the **Action** menu, select the **Start** option. Alternatively, right-click the service item in the list and select **Start** from the popup menu.

Note: The WebCenter Forms Recognition System Monitoring service running on a specific workstation can monitor only those Runtime Server machines that were configured from that workstation via the WebCenter Forms Recognition Management Console.

The WebCenter Forms Recognition System Monitoring service must be restarted after the RTS machines have been reconfigured in the WebCenter Forms Recognition Management Console. For example, after adding a new remote RTS service.

8.3.2 Configure System Monitoring with Email Notification

To configure the WebCenter Forms Recognition System Monitoring service to perform automatic email notification, you must complete the following steps to configure the registry settings:

1. Open the **Runtime Server Monitor Configuration.reg** file for editing in a text editor. This file is located in the following directory:

<Installation Folder>\Bin\bin

Note: For 64-bit operating systems, open the **Runtime Server Monitor Configuration 64bit.reg** file.

2. Modify the email parameters as desired and save the file. Refer to the table below for further details about the available parameters and their values.
3. Execute the file using the **regedit.exe** or **regedt.exe** utility, as appropriate for the operating system.
4. Start or restart the **WebCenter Forms Recognition** System Monitoring service as described in [Section 8.3.1: Configure System Monitoring Without Email Notification](#).

Parameter	Description
Email_Everymin	Defines how often (in minutes) the email notification service will check for messages and send

	<p>them if any are available. The default value for this parameter is 5 minutes, as follows:</p> <pre>"Email_Everymin"=dword:00000005</pre>
Email_Recipient	<p>Semi-colon separated list of system administrators to receive the email notifications. For example:</p> <pre>"Email_Recipient"="john.smith@company.com;jane.brown@company.com"</pre>
Email_SenderAddress	<p>A valid email address to send the notifications from. For example:</p> <pre>"Email_SenderAddress"="system.administrator@company.com"</pre>
Email_SendUsing	<p>Defines whether emails should be sent using the local SMTP service or a remote SMTP server.</p> <p>If the local SMTP service should be used, this parameter value must be set to <code>Pickup</code> as shown in this example:</p> <pre>"Email_SendUsing"="Pickup"</pre> <p>In this case, the remaining parameters below can be ignored as configuration is set in the Windows SMTP service settings.</p> <p>If a direct connection to a remote SMTP server should be used, this parameter value must be set to <code>Port</code>, as shown in this example:</p> <pre>"Email_SendUsing"="Port"</pre> <p>In this case, the remaining parameters below must be correctly configured.</p>
Email_SMTPServer	<p>The remote SMTP server address. For example:</p> <pre>"Email_SMTPServer"="smtp.company.com"</pre>
Email_UserName	<p>The user name for the account defined in the <i>Email_SenderAddress</i> parameter. For example:</p> <pre>"Email_UserName"="SysMon"</pre>
Email_UserPassword	<p>The password for the account defined in the <i>Email_SenderAddress</i> parameter. For example:</p> <pre>"Email_UserPassword"="smpassword"</pre>

The WebCenter Forms Recognition System Monitoring service supports encryption of the email user name and password within the Windows registry. To enable this encryption, complete the following steps:

1. Open the Windows Registry Editor.
2. Navigate to **HKEY_LOCAL_MACHINE\Software\Oracle\System Monitoring** on a 32-bit system, or **HKEY_LOCAL_MACHINE\Software\Wow6432Node\Oracle\System Monitoring** on a 64-bit system.
3. Right-click the **System Monitoring** key and select **New > DWORD (32-bit) Value** from the popup menus.
4. Enter **Email_UserEncrypt** for the value name.
5. Leave the default value of **0 (zero)**.
6. Restart the WebCenter Forms Recognition System Monitoring service. The *Email_UserName* and *Email_UserPassword* will be encrypted.

Note: The service does not send email messages immediately upon receipt but collects them into a messages group. The group of messages is sent as a single email periodically. If the group does not contain any messages nothing is sent.

8.3.3 System Monitoring View

The *System Monitoring* view of the WebCenter Forms Recognition Management Console is activated by selecting the **System Monitoring** node in the navigation tree. The following table describes the message properties that are shown in the *System Monitoring* view:

Column Name	Description
Type	The type of the received message. This may be <i>Error</i> , <i>Warning</i> or <i>Info</i> .
Computer	The network name of the machine that the message was sent from.
Host	The name of the Runtime Server host instance that the message was sent by. This column will remain empty for messages sent by the Runtime Server Manager service.
Date & Time	The date and time that the message was sent.
PID	The Windows process ID of the process that the message was sent from.
Description	The message content.

