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EVERYTHING YOU NEED TO KNOW ABOUT SHAREPOINT SITE DESIGNS AS A DEVELOPER

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Who is this random person?

- || Senior Developer
- || SharePoint, Office 365, Azure
- || Finland
- ||  **SULAVA**

 LAURAKOKKARINEN.COM

 @LauraKokkarinen

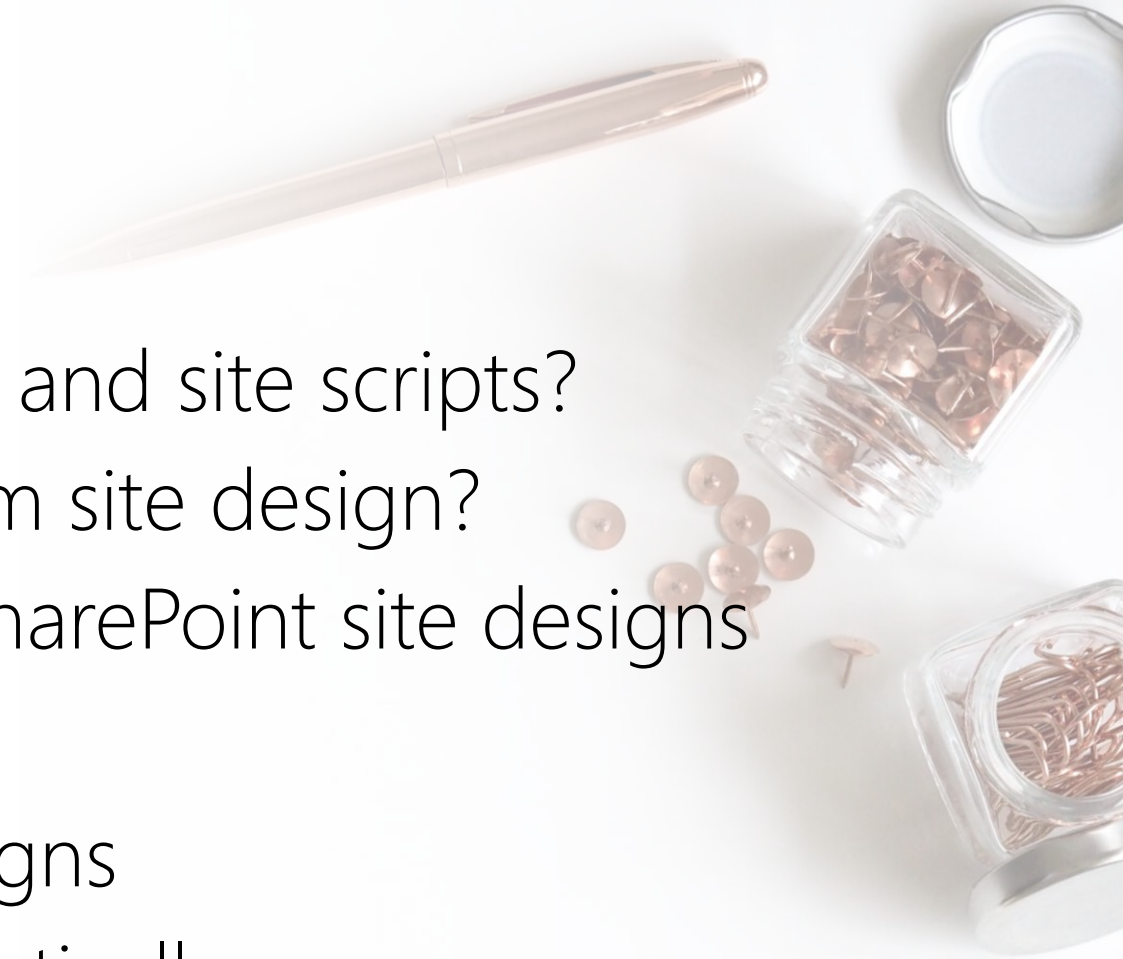


♡ DIAMOND AND PLATINUM SPONSORS ♡



Session content

- || What are SharePoint site designs and site scripts?
- || How to create and deploy custom site design?
- || PnP provisioning templates vs. SharePoint site designs
- || Maintenance
- || Customizing the default site designs
- || Applying site designs programmatically
- || Large site designs and hub associations



SharePoint Site Designs and Site Scripts

- || *A set of pre-defined configurations to be automatically applied on a site*
- || Create site column
- || Create content type
- || Create list
 - Add/remove content type
 - Add/remove field
 - Add column/view formatting
 - Add field customizer
 - Add ListViewCommandSet
- || Register an extension
- || Install an add-in or solution
- || Configure regional settings
- || Manage guest access
- || Add AD principals to SharePoint Groups
- || Join a hub site
- || Add navigation link
- || Remove navigation link
- || Set site logo
- || Apply a theme
- || Trigger a Flow (or a Logic App)



Why should you be interested?

- || Automated workspace provisioning
 - Avoid manual work → higher level of productivity
 - Every site is setup the same way → consistent & correct



Where are they?

- || Out-of-the-box site designs for modern sites
 - 1 for Team sites (group-connected and groupless)
 - 3 for Communication sites
- || Create your own!
- || Apply them in different ways
 - GUI
 - PowerShell
 - REST
 - CSOM





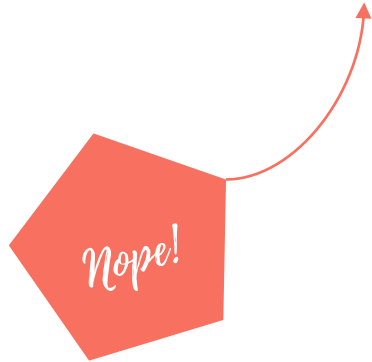
Demo

SITE DESIGNS IN ACTION
&
SITE DESIGN PANEL

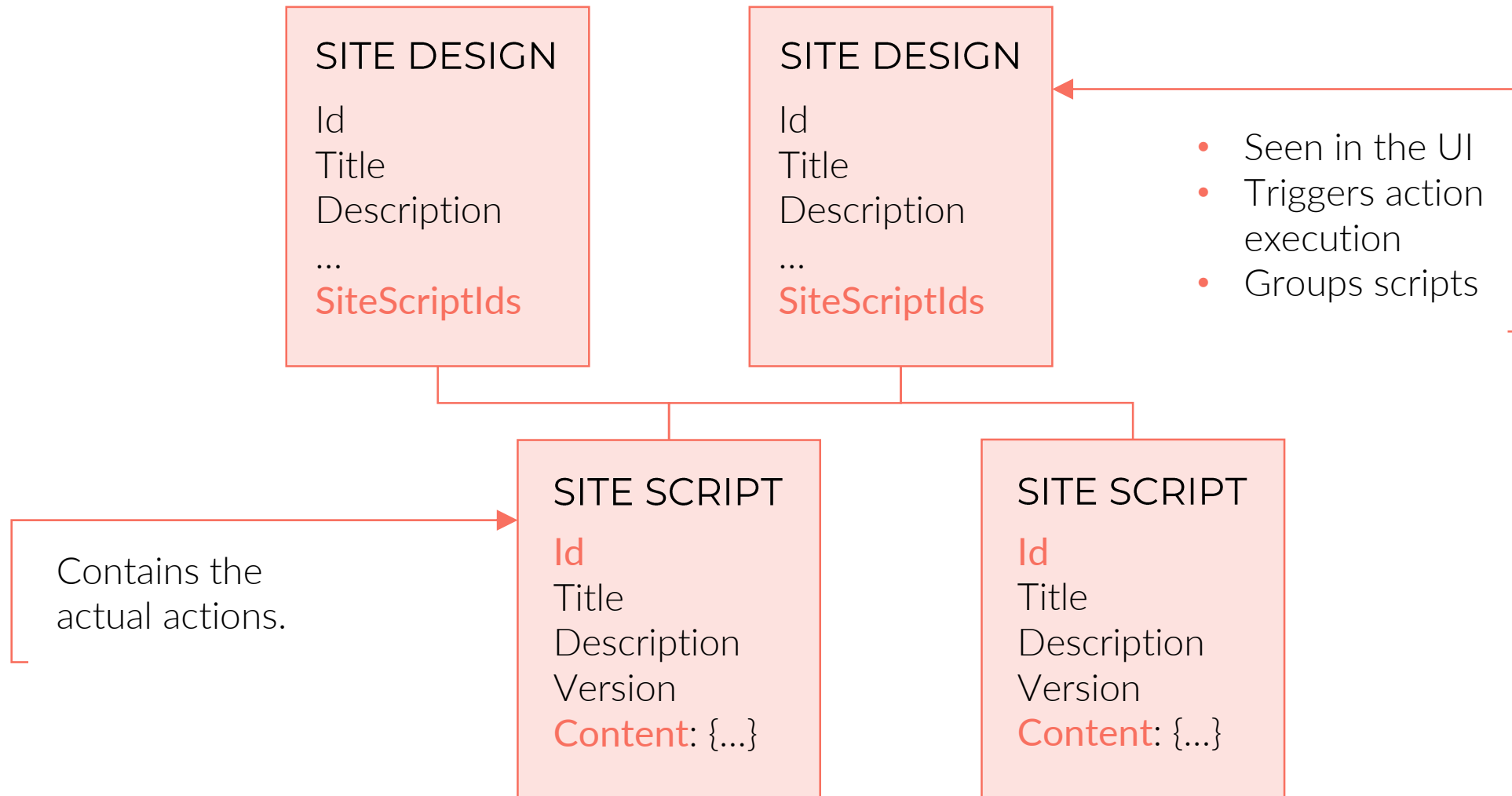
The nature of site designs

|| A popular misconception

- *"If I modify or delete a site design or site script, the configurations get altered or reversed on the sites where the design has been applied to"*



Site design vs. Site script



Creating your own site script

- || Check the JSON schema for up-to-date information
 - <https://docs.microsoft.com/en-us/sharepoint/dev/declarative-customization/site-design-json-schema>
- || The schema is case sensitive
 - If something doesn't work, check your letter casing/typos!
- || Alternative option: create with a third-party tool
 - <https://www.sitedesigner.io>
- || Which way to create?
 - Which is faster for you?
 - Tool avoids typos
 - Documentation updated first
- || **Future: Microsoft's own site design editor!**



Exporting a site script from a list

- || Recently added feature
- || Speed up the creation of your site scripts
 1. Configure a list the way you want it to appear on a new site
 2. Print the actions required for creating a similar list on another site

```
Get-SPOSiteScriptFromList -ListUrl  
https://org.sharepoint.com/sites/sitename/doclib
```

3. Copy-paste the printed result to complete your site script





Demo

EXPORTING AN EXISTING LIST TO A SITE SCRIPT

Deploying Site Designs

- || Deployment options
 - PowerShell
 - REST
 - PnP provisioning tenant templates
- || Max 100 site designs and 100 site scripts per tenant



A top-down photograph of a white notebook with horizontal ruling. Two pens are resting on the pages: a pink pen with a silver tip and a white pen with gold dots and a silver tip. The word 'Demo' is written in a dark brown, cursive script in the center of the notebook.

Demo

DEPLOYING YOUR SITE SCRIPT
&
CREATING A SITE DESIGN

The web template property

- || Defines in which dropdown your site design appears in the Create site UI
- || Regardless of the WebTemplate value, all site designs can be applied on any site
- || If some action is not compatible with the site type, it will be skipped, or it fails gracefully.

WEB TEMPLATE	APPEARANCE
64	Team site dropdown for users who can create Office 365 groups.
68	Communication site dropdown.
1	Team site dropdown for users who are not allowed to create Office 365 groups.
Any other value	Only the site design panel on existing modern sites.

The design package ID property

- || Defines which one of the default communication site designs is used as a base
- || Want to use Showcase or Blank layout on a comm. site?
 - Use DesignPackageld property
- || Possible values:
 - Topic: *null*
 - Showcase: *6142d2a0-63a5-4ba0-aede-d9fefca2c767*
 - Blank: *f6cc5403-0d63-442e-96c0-285923709ffc*



PnP provisioning templates vs. Site Scripts

|| PnP provisioning templates

- Open source project on GitHub
- Started 4 years ago

|| Differences

- XML vs. JSON
- PnP provisioning is more feature rich
- Site scripts can do some things PnP provisioning can't (yet)
- Export scopes
- Application methods and syntax



PnP provisioning templates vs. Site Scripts

|| PnP provisioning templates

- Adjust web settings
- Supported UI languages
- More advanced security settings
- Manage site features
- Add terms to term store
- Populate list data
- Create folders
- Add files and pages
- Modify page layouts and web parts
- etc.

