

Building PDF output for HCLTech CTG

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About this guide

This document describes how to install the HCLTech CTG DITA stylesheet and how to build PDF output.

Version history

Table 1: Version history

| Revision | Date | Owner | Details |
|----------|------------------|--------------|---|
| 1 | 3 March 2023 | Péter Ács | Initial version |
| 2 | 31 March 2023 | Eric Szegedi | DITA conversion |
| 3 | 4 April 2023 | Péter Ács | Review and adjust structure |
| 4 | 16 October 2024 | Péter Ács | Added support for chapter landscape orientation |
| 5 | 12 February 2025 | Eric Szegedi | Updated for HCLTech |
| 6 | 14 May 2025 | Eric Szegedi | Added details on DITA topic templates and cover page images |

Chapter 1

DITA build environment basics.

Output from DITA sources are produced using the open-source DITA Open Toolkit (DITA-OT). If you are using oXygen to build output from DITA, oXygen is also calling its embedded DITA-OT instance.

DITA-OT relies on plugins to produce various output types. Plugins can depend on each other: in our case the **com.hcltech.ctgpdf** plugin developed by DTC-E relies on the stock **org.dita.pdf2** plugin.

- **org.dita.pdf2** plugin provides transformation scripts creating PDF from DITA files
- **com.hcltech.ctgpdf** provides HCLTech-specific styling and feature extensions.

oXygen also provides DITA-OT plugins and while some of these are necessary for building HTML Webhelp, none are used for producing PDF output.

Building PDF output for HCLTech using the **com.hcltech.ctgpdf** plugin and DITA-OT is completely platform- and tool-independent and can be called from oXygen, the Windows CLI, or any CI/CD workflow.

Chapter 2

Setting up the build environment

The recommended build environment setup involves installing a standalone DITA-OT instance instead of using the embedded instance supplied with oXygen. This approach makes plugin updates easier.

Setup involves three mandatory steps:

1. [Installing DITA-OT on your workstation](#) on page 7
2. [Installing the HCLTech PDF stylesheet plugin](#) on page 7
3. [Setting up oXygen to use the external DITA-OT and plugin](#) on page 8

If you insist on using the DITA-OT version embedded in oXygen, do not perform the above and see [Alternative approach: Using the oXygen DITA-OT instance](#) on page 15 for alternative instructions.

2.1 Installing DITA-OT on your workstation

About this task

The HCLTech plugin is developed for DITA-OT version 3.7.4. While it may work with other versions, for compatibility reasons it is recommended to use this DITA-OT version.

Procedure

1. Download DITA-OT 3.7.4 from the DITA-OT website.
<https://github.com/dita-ot/dita-ot/releases/download/3.7.4/dita-ot-3.7.4.zip>
2. Unzip the archive to C:\DITA

Results

Archive contents are extracted to the C:\DITA\dita-ot-3.7.4 folder.

2.2 Installing the HCLTech PDF stylesheet plugin

Procedure

1. Navigate to C:\DITA\dita-ot-3.7.4\plugins.
This folder contains the DITA-OT plugins.
2. Create the com.hcltech.ctgpdf folder.
3. Git clone the contents https://github.com/hotlanta/HCLTech_stylesheet to the folder created in the preceding step.



NOTE:

- The **master** branch contains the production stylesheet. You must use this branch for building documentation deliverables.
 - The **beta** branch contains the development version. Use this branch for testing but do never for building official documentation deliverables, unless instructed otherwise.
 - The **legacy** branch contains the legacy stylesheet developed for DITA-OT 2.2.1.
-



TIP:

Use the command `git clone git@github.com:hotlanta/HCLTech_stylesheet.git .` to clone the repo with only the contents (and then there won't be a top level folder such as cms-techdocs-dita-stylesheet created). The `.` at the end is what is needed for this.

4. Integrate the new plugin. This is easiest done using the command line.

In a Windows command line, execute `C:\DITA\dita-ot-3.7.4\bin\dita install`.

You must receive the response: **Added com.hcltech.ctgpdf**.

Results

The plugin is integrated and ready to use. You can validate this with the command:

```
C:\DITA\dita-ot-3.7.4\bin\dita transtypes
```

The list must include **hclctgpdf**, which is the transformation type defined in the plugin.

