Oracle Fusion Cloud Transportation and Global Trade Management

Content Management System Integration Guide

Release 26A

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2 Introduction

CMS Integration Introduction

Intended Audience

The Content Management System Integration Guide is intended for users, system administrators, and consultants.

Related Documents

- Oracle WebCenter Content Documentation Library

Definition of Related Content Management Terms and Concepts

- **CMS (Content Management System)**: A set of processes and technologies that support the collection, managing, and publishing of information in any form or medium. A CMS typically provides for long-term storage of information, information retrieval and global search capabilities.
- **Document**: An electronic file containing information, seen by the CMS as a unique entity. The document typically has metadata associated with it for identification and search.
- **Folder**: A named collection holding documents and other folders. Folders can be hierarchical.
- **Versioning**: Support for a checkin/checkout paradigm of document editing. A CMS that supports versioning allows a single document to hold multiple versions of information.
- **Unfiling**: Support for the addition of a CMS Document without a specified folder.

Definition of Related Protocol Terms and Concepts

- **Web Services**: A standard integration protocol built on top of SOAP to invoke host services from a client machine.
- **Atom Publishing**: A simple HTTP-based protocol for creating and updating web resources.
- **WCC (Oracle WebCenter Content)**: Oracle's enterprise-class content management solution.

Definition of Related Oracle Transportation and Global Trade Management Cloud Terms and Concepts

- **Business Object:** An Oracle Transportation and Global Trade Management Cloud entity that can own content and has a transactional life cycle. Business object examples include shipments and trade transactions.
- **Report**: Generation of business content from an Oracle Transportation and Global Trade Management Cloud business object and a Oracle Analytics Publisher template.
- **Document**: A piece of content managed by Oracle Transportation and Global Trade Management Cloud. The content may be stored within the Oracle Transportation and Global Trade Management Cloud schema or an external CMS.
- **Document Type:** A classification of documents within Oracle Transportation and Global Trade Management Cloud. E.g., Bill of Lading is a type of document/report owned by shipments.
- **Standard Document**: The association of a document type with a particular business object. E.g., a Bill of Lading may be required for a particular shipment.
- **Revision**: The instantiation of content for a standard document. A business object may have one or more revisions for a given standard document. Each revision corresponds to a single document.

Optional Integrations

The system provides optional integration to the following Content Management Systems:

- Oracle WebCenter Content (WCC)
- Microsoft SharePoint Online via Microsoft Graph API

CMS Integration Levels

When coupling Oracle Transportation and Global Trade Management Cloud with your CMS, the system supports three levels of integration.

- **Storage**: The CMS is used solely to store document content managed exclusively by Oracle Transportation and Global Trade Management Cloud. This option removes content overhead from the transactional schema. In a pure storage model, the focus of the CMS is to provide scalable and reliable long-term storage for application-specific content.
- **Content Organization**: The CMS is used to store and organize document content. This option allows CMS users to access transportation documents within an enterprise document manager. They may browse a hierarchical tree or use global search to retrieve content.
- **Custom Search**: The CMS is used to store, organize, and search for document content. Searches may include transportation attributes, attached as custom metadata values to CMS documents.

3 How to Configure Storage

Overview

To set up a CMS for storing document content created by Oracle Transportation and Global Trade Management Cloud, first create a content management system to represent the CMS connection. The following types of content management systems are supported:

- **Database**: This is a reserved type used by the **DATABASE** content management system. It stores document content in the Oracle Transportation and Global Trade Management Cloud **GLOGOWNER** schema.
- **WebCenter Content**: Documents are stored and managed in an Oracle WebCenter Content instance. With the WebCenter Content Java API, Oracle Transportation and Global Trade Management Cloud tightly integrates both products.
- **SharePoint Online**: Document management with SharePoint lets you manage common document types and create folders to save and manage those documents, that are seamlessly stored in SharePoint. Documents can be stored and managed in the context of a record on a SharePoint Server, and leverage the SharePoint infrastructure to share, manage, and collaborate efficiently. Because the documents are stored on a SharePoint Server, users who aren't running the app can directly access the documents on the SharePoint Server, provided they have the appropriate permissions. For Integrating with SharePoint Online or SharePoint on Azure cloud, Oracle uses the REST API provided by Microsoft as Microsoft Graph API. In the API, refer to the Drives resource as documented under the Files section.

Preparing the CMS for Storage

Certain custom installation steps are necessary for Oracle Transportation to use a CMS for document storage. These steps need to be run by an administrator of the CMS.