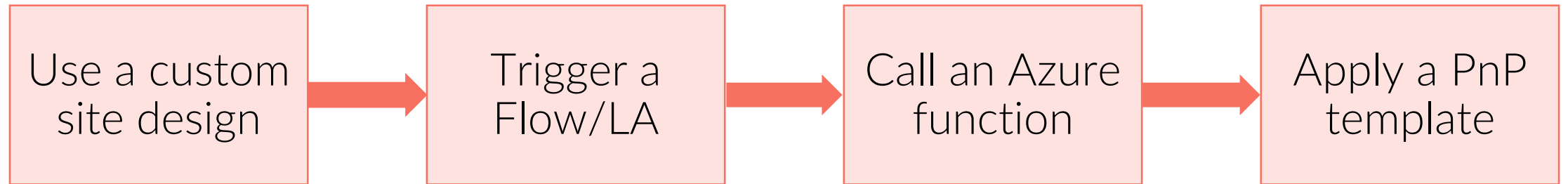
|| SharePoint site designs

- Column and view formatting
- Trigger Flow/Logic App

Why would I use site designs over PnP templates?

- You need the features available only through site designs
- Can be applied from default SP UI
- If the features offered by site designs are enough

Site designs + PnP templates = Awesome!





Maintenance

AND MONITORING

Modifying existing site designs

|| One site design can consist of several site scripts

→ Modular structure is encouraged

- Common site script(s) – shared by many site designs
- Site design specific site script – what makes it different from the others?
- Different combinations

|| All site script IDs need to be included when a site design is updated

```
Set-SPOSiteDesign -Identity 6ce35cf6-9d20-44ca-8c1e-  
5980d46337a6 -SiteScripts 361b3467-8191-4254-be4d-  
541d038ab07a, 6fad0f7e-6b32-4a37-bfa1-2c0075a6c80e
```

Modifying existing site scripts

- || Save the site script JSON file to version control
 - Easier to update
 - Later see what was changed
- || Update a deployed site script by updating its Content property

```
Set-SPOSiteScript -Identity $siteScriptId -Content  
(Get-Content $siteScriptFile -Raw)
```

Checking what is currently deployed

|| View all site design and site script settings

- `Get-SPOSiteDesign`
- `Get-SPOSiteScript`

|| View site script content (JSON) with script ID

- `Get-SPOSiteScript -Id 361b3467-8191-4254-be4d-541d038ab07a`

```
{
  "verb": "addSPFieldXml",
  "schemaXml": "<Field AppendOnly=\"FALSE\">
},
{
  "verb": "addSPFieldXml",
  "schemaXml": "<Field DisplayName=\"Respon
},
{
  "verb": "addSPView",
  "name": "All Items",
  "viewFields": [
    "LinkTitle",
    "Description",
    "Impact",
    "Action",
    "Responsible"
  ],
  "query": "",
  "rowLimit": 30,
  "isPaged": true,
  "makeDefault": true,
  "formatterJSON": "{\n  \"schema\": \"\n    'Critical', 'sp-field-severity--blocked',
},
{
  "verb": "addNavLink",
  "url": "Lists/Issues/AllItems.aspx",
  "displayName": "Issues",
  "isWebRelative": true
},
{
  "verb": "triggerFlow",
  "url": "https://prod-l02.westeurope.logic.
  "name": "Provision a team for the underlyin
  "parameters": {
    "event": "Microsoft Event",
    "product": "SharePoint"
  }
},
  "bindata": { },
  "version": 1
}
```

Deleting the deployed site designs and scripts

- || Removing one doesn't remove the other
- || When deleting a site script
 - Check if another site design is using the same site script
→ OK to delete?
 - Clean up site script IDs from site designs
- || When deleting a site design
 - Check if another site design is using the same site script(s)
→ should site scripts also be deleted as obsolete?



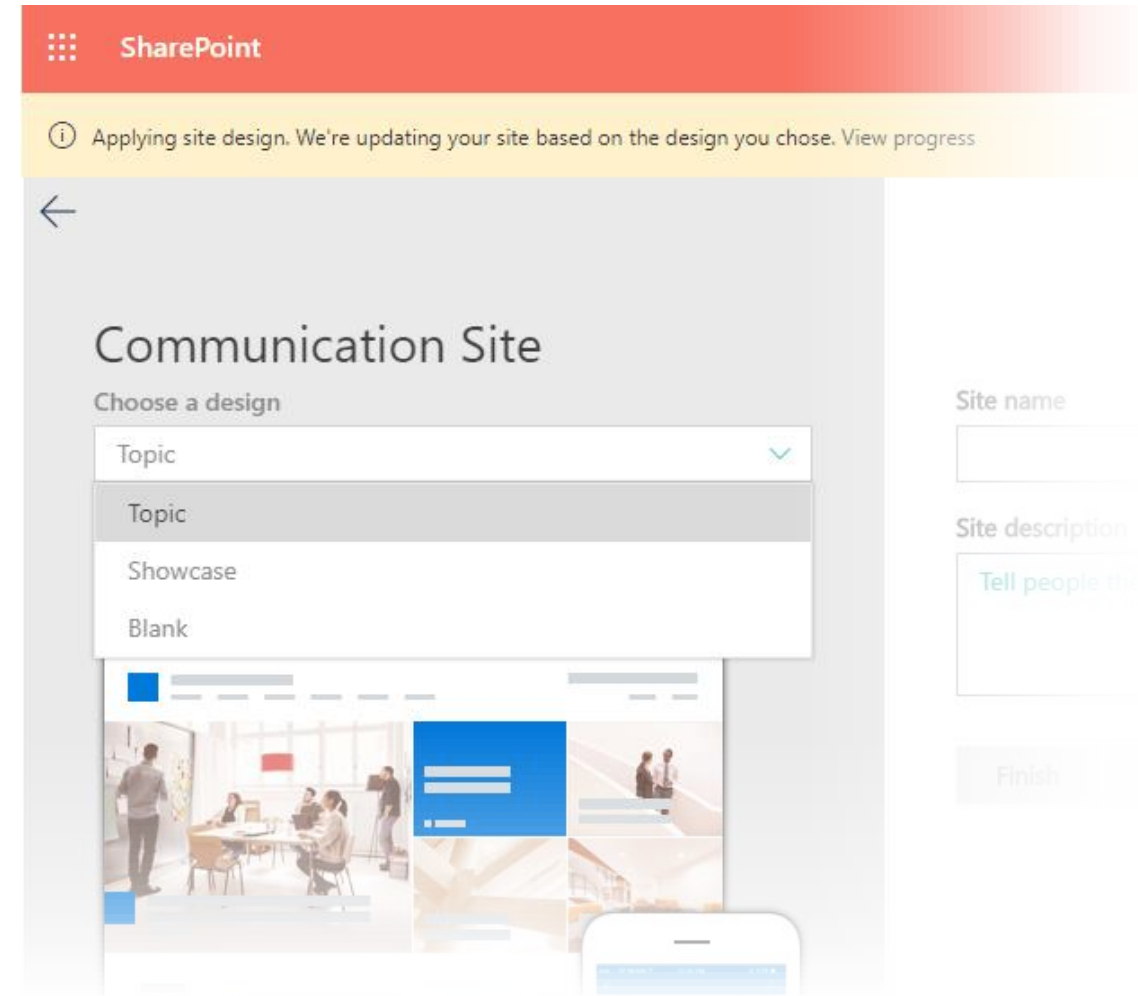
Limiting permissions

- || By default everyone can see and use site designs
- || You can limit permissions through PowerShell or REST
 - Specify users or groups
- || To make the site design visible to everyone again, remove permissions
- || You can't hide the default site designs
- || **Future: Admin center?**