2.3 Setting up oXygen to use the external DITA-OT and plugin

About this task

The `hclctg.scenarios` file located in the root of the cloned Git repository contains the oXygen transformation scenario calling the external DITA-OT installation with the HCLTech plugin and predefined transformation attributes.

The supplied scenario file calls the DITA-OT instance deployed in `C:\DITA\dita-ot-3.7.4`.



NOTE: You must not change the default DITA-OT engine in oXygen system preferences. Doing so can break other transformation types and can have a significant negative impact on oXygen validation. Always set the custom DITA-OT engine in the transformation scenario instead.

Procedure

1. Start oXygen and click the wrench icon to open the **Configure transformation scenarios** window.
2. Click the cogwheel and select **Import Scenarios**.
3. Navigate to `C:\DITA\dita-ot-3.7.4` and select the `hclctg.scenarios` file.
4. Click **Import** to finish importing the scenario.

Results

Two new entries are available under transformation scenarios: **HCLTech CTG PDF** and **HCLTech CTG PDF Draft**.

2.4 Installing DITA topic templates

Procedure

1. In Oxygen Author, click **Options > Preferences > Document Templates**.

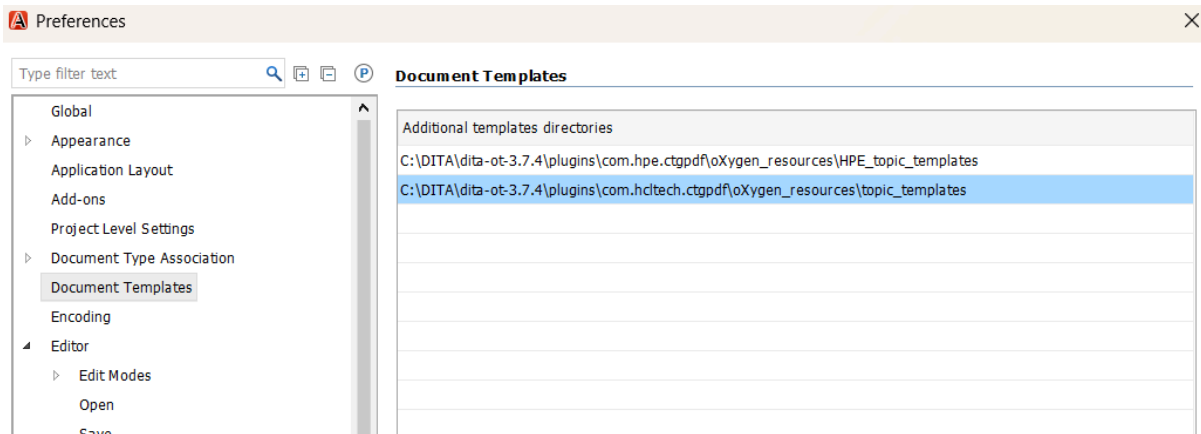


Figure 1: Add Document Templates

2. Click **New** and navigate to where the templates are stored – `c:\DITA\dita-ot-3.7.4\plugins\com.hcltech.ctgpdf\oxygen_resources\topic_templates\`.
3. Click **OK** twice to save your changes.

Results

The templates appear in the **topic_templates** group in the **New...** dialog of Oxygen Author.

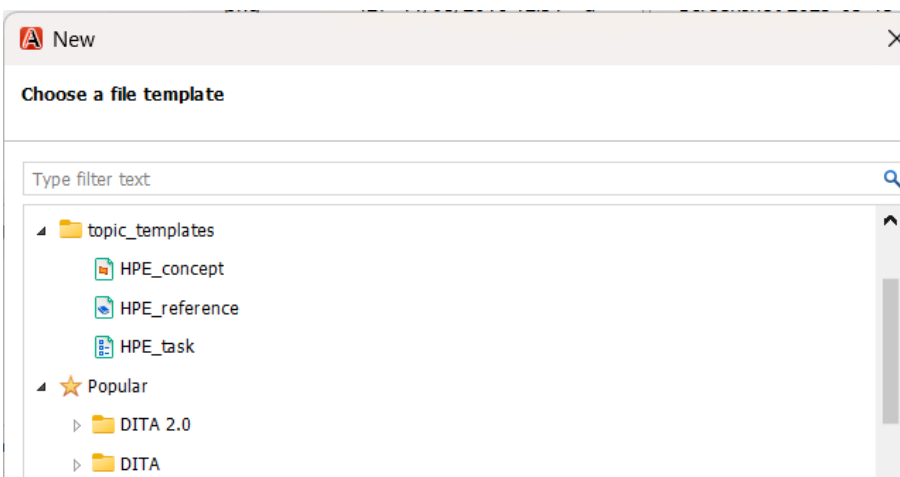


Figure 2: Choose a file template

2.4.1 Recommended metadata fields

The DITA topic templates include the following metadata fields to help searching and categorizing topics. Using these metadata fields is optional but recommended.

