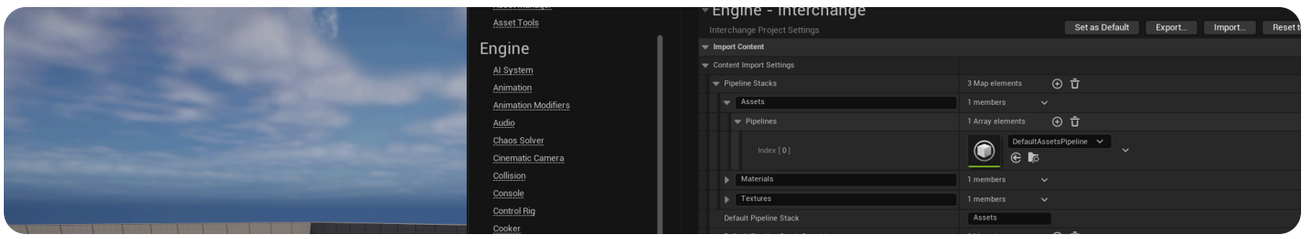
Interchange MaterialX Reference

A reference guide for working with the MaterialX format in the Interchange Framework.



Learn to use this **Experimental** feature, but use caution when shipping with it.

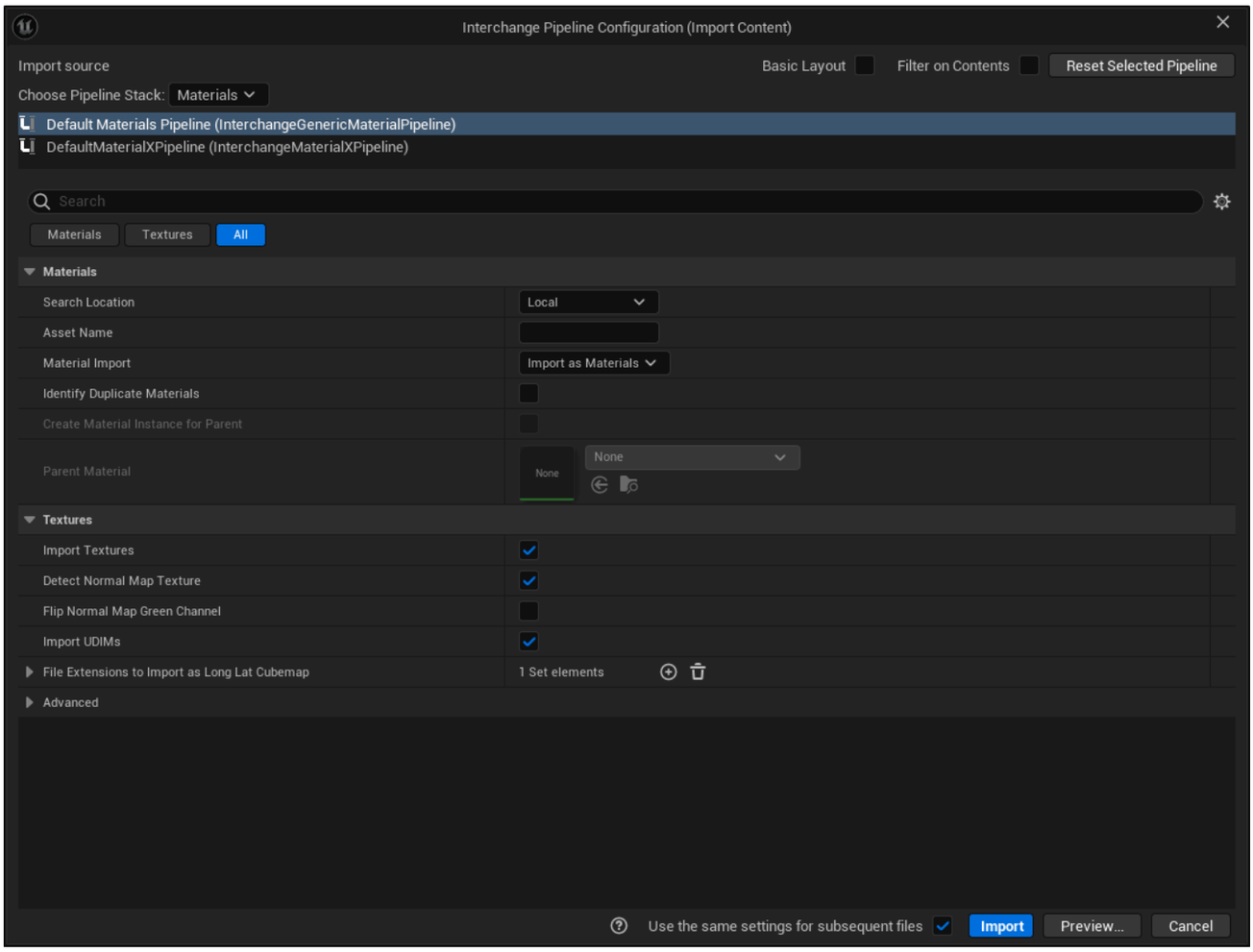
The **MaterialX** format is an open-source interchange method developed by Industrial Light & Magic in 2012. It is a software agnostic method for describing patterns, textures, shader networks, and their geometric assignments. **Unreal Engine (UE)** supports MaterialX in the Interchange Framework using the following standards:

- Standard Surface Shading model developed by Autodesk.
- Universal Scene Description (USD) workflows using the USD Preview Surface shading model developed by Pixar.
- OpenPBR shading model specified by Adobe and Autodesk.