Customizing the default site designs

- || Default site designs
 - Team site, Topic, Showcase, Blank
- || Add additional functionality
 - **IsDefault:** `$true`
- || Your custom site design will no longer appear in the dropdown
 - Triggered whenever any of the default site designs is used!
- || Alternatively use DesignPackageId



A top-down photograph of a white notebook with horizontal ruling. Two pens are resting on the pages: a pink pen with a grid pattern on the left and a white pen with gold dots on the right. The text 'Applying site designs' is written in a dark brown, cursive script across the center of the notebook. Below it, the word 'PROGRAMMATICALLY' is written in a smaller, dark brown, sans-serif, all-caps font.

Applying site designs

PROGRAMMATICALLY

Applying your site design programmatically

|| Options


- CSOM
- REST
- PowerShell

```
$siteUrl = "https://org.sharepoint.com/sites/sitename"  
$siteDesignId = "eb13d8b6-v835-4b07-80fd-d01bd1-de666"  
Invoke-SPOSiteDesign -Identity $siteDesignId -WebUrl $siteUrl
```


Applying your site design programmatically

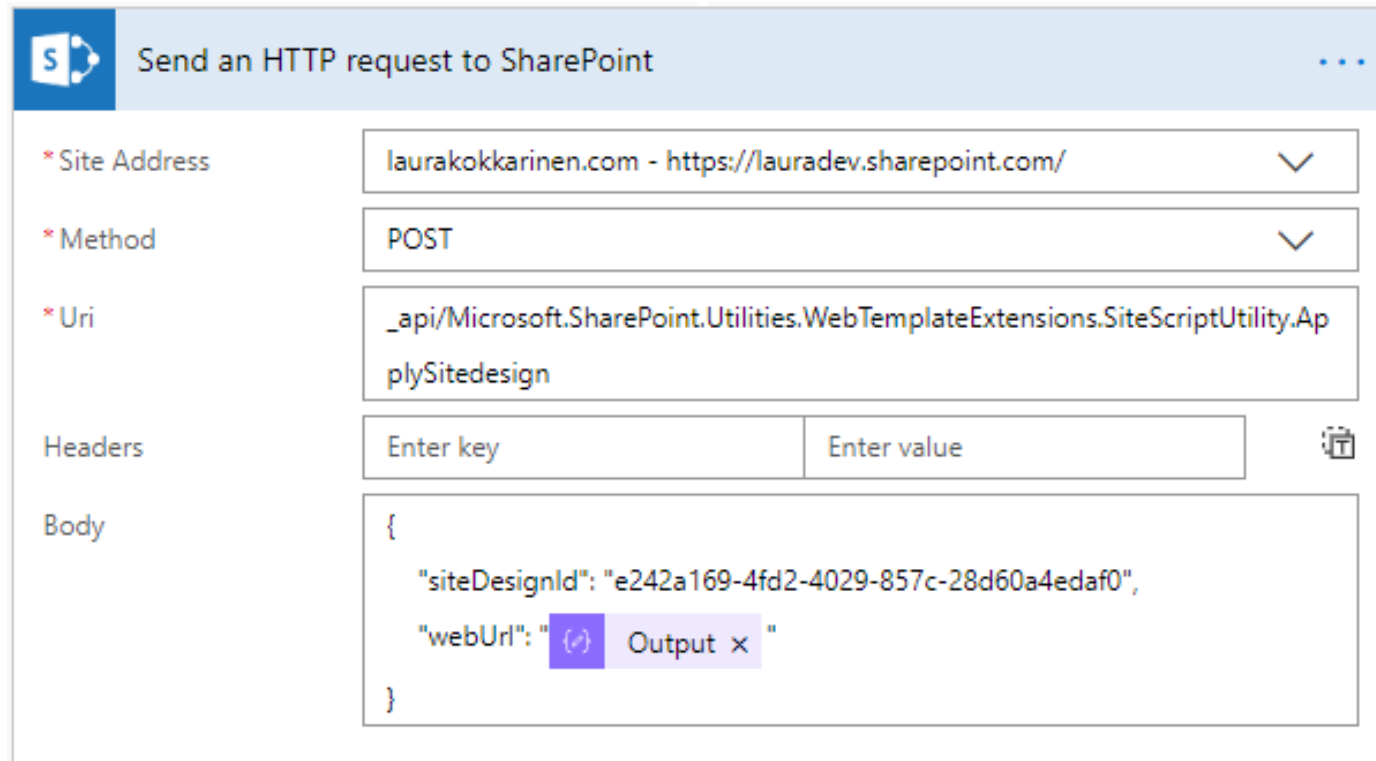
|| CSOM

```
public void ApplySiteDesign(string siteUrl, Guid siteDesignId)
{
    try {
        using (var ctx = GetClientContext(GetAdminSiteUrl(siteUrl))
        {
            var tenant = new Tenant(ctx);
            tenant.ApplySiteDesign(siteUrl, siteDesignId);
            ctx.ExecuteQuery();
        }
    }
    catch (Exception e)
    {
        Console.WriteLine($"Failed to apply site design: {e.Message}");
    }
}
```



