

A top-down view of a desk with a white keyboard on the left, a pair of gold-rimmed glasses at the top right, a gold pen at the bottom left, and a notepad at the bottom right. The background is a light, neutral color.

EVERYTHING YOU NEED TO KNOW ABOUT

SharePoint Site Designs

AS A DEVELOPER

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Who am I?

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

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 @LauraKokkarinen



Sponsors for this event



Session content

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



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)



Where, what, how?

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



Why should you be interested?

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





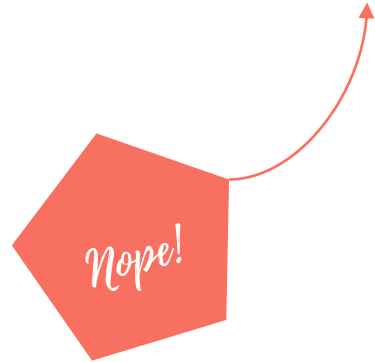
Demo

SITE DