

Oracle Fusion Cloud Transportation and Global Trade Management

Report Designer's Guide

Release 26C



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Author: Oracle Transportation and Global Trade Management Product Team

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Thanks for helping us improve our user assistance!

2 Overview

Integration Overview

Intended Audience

This document is intended for Transportation and Global Trade Management Cloud clients, Transportation and Global Trade Management Cloud System administrators, or Transportation and Global Trade Management Cloud Consultants who have an interest in creating or configuring reports intended for use within the Transportation and Global Trade Management Cloud Application.

Integration

Transportation and Global Trade Management Cloud's report infrastructure uses Oracle Analytics Publisher as a report generation component. It enables you to extract data from Transportation and Global Trade Management Cloud, create a template to layout the data in a report, and generate the report to numerous formats. The Transportation and Global Trade Management Cloud report infrastructure also enables you to schedule reports and deliver the reports to any delivery channel required by your business, such as email, printer, or store it in a content management system. This guide is for report consumers and report designers.

Note: Transportation and Global Trade Management Cloud supports only generating reports, printing reports to a printer, and scheduling to print and email reports. Transportation and Global Trade Management generates the reports online using web services, and displays the report. Then it takes a generated report or document, and submits it to a printer that is configured in Oracle Analytics Publisher.

Report Consumer

A report consumer may perform the following tasks

- Run and view reports from within Transportation and Global Trade Management Cloud.
- Schedule reports to run at selected intervals and to be delivered via channels defined by your administrators.
- Link the report to a document definition in Transportation and Global Trade Management Cloud.
- Configure the report to run on occurrence of an event using an automation agent.

Report Designer

A report consists of a data model, a layout, a set of properties, and a link to the report in Transportation and Global Trade Management Cloud. A report designer may perform the following tasks:

- Create the report data model, including parameters and a list of values, using Oracle Analytics Publisher's report editor.

- Design the layout template of the report. The layout can be created using different tools depending on your output requirements, including Microsoft Word, Adobe Acrobat, Microsoft Excel, and Adobe Flex Builder.
- Set up runtime configuration properties for the report.
- Establish a link between Transportation and Global Trade Management Cloud reports to Oracle Analytics Publisher's report.

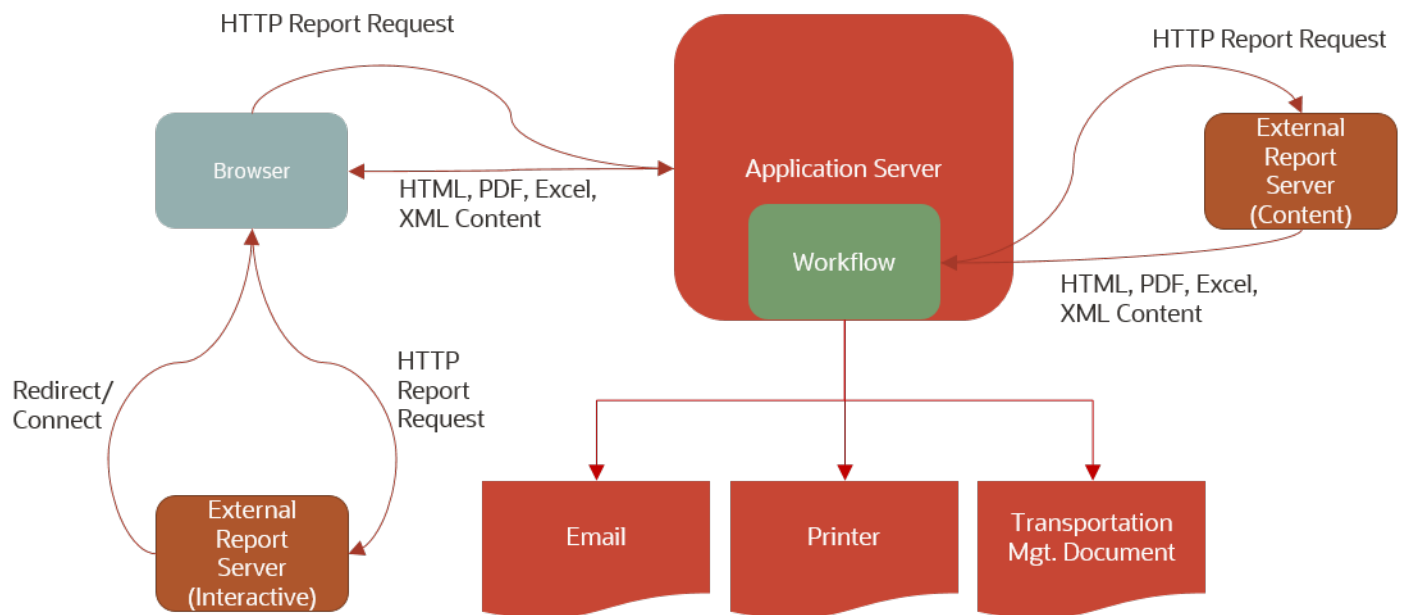
Accessing BI Publisher

The Oracle Analytics Cloud service includes reporting capabilities referred to as “Oracle Analytics Publisher”. You can access Oracle Analytics Publisher from Oracle Transportation and Global Trade Management user interface by navigating to **Business Process Automation > Reporting > Oracle Analytics Publisher**. Following that navigation brings you out of OTM/GTM and into Oracle Analytics Publisher. You can bookmark this URL for direct access.

3 Architecture

Overview

Transportation and Global Trade Management Cloud supports generation of reports using an external reporting system such as Oracle Analytics Publisher. Report requests are sent via HTTP to an external report server. The report server may begin an interactive session or simply return the report content.



Report System

Reports in Transportation and Global Trade Management Cloud are always associated with a report system type that defines the communication type between Transportation and Global Trade Management Cloud and the external report server. The following report systems are supported in Transportation and Global Trade Management Cloud:

- **BI Publisher SOAP Web Service:** A SOAP request is sent to the Oracle Analytics Publisher service and the SOAP response is parsed for content and errors. It includes details of the Oracle Analytics, such as report path prefix, host, port, and user credentials. These account for format, locale, and VPD user information.
- **BI Publisher SOAP Web Service with OAuth:** A SOAP request is sent to the Oracle Analytics Publisher service and the SOAP response is parsed for content and errors. It includes details of the external system which holds the information of the end point which we need to invoke and the authentication mechanism. These account for format, locale, and VPD user information.
- **Other via HTTP:** Use Other via HTTP for non-Oracle Analytics Publisher integrations. It is assumed that the report path is a URL to the report with an optional {report} parameter that is replaced with the report path. This URL report parameter is appended as HTTP request parameters. Each request parameter name matches the name of the report parameter. This includes setting **&P_DESIRED_MIME_TYPE=<requested MIME type>**.