By default, OpenPBR materials use Standard Surface shaders. Using Substrate Materials can give better material fidelity due to support for both opaque and translucent materials. This feature is currently Experimental.

Import a MaterialX File

To import MaterialX files into Unreal Engine, use the standard Interchange import process.



Importing a MaterialX File into the level.

The interchange import process imports the image data and automatically creates the appropriate number of materials.

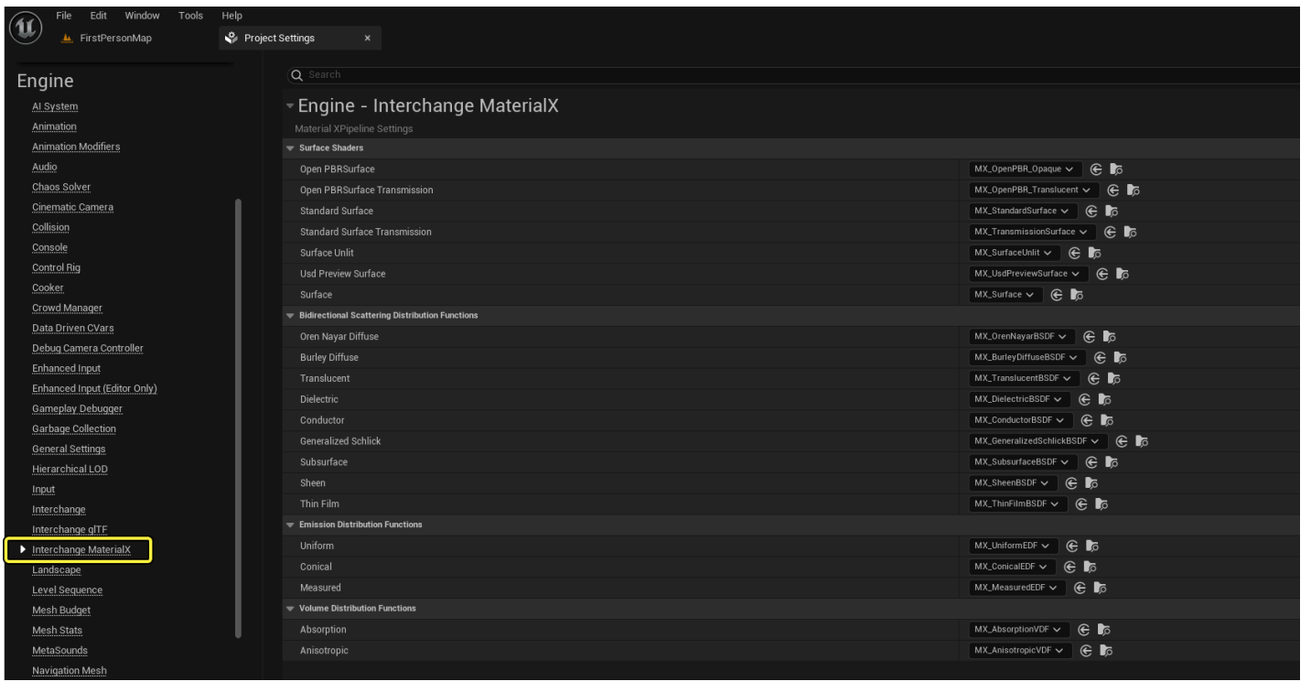
Edit MaterialX Import Settings

You can customize MaterialX import settings:

- Anytime in Unreal Engine's **Project Settings** editor.
- At the time of import in the Interchange Pipeline Configuration window.

For more information on customizing settings using the Interchange Pipeline Configuration window, see the Interchange Import Reference.

MaterialX import settings are found in **Project Settings > Interchange MaterialX**:



MaterialX Project Settings

Option	Description
Standard Surface	Defines the material function to use when translating data for Autodesk's Standard Surface shader.
Standard Surface Transmission	Defines the material function to use when translating Standard Surface data for translucency.
Surface Unlit	Defines the material function to use when translating Standard Surface data for unlit surfaces.
USD Preview Surface	Defines the material function to use when translating data for USD's surface shader.
OpenPBR Surface	Defines the material function to use when translating data for OpenPBR Surface shader.
OpenPBR Surface Transmission	Defines the material function to use when translating OpenPBR Surface data for translucency.

The import process translates MaterialX definitions into Unreal Shader nodes using the following Material Functions:

- `MX_StandardSurface`
- `MX_TransmissionSurface`
- `MX_SurfaceUnlit`
- `MX_USDPreviewSurface`
- `MX_Surface`
- `MX_OpenPBR_Opaque`
- `MX_OpenPBR_Translucent`
- `MX_Substrate-StandardSurface-Opaque`

- `MX_Substrate-StandardSurface-Translucent`
- `MX_Substrate_OpenPBR_Opaque`
- `MX_Substrate_OpenPBR_Translucent`

When the imported data uses an unsupported shader model, Unreal attempts to generate a shader graph using the MX_Surface and other supported Material Functions.

These Materials are found in the following Unreal Engine directories:

- `Engine/Plugins/InterchangeFrameworkContent/Functions`
- `Engine/Plugins/InterchangeFrameworkContent/Substrate`
- `Engine/Content/Functions/Substrate`

Editing the default engine material functions is not recommended. If you need to customize these functions, follow these steps:

1. Create a copy of the material function you want to edit and move this new function into your project's **Content** folder.
2. Make changes to the material function and save.
3. Select the new material function in **Project Settings > Interchange MaterialX**.