Applying your site design programmatically

|| REST

 Send an HTTP request to SharePoint ...

* Site Address

laurakokkarinen.com - https://lauradev.sharepoint.com/ ▼

* Method

POST ▼


* Uri

`_api/Microsoft.SharePoint.Utilities.WebTemplateExtensions.SiteScriptUtility.ApplySiteDesign`

Headers

Enter key

Enter value



Body

```
{
  "siteDesignId": "e242a169-4fd2-4029-857c-28d60a4edaf0",
  "webUrl": "Output x"
}
```



Associating a site design to a hub site

- || The site design gets executed to all sites that are joined the hub
- || Is run regardless of site type
- || Incompatible actions are skipped or fail gracefully
- || Set via hub site settings
 - UI, PowerShell (no REST, or undocumented)
- `$hubSiteUrl = "https://org.sharepoint.com/sites/hub"`
`Set-SPOHubSite $hubSiteUrl -SiteDesignId $siteDesignId`
- || Nature of site designs: executed actions won't get reversed if site is removed from the hub

Edit hub site settings

Hub site navigation logo



Change

Remove

Hub site navigation name *

Hub

Site design applied to associated sites

Large Site Design ✓

None

Team site + Teams

Large Site Design

Groupless Site Design

Normal vs. large site designs

- || “Normal” site designs are limited to 30 actions or 20 000 characters
- || Large site designs: 300 actions or 100 000 characters
- || Different commandlets for application
 - **Invoke-SPOSiteDesign**
 - Can only be run for site designs that contain 30 or fewer actions
 - **Add-SPOSiteDesignTask**
 - Can be used for large site designs



Normal vs. large site designs

|| Add-SPOSiteDesignTask

- Site design gets added to a queue and is executed on a schedule
- Executed asynchronously in the background
- Can also be used for smaller
- REST

|| Large site designs can't be used for creating sites via UI



Recap

- || 100 site designs and 100 site scripts per tenant
- || Many-to-many connections
- || Take advantage: JSON schema, third party tools, export list command
- || Trigger a Flow or a Logic App: use your imagination!
- || Deployment via PowerShell, PnP or REST. WebTemplate property defines dropdown visibility.
- || You can limit who can use site designs
- || Want to customize default site designs instead of creating separate ones? You can!
- || Plan your site design and script hierarchy for easier maintenance
- || Browse what configurations have been done for a site through site designs
- || Hub site associations → same configurations for all sites that get added to the hub
- || To be on the safe side, you can always run site designs with the large site design command



Recap: Future

- || Site design management from the admin center
- || Site script editor
- || Site script actions for site pages and web parts
- || Script actions for other Office 365 applications



A top-down view of a minimalist desk setup. On the left, a portion of a white keyboard is visible, showing keys like F11, F12, delete, +, =, {, }, [,], P, ", ', :;, <, >, ., /, ? /, <-, >-, and command. A pair of gold-rimmed glasses with dark lenses is positioned in the upper right. A gold-colored pen lies diagonally in the lower left. In the bottom right corner, there is a stack of papers, including a light blue lined sheet and a brownish-gold sheet. The background is a plain, light-colored surface.

Thank you!

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