- **Oracle Analytics Cloud:** For generating Reports or Documents from Oracle Transportation Management, see the *“Enable Report Generation from within Oracle Transportation Management”* section in the *Administration Guide*.

Report Content

The report content returned by the external report server can be used in different ways within Transportation and Global Trade Management Cloud. You have to specify the report content type for each report in Transportation and Global Trade Management Cloud. The following types of report content are supported in Transportation and Global Trade Management Cloud.

- **Embedded:** Embedded content means that report content returned by the external report server can be distributed to a browser, email, printer, or stored in content management systems without needing links or nested frames. You may, however, get back an HTML page that references other URLs from the report server. If a third party generator returns embedded content, it can be used as a replacement for Oracle Analytics Publisher.
- **Browser Only:** Browser-only content means that report content returned by the external report server will be sent to a browser. Selecting this option lets you optionally include links or fields applicable to report content. Transportation and Global Trade Management Cloud does not support distribution or storing of content for this option.
- **None:** This means that report content is not generated and returned by external report server. Instead an alternative URL link is used to generate the report on the report manager. These reports cannot be transactional as they do not accept business object information from Transportation and Global Trade Management Cloud. The standard Run/Schedule links to the report are not supported, nor are the reports included on any action menu. Instead, there is a single Report link in the Third Party Reports section of the Report Manager that directs the browser directly to the third party URL. Transportation and Global Trade Management Cloud does not add any implicit or explicit query parameters to the URL.

Report Generation

Report generation in Transportation and Global Trade Management Cloud can be triggered as follows:

- **Ad Hoc Reports:** For ad hoc reports, an HTTP request is sent to the application server which sends an HTTP request to the report server and assumes the response, if successful, contains report content. This content is piped back through HTTP to the browser. The content may also be distributed via email, IPP printing, and/or stored with an associated business object.
- **Scheduled Reports:** Scheduled report requests, or requests triggered by a workflow agent, similarly send a HTTP request to the report server. The response content is distributed via email, printed via IPP, or stored with an associated business object. The scheduling of the reports has nothing to do with the scheduling capabilities of the external report server. The scheduling is Transportation and Global Trade Management Cloud's own scheduling which is used for forming the report requests and receiving the response.

Streamlined support is available when generating reports on a remote Oracle Analytics Publisher server or a server farm. Requests are sent directly from the application server to Oracle Analytics Publisher via a SOAP web service call. Results or errors are returned by the service.

Report Formats: In Oracle Analytics Cloud, the following report formats aren't supported while generating reports from Oracle Analytics Publisher and Oracle Transportation Management:

- **Excel (html):** Web page
- **Excel (mhtml):** Single File Web Page
- **Excel (.xls):** Excel 97-2003 Workbook

Excel(.xls) output format is not supported in Oracle Analytics Cloud if the user creates the BI Publisher report with a non-Excel layout template, like RTF layout, etc. Then the output format will not be in Excel (.xls); instead, it will be in formats like Excel (.xlsx), PDF, HTML, etc.

Note: Excel(.xls) output format is supported in Oracle Analytics Cloud if the user creates the BI Publisher report with Excel layout template. In this case, the report output will always be in Excel (.xls) format.

Any report in OTM or BI Publisher using these report formats will need to be updated to work.

Important Notes

Here are some important notes:

- The report content generation only happens on the external reporting server. The support for embedded report content generation within Transportation and Global Trade Management Cloud using query and format template has been removed.
- Transportation and Global Trade Management Cloud no longer supports the use of the “Use Parameters Operator” on the Report manager. This means reports parameters do not have operators like “Begins With”, “Same As”, or “Ends With”. Instead it is free-form text that you enter.
- Consolidated reports are not supported.
- It is strongly recommended to use the Transportation and Global Trade Management Cloud reporting capability only for transactional reports (A transactional report is one that is focused on a single business object. A shipment document, such as a Bill of Lading, is an example of a transactional report.). All analytical reports should be generated directly on the Oracle Analytics Publisher server and should not be triggered from Transportation and Global Trade Management Cloud.
- By default, all reports are executed with “Use Report Parameter as Bind Variable” set to Yes. This change in behavior was done to prevent performance and security issues.

4 Create a New Report in Oracle Analytics Publisher

Introduction

Use reports to generate and print documents for internal operations, external business transactions, or legal requirements. To meet specific requirements, you may need to create or edit reports to capture different data, or present data in another way. This section provides general guidelines to design new reports and use them in Transportation and Global Trade Management Cloud. Refer to *Designing and Publishing Pixel-Perfect Reports in Oracle Analytics Server* for more options and details.

Report Components

Each report has components that you can configure, as described in this table:

Report Components

Report Component	Description	Tool for Configuring
Data model	Defines the data source, data structure, and parameters for the report. Multiple reports can use the same data model. Each report has one data model.	Data model editor in the application.
Layout	Defines the presentation, formatting, and visualizations of the data. A report can have multiple layouts. There are different types of layout templates, for example Excel and RTF.	Depending on the template file type: • XPT: Layout editor in the application • RTF: Microsoft Word • PDF: Adobe Acrobat Professional • Excel: Microsoft Excel • eText: Microsoft Word
Properties	Specifies formatting and other settings for the report.	Report editor in the application

What You Can Create or Edit

Below are a few examples of creating or editing reports:

- **Edit the layout of a report.** For example, add your company logo to the report output.
- **Add a new layout to a report.** For example, design a new layout template that provides less detail than the existing template.

- **Edit a data model.** For example, add two fields to the data model used by a report so you can add those new fields to a customer-defined layout for the report.
- **Create a new report based on a new data model.** For example, create a new data model based on data from an external system, and create reports using the customer-defined data model.

Creating a New Report

Note: You must be assigned the Oracle Analytics Publisher Developer or Oracle Analytics Publisher Administrator role to create or edit the reports.