Table 2: Metadata fields

| Field | Description |
|----------|--|
| author | The author (owner) of the topic. Helps to identify the internal subject matter expert in distributed teams. |
| prodname | The products the topic applies on. Use the product abbreviations. If multiple products apply, use ; as the separator character instead of a blank space. |
| verm | The last product version the topic was updated for. Helps to identify recently changed topics and old topics that were not updated since a while. Enter the product version as the value of the release attribute. |

| Field | Description |
|-----------|---|
| component | If a product contains multiple standalone components, list here the component the topic applies on. |
| featnum | If the topic is related to a specific product requirement, feature or change request, provide its ID in this field. |

Chapter 3

Output customization

This chapter describes how to control and customize output built by the HCLTech CTG DITA stylesheet.

3.1 Notes

You can use the following attributes to control notes:

- `outputclass=noimage` hides the note image and green highlight borders. This can be useful in table cells or other space constrained locations

3.2 Images



IMPORTANT:

Apply the `placement=break` attribute on the `image` element to make it fit the page width.

The `scalefit=yes` attribute setting does the same, but figure title placement will be incorrect.

Revert to using a manual `scale` attribute setting if the automatic approach does not work.



Attention: Setting the `width` attribute is usually the best approach for changing figure size.

3.3 Forced line break in table cells

The `outputclass=force-break` attribute is maintained for legacy compatibility reasons.

When outputting long strings in a constrained location (for example, a table cell) you can use this attribute to force the string to break at the table border, to avoid content overlapping the next cell.

It can be applied on the following elements:

- `apiname`
- `codeph`
- `cmdname`
- `filepath`
- `varname`

This feature is a workaround and must be used carefully and sparingly. Make sure the element does not include any child elements – these will be ignored if the attribute is applied.

3.4 Confidentiality statement

Use the `view` attribute of the `permissions` element set in the DITAMAP metadata to control confidentiality notices. Confidentiality notices appear in the footer of each page.

```
<bookmap>
  <booktitle>
    <mainbooktitle>Document Title</mainbooktitle>
  </booktitle>
  <bookmeta>
    <permissions view="internal"/>
  </bookmeta>
```

<booktitle>

Applicable values are the following:

Table 3: View attribute

| Target audience | View attribute value | Confidentiality notice |
|---|----------------------|--|
| Document is for customers or the general public and does not have any confidential or proprietary information | all or unset | N/A |
| Document is for HCLTech employees and is not to be shared with customers or partners | internal | HCLTech Internal Use Only |
| Document is for HCLTech employees and partners who have agreed to keep it confidential and is not to be shared with customers | entitled | Confidential Authorized HCLTech Partner Use Only |
| Document is for training HCLTech Employees, Outsourced, Channel Partners and Customer Education training material | classified | Confidential – For Training Purposes Only |

3.5 Cover page customization

The following elements in the following order are picked up and outputted to the document cover:

Table 4: Cover page customization

| DITAMAP element | Contains |
|---|--|
| <booktitle>/<mainbooktitle> Or <title> | Main document title. Must contain the product name and the document name |
| <booktitle>/<booktitlealt> | Document subtitle. To be used if the document is targeted for different systems or audiences |
| <bookmeta>/<prodinfor>/<vrmlist>/<vrmlist>/@version, @release | Product release information. Put the major version in the version attribute and the minor version in the release attribute. The modification attribute is not considered for the output. |
| <bookmeta>/<bookid>/<edition> | Document edition. |
| | No additional boilerplate text added. |
| <bookmeta>/<bookid>/<bookpartno> | Document part number. |
| | Prefixed by "Part number:" |
| <bookmeta>/<permissions>/@view | Confidentiality statement. See the corresponding chapter. |

Table 5: Cover image valid values

| Value |
|---------------------|
| buildingwomanphone |
| circuitboard |
| holdingglassesphone |
| minglassesphone |
| mantablet |
| serverroom |

| Value |
|-------------------|
| sittingmanlaptop |
| womancitylights |
| womansittingphone |

3.6 Landscape orientation for chapters

Apply `outputclass="landscape"` on the top-level topic of a chapter to display the full chapter in landscape orientation.