Currently displayed messages can be sorted by all properties listed above, by clicking on the desired column header. Additionally, the following filters are also available for displaying messages:

Filter	User Action to Activate	Description
Errors Filter	Check the Error checkbox at the top of the <i>System Monitoring</i> view. Clear the checkbox to deactivate this filter.	Filters all messages where the <i>Type</i> is Error .
Warnings Filter	Check the Warning checkbox at the top of the <i>System Monitoring</i> view. Clear the checkbox to deactivate this filter.	Filters all messages where the <i>Type</i> is Warning .
Information Filter	Check the Info checkbox at the top of the <i>System Monitoring</i> view. Clear the checkbox to deactivate this filter.	Filters all messages where the <i>Type</i> is Info .
Time Frame Filter	Enter the desired number of days in the <i>Show Logs for Last X Days</i> field. Enter a value of 0 (zero) to deactivate this filter.	Filters all messages received more than the defined number of days ago.

All messages are stored in a log file in the following directory:

<Installation Folder>\Bin\bin\Log

A new log file is created daily, and is named as follows:

M_<System Date in YYYYMMDD Format>.log

The filtering settings defined in the *System Monitoring* view only affect what messages are displayed; not which messages get sent, received or stored in the log file.

The filtering and sorting options are saved in the Windows Registry every time a user modifies them, and are applied the next time the user starts the WebCenter Forms Recognition Management Console.

8.4 Unified Custom Logging

User-defined errors, warnings and information messages can be written to the Runtime Server log files using custom scripting within the project. Supplementary information is written for

every logged entry including the date and time the message was generated, the available virtual memory, the process identifier, and Windows resource usage. The user-defined messages can be added to the custom script via the *LogScriptMessageEx* method of the *Project* interface. For more information about using this method, refer to the *Oracle WebCenter Forms Recognition Scripting Guide*.

All logs are written in a log file in the following directory:

<Installation Folder>\Bin\bin\Log

New log files are created daily, and are named using the system date in a YYYYMMDD format, prefixed with a single character to identify which WebCenter Forms Recognition module generated the file, as follows:

- **D_** Designer
- **H_** Runtime Server
- **M_** System Monitoring Service
- **S_** Runtime Server Manager Service
- **V_** Verifier
- **U_** Any other WebCenter Forms Recognition module

System messages are always written to the appropriate log file, but depending on the severity of the message, it can also be sent to the System Monitoring service of the Runtime Server or via email to the defined recipients. Refer to [Section 8.3: Centralized Remote System Monitoring](#).

For script-generated log entries of severity *CDRSeveritySystemMonitoring*, the corresponding message will be forwarded to the cumulative *System Monitoring* view in the WebCenter Forms Recognition Management Console, provided there is at least one instance of the System Monitoring service is correctly configured and running on any machine in a local area network.

For script-generated log entries of severity *CDRSeverityEmailNotification*, the message will be additionally sent via email to the defined recipients in the System Monitoring service configuration. Refer to [Section 8.3.2: Configure System Monitoring with Email Notification](#).

8.5 Advanced Logging

The standard Runtime Server log includes system-level resource information and, in the event of a system crash or failure, special error logs.

8.5.1 System Resource Logging

The following system resource information is recorded in the standard Runtime Server Manager and RTS host log files:

- Available physical memory (in KB).
- Used physical memory (in KB).
- Available virtual memory (in KB).
- Used virtual memory (in KB).
- Virtual memory (in KB) used by this RTS host instance process.
- Physical memory (in KB) used by this RTS host instance process.
- Number of handles used by the process.

- GDI resources (in number of handles) used by the process.
- Number of user objects used by the process.

These values are written to the log file using the following pipe-delimited format:

```
Logging Level | Date | Time | Error Number | Process ID | Used/Available Physical Memory |
Used/Available Virtual Memory | Used Virtual/Physical Memory by This Host | Process
Handles | GDI Resources/User Objects | Message | Server Name
```

8.5.2 Crash or Failure Logging

In the case of a system or application crash or failure, an additional error log file will be created, named with the following format:

`C_<Process ID>_<yyyymmdd>.log`

This file will log crashes under the circumstances described in the following table:

Crash Type	Description
Import	The log file will contain stack information specific to the status of the system when the crash or failure occurred.
OCR Engine	The log file will contain a ReadZone entry for the specific OCR engine for which the crash occurred, as well as stack information specific to the status of the system when the crash or failure occurred.
Classification Engine	The log file will contain a Classify entry for the specific classification engine for which the crash occurred and the specific class name where the crash occurs. The log file will also contain stack information specific to the status of the system when the crash or failure occurred.
Extraction Engine	The log file will contain an EvalZone entry for the specific extraction engine for which the crash occurred and the field where the crash occurs. The log file will also contain stack information specific to the status of the system when the crash or failure occurred.
Export	The log file will contain a StepExport entry and stack information specific to the status of the system when the crash or failure occurred.
Clean-Up	The log file will contain a ProcessDocumentsCleanUp entry and stack information specific to the status of the system when the crash or failure occurred.
Script Events	The log file will contain the name of the script event and the kind of sheet (which may be project level or a certain class). For script events at field level, the field name will also be added to the log.