Creating a new report consists of the following steps:

1. Create the report data source. Your report data would come from the Transportation and Global Trade Management Cloud operational database or archive database.
2. Create the report entry in the desired folder on the **Reports** page.
3. Open the **Report Editor**.
4. Specify the general properties for the report.
5. Define the **Data Model**. Your report data may come from a SQL query, an HTTP feed, a Web service, an Oracle Publisher Answers request, or a file.
6. Define the parameters that you want users to pass to the query and define lists of values for users to select parameter values.
7. Test your data model.
8. Design the layout template.
9. If you are designing an RTF template, load the data to the Template Builder for Word. Use the Template Builder in conjunction with the instructions in *Creating RTF Templates* to build your report layout.
10. If you are designing a PDF template, follow the instructions in *Creating PDF Templates* to build your report layout.
11. If you are using a predesigned PDF form (such as a government form), follow the instructions in *Creating a Layout from a Predefined PDF Form*.
12. Upload your templates to the **Report Editor**.
13. (Optional) Add translations for your reports. See *Translating Reports*.

Report Folders

All sample reports shipped with Transportation and Global Trade Management Cloud are created in the “Reports” folder under Shared Folders. A catalog folder “Custom” under Shared Folders is provided by default for you to create or place your custom reports and dashboards under this folder. Create all new reports and their corresponding data models in a separate folder for each report (like Invoice Summary) under “Custom” folder. This will enable you to move the report artifacts across environments, such as Stage to Prod. For Cloud customers, the “Custom” folder is mandatory in order to ensure their customer Reports are preserved during upgrades.

For more information on creating the folders please refer to the section *Create a Folder or Subfolder* in the chapter *Manage Pixel-Perfect Reports* in *Using Oracle Analytics Publisher in Oracle Analytics Server*.

Data Models

A data model defines where data for a report comes from and how that data is retrieved and how the data is structured. If the existing data model cannot give you all the data that you need in your report, then you can either copy and edit an existing data model or create a new one.

Refer to the *Part I Model Data for Pixel-Perfect Reports* section of the *Designing and Publishing Pixel-Perfect Reports in Oracle Analytics Server* guide.

Notes

Below are some of points to remember about the data model components while creating the data model.

- Event triggers will not be useful for the Logistics cloud as the customers will not have the access to create or edit PL/SQL packages, procedures.
- Lists of values will only be useful if you are trying to run the reports from the Oracle Analytics Publisher. The LOVs cannot be used from Transportation and Global Trade Management Cloud application.
- Bursting definitions are not used by Transportation and Global Trade Management Cloud for the distribution of reports to different destinations. Transportation and Global Trade Management Cloud uses its own infrastructure to distribute the reports to email and printers.
- Custom metadata is not supported for reports integrated to Transportation and Global Trade Management Cloud.
- Although there are so many options for creating the Data Sets, Transportation and Global Trade Management Cloud only supports data sets created using SQL queries.

Utility Packages

Transportation and Global Trade Management Cloud provides a number of PL/SQL functions/procedures that can be used in Oracle Analytics Publisher Data Models. The following table summarizes the available procedures and functions.

PL/SQL Report Functions

Package	Procedure/Function	Description	Parameters	Returns
vpd	set_user	Sets the user for VPD data security	Transportation and Global Trade Management Cloud user GID	--
	set_user_r	Sets the user and user role for VPD data security	Transportation and Global Trade Management Cloud user GID Transportation and Global Trade Management Cloud user role GID	--

Package	Procedure/Function	Description	Parameters	Returns
	set_user_fct	Sets the user for VPD data security. Designed for use as the first query in a Data Template	Transportation and Global Trade Management Cloud user GID	true
	set_user_r_fct	Sets the user and user role for VPD data security. Designed for use as the first query in a Data Template	Transportation and Global Trade Management Cloud user GID Transportation and Global Trade Management Cloud user role GID	true
	get_gl_user	Returns the current user for VPD data security	--	Transportation and Global Trade Management Cloud user GID
	fnc_set_user_r	Sets the user and user role for VPD data security	Transportation and Global Trade Management Cloud user GID Transportation and Global Trade Management Cloud user role GID	true
utc	get_local_date	Converts a UTC timestamp to a location time zone	UTC Timestamp Location GID	Timestamp in the location's time zone
	get_utc_date	Converts a local timestamp to a UTC timestamp based on a location time zone	Local Timestamp Location GID	UTC Timestamp
	get_time_zone	Returns the time zone for a location	Location GID	Time Zone
rpt_general	f_uom_base	Returns the default storage type for a unit of measure	Unit of measure	Default storage type
	f_date_diff	Returns a readable string representing the duration difference of two dates	Ending date Starting date	Duration string
	f_remove_domain	Strips the domain from a GID	GID	XID
	f_format_address	Returns a formatted address for a location	Location GID	Formatted, multi-line address for the location
	f_corporation	Returns the corporation for a location	Location GID	Corporation GID
	f_location_refnum	Returns the value of a specific location reference number	Location GID Reference number qualifier	Reference number value

Package	Procedure/Function	Description	Parameters	Returns
rpt_order	f_ob_refnum	Returns the value of a specific order base reference number	Order Base GID Reference number qualifier	Reference number value
rpt_ship	f_commodity	Returns the commodity name for a specific item	Item GID	Commodity name
	f_ob_party_location	Returns the location for a specific order base involved party	Order Base GID Involved party qualifier	Location GID
	f_or_party_location	Returns the location for a specific order release involved party	Order Release GID Involved party qualifier	Location GID
	f_order_base_gid	Returns the order base associated with an order release	Order Release GID	Order Base GID
	f_party_address	Returns a formatted address for an order release involved party	Order Release GID Involved party qualifier	Formatted, multi-line address for the location
	f_tender_accepted_by	Returns the carrier that accepted a shipment tender	Shipment GID	Service Provider GID
	f_packaging_form_code	Returns the packaging form code for a ship unit specification	Ship Unit Specification GID	Packaging Form Code GID
	f_capacity_rate_offering	Returns the rate offering for a capacity usage	Capacity Usage GID	Rate Offering GID
	f_capacity_time_period	Returns the time period type for a capacity limit	Capacity Limit GID	Time Period Type
	f_lane_source	Returns the source for a lane	XLane GID	Source
	f_lane_destination	Returns the destination for a lane	XLane GID	Destination
	f_equipment_type_name	Returns the name for an equipment type	Equipment Type GID	Equipment Type Name
	f_sellside_cost	Returns the sell-side cost for a shipment	Shipment GID	Sell-side cost
	f_transport_mode_name	Returns the transport mode for a shipment	Shipment GID	Transport Mode
	f_get_ship_inv_party_addr	Returns a formatted address for a shipment involved party	Shipment GID Involved Party Qualifier	Formatted, multi-line address for the involved party

Package	Procedure/Function	Description	Parameters	Returns
	f_get_country_name	Returns the origin or destination country name for a shipment	Shipment GID 'O' for origin, 'D' for destination	Country name
	f_get_pol	Returns the port of lading for a shipment	Shipment GID	Port of lading
rpt_invoice	f_party_location	Returns an involved party location on the invoice	Invoice GID Involved Party Qualifier	Involved party location
	f_party_address	Returns a formatted address for an invoice involved party	Invoice GID Involved Party Qualifier	Formatted, multi-line address for the involved party
rpt_servprov	f_servprov_gid	Returns the Service Provider GID for a particular alias	Service Provider Alias Service Provider Alias Qualifier	Service Provider GID
	f_alias	Returns the Service Provider alias	Service Provider GID Service Provider Alias Qualifier	Service Provider Alias

Parameters

Adding parameters to your data model enables users to interact with data when they submit or view reports. Transportation and Global Trade Management Cloud passes standard and ad hoc parameters to the report generator (If external report generators do not support these parameters, their content type should be set to `None`). The following table summarizes the standard parameters passed to every report.

