

// GSS MATERIALFX

QUICK START

165 materials in 11 bundles for UEFN: surfaces, post process, UI and more.



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WHAT IS IN THE PACK

GSS MaterialFX gives you 165 ready-made master materials for UEFN in 11 bundles, with 540 material instances to start from. Most are Surface materials for meshes. Twenty are full-screen Post Process effects and 21 are UI materials for widgets. You apply an instance, change a few numbers in the Details panel, and you are done. Verse is optional: no material needs it, and it is mentioned below only where it helps. The pack also ships with a walkable museum where every material is on show (see "The museum").

Item	Count
Bundles	11
Master materials	165
Material instances (ready-made variants)	540
Material functions (MF_ , shared building blocks)	25
Textures (T_MFX_)	45
Material Parameter Collections (Post Process fades)	3

Of the 165 masters, 124 are Surface materials (for meshes), 20 are Post Process and 21 are UI. 103 Surface masters are Opaque, 12 are Additive, 6 are Masked and 3 are Translucent; the UI masters are Translucent and unlit.

■ THE 11 BUNDLES

Each bundle is one folder under `MaterialFX/`. A master is the material itself; an instance is a variant of it with different settings. Duplicate and tweak instances, not masters.

Bundle	Folder	What is in it	Masters	Instances
Optical Illusions	Illusion	Mind-bending patterns that move, breathe and fake depth on flat surfaces.	25	72
Cosmic & Portals	Cosmic	Galaxies, black holes, wormholes, auroras and living stars.	10	31
Sci-Fi Energy	SciFi	Holograms, force fields, plasma, data rain, scanners and HUD elements.	16	50
Elemental	Elemental	Lava, water, ice, fire, electricity, slime, sand, snow and sky.	12	37
Magic & Fantasy	Magic	Rune circles, portals, crystals, ghosts, dissolves and enchantments.	13	42
Premium Surfaces	Surface	Iridescent, holographic, chrome, toon, glitter and fabric finishes at mobile cost.	12	52
Gameplay FX	Gameplay	Readable, functional materials for islands: pads, zones, highlights, progress.	15	48
Screens & Retro	Retro	CRT, VHS, LED, synthwave, plasma and 8-bit looks.	12	36
Toon & Matcap	Toon	Adjustable cel, hatching, halftone, watercolor and matcap shading that follows the level sun.	9	36
Post Process	PostProcess	Full-screen effects for post process volumes: sonar, outlines, thermal, underwater, glitch and more.	20	67
UI & HUD	UI	Widget materials: bars, meters, cooldowns, crosshair, compass, frames, plus mobile-safe screen overlays.	21	69
Total			165	540

■ FOLDER LAYOUT

```
MaterialFX
  Illusion/  Cosmic/  SciFi/  Elemental/  Magic/  Surface/
  Gameplay/ Retro/  Toon/  PostProcess/  UI/
    <master materials: M_<Bundle>_<Name>, PP_<Name>, UI_<Name>>
      Instances/      MI_<Bundle>_<Name>_<Variant>
  Functions/          25 shared MF_ material functions
  Textures/           45 shared T_MFX_ textures
```

PostProcess/ also holds the 3 Material Parameter Collections. UI/ also holds a small Verse sample, mfx_ui_demo_device.verse (optional). The walkable museum and its folders (MFX_Museum , MFX_Sky , MATERIAL , VFX/_GSS) sit outside the product folders; see "The museum".

■ WHAT YOU NEED

A UEFN project. Materials use only the folders above. No island setting is needed to use them: no project or island settings were found to be required, and a clean-project test import will confirm that before release. Post Process materials need a Post Process Volume in your level; UI materials need a widget.

■ AI DISCLOSURE

33 of the 45 textures were made with an AI image tool (Muse): all 19 matcaps and 14 others (Caustics, Circuit, Clouds, Cracks, Filigree, Flames, Frost, Galaxy, Glyphs, Lava, Lightning, Nebula, RuneCircle, StainedGlass). The other 12 are made by script. The Reference marks which bundles use them.