WebCenter Content

Oracle Transportation and Global Trade Management Cloud communicates with WCC over the Remote Intradoc Client (RIDC). To properly enable this protocol, the WCC server must set the Intradoc server port and register all Oracle Transportation and Global Trade Management Cloud application servers as trusted hosts for RIDC. For information on how to configure WCC for RIDC, see *Fusion Middleware Installing and Configuring Oracle WebCenter Content: 12.2.2 Setting up the Remote Intradoc Client (RIDC)*.

Oracle Documents Cloud

Note: This storage provider isn't supported. If you're using this solution, consider moving to another option.

SharePoint Online

Oracle Transportation and Global Trade Management Cloud uses Microsoft SharePoint as an external data storage system to store documents as part of content management system (CMS).

1. Register the Oracle Transportation and Global Trade Management Cloud application in the Azure Active Directory (AAD) portal. Oracle Transportation and Global Trade Management Cloud will communicate with SharePoint by means of this application.
2. Once the application is registered, configure a Client Secret for the application which will be used for authentication purposes. This can be achieved by creating a new Client Secret under "Certificates and Secrets".
3. Provide adequate permissions to the newly registered application so that the Microsoft Graph API calls work. This can be achieved by via API Permissions > Add a Permission > Microsoft Graph, and then selecting the required permissions from "Delegated Permissions" and "Application Permissions".
4. Once the permissions are granted, the application is ready for use. Following details are available once the application is registered:
    - Application (client) ID
    - Directory (tenant) ID
    - Secret Value (obtained while creating the Client Secret)

Defining CMS Connections for Storage

A CMS connection in Oracle Transportation and Global Trade Management Cloud is defined with a Content Management System record. This can be accessed via the main menu from **Business Process Automation > Power Data > Document Generation > Content Management Systems**.

Connection details required by different CMS that are supported are as follows:

- WebCenter Content
    - **URL**: The URL needed to communicate with the CMS over a specified protocol.
    - **User**: The CMS user name used to authenticate the connection.
    - **Password**: The CMS credentials used to authenticate the connection.
- SharePoint Online
    - Details for connecting to SharePoint Online are specified using an External System.

Architectures requiring more complex credentialing, e.g. those involving certificate authentication, are not supported.

WebCenter Content

For WebCenter Content, Oracle Transportation and Global Trade Management Cloud supports only the IDC protocol. This requires the application server be a trusted client from the standpoint of the document server. The connection URL should be of the form:

```
https://<WCC host>:<WCC SSL Port></cs/idcplg
```

The certificates required for Oracle Transportation and Global Trade Management Cloud to trust the URL should be loaded to the Java trust store. Check the guides to know the procedure to load the certificates to the trust store. Check the *Outbound Integration and SSL Certificates* section of the *Administration Guide* for more details.

Note: The user and password are ignored for the initial connection but allow for document-based security on subsequent document requests.

SharePoint Online

For SharePoint Online, define the setup as specified below:

Setting Up an External System in Oracle Transportation and Global Trade Management Cloud

Configure an external system in Oracle Transportation and Global Trade Management Cloud that will enable you to authenticate/interact with SharePoint. The external system fields should be set as follows:

- **Authentication Type**: OAuth 2.0 - Client Credentials
- **Authorization Service Authentication Type**: Microsoft Graph API
- **Client ID**: Provide the Application (client) ID value generated after registering the application
- **Client Secret**: Provide the Secret Value generated after registering the application
- **Authorization Service URL**: https://login.microsoftonline.com/{Directory or tenant ID}/oauth2/v2.0/token (replace {Directory or tenant ID} with the actual value)
- **Application Scope**: https://graph.microsoft.com/.default
- **URL**: https://graph.microsoft.com/v1.0/drives (acts as a base URL for all API requests)

Setting Up a Content Management System In Oracle Transportation and Global Trade Management Cloud

Configure a Content Management System (CMS) in Oracle Transportation and Global Trade Management for SharePoint. The CMS fields should be set as follows:

- **System Type**: SharePoint Online
- **External System**: Select the External System created in the above section
- **Drive ID**: This represents the location where the documents will be stored. The drive ID to be used can be obtained by means of an API call. Microsoft Graph provides certain ways to obtain the drive ID. Refer to Microsoft documentation for Microsoft Graph APIs (Microsoft Graph > v1.0 reference > Files > Drives > Get drive) to check for the various ways to obtain the drive ID. Refer to the application help for a sample request on how to obtain Drive ID.