Standard Report Parameters

Name	Description	Comments
P_REPORT_GID	The requested report	External systems are responsible for mapping the Transportation and Global Trade Management Cloud report GID to a valid report. Alternatively, the report URL can embed the mapping within a request parameter.
P_DBCONN_TYPE	The data schema	OLTP for the Transportation and Global Trade Management Cloud transactional database; ODS for the offline analytical database; ARCHIVE for the archived data.
P_GL_USER	The user requesting the report	This may be used by external systems to enforce VPD data security on report queries.

Name	Description	Comments
P_ROLE_ID	The role of the requesting user	This may be used by external systems to enforce VPD data security on report queries.
P_DOMAIN	The domain of the requesting user	
P_LANGUAGE	The ISO language code requested for the report	For embedded reports, XLIFF translations are automatically applied.
P_COUNTRY	The ISO country code requested for the report	For embedded reports, XLIFF translations are automatically applied.
P_DISPLAY_NAME	A user-readable name for the report.	
P_DATE_FORMAT	The Oracle date format for both input parameters and output fields.	For input parameters, use the <code>TO_DATE (:P_MY_DATE, :P_DATE_FORMAT)</code> function. For output parameters, use the <code>TO_CHAR(field, :P_DATE_FORMAT)</code> function. This should be reserved for fields that are date-only.
P_DATE_TIME_FORMAT	The Oracle timestamp format for both input parameters and output fields.	For input parameters, use the <code>TO_DATE (:P_MY_TIMESTAMP, :P_DATE_TIME_FORMAT)</code> function. For output fields, use the <code>TO_CHAR(field, :P_DATE_TIME_FORMAT)</code> function. This should be reserved for fields that have both date and time.

The above defined list of standard parameters can be used in any of the report you are designing. If you define any of these standard parameters as a parameter for the report, you do not have to define it as a parameter when defining the report in Transportation and Global Trade Management Cloud.

You will have to define any other parameter required for the report apart from the standard parameters as a report parameter when defining the report definition in Transportation and Global Trade Management Cloud.

Date and Timestamp Handling

Report designers should take special care when writing queries involving DATE columns. This includes:

Converting date parameters for where clause comparison: All date parameters are sent as strings, formatted according to your date preferences. To compare one to a data field, the designer should use Oracle's `TO_DATE` function, applying the standard `P_DATE_FORMAT` parameter:

```
where accessorial_cost.effective_date > TO_DATE(:P_EARLIEST_DATE, :P_DATE_FORMAT)
```

```
and accessorial_cost.effective_date < TO_DATE(:P_LATEST_DATE, :P_DATE_FORMAT)
```

Converting timestamp parameters for where clause comparison: Like dates, timestamp parameters are sent as strings, formatted according to your date/time preferences (Note that the reporting has never applied user time preference. Time preference is assumed to be HH24:MI:SS.). To compare one to a timestamp field, the designer should use Oracle's `TO_DATE` function, applying the standard `P_DATE_TIME_FORMAT` parameter:

```
where shipment.start_time > TO_DATE(:P_EARLIEST_START, :P_DATE_TIME_FORMAT)
and shipment.start_time < TO_DATE(:P_EARLIEST_START, :P_DATE_TIME_FORMAT)
```

Applying date and time preferences: Depending on the use case, designers may want to apply user preferences to dates displayed on the final report. If so, the SQL query should convert selected date and timestamp values using Oracle's `TO_CHAR` function:

```
select TO_CHAR(accessorial_cost.effective_date, :P_DATE_FORMAT) ...
select TO_CHAR(shipment.start_time, :P_DATE_TIME_FORMAT) ...
```

Accounting for UTC storage: Nearly all timestamp fields in Transportation and Global Trade Management Cloud are converted to UTC before persisting to the database. A report designer who simply queries `shipment.start_time`, for example, receives the time in UTC. To convert the stored time to the application or report server's time zone, use the `vpd.gmt_offset` function:

```
select TO_CHAR(shipment.start_time-(vpd.gmt_offset/24), :P_DATE_TIME_FORMAT) ...
```

Accounting for UTC storage: To compare timestamp fields to some offset of current time, designers can either convert the field or use `vpd.gmt_sysdate`. This function returns the current time in UTC. E.g. to query shipments starting in the next three days:

```
select shipment.gid
where shipment.start_time > vpd.gmt_sysdate
and shipment.start_time < vpd.gmt_sysdate+3
```

Layouts

The layout determines what and how data is displayed on report output. Each report has at least one layout template. This topic describes the following aspects of report templates:

- Layout templates
- Layout template types
- Overall process of managing layouts
- Deleting layout templates

Layout Templates

To configure a layout, you edit the layout template, which:

- Defines the presentation components, such as tables and labeled fields.
- Maps columns from the data model to these components so that the data is displayed in the right place.
- Defines font sizes, styles, borders, shading, and other formatting, including images such as a company logo.

Layout Template Types

There are a few types of template files to support different report layout requirements.

- **RTF:** Rich text format (RTF) templates created using Microsoft Word.
- **XPT:** Created using the application's layout editor, these templates are for interactive and more visually appealing layouts.
- **eText:** These templates are specifically for Electronic Data Interchange (EDI) and electronic funds transfer (EFT) information.

You can also create and edit other types of templates using Adobe PDF, Microsoft Excel, Adobe Flash, and XSL-FO.

Creating or Editing Layouts

Editing or creating report layout, for example using Microsoft Word or the layout editor, involves making the actual changes to the template file. But that task is just one part of the entire process for configuring layouts.

1. Review report settings for online viewing.
2. Copy the original report and save the customer-defined version in Shared Folders - custom in the Oracle Analytics catalog. You create or edit templates for the customer-defined copy of the report.

Note: You can use the Customize option if the original is a predefined report.

3. Generate sample data for the report.
4. Edit or create the layout template file.
5. Upload the template file to the report definition. Skip this step if you're using the layout editor.
6. Configure the layout settings.

Deleting Layout Templates

To remove a layout template for a report:

1. Select your report in the Oracle Analytics catalog and select **Edit**.
2. In the report editor, select **View a list**.
3. Select the layout template and select **Delete**.

Generating a Sample Report

Depending on the type of report layout changes you're making, sample data can be required or optional. You generate sample data, and then load it for use with your layout so that you can map data fields to layout components. For example, for the Start Date table column in your layout, you can set it so that the data displayed in that column comes from the Start Date field in the sample data.

You can generate sample data from the:

- Report data model
- Report viewer
- Scheduler

Generating Sample Data from the Data Model

Follow these steps:

1. Select your data model in the Oracle Analytics catalog and select **Edit**. Or:
 - a. In the catalog, find the report to generate sample data for and select **Edit**.
 - b. Select the data model name in the report editor.
2. In the data model editor, select **View Data**.
3. Enter values for any required parameters, select the number of rows to return, and select **View**.
4. To save the sample data to the data model, select **Save As Sample Data**.
5. If you're designing an .rtf template, select **Export** to save the file locally.
6. Save the data model.

Saving Sample Data from the Report Viewer

For reports that are enabled for online viewing, you can save sample data from the report viewer:

1. Select the report in the Oracle Analytics catalog.
2. Select **Open** to run the report in the report viewer with the default parameters.
3. On the Actions menu, select **Export**, then select **Data**.
4. Save the data file.

Saving Sample Data from the Scheduler

For reports that are enabled for scheduling (not necessarily as a scheduled process), you can save sample data from the scheduler:

1. Select the report in the Oracle Analytics catalog.
2. Select **Schedule**.
3. On the General tab, enter values for any report parameters.
4. On the Output tab, ensure that **Save Data for Republishing** is selected.
5. Select **Submit**.
6. Open the Report Job History page.
7. On the global header, select **Open**, then select **Report Job History**.
8. Select your report job name in the Job Histories table.
9. On the details page, under Output and Delivery, select **XML Data Download**.

Layout Editor Templates

The layout editor in the application provides an intuitive, drag-and-drop interface for creating pixel-perfect reports with PDF, RTF, Excel, PowerPoint, and HTML output. The layout template files you create with this tool have an .xpt extension. The layout editor tool is the only editing tool that provides dynamic HTML output. Users can interact with this output in a browser, for example by sorting, applying filters, and so on.

Prerequisite

Make sure that sample data is generated from the data model that your report is using.

Using the Layout Editor

To configure XPT templates:

1. Select the report in the Oracle Analytics catalog and select **Edit**.

2. In the report editor, select **Edit** to update a template. Or, select **Add New Layout** and select a template type under the Create Layout section.
3. Create or edit the layout.
4. Select **Save** to save the layout to the report definition.

RTF and Excel Report Layout Templates

You can use Microsoft Word or Microsoft Excel to create or edit RTF and Excel layout templates, in addition to the layout editor in the application. If you use Word or Excel directly, you must download and install the appropriate add-in so that the Microsoft application has the features you need to design report layouts.

Note: If you're designing a new layout for your report, consider using the layout editor instead unless you are an experienced layout designer.

Installing the Add-in

1. Open the **Reports and Analytics** work area, or the Reports and Analytics pane if available in other work areas.
2. Select the **Browse Catalog** button.
3. Select **Home**.
4. Under the **Get Started** pane, select **Download BI Desktop Tools**.
5. Select the add-in for the type of template you're working with.
 - Template Builder for Word: RTF templates
 - Analyzer for Excel: Excel templates
6. Save and then run the installer.

Creating and Editing RTF Report Layout Templates

An RTF template is a rich text format file that contains the layout instructions to use when generating the report output. Use Microsoft Word with the Template Builder for Word add-in to design RTF templates.

Prerequisites

Install the Template Builder for Word add-in, and generate sample data.

Using Template Builder for Word

To configure an RTF template:

1. If you're editing an existing layout, select your report in the business intelligence catalog and select **Edit**.
2. In the report editor, select the **Edit** link of the layout to download the RTF file. If you're creating a new layout, skip this step.
3. Open the downloaded RTF template file in Microsoft Word. Or, if you're creating a new template, just open Microsoft Word.
4. Load the sample data that you generated.
5. Edit or create the layout template.
6. Save the file as Rich Text Format (RTF).

eText Report Layout Templates

An eText template is an RTF-based report template that is used for Electronic Funds Transfer (EFT) and Electronic Data Interchange (EDI). The template is applied to an input XML data file to create a flat text file that you transmit to a bank or other organizations. Use Microsoft Word to create or edit eText templates.

File Format

Because the output is for electronic communication, not printing, you must follow specific format instructions for exact placement of data on the template. You design eText templates using tables.

- Each record is represented by a table.
- Each row in a table corresponds to a field in a record.
- The columns of the table specify the position, length, and value of the field.

Special Commands

You must set up special handling of the data from the input XML file. This table describes the two levels of handling and where you declare the corresponding commands.

Two Levels of Handling

Level	Example	Setup
Global	Character replacement Sequencing	Declare global commands in separate setup tables.
Record	Sorting	Declare functions in command rows, in the same table as the data.

Uploading the Template File to the Report Definition

If you're creating or editing a report layout using the layout editor, the layout is automatically saved to the report definition, so you can skip this step. For all other layout types, for example RTF, upload the template file to the report definition after you're done making layout changes.

Uploading the Template File

1. Select your report in the business intelligence catalog and select **Edit**.
2. In the report editor, select **View** a list.
3. In the table that lists the layouts, select **Create**.
4. Under Upload or Generate Layout, select **Upload**.
5. In the Upload Template File dialog box:
 - a. Enter a layout name.
 - b. Browse for and select the layout template file that you created or edited.
 - c. Select the template file type.
 - d. Select the locale, which you can't change once the template file is saved to the report definition.
 - e. Select **Upload**.

6. Save the report definition.

Configuring Layout Settings

As part of creating or editing layout, you can set report properties related to layout. These settings determine, for example, which layouts users can choose from when viewing or scheduling the report. The settings apply only to your report.