APPLY YOUR FIRST MATERIAL

This takes about a minute and needs no Verse. Pick an instance in the Surface bundle first; it is the simplest.

■ ON A MESH

1. In the Content Browser open `MaterialFX/Surface/Instances`.
2. Drag `MI_Surface_HoloFoil_Rainbow` onto a mesh in the Viewport. Or select the mesh, find its Materials slot in the Details panel and pick the instance from the drop-down.
3. Launch a Session or Push Changes to see it in play.

TIP: Place one, play, then change one setting at a time. Every instance ships with working defaults.

Most Surface materials are meant for flat or gently curved meshes; Optical Illusions in particular distort on strongly curved shapes. Screen-like materials (CRT, VHS, Radar, ScannerSweep, TargetLock) look best on flat planes.

■ IN A POST PROCESS VOLUME

Post Process materials do nothing on a mesh.

1. Add a Post Process Volume to the level and set it to Unbound (infinite extent) for a whole-level effect.
2. In its Details panel find the Post Process Materials array, add an element and choose a Post Process instance, for example one from `MaterialFX/PostProcess/Instances`.
3. Play. Add a second element to stack effects.

Three masters (`PP_DamageVignette` , `PP_FrostEdges` , `PP_PoisonDrunk`) use a Material Parameter Collection so a Level Sequence can fade them in. The collection is part of the pack; migrate it with its master. Set Sequencer Driven to 0 on the instance if you do not use Sequencer.

■ IN A WIDGET (UI BUNDLE)

UI materials only show in a widget: use one as the image brush of a widget, or from Verse as a `material_block`. They have no effect on a mesh. Each UI master has a generated Verse class named after the asset, so a health bar looks like this:

```
Bar := UI_HealthBar{}
set Bar.Fill = 0.35
material_block{DefaultImage := Bar, DefaultDesiredSize := vector2{X := 400.0, Y := 40.0}}
```

Fill, Trail and Hit are the values you drive from Verse. 11 UI masters (AmmoPips, Banner, Compass, Cooldown, Crosshair, DamageDirection, HealthBar, Radar, RadialMeter, ShieldBar, XPBar) ship three looks, SciFi, Clean and Toon, chosen per instance with the static switches StyleClean and StyleToon. A static switch cannot be changed from Verse at runtime. Verse that uses the generated classes must sit in the same content folder as the materials; see "Folder rules".

CUSTOMISE A MATERIAL

■ INSTANCES

An instance is a copy of a master with its own settings. The 540 shipped instances are the ready-made looks. Changing an instance changes every place that uses that instance, not the master. Do not edit a master unless you want every instance of it to change.

■ DETAILS PARAMETERS

Double-click an instance to open it. The parameters are listed in groups:

Group	What is in it
00 Style	Static switches that swap the whole look (UI: StyleClean, StyleToon).
01 Color	Colours, Tint, Brightness, Contrast.
02 Pattern	Shape and layout: Tiling, Intensity, Segments, UI values like Fill.
03 Animation	Speed and pulses.
04 Glow	Glow, Rim glow, overall brightness.
05 Textures	Texture slots. Swap in your own texture; the shipped one is the default.
06 Lighting	Toon lighting: UseSunDirection and light direction.
Switches	Other static switches.

Tick the box next to a parameter to override it, then change the value. Texture slots take any texture: the matcap masters (`M_Surface_Matcap`) change look by swapping one texture, and 19 matcap textures ship, one per instance. Names are CamelCase with no spaces so Verse can address them; they are reflected for Verse automatically, but you never have to use Verse.

■ MAKE YOUR OWN INSTANCE

1. Right-click an instance (or a master) in the Content Browser and choose Create Material Instance, or duplicate an instance with Ctrl+D.
2. Give it your own name, for example `MI_Surface_HoloFoil_Mine` , and keep it in your own folder.
3. Change parameters, then assign it to your mesh.

TIP: Keep your own instances outside `MaterialFX/` . A later update of the pack then cannot overwrite them.

■ COMMON PARAMETERS

No parameter is on every master, but these appear often. Defaults and ranges differ per master; the Reference gives each master's own.

Parameter	On how many masters	What it does
Glow	104	Brightness multiplier of the emissive light (higher is brighter, more bloom).
Speed	82	Animation speed. Negative reverses, 0 freezes.
Tiling	81	How many times the pattern repeats across the surface (UV scale).
Brightness	26	Overall brightness of the effect.
Intensity	26	Strength of the effect (0 is off).
Aspect	17	UI: width-to-height ratio of the widget shape, so circles stay round at any size.
Tint	14	Color multiplied over the result. White leaves the colours alone.
RimPower , RimColor	9	Tightness and colour of the edge (fresnel) glow.

MOBILE AND PERFORMANCE

These facts come from how the pack was built and compiled:

- No master uses Custom HLSL. UEFN's validator blocks Custom, Modulo, IfThenElse, ColorRamp and ScalarBlueNoise nodes; none are used.
- The compiled pixel instruction count of the masters ranges from 126 to 420.
- The most texture samples in any master is 15. The build target was at most 3; 25 of the 165 masters compile above 3 samples. The Reference lists each master's own compiled cost.
- The last full build had 0 masters with errors.
- Post Process materials only work in a Post Process Volume. The UI bundle holds mobile-safe screen overlays: on mobile, use those UI overlay masters if Post Process is unavailable.

Frame times were not measured on devices for this pack. Everything below is general guidance for UEFN, not a measured result:

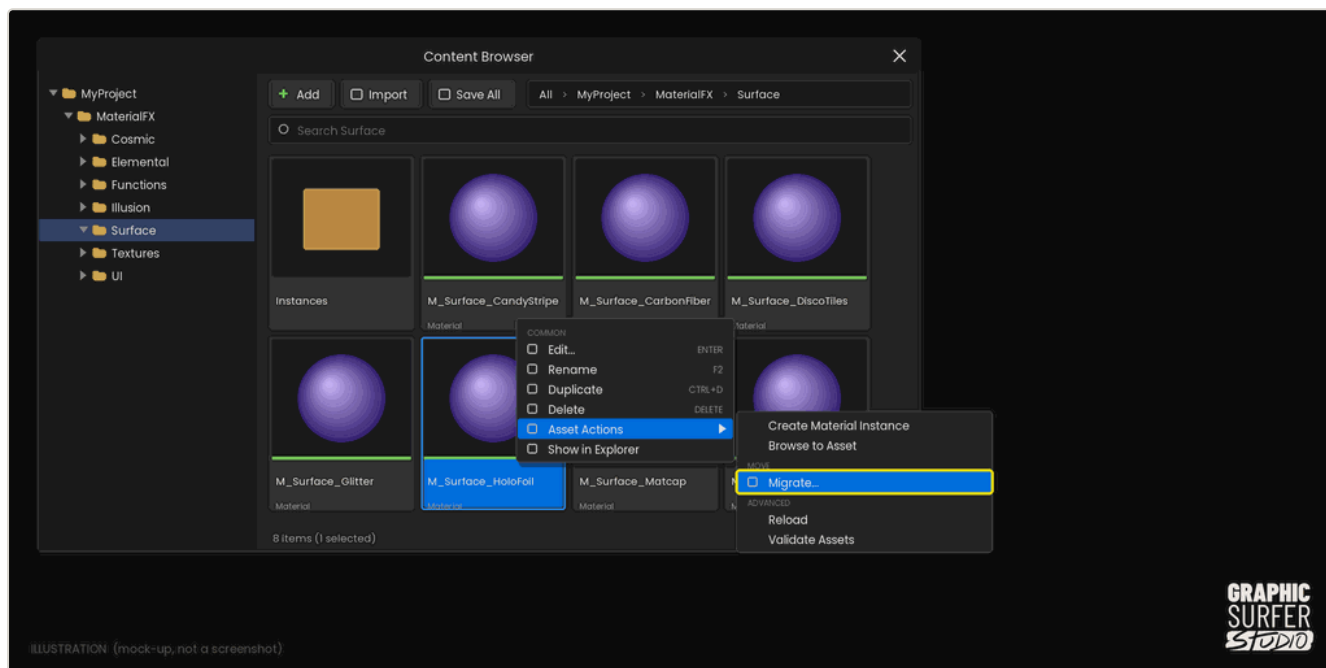
- Test on a real device. The editor on a PC is much faster than a phone.
- Prefer masters with 0 to 3 texture samples on surfaces that fill the screen; the Reference lists samples per master.
- Large translucent or additive surfaces cost more than small opaque ones. Keep them small.
- Use one or two Post Process effects at once, not a stack of many.
- Use UEFN's Engine Scalability Settings (Quick Settings) to preview lower quality.