NOTE: Due to a limitation the attribute must be applied on the topic root element, not the `topicref` in the DITAMAP.

Chapter 4

Maintaining the build environment

4.1 Updating the HCLTech PDF plugin

To fetch stylesheet updates and bug fixes on your workstation / build environment, you must update your cloned HCLTech PDF plugin.

Perform a git pull on the `C:\DITA\dita-ot-3.7.4\plugins\com.hcltech.ctgpdf` folder to fetch updates.

The team will notify you when critical updates are necessary.



NOTE:

If transformation attributes change with the stylesheet update and you are building output from oXygen, it is not sufficient to perform a git update on the plugin.

You will also have to perform the import procedure again to fetch the latest configuration.

The team will notify if this action is also required.

4.2 Reporting stylesheet issues and improvements

You can request feature improvements and bug fixes on the stylesheet. Join the **#tech-stylesheet** Slack channel or write an email describing your request.

When reporting a bug, provide the following information:

- A brief description of the problem
- The DITA-OT error message, if encountered. (you can send the full DITA-OT log).
- Pointer to a DITAMAP and DITA topic showcasing the problem.
- The git repository and branch name containing the DITA sources.
- If the PDF build fails, also send the `topic fo` file located in the temp directory.

When requesting a feature / improvement, provide the following information:

- The requested feature / improvement.
- Impacted projects and/or source types.
- Any workaround currently in place.
- Pointer to a DITAMAP / DITA topic where the improvement need can be observed in context.

Appendix A

Additional information

This section describes useful information that can improve your efficiency, but is not essential.

A.1 Building DITA output using the command line

If you want to perform a build quicker than calling it from oXygen or want to quickly validate the installed plugin, perform this command:

```
C:\DITA\dita-ot-3.7.4\bin\dita install -i <input_ditamap> -f hclctgpdf -o <output_folder>
```

where:

- <input_ditamap> is the input ditamap with its full path
- hclctgpdf is the transformation type as defined in the plugin. Do not change this value.
- <output_folder> is the folder you want the output PDF to be located. By default this folder is relative to the folder you call the command from.

Optionally, add the -v option to display the build log in the command line. Errors and warnings are displayed by default even without calling this option. You can also direct the log to a standalone file by using CLI pipes (for example, adding > log.txt to the end of your dita command will pipe the output to the log.txt file.)

Optionally, add the --propertyfile C:\DITA\dita-ot-3.7.4\plugins\com.hcltech.ctgpdf\ctgpdf.properties option to pass all predefined build parameters to the build process. This option is mandatory if you are building production output.

You are highly encouraged to play with the command line DITA command and its options to discover its features and functionality. See the DITA-OT website for a detailed description <https://www.dita-ot.org/3.7/topics/build-using-dita-command.html>.

A.2 Alternative approach: Using the oXygen DITA-OT instance

You can also install the plugin under the DITA-OT instance shipped with oXygen. This method can be helpful if you are experiencing obscure build errors or need to set the fix.external.refs.com.oxygenxml DITA build parameter to true.

About this task

There are less benefits than drawbacks to this approach.

Benefits:

- No need to install a standalone DITA-OT instance.
- Plugin integration in oXygen is easier.
- You use the same DITA-OT instance for building PDF and Web output.

Drawbacks:

- Installation requires administrative permission.
- Plugin updates are troublesome and require administrative permission.
- Troublesome process using DITA from the command line.
- The DITA-OT version can change with an oXygen upgrade, leading to compatibility issues.

Still, if you insist, the correct process is the following.

Procedure

1. Perform [Installing the HCLTech PDF stylesheet plugin](#) on page 7, but perform steps in the C:\Program Files\Oxygen XML Editor 25\frameworks\dita\DITA-OT3.x\plugins folder as an Administrator.
2. Launch oXygen as an Administrator and execute the **Run DITA-OT Integrator** transformation scenario to integrate the plugin.
3. Perform [Setting up oXygen to use the external DITA-OT and plugin](#) on page 8, but change the value of the dita.dir parameter to `${configured.ditaot.dir}`