Storage Document Identification

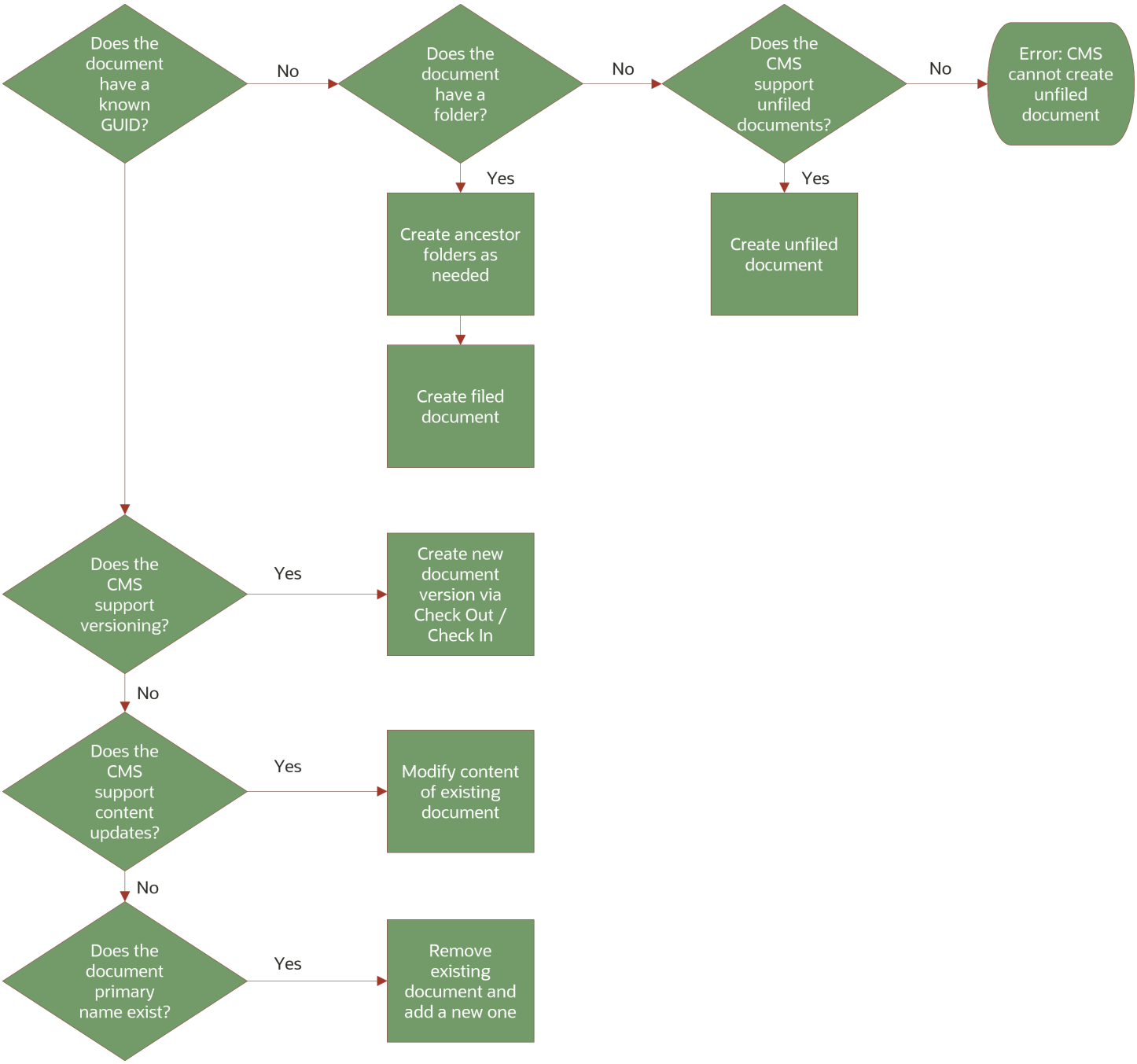
Though each CMS has its own concept of a document, a version and the relationship between them, three basic attributes identifying a document are critical to proper storage:

- **A GUID**: Each document must have a globally unique identifier to distinguish it from other documents. For some systems, this may be supplied by the user; for others it may be generated. Note that the GUID is stored with the Oracle Transportation and Global Trade Management Cloud document record after the content is created or queried.

- **A primary name**: For systems supporting versioning, a document must have a primary name. Documents that share a primary name are grouped together as versions of the initial document of that name. For systems without versioning, the primary name acts as an alternate ID to identify a document when browsing or searching.
- **A folder**: Many content management systems support the browsing of documents via hierarchical folders. When storing content, Oracle Transportation and Global Trade Management Cloud optionally passes a folder specification to the CMS. This takes the form **<parent folder>/<child folder>/...**. On storage, folders and subfolders are created by the CMS to meet the folder specification and the content is stored in the last descendant on the folder branch. Note that the folder specification is optional. Documents stored without a folder are considered *unfiled*. Some CMS systems, however, do not support unfiled documents and a folder specification is required for storage.

Storage Workflow

Document Storage Workflow summarizes how the CMS and its settings influences how Oracle Transportation and Global Trade Management Cloud stores content.



Storage Lifetime Management

For many implementations, the lifetime of document content is generally managed by the CMS. This allows important documents to exist long past the lifecycle of their transactional owners in Oracle Transportation and Global Trade Management Cloud. For example, it may be critical for commercial invoices to be stored and queried years after their shipments have been removed. Using Oracle Transportation and Global Trade Management Cloud's schema to store the invoice, it would be deleted when the shipment is deleted. Using an external CMS, the invoice can be stored based on business rules independent of immediate transportation needs.

There are use cases, however, where maintaining documents in the CMS can add unnecessary overhead. For example, assume you have a PICKUP RECEIPT document type associated with shipments. A user may upload a PICKUP RECEIPT to the system and realize it is incorrect. He then uploads an updated copy of the same receipt. Depending on the versioning support and setup of the CMS, both versions of the PICKUP RECEIPT may be stored in the CMS for an extended period when only the latest version is useful.

When removing content links from the system, Oracle Transportation and Global Trade Management Cloud categorizes the activity by use case. If the use case is managed by the CMS, the link is removed but the content remains in the CMS; if not, the content is removed from the CMS. These use cases include:

- **preview**: the link was used for a temporary, asynchronous preview.
- **overlay**: the link was intentionally overlaid by a user (e.g. a user uploads new content into a document).
- **revision**: the link was to a revision explicitly removed by the user. Revisions are available for Standard Documents in Oracle Transportation and Global Trade Management Cloud.
- **user**: the link was explicitly removed by the user from the Document finder.
- **owner**: the link was removed indirectly when its owner was removed.

A property controls the system responsible for content removal. Its format is:

```
glog.document.external.persistRemoveCases=<comma-delimited list of use cases>
```

where the default setting is:

```
glog.document.external.persistRemoveCases=preview,overlay,revision,user
```

This means that content is removed from the CMS when it was 1) used for a temporary preview or 2) manually deleted or overlaid by a user. When a shipment is removed, the shipment documents are not removed from the CMS. It is the responsibility of each CMS to manage document content rules, ensuring scalability as the number and size of documents grow.

4 How to Configure Content Organization

Overview

To set up a CMS for storage and content organization, first perform the steps from chapter 2 to create a Content Management System for storage in the CMS. Then, proceed with the next two topics.

Preparing the CMS for Content Organization

Certain custom installation steps are necessary to enable CMS features for content organization. These steps need to be run by an administrator of the CMS.

WebCenter Content

A number of features in WebCenter Content can be leveraged to better identify and secure Oracle Transportation and Global Trade Management Cloud documents within WCC. These features are optional, but require modifications to your WCC configuration.

- **Document Filing**: Oracle Transportation and Global Trade Management Cloud can support the filing of documents into WCC Framework Folders. Contribution Folders (i.e. folders_g) are a deprecated feature in WCC and are not supported by the integration layer. To enable Framework Folders, follow the instructions at *WebCenter Content System Administrator's Guide for Content Server: Using Folders* and *WebCenter Content System Administrator's Guide for Content Server*.
- **Security Groups**: The initial security groups available in WCC are **Public** and **Secure**. Any user can view a document in the **Public** group. Only administrators can view a document in the **Secure** group. Since Oracle Transportation and Global Trade Management Cloud assigns all documents to the **Secure** group by default, its documents are not available for viewing or searching in WCC. To allow transportation documents to be viewed as an enterprise document in WCC, either assign the documents to the Public security group or create one or more security groups for these documents. For more information on creating custom security groups in WCC, see *WebCenter Content System Administrator's Guide for Content Server: 5.4 Security Groups, Roles and Permissions*
- **Accounts**: WebCenter Content supports a more granular level of document security than security groups. Hierarchical accounts can be set up such that a user given access to an account can view documents in that account or child accounts. To distribute documents across accounts and setup valid users for those accounts requires coordination between WCC and Oracle Transportation and Global Trade Management Cloud. For more information on creating accounts in WCC, see *WebCenter Content System Administrator's Guide for Content Server: 5.5 Accounts*.