GETTING IT INTO YOUR PROJECT

The pack is plain assets: materials, functions, textures and parameter collections. UEFN's own Migrate copies them into another project and brings the dependencies it finds.

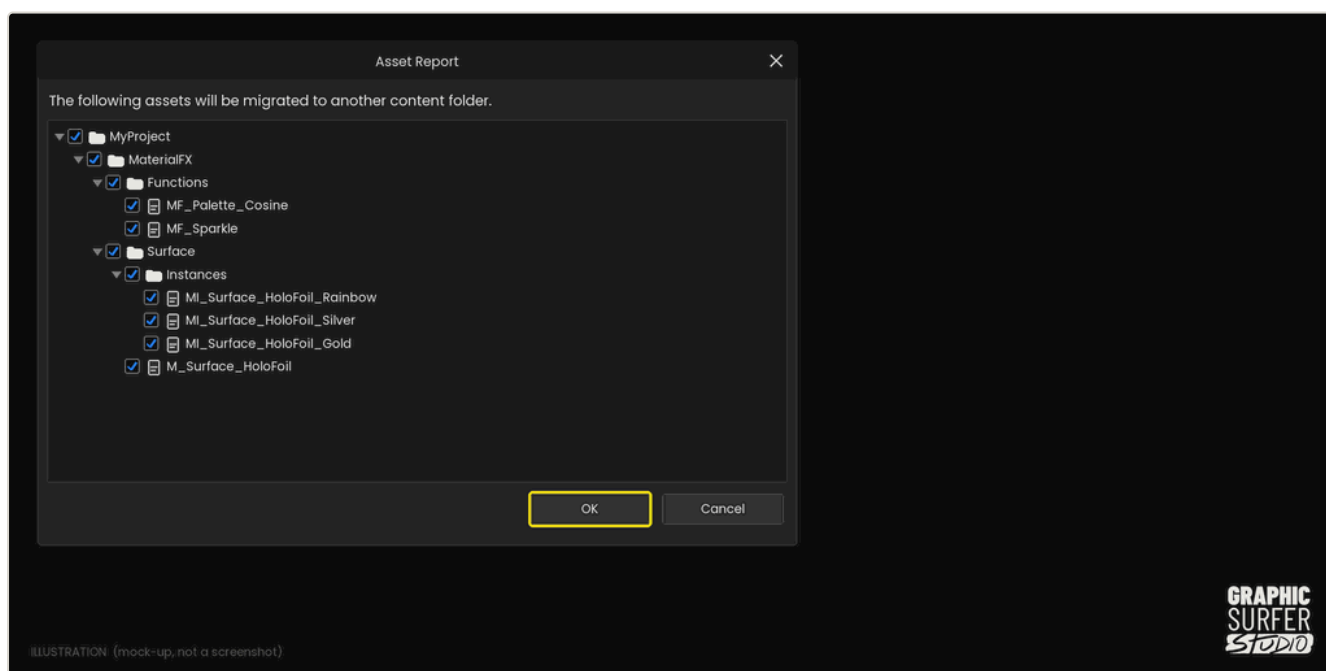
■ HOW TO MIGRATE

Right-click a material (or a folder) in the Content Browser, then Asset Actions, then Migrate.



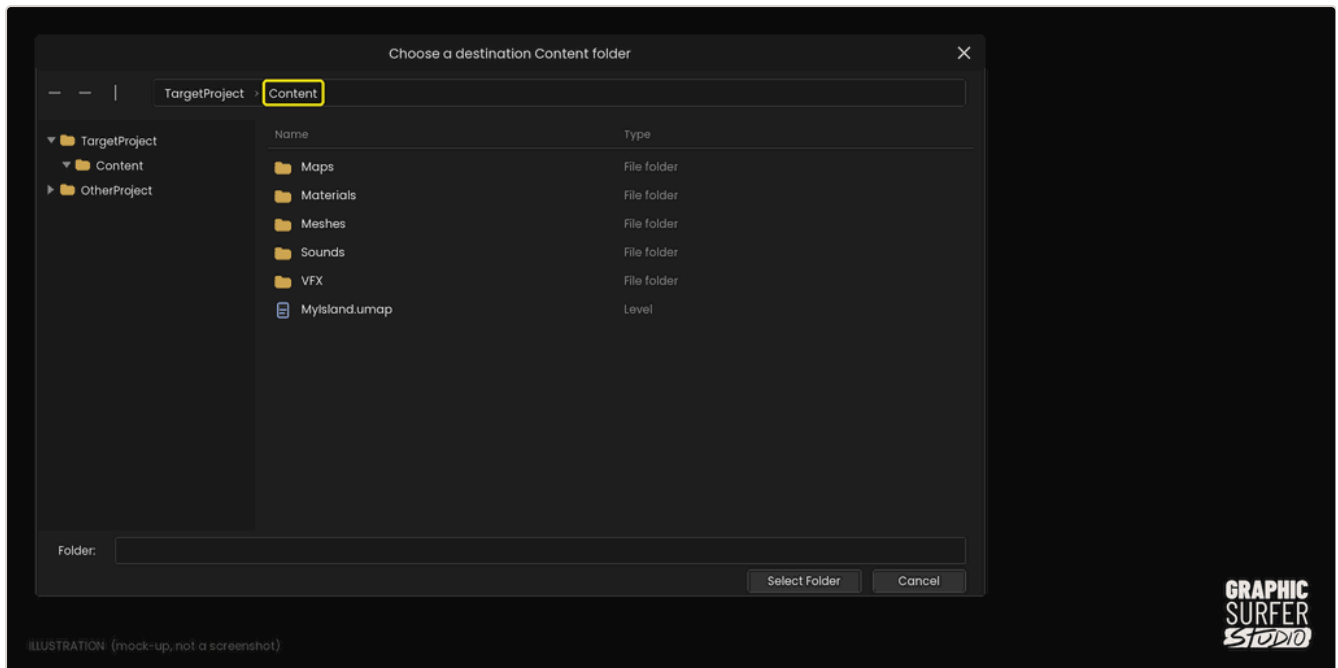
Click Migrate

Press OK. The Asset Report already selects every needed asset.



Press OK

Select the target project's Content folder.



Select the target project's Content folder

Then restart UEFN in the target project. The same folders appear in its Content Browser. Run Fix Up Redirectors on the folders if UEFN asks for it. The illustrations show a folder called `MyProject` ; your project's content root is what you see in your own tree.

■ ROUTE A: COPY EVERYTHING (RECOMMENDED)

Right-click the `MaterialFX` folder, choose Asset Actions, Migrate, and pick your project's Content folder. This brings all 11 bundles, `Functions` , `Textures` and the 3 parameter collections.

Leave out the leftovers `MaterialFX/Showroom` , `Gallery` and `Meshes` . The museum (`MFX_Museum` , `MFX_Sky` , `MATERIAL` , `VFX/_GSS` , the level with its external actors, and the Verse files `mfx_museum_device.verse` and `mfx_hud_device.verse`) is optional: add it to the migration if you want the museum in your project. No material needs it.

Then restart UEFN and check one instance on a mesh (see "Build and restart").

■ ROUTE B: ONE BUNDLE ONLY

A bundle needs its own folder plus the functions and textures it uses. Over-include when unsure: a missing asset breaks the material, an extra one is harmless. Copy `MaterialFX/<Folder>/` (with its `Instances` folder) plus the items below from `MaterialFX/Functions` and `MaterialFX/Textures` .

Bundle	Material functions	Textures	Collections
<code>Illusion</code>	<code>MF_Hash21</code> , <code>MF_Palette_Cosine</code> , <code>MF_UV_Cells</code> , <code>MF_UV_Hex</code> , <code>MF_UV_Kaleidoscope</code> , <code>MF_UV_LogPolar</code> , <code>MF_UV_Parallax</code> , <code>MF_UV_Tunnel</code>	<code>T_MFX_Filigree</code> , <code>T_MFX_Galaxy</code> , <code>T_MFX_Nebula</code> , <code>T_MFX_StainedGlass</code>	none
<code>Cosmic</code>	<code>MF_Rim</code> , <code>MF_Sparkle</code> , <code>MF_UV_Parallax</code> , <code>MF_UV_SkyWindow</code> , <code>MF_UV_Tunnel</code>	<code>T_MFX_Nebula</code> , <code>T_MFX_Noise_Packed_A</code> , <code>T_MFX_Noise_Packed_B</code> , <code>T_MFX_Stars</code>	none
<code>SciFi</code>	<code>MF_Hash21</code> , <code>MF_Pulse</code> , <code>MF_Rim</code> , <code>MF_UV_Cells</code> , <code>MF_UV_Flipbook</code> , <code>MF_UV_Hex</code> , <code>MF_UV_Tunnel</code> , <code>MF_WorldBands</code>	<code>T_MFX_Circuit</code> , <code>T_MFX_Galaxy</code> , <code>T_MFX_Glyphs</code> , <code>T_MFX_Lightning</code> , <code>T_MFX_Nebula</code> , <code>T_MFX_Noise_Packed_A</code> , <code>T_MFX_Noise_Packed_B</code> , <code>T_MFX_StainedGlass</code>	none

Bundle	Material functions	Textures	Collections
Elemental	MF_Hash21, MF_Rim, MF_Sparkle, MF_UV_Parallax	T_MFX_Caustics, T_MFX_Clouds, T_MFX_Cracks, T_MFX_Flames, T_MFX_Frost, T_MFX_Lava, T_MFX_Lightning, T_MFX_Noise_Packed_A, T_MFX_Noise_Packed_B, T_MFX_Water_N	none
Magic	MF_Dissolve, MF_Hash21, MF_Pulse, MF_Rim, MF_Sparkle, MF_UV_Cells, MF_UV_Flipbook, MF_UV_Matcap, MF_UV_Parallax, MF_UV_Rotate, MF_UV_Twirl	T_MFX_Cracks, T_MFX_Filigree, T_MFX_Flames, T_MFX_Glyphs, T_MFX_Matcap_Crystal, T_MFX_Matcap_Gold, T_MFX_Nebula, T_MFX_Noise_Packed_A, T_MFX_Noise_Packed_B, T_MFX_RuneCircle, T_MFX_StainedGlass	none
Surface	MF_Hash21, MF_Palette_Cosine, MF_Rim, MF_Sparkle, MF_UV_Cells, MF_UV_Matcap	the 19 T_MFX_Matcap_* textures (Bronze, CarPaint, Chrome, Clay, Copper, Crystal, Gold, Holo, Ice, Jade, LavaGlow, NeonRim, Obsidian, Pearl, PurplePaint, Sketch, Toon, Toon2Tone, ToonWarm), T_MFX_Noise_Packed_B	none
Gameplay	MF_Dissolve, MF_Pulse, MF_Rim, MF_Sparkle, MF_UV_Hex, MF_UV_Rotate, MF_UV_Twirl	T_MFX_Noise_Packed_A, T_MFX_Noise_Packed_B	none
Retro	MF_Hash21, MF_Palette_Cosine, MF_Pulse, MF_UV_Cells, MF_UV_Pixelate, MF_UV_Rotate	T_MFX_Galaxy, T_MFX_Nebula, T_MFX_Noise_Packed_A, T_MFX_Noise_Packed_B, T_MFX_StainedGlass	none
Toon	MF_UV_Matcap, MF_UV_Rotate	T_MFX_Matcap_Chrome, Clay, Copper, Crystal, Gold, Holo, Jade, LavaGlow, NeonRim, Obsidian, Pearl, Toon, ToonWarm (all T_MFX_Matcap_*), T_MFX_Noise_Packed_A, T_MFX_Noise_Packed_B, T_MFX_StainedGlass	none
PostProcess	MF_Hash21, MF_HueShift, MF_UV_Flipbook, MF_UV_Kaleidoscope	T_MFX_Caustics, T_MFX_FrostCrystal_M, T_MFX_FrostCrystal_N, T_MFX_Glyphs, T_MFX_Lightning, T_MFX_Noise_Packed_A, T_MFX_RainDrops_M, T_MFX_RainDrops_N	all 3 PP_*_MaterialParameterCollection
UI	MF_Hash21, MF_Pulse, MF_Sparkle, MF_UV_Cells, MF_UV_Hex	T_MFX_FrostCrystal_M, T_MFX_FrostCrystal_N, T_MFX_HexCells, T_MFX_Lightning, T_MFX_Noise_Packed_A	none

Five functions (MF_AA_Checker , MF_AA_Stripes , MF_Spiral , MF_UV_Polar , MF_UV_WorldTop) are used by no master. They are buyer utilities that you can use in your own materials, and Route B does not need them. Per-master lists are in the Reference, in each entry's Integration block.

■ BUILD AND RESTART

Restart UEFN after copying and let it finish loading. Migrated assets can show validation errors until you do. Then open an instance, put it on a mesh and play. A Verse build is only needed if you use the optional Verse sample or your own Verse code.

■ FOLDER RULES

Verse only. If your own Verse uses the generated material classes (the UI bundle), the Verse file has to sit in the same content folder as the materials, for example MaterialFX/UI , because nested folders are internal (error 3593). Placing materials on meshes, in volumes and in widgets needs no Verse and has no folder rule. The optional sample mfx_ui_demo_device.verse must stay in MaterialFX/UI ; the Verse files are copied by hand, since it is not confirmed that Migrate brings .verse files.

■ MIGRATION TROUBLESHOOTING

Symptom	Cause	Fix
"hard references a missing package"	Migrated assets stay unsaved until restart	Restart UEFN, then build and validate.
A material looks grey, flat or wrong	A function or texture did not come across (Route B)	Migrate <code>MaterialFX/Functions</code> and <code>MaterialFX/Textures</code> again with it.
Post Process fade does nothing	The parameter collection was not migrated	Migrate the <code>PP_*_MaterialParameterCollection</code> with the master.
Verse error 3593	Verse file is in a nested folder	Move the Verse file to the same content folder as the materials.

■ REMOVING PACK ASSETS

WARNING: Deleting assets and then running Build All in the same session crashed UEFN once. Save the level first (Save Current Level, then Save All). Delete in one pass. Restart UEFN. Then build.

Remove materials from meshes, volumes and widgets first, or they show as missing. Delete whole bundle folders you do not use; keep `Functions` and `Textures` while any bundle you keep needs them.

THE MUSEUM

GSS MaterialFX ships with a walkable museum: a roofed gallery where every material is on show, in motion, with its name and settings beside it. It is a big part of the pack. Walk through it first to find a look you like, then open the same material in the Content Browser and drag it onto your own mesh.