Setting Layout Properties

1. Select your report in the analytics catalog and select **Edit**.
2. In the report editor, select **View a list**.
3. Set layout properties, some of which are described below.
4. Select **Save Report**.

Layout Properties

Setting	Usage
Output Formats	Depending on the requirements for a report, you may want to limit the output file formats (for example, PDF or HTML) that users can choose. The available output formats vary depending on the template file type.
Default Format	When multiple output formats are available for the report, the default output format is generated when users open the report in the report viewer.
Default Layout	When multiple layouts are available for the report, you must select a default layout to present it first in the report viewer.
Active	Active layouts are available for users to choose from when they view or schedule the report.
View Online	Select this checkbox so that layouts are available to users when they view the report. Otherwise, the layout is available only for scheduling the report.

For more information on designing the Layouts see *Designing and Publishing Pixel-Perfect Reports in Oracle Analytics Server*

5 IPP Printing

Introduction

Transportation and Global Trade Management Cloud supports the printing of reports to an Internet Printing Protocol (IPP) compliant printer with specific support for a Common UNIX Printing System (CUPS) printer.

Set up a Printer for Oracle Cloud

When setting up an on-site printer, please note that the printer must meet the following prerequisites.

- The printer must support printing over the internet for which there are two options:
 - The printer is IPP (Internet Printing Protocol) enabled, which means it natively supports printing over the internet.
 - If the printer doesn't support printing over the internet which can be the case for older printers, you need to set up an IPP print server at your location. Examples of IPP printer servers are CUPS (Common UNIX Printing System) and Windows IPP Print Server. For information on setting up CUPS or Windows IPP print servers and connecting network printers to them, see the CUPS or Windows IPP software supplier documentation.

Note: It's strongly recommended that a print server (CUPS or Windows) be used instead of connecting directly to the printer. This type of setup ensures that the printer is IPP enabled and that it can accept and process cloud-based print requests. A print server also allows for easier debugging through the availability of server level logs.

Note: CUPS refers to setting up a CUPS print server on site at your facility as a gateway to a printer. We use the CUPS print server URL to configure that printer in Oracle Business Intelligence Publisher (BI Publisher). It doesn't see setting up a CUPS server within BI Publisher which is no longer supported as of Release 9 (see [KB32341: Fusion Applications - BI Publisher: Printer Configuration - CUPS Server tab is Not Available For Cloud / SaaS Environments](#)).

- The print server must present a valid SSL certificate signed by a trusted CA (Certificate Authority) such as GoDaddy or Verisign. Self-signed SSL certificates aren't supported.
- The on-site printer must be accessible via the internet over a secure connection. If there's a firewall that's protecting internal servers, then a firewall policy/rule needs to be configured to allow incoming traffic to the onsite print server. For the list of trusted Oracle Gateway IP addresses to add to the allowlist for your firewall, see [Public IP Ranges and Gateway IPs for Oracle Analytics Cloud Instances](#).
- The print server host must be registered with the McAfee Site Address Filter. Please review the Trusted URL Registration section of the Oracle Logistics Cloud Getting Started Guide for more details.
- The printer should be set up with the authentication option enabled.
- The printer should be using either Basic or Digest authentication schemes. NTLM is currently not supported.

Printer Configuration in Oracle Analytics Cloud with SSL Certificate

1. Connect to Business Intelligence Publisher using the `/xmlpserver` URL.
2. Upload SSL certificates in the following path in Business Intelligence Publisher: **Administration > Upload Center > Upload File > browse > File Type** (SSL certificate), and select **Upload**.
3. Select the SSL certificate file from the drop-down list under **Administration > Delivery Configuration** in Business Intelligence Publisher.
4. SSL certificate selected in the **Delivery Configuration** page will be used by the configured IPP printer in Oracle Analytics Cloud when encryption type is SSL.

Configure Printer in BI Publisher

This section lists the steps required to enable IPP printing either through a printer running from a CUPS server or directly via IPP.

If you are going to use a printer running through CUPS, your system administrator needs to add the printer to the CUPS server. Once your CUPS printer is set up, complete the following:

Log into the Oracle Analytics Publisher console.

1. Select **Sign In**.
2. Select **Administration**.
3. Select the **Printer** tab.
4. Select **Add Server**.
For a CUPS or direct IPP printer:
 5. Enter the **Server Name**. You will need to enter this into Transportation and Global Trade Management Cloud later, so make note of it.
 6. Enter the URI for your server. For CUPS the form is `ipp://<CUPS host>:631/printers/<printer name>`.
IPP uses the TCP port 631 for printing, so any firewalls between the client and the server must be configured to allow bi-directional traffic on that port. Please consult your network administrator if you think any configuration changes are necessary.
 7. Check with your system administrator for any Filter requirements.
 8. It is required to use SSL Encryption. Select **SSL** for the **Encryption Type** in the Security section.
 9. It is also required to protect the Printer/Print Server using User Authentication. Please enter the corresponding details in the **Username**, **Password**, and **Authentication Type** fields. The **Authentication Type** must be **Basic** or **Digest**.
 10. Select **Apply**.

A Direct IPP printer is set up the same way except for one difference. Instead of going through the CUPS server, you set up the URI to point to the server and IPP port directly. The URI would be entered in the following format, `ipp://<PRINTER_FQDN>:631`.

Print from Oracle Analytics Publisher

To ensure Oracle Analytics Publisher functionality, you can print a test page with your printers.

1. Select **Home > Report Job > Search**.

2. Select the **+** sign next to **Reports**.
3. Double-click **domestic_packing_list**.
4. Highlight the **domestic_packing_list** report.
5. Select **Open**.
6. Select the **Output** tab.
7. Select the **Add Destination** button.
8. Select a printer. You can select all your printers by selecting the **Add Destination** button an appropriate number of times.
9. Select the **Schedule** button. Ensure the Frequency is correct, in this case "Once".
10. Select **Run Now**.
11. Select **Submit**.
12. In the **Submit** pop-up, enter a **Report Job Name**.
13. Select **OK**.
14. Go to your physical printer and ensure that your jobs were printed.
15. Sign out of the Oracle Analytics Publisher console.

Configure Printer in OTM/GTM

After confirming that printing is working from within Oracle Analytics Publisher, you need to configure Transportation and Global Trade Management Cloud to use the printer defined in Oracle Analytics Publisher.

1. Navigate to **Business Process Automation > Power Data > Document Generation > Printers**.
2. Select **New**.
3. Enter the following:
 - a. **Printer ID**: A printer ID
 - b. **Printer Name**: The server name you gave your printer when you set up the printer in Oracle Analytics Publisher.
4. No other fields are necessary. The system uses the following fields if specified: Orientation, Sides, Number of Copies, and Media.
5. Select **Finished**. Repeat for as many printers as you have set up in Oracle Analytics Publisher.