SharePoint Online

No additional installation steps are necessary to support document filing in SharePoint Online. Note that Oracle Transportation and Global Trade Management Cloud does not support any custom security in SharePoint Online.

Determining a Document's Folder for Content Organization

The Content Management System manager provides three options for determining the folder assignment for a document:

- **Fixed**: All documents are stored in a root folder.
- **Domain**: Documents are stored in subfolders off of the root folder. The subfolder is determined by the document's domain. E.g., assume the document domain is **CLIENTS/YELLOW** and the root folder is **OTM**. Then the document is stored in a hierarchy of folders given by **OTM/CLIENTS/YELLOW**.

Generated: Documents are stored in a subfolder based on a parameter generator. This allows folder assignment to be driven by data on the document or its owner. See Section 5 for details on setting up parameter generators.

5 How to Configure Custom Search

Overview

To set up a CMS to enable searches on custom Oracle Transportation and Global Trade Management Cloud attributes, first perform the steps from chapters 2 and 3 to create a Content Management System for storage and content organization. Then, proceed with the next topic.

Preparing the CMS for Custom Search

Certain custom installation steps are necessary to enable CMS features for content organization. These steps need to be run by an administrator of the CMS.

WebCenter Content

WCC supports the use of custom document parameters when searching and displaying documents. Two options are available from the WCC Configuration Manager applet:

- Adding custom search parameters to the list of information fields. These fields are automatically added to the default search and document view pages. For more information adding information fields, see *WebCenter Content Application Administrator's Guide for Content Server: 2.2.1 About Custom Fields*.
- Adding custom search parameters to the list of additional fields. These fields are available to rules and profiles. A profile can be associated with specific users or documents so that transportation-specific fields are only searchable and viewable on custom search and view pages. For more information adding additional fields, see *WebCenter Content Application Administrator's Guide for Content Server: 2.2.1.2 Custom Metadata Fields*. For information tying these additional fields to profiles and rules, see *WebCenter Content Application Administrator's Guide for Content Server: 3.2 Using Profiles to Customize Content Screens*.

> **Note:** Any parameters added to information fields or additional fields should be prefixed with a lower-case x in Oracle Transportation and Global Trade Management Cloud. WCC maps any document parameters starting with **x** to custom fields. E.g., to add a **LogisticsParty** field to WCC, add an **xLogisticsParty** parameter to the Content Management System record.

SharePoint Online

SharePoint Online does not support the use of custom document parameters when searching and displaying documents.

6 Document Parameters

Overview

Both standard and custom information is passed from Oracle Transportation and Global Trade Management Cloud to the CMS via document parameters. A document parameter is simply a key and value attached to the Oracle Transportation and Global Trade Management Cloud document record where the value is:

- generated when the document is created or modified (Parameters can be optionally regenerated when the business object owning the document changes. See *Updating Parameters with Current Information*); or
- manually entered by a user on the Document manager

Parameters may be used to drive internal API calls to the CMS or sent directly to the CMS.

Parameter Generation

The following types of parameter generation are supported:

- **Business Number Rule**: The parameter value is calculated from a business number rule in the domain of the document. A business rule provides the ability to combine fixed strings, information regarding the document or its owner, and numeric sequences into an identifier for the document. Business rules can also be used to retrieve simple data from the document owner like a reference number or involved party.
- **SQL**: The parameter value is retrieved from a SQL select statement. The SQL may include a single bind parameter representing the document owner.
- **Constant**: The parameter value is fixed.
- **Java**: A special type of **JAVA_PLUGIN** can be added that generates a parameter using custom Java code.

Updating Parameters with Current Information

Document parameters may be immutable. Once generated on creation, an immutable parameter is never updated. This is important for parameters that act as unique identifiers on the document.

Other parameters, however, may reflect information regarding the document or its owner (e.g. a shipment pickup location). This information may change as transactional data is updated in the system. By default, document parameters are only updated when changes are made to the document. It is possible, though, to trigger an update of all mutable document parameters when changes are detected in the document's owner.

- A user may manually invoke the **Update Document Parameters** action from the Document manager, the manager for the document owner (e.g. the Shipment manager) or the Documents tab on the owner.
- An automation agent may be set up to listen to events on the document owner and, using a data type association (for example, E.g., **SHIPMENT TO DOCUMENT**), run the **UPDATE DOCUMENT PARAMETERS** agent action for each owned document.

- An automation agent may be set up to list to events on the document owner and run the **UPDATE STANDARD DOCUMENT PARAMETERS** agent action to update the parameters for a particular standard document type.

Any time document parameters are updated, they are resent to the CMS to synchronize CMS data with Oracle Transportation and Global Trade Management Cloud data.

Reserved Parameters

The Standard Parameter Mappings table below shows how standard parameter generators are mapped to the CMS based off fields in the Content Management System record.

Standard Parameter Mappings

CMS Type	Parameter Name	Mutable	Notes	Parameter Source	Default Value
WCC	**dDocName**	N	Holds the GUID for WCC. Must be < 30 characters and globally unique across the enterprise.	**Document Name Generator**	Parameter Generator: **WCC_DOCNAME** This is a SQL generator, basing the value on the **DOCUMENT_CMS_SEQ** sequence. Values are of the form **OTM-nnnnnnn**where *nnnnnnn* is the next sequence value left padded with zeroes.
	dDocTitle	N	Holds the display name for the document. Documents sharing display name are stored as versions of a single document.	**Document Title Generator**	If the document has an owner, a business number generator based on rule **WCC_DOCTITLE.VERSIONS**. This produces values of the form **OTM-ownerType owner-docType** where *ownerType* and *owner* are the business object type and GID of the owner. E.g. SHIPMENT S2013-11-23-001. The *docType* is the document type. E.g. BILL OF LADING. Note that this default value assumes the CMS has versioning support. If the document has no owner, **OTM-documentGID**where *documentGID* is the

CMS Type	Parameter Name	Mutable	Notes	Parameter Source	Default Value
					ID of the document record.
	dDocAccount	Y	Only added if Use Accounts is checked. Account must exist within WCC	**Account Generator**	The domain name of the document.
	dDocAuthor	Y		**User**	The user of the Content Management System. (Since WCC requires the **dDocAuthor** to be a valid WCC user, you cannot easily audit document activity via the logged in user. Activity can be tracked via domain (via the account). Alternatively, multiple Content Management Systems can point to the same CMS but with different CMS users. This gives more granularity to auditing.)
	dSecurityGroup	Y	Security group must exist within WCC	**Security Group**	**Secure**
	primaryFile	N	Used to determine to add the document to a WCC contribution folder	**Folder Type, Root Folder, Document Filename**	The specified folder and document filename.
CMIS	**(name)**	N	Holds the **cmis:name** for CMIS. The required uniqueness of this parameter depends on the CMS.	**Name Generator**	If the document has an owner, a business number generator based on rule **CMIS_NAME.VERSIONS**. This produces values of the form **OTM-ownerType owner-docType** where *ownerType* and *owner* are the business object type and GID of the owner. E.g. SHIPMENT S2013-11-23-001. The *docType* is the document type. E.g. BILL OF LADING. Note that this default value assumes the CMS has versioning support. If the document has no owner, **OTM-documentGID**where

CMS Type	Parameter Name	Mutable	Notes	Parameter Source	Default Value
					documentGID is the ID of the document record.
	(label)	Y	Holds the **cmis:versionLabel** of a document version for CMIS.	**Version Label Generator**	The document record ID.
	(folder)	N	Holds the folder path for the CMIS document.	**Folder Type, Root Folder**	The specified folder and document filename.

Each of these standard parameters is driven by fields on the Content Management System Manager. They apply to every document stored with that CMS.

Additional Parameters

Additional parameters can be generated for a CMS. The **Additional Parameters** grid on the Content Management System Manager allows a user to add a parameter, specify its generator and note whether it is mutable. These additional parameters are generated for every document stored with the CMS and sent to the CMS when the document is created or updated.

WebCenter Content

WCC allows arbitrary parameters to be passed along with most IDC calls. Parameters not used by WCC are ignored without warning or error. To use a parameter in WCC, a user should prefix custom properties with a lower case **x**. For example, **xShipFrom** could represent the shipment pickup location for a bill of lading.

Parameter Precedence

The parameters listed in the Standard Parameter Mappings table assume that parameters are associated with a Content Management System and apply to all documents stored in that system.

Parameter generation, however, can be defined or overridden at the document type level. Assume, for example, a WCC content management system record has the security group set to **Public**. All documents, by default, are visible by all users. For commercial invoices, though, you want the security group set to **Financials**, a custom security group you have added to WCC. This can be done by editing the **COMMERCIAL INVOICE** document type (Business Process Automation > Power Data > Document Generation > Document Types) and adding a Content Management System Parameter with name **dSecurityGroup**. The generator should be set to a **Fixed** generator with value **Financials**. The parameter generator defined at the **COMMERCIAL INVOICE** level overrides the one specified on the Content Management System.

Parameters may also be set directly on the document object. For example, you could have edited a specific commercial invoice (Business Process Automation > Document Manager) and modified the **dSecurityGroup** parameter to set its value to **Financials**. This is not recommended for standard parameters, or parameters defined on the document type or Content Management System as any modification to the document will regenerate parameter values and overwrite your changes.

In general, then, the precedence of parameter definitions is:

1. Document
2. Document Type
3. Content Management System

Parameter Generation Reference Information

Schema for Business Number Parameter Generators

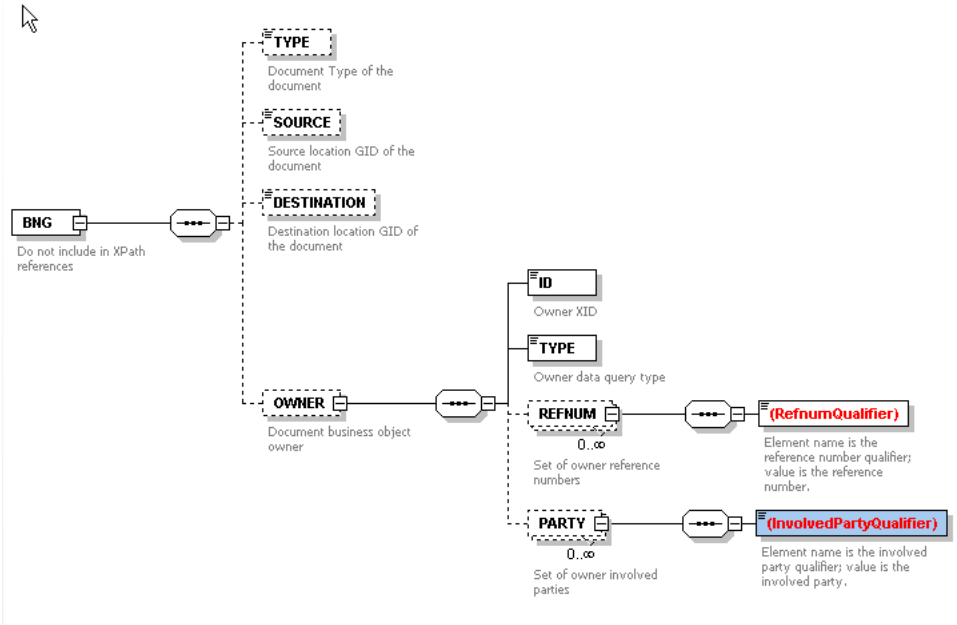
The business number parameter generator uses a business number (BN) rule to define a pattern for the parameter value. A special replacement pattern segment (**r***) is available to allow document and owner information to be part of the final value. The information is provided as an XML document and can be used with rudimentary XPath-like expressions in the pattern. Refer to online help for a comprehensive discussion of business number rules.

All business number rules used for document parameters must have the BN Type of **CMS_FIELD**. This, in turn, uses the **DOCUMENT_DEF_XID** BN Context to generate replacement information. The schema for the information is shown in the Schema for CMS_FIELD BN Rules figure below.

Assume you wanted to pass a document parameter for the logistics party. By using a BN Rule with pattern:

```
{r*:xml=OWNER/PARTY/LOGISTICS}
```

you extract out the LOGISTICS party from the list of involved parties associated with the owner of the document.



Business Number Parameter Generators and Domains

In Oracle Transportation and Global Trade Management Cloud, a business number rule is identified by its XID. When running the rule, the system checks for a BN rule record in the current domain with an XID matching the rule. This has the advantage that a single rule can vary patterns by domain. But it increases the complexity of defining a BN rule to be used across many domains.

Consider an example where you want to apply a BN rule, **LOGISTICS,** to populate an **xLogisticsParty** parameter on all applicable documents. Assume you have a **PUBLIC** Content Management System **WCC**, representing the WebCenter Content instance that will receive the custom parameter. To assign a parameter generator for **xLogisticsParty**, you create a **PUBLIC** parameter generator **LOGISTICS** that maps to a **PUBLIC** BN rule of **LOGISTICS**. But when the rule runs, it searches for the **LOGISTICS** rule in the domain of the document. So you need to duplicate the **PUBLIC LOGISTICS** rule in every domain it may run in.

SQL Statement Assumptions for SQL Parameter Generators

A SQL parameter generator runs a single-column SQL **select** statement and retrieves the first record of the result set. It returns the column value for the result set as the parameter value. The SQL statement optionally accepts the document owner GID as a single bind parameter.