■ WHAT IS IN IT

Part	What you see
Atrium	The branded entrance hall with the museum title and the way to each hall.
10 halls	One hall per bundle: Optical Illusions, Sci-Fi Energy, Elemental, Screens & Retro, Toon & Matcap, Cosmic & Portals, Magic & Fantasy, Premium Surfaces, Gameplay FX and Post Process. A banner at the entrance names the bundle and how many materials it holds.
Exhibits	One exhibit per master material (153 exhibits across the 144 non-UI masters; some masters have a second hero exhibit).
Plaques	Walk up to an exhibit and a card shows its name, a one-line description, the instances and the parameters you can tweak.
Post Process booths	In the Post Process hall, step into a booth to see a full-screen effect applied to your view.
UI & HUD Lab	A room with the 21 UI materials in widgets. Ten buttons on the far wall (Damage, Heal, Freeze, Poison, Speed, Helmet, Transition, LevelUp, Ability, Style) drive them live, so you see how each reacts. This room is driven from Verse.
Sky	The museum windows show a sky dome that can be switched.

■ ENTRANCE SIGNS AND PLAQUES

At each hall entrance a sign says how to place and tweak the materials in that bundle and what to copy. Next to each exhibit a plaque names the material and its key parameters with their defaults, plus the asset name, so you can find it by name in `MaterialFX/<Bundle>`.

■ HOW TO USE IT AS A REFERENCE

1. Walk to the hall of the bundle you are interested in.
2. Stand at an exhibit and read its card: what it does, which instances exist, which parameters to tweak.
3. Find the same material in `MaterialFX/<Bundle>` and open the instance the exhibit uses; look at its Details.
4. Drag that instance onto your own mesh, or duplicate it and change the parameters.
5. In the UI & HUD Lab, press a button and watch the matching UI material react. The Verse that drives it is `mfx_hud_device.verse`, in `MaterialFX/UI`.

■ WHERE IT LIVES, AND REMOVING IT

The museum is part of the project, but it sits outside the `MaterialFX` product folders: its assets are in `MFX_Museum`, `MFX_Sky`, `MATERIAL` and `VFX/_GSS`, its guide and lab scripts are `mfx_museum_device.verse` and `mfx_hud_device.verse`, and the level is `TEXTURES.umap`. Nothing in `MaterialFX/` depends on it. Copy it into your own project with Route A if you want it there; leave it out if you only want the materials. To remove it, follow "Removing pack assets": save, delete in one pass, restart UEFN, then build. Remove it before you publish if you do not want it in your island.

TROUBLESHOOTING

■ MATERIALS

Symptom	Cause	Fix
Nothing changes on the mesh	The mesh slot still has its old material	Check the Materials slot in Details; the instance must be in that slot.
A Post Process material has no effect	It is on a mesh, or the volume is not unbound	Add it to a Post Process Volume's Post Process Materials list and set the volume Unbound.
A UI material shows nothing	It is not in a widget	Use it as a widget image brush or Verse <code>material_block</code> .
Looks stretched or distorted	Illusion or screen look on a strongly curved mesh	Use a flat or gently curved mesh.
Parallax illusion looks flat	It needs a viewer moving around	Walk around it in play; a still image does not show it.
Toon shading ignores your light	UseSunDirection is on	Turn it off and set the light direction (<code>M_Toon_Outline</code> has no lighting at all).
Colours look wrong	Tint, Brightness and Glow stack	Reset them one at a time.
Too bright or too dark	Glow or Brightness is high or low	Change Glow first; it multiplies the emissive light.
A static switch will not change in Verse	Static switches are compile-time	Set it per instance in the editor.
Framerate drops on a device	Many large additive or translucent surfaces, or many Post Process effects	See "Mobile and performance" (general guidance, not a measured limit).

■ PROJECT AND MIGRATE ERRORS

Symptom	Cause	Fix
"hard references a missing package"	Migrated assets stay unsaved until restart	Restart UEFN, then build and validate.
Launch Session or Push Changes is rejected	UEFN upload validation	Read the Output Log, category <code>UEFNValidation</code> .
Verse cannot see a material class	Verse file is not in the materials' content folder	See "Folder rules".



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