Appendix A Launch the Runtime Service

A.1. Starting and Stopping the Runtime Service

To start the WebCenter Forms Recognition Runtime Service Manager, click **Start > Programs > Oracle > WebCenter Forms Recognition > Runtime Service > Start Runtime Service**. This starts the WebCenter Forms Recognition Runtime Server as a Windows service and then launches the WebCenter Forms Recognition Management Console automatically.

To stop the WebCenter Forms Recognition Runtime Service Manager, click **Start > Programs > Oracle > WebCenter Forms Recognition > Runtime Service > Stop Runtime Service**. This stops the WebCenter Forms Recognition Runtime Server as a Windows service.

A.2. Batch Scripts for Starting and Stopping Services

The start menu options described above execute an appropriate batch script to start or stop the Runtime Service Manager. Additionally, batch scripts are provided to start and stop the WebCenter Forms Recognition System Monitoring Service. All of these batch files are described in the table below, and are located in the directory *<Installation Folder>\Bin\bin*:

Batch File Name	Description
Start RTS as NT Service.bat	Starts the WebCenter Forms Recognition Runtime Service as a Windows service and launches the WebCenter Forms Recognition Management Console after the service starts.
Stop RTS running as NT Service.bat	Stops the WebCenter Forms Recognition Runtime Service that is running as a Windows service.
Start System Monitoring Service.bat	Starts the WebCenter Forms Recognition System Monitoring service to monitor Runtime Server machines configured in the WebCenter Forms Recognition Management Console.
Stop System Monitoring Service.bat	Stops the WebCenter Forms Recognition System Monitoring service.

A.3. Using Script to Restart Runtime Server Instances

In addition to standard functions of WebCenter Forms Recognition Runtime Server, used to configure stop, start and restart frequency of particular RTS instances, it is also possible to manage stopping and restarting instances through custom script calls in a project. A method of the public *Project* interface, called *PerformScriptCommandRTS*, allows commands to be invoked to control Runtime Server instances from custom scripts. Refer to the *Oracle WebCenter Forms Recognition Scripting Guide* for more details as to how this method should be utilized.

Appendix B Configuring a TCP/IP Port for Runtime Server

In case of a conflict in port assignments, or for the purpose of firewall configuration, it may be required to configure a specific port for the TCP/IP communication channel used by the Runtime Server.

If there is no such requirement in an implementation environment, then it is not necessary to explicitly configure a port.

Perform the following steps to configure a TCP/IP port:

1. Open the Windows Registry Editor.
2. Navigate to **HKEY_LOCAL_MACHINE\Software\Oracle\Services** on a 32-bit system, or **HKEY_LOCAL_MACHINE\Software\Wow6432Node\Oracle\Services** on a 64-bit system.
3. Right-click the **Services** key and select **New > DWORD (32-bit) Value** from the popup menus.
4. Enter **Port** for the value name.
5. Right-click the new value and select **Modify** from the popup menu.
6. Enter the port number as required (for example, **51876**) and click **OK**.

Note: The specified port number will be used by the Runtime Server Manager service, all Runtime Server instances, and the WebCenter Forms Recognition Management Console.

It is not possible to configure more than one port numbers on the same machine.

The same port number must be specified on all WebCenter Forms Recognition servers.

Appendix C Working with Large Document Volumes

When working with a large document volume, exceeding 10,000 pages per day, the following steps should be considered to ensure that the performance to the database is maintained for WebCenter Forms Recognition:

1. The Runtime Server instance responsible for the *Import* process should not have any other workflow steps enabled.

If *Import* and *Export* are configured in one RTS instance, these should be separated into two individual instances.

2. The **Activate High Priority Mode** option should be enabled on the Runtime Server instances.

Note: The instance responsible for *Import* should not be configured with this setting.

3. The **Enable Batch Integrity Verification** option should be disabled for all the Runtime Server instances connecting to the database.
4. In the WebCenter Forms Recognition Management Console, ensure that the RTS filter is used to request only the top 100 batches. Enter the value **100** in the **Top** field setting in the *Batch View* to allow for quick response times when refreshing and viewing the batch list.
5. The Database Parallelism setting should be reviewed for the environment to determine if this can be disabled.

Disabling parallelism could impact Web Verifier client performance, whilst improving RTS performance. Always consult with the DBA regarding enabling or disabling parallelism, and monitor results for each environment.

The steps above are applicable to WebCenter Forms Recognition version 11.1.1.8.0 and later, where optimizations have been made for large-scale document processing with the Forms Recognition database.