Examples:

```
select 'OTM-' || document_cms_seq.nextval from dual

select shipment_refnum_value from shipment_refnum where shipment_refnum_qual_gid = 'BOL' and shipment_gid=?
```

Interface Requirements for Java Parameter Generators

For document parameters too complex for a Business Number or SQL rule, the system can be extended with a Java plugin to delegate parameter generation to a custom Java class. This is recommended only for advanced Oracle Transportation and Global Trade Management Cloud implementation teams.

To create a Java parameter generator,

- create a Java plugin of type **Parameter Generation**. This is accessed from **Configuration and Administration > Power Data > General > Java Plugins**.
- the Java class specified in the plugin must implement
  `glog.server.document.cms.CmsParamJavaPlugin.`
- create a Document Parameter Generator of type **Java Plugin**. The created plugin should appear in the drop-down list.

The **CmsParamJavaPlugin** interface requires implementation of a single **generate** method:

```
public String generate(String ownerDataQueryType, String ownerGid,
 T2SharedConnection conn) throws GLException;
```

Given the document owner and a database connection, the method returns the parameter value.

Note: Custom plugins should be added sparingly. Future releases of Oracle Transportation and Global Trade Management Cloud may alter the base interface, requiring a migration effort for any custom code.

7 References

Properties Impacting CMS Integration

The following properties control CMS Integration:

- **glog.defaultMimeTypes**: These are used by Oracle Transportation and Global Trade Management Cloud documents (as in the document manager). It maps file extensions to a mime type (an application). When using attachments with Oracle Transportation and Global Trade Management Cloud documents, this tells Oracle Transportation and Global Trade Management Cloud what application to use based on the extension of the attached file.
- **glog.document.attachment.maxSize**: While configuring a Stylesheet Profile, you can choose to embed a document. Document content is embedded in the notification. The attachment must be the same size or less of the bytes specified by this property. If not, Oracle Transportation and Global Trade Management Cloud Link is used.
- **glog.document.defaultCMS**: the default Content Management System. Report storage, document types and ad-hoc uploads will default to this CMS. After installation, it is set to **DATABASE**, storing document content in the Oracle Transportation and Global Trade Management Cloud schema. If all document content should default to a given external CMS, this property should be modified to reference it.
- **glog.document.external.appendExtension**: Many CMS products provide standard URI links for document content. If you click on one of these links, the browser may use the file extension of the file specified by the link to render content. To support this use case, OTM optionally appends the file extension to the uname, based on the content's MIME type. These properties determine whether OTM appends the file extension to any uname it sends to a CMS.

  A mapping of MIME type to preferred file extension is available in glog.defaultMimeTypes property listed above.

  - **glog.document.external.appendExtension.WCC**: a flag to determine whether the document file extension should be appended to **dDocTitle** in WCC. This is necessary for some browsers to match up the document with its proper renderer.
  - **glog.document.external.appendExtension.ODC**: Not supported.
- **glog.document.external.persistRemoveCases**: a comma-delimited list of use cases where removal of a document link in Oracle Transportation and Global Trade Management Cloud should delete the corresponding document in the CMS. This property controls the deletion of remote content by OTM. If your CMS doesn't support document removal, or one to which OTM doesn't have rights to remove documents, the property should be set to blank to avoid removal errors.

Valid use cases include:

- **preview**: Content was created to hold a temporary preview. Once viewed, the content should be removed.
- **overlay**: Content was intentionally overlayed by the user by uploading new content into the Document manager.
- **revision**: The user opted to remove a Standard Document revision.
- **user**: The user opted to delete a Document.
- **owner**: OTM removed a document when its owner was removed.

By default, OTM removes external content for preview, overlay, revision and user. This is to avoid the growth of unnecessary content on the remote CMS due to ad-hoc reports and erroneous revisions.

- **glog.document.retrieveURLMimeType:** Determines if the URL should be accessed to set the content type on the document. The property defaults to true for backward compatibility.
- **glog.document.cms.msgraph.uploadChunkSize**: This property is applicable to SharePoint Online. Defines the upload chunk size (in MB) for uploading a large file (>4 MB) in a single upload request
- **glog.document.cms.msgraph.validateFileUpload**: This property is applicable to SharePoint Online. Determines whether to validate the uploaded content in SharePoint Online with the content in the source file.

Logging CMS Integration Activity

The following log IDs can help diagnose problems with CMS integration:

- **ContentManagement**: Provides detailed logging of storage workflow decisions.
- **WCCCalls**: Logs session information for communication with WCC. Includes parameter details on each WCC call and response message.
- **ODCCalls**: Not supported.
- **MSGraphCalls**: Logs information for communication with SharePoint Online. Includes parameter details on each MSGraph REST call and related response messages.