Print from OTM/GTM Cloud

You have two options when print from the OTM/GTM Cloud.

- Option 1: Use the Send Content action from the Document Manager.
- Option 2: Use pre-packaged reports and send them to a printer.

Option 1

1. Navigate to **Business Process Automation > Document Manager**.
2. Select **Search**.
3. Select the checkbox next to a document.
4. Select **Actions > Send Content**.
5. In the Printers grid, enter your printer(s).

6. Select **Save**.
7. Select **Submit**.

You should get a Confirmation dialog box.

Option 2

1. Navigate to **Shipment Management > Shipment Management > Buy Shipments**.
2. Select **Search**.
3. Select the checkbox next to a shipment.
4. Select **Actions > Business Process Administration > Reports > Domestic Packing List**.
5. Enter the following:
 - a. **Report Format:** *PDF*
 - b. **Delivery Method:** *Print*
 - c. **Printer ID**
6. Select **Submit**.

You should get an Information screen saying, "The report print request has been submitted to <YOUR_PRINTER>".

Print Logging

This section details how to turn on and view print logging as follows.

Enable Logging

You can turn on some printing logging as follows:

1. Navigate to **Configuration and Administration > Power Data > General > Log Files**.
2. Select a **Type** of *System*.
3. Select **Search**.
4. Edit the SYSTEM log.

Note: To edit the SYSTEM log you must be logged into Transportation and Global Trade Management Cloud as DBA.ADMIN.

5. Add the following log IDs to the SYSTEM log:
 - Print
 - PrintDebug
 - PrintDetails
6. Select **Finished**.

View Logging

1. Open any Process Management screen. For example, **Shipment Management > Process Management**.

2. Under Logs, select **System**.
3. In the **From** field, change the time to when you submitted the first print job.
4. In the **Log** field, select *SYSTEM*.
5. In the **Severities** field, leave the default setting.
6. Select the following IDs:
 - Print
 - Print Debug
 - PrintDetails
7. Leave the **Top Level Process** field blank.
8. Select **View Results**.

You should see something like the following:

```
Debug Print Sending print: Domestic Packing List to <YOUR_PRINTER> (<#>) [transport - IPP - 1]
Debug PrintDebug File to print /middleware/app/otm641/otm/temp/prt714623267893139703.pdf [transport - IPP - 1]
Debug PrintDebug BIP Print Service URL: http://pod-primary-1.otmgtm-cloud.oracle.com:8704/xmlpserver/services/v2/ScheduleService [transport - IPP - 1]
Debug PrintDebug BIP Print Soap Request:
Debug PrintDebug BIP Print Soap Response:
Debug Print Print successful: Domestic Packing List to <YOUR_PRINTER> (<#>) [transport - IPP - 1]
```

Debugging Using CUPS Print Server

It is highly recommended to use a CUPS printer server. Using a print server will make it easier to diagnose issues since you can view the status of the printer and printer jobs.

1. Sign in to the printer server host.
2. Select the **Printers** tab.

You will see a list of CUPS printers and ancillary information. Look for the “Status”.
3. Select on your printer in the queue **Name** column.
4. Select **Show Active Jobs**.
5. Scroll to the bottom of the page, and you should see a job “spooling”.

If your job spools it is in the printer queue which indicates that your job has been recognized and is being processed.

IPP Printing Frequently Asked Questions

Is there an alternative means of printing reports, documents, etc.?

Yes. Reports can be viewed and printed on a local printing using a web browser.

What is the standard Protocol for printing directly from the Oracle Logistics Cloud?

IPP over HTTPS.

Does direct printing from the Oracle Logistics Cloud require an SSL certificate from a Certification Authority?

Yes, the print server must present a valid SSL certificate signed by a trusted certificate authority such as GoDaddy.

Can a self-signed SSL certificate be used, rather than a certificate from a Certification Authority?

No. Self-signed certificates are not supported.

Can the print server be the printer itself, or, must a print server be, for example, a CUPS (Common UNIX Printing System) server?

The IPP print server can be the printer itself. Newer printers already have built in IPP over HTTPS support. Consult the printer's user guide for specific setup requirements and availability.

If the printer does not natively support IPP over HTTPS, then a CUPS server (or print server that supports IPP over HTTPS) can be used. For CUPS (or similar) based setup, Oracle Analytics Publisher will connect to the print server, and then the print server would connect to the printer. All required setups will need to be completed and tested by Cloud customers.

Is it mandatory to use SSL and client authentication?

Yes. For cloud customers, those are enforced by default and should not be modified by the customer.

How to test that my printer is working?

You can run any report and redirect the print output to the newly setup printer. If the job completes successfully and the printer receives the print request then the setup is good.

Can we use client side certificate instead of username/password for cloud printer authentication?

No. Supported authentication methods are basic or digest both of which use username/password.

Are there any troubleshooting tips in case the print request doesn't go through?

Review and make sure the prerequisite steps are followed.

Verify the print server logs to check if it received the print request. Refer the IPP print server, CUPS or Windows IPP software vendor documentation for more details on where to find the logs.

In case you are still unable to receive the print requests on the print server from Oracle cloud, please log an SR to engage Oracle Support in debugging any setup issues on Oracle cloud. When logging the SR, please provide the following details:

- Screen shot of print server setup in Oracle Analytics Publisher
- Complete printer URL

6 Troubleshooting

Introduction

When generating a report, errors can occur in Oracle Analytics Publisher. If fatal, an exception is reported to Oracle Transportation and Global Trade Management. For an ad-hoc report request, the exception is shown to the user; for scheduled or automated reports, it is written to the exception log.

Report Logging

Two types of logging are available to diagnose report issues:

- Transportation and Global Trade Management Cloud logging. The **Report** log ID outputs the major steps of report creation. The **ReportDetails** log ID provides more detailed information.
- Oracle Analytics Publisher logging. The Oracle Analytics Publisher engine maintains a separate logging subsystem to track data generation and transformation progress. Please refer to Oracle Analytics Publisher documentation for more details on this topic

OTM/GTM Cloud Logging

As mentioned above, you can enable logging in Transportation and Global Trade Management Cloud by enabling the **Report** and **Report Details** log IDs. This logging will can give the details of which report is being accessed and the SOAP request being posted to the Oracle Analytics Publisher external server web service.

BI Publisher Logging

You can enable detailed logging on the Oracle Analytics Publisher server to track what is being done by Oracle Analytics Publisher while generating the report. For more information on the type of log files, the categorization of the log levels, and configuration of the log files refer to *Enable Diagnostics* in the *Administering Oracle Analytics Publisher in Oracle Analytics Server*.

Frequently Asked Questions

Here are some frequently asked questions.

How do I configure BI Publisher reports in Transportation and Global Trade Management Cloud?

This guide talks about this in more detail. Below are the high level steps.

1. Configure the Oracle Analytics Publisher Data Source.
 - a. Give data source name as **otmoltp**
 - b. Give the database user name as **globalreportuser**.
2. Design Report in Oracle Analytics Publisher.
 - a. Define a data model.
 - b. Define a report with layout for the data model.
 - c. Test the report using Oracle Analytics Publisher server directly.
3. Define a report system for connecting to the Oracle Analytics Publisher server or use the report system DEFAULT with property macros pointing to glog.bip.externalFarm.* properties.
 - o The BI Publisher user with which you created a report and user with which you want to access the report need not be the same. Please see *Understand Publisher Users, Roles, and Permissions, Configure Users, Roles, and Data Access*, and *Grant Catalog Permissions* sections in the *Administering Oracle Analytics Publisher in Oracle Analytics Server*.
4. Define the report definition with the report system.
 - a. Provide the report absolute path. This will be the path in the URL for accessing the report from the Oracle Analytics Publisher server.
 - b. Take the Report path prefix defined in the report system into consideration since the absolute path provided for the web service will be a concatenation of the report path prefix and the absolute path given in the report definition.
 - c. Define report parameters. The parameter name should match the parameter name defined for the data model in Oracle Analytics Publisher.

Which database user is used for generating reports?

The application uses the database user pointed by the PRIMARY_THIN data source defined in Transportation and Global Trade Management Cloud for generating online reports.

For generating offline reports which connect to a replicated offline database, the application uses the database user pointed by the ODS data source defined in Transportation and Global Trade Management Cloud.

For generating archive reports which connect to an archive schema, the application uses the database user pointed by the ARCHIVE data source defined in Transportation and Global Trade Management Cloud.

Another important point to note is the reports run from the Oracle Analytics Publisher server will not have any VPD context applied. Reports run from Transportation and Global Trade Management Cloud run with the VPD Context of the user running the report.

Why do I get Invalid format requested error when trying to view selected format of the report?

After designing the report and registering it with Transportation and Global Trade Management Cloud, when trying to generate the report for a particular format, if there's an error like:

```
oracle.xdo.webservice.exception.OperationFailedException: PublicReportService::generateReport
for reportAbsolutePath [/Reports/pickup_summary/pickup_summary.xdo] failed: due to
oracle.xdo.servlet.data.DataException: Invalid format requested: excel2000
[000717] Invalid format requested: excel2000
```

This is because the report isn't enabled for the format being requested.

Follow the steps described in the following link: [Part II Create Pixel-Perfect Reports and Layouts](#)

How do I send multiple values for a parameter of the report?

Follow the steps as per the below link

Review the [Designing and Publishing Pixel-Perfect Reports in Oracle Analytics Server](#).

When defining a new parameter enable the check box for Text field contains comma-separated values.

Why do I get OutOfMemoryError: Java heap space?

Transportation and Global Trade Management Cloud is integrated with Oracle Analytics Publisher to send the report requests and receive the generated output as response. Transportation and Global Trade Management Cloud is not equipped to manage very large responses that can be received from the Oracle Analytics Publisher server. Typically Transportation and Global Trade Management Cloud assumes that transactional reports which tie to one business object are configured.

If analytical reports are configured, these reports can return a large amount of data which in turn can occupy the space in the java heap and can lead to `OutOfMemoryError`.

While Transportation and Global Trade Management Cloud can receive a small amount of data for the transactional reports, it may not have enough space to handle the large amount data that can be generated in case of analytical reports.

It is recommended that you use transactional reports within Transportation and Global Trade Management Cloud for this reason. The analytical report can still be used by leveraging the Oracle Analytics Publisher report server capabilities.

How do I view all of the scheduled reports?

Use the menu link **View Scheduled Jobs** at **Business Process Automation > Reporting > View Scheduled Jobs**.

Use **Business Process Automation > Reporting > View Completed Jobs** to view the report jobs which were generated during the scheduled period.

Note that the scheduling that happens in the application has no relation with the scheduling that Oracle Analytics Publisher provides. Transportation and Global Trade Management Cloud uses the Oracle Analytics Publisher server only to send the report generation SOAP requests.

Scheduled reports are not being received as emails. What should I check?

A scheduled report, even though it got generated, can back up on the mail queue in the application if the mail queue does not have enough threads to process the queued items. The report once generated will be queued up for email processing. The queue used for this is "transport – SMTP". Check the number of threads given for this queue and check the backlog on this queue. If there are backlog items on the queue, please increase the number of threads for this queue using the following property.

```
glog.process.threadGroup.mail
```

By default it has a value of 1. Please increase this value but do not increase it to a high value which will result in burdening of the mailing system.

Why are scheduled reports received as a link and not as an attachment?

Read the online help for Security Level that can be configured for each of the report.

Even if the security level allows you to attach, there is a limit of size of the reports which can be attached. The property that governs this is

```
glog.notify.report.maxPdfSize
```

You should also check the property

```
glog.mail.maxContentSize
```

Note: This is reserved property and can only be modified via the glog.properties file. This property cannot be modified for the Cloud.

This property defines the maximum content of the email size including any attachments. So if you decide to increase the first property you should check that the limit does not exceed the second property.

How do I generate reports with a bar code?

For information on how to create reports which need to print barcodes, please refer to the [2D Barcode Functions](#). You will be able to use only three bar code fonts shipped with bi publisher. Please refer to the above documentation for more information.

Why does the report give me the same output for the same set of parameters even though I change the user?

When a report is designed in Oracle Analytics Publisher, you need to pay attention to the caching properties of the reports. If the caching is enabled when you have the same set of parameter the report can be cached for a certain period of time. Please refer to the following link for more details.

See [Set Server Caching Specifications](#) in the Administering Oracle Analytics Publisher in Oracle Analytics Server guide.

Though it is a different application user, the report has no way of telling that it is different user unless, the user is also defined as one of the report parameters.

How do I disable report caching?

Please refer to the section “Why does the report give me the same output for the same set of parameters even though I change the user?”

7 Additional Resources

Resources

- *Oracle Analytics Server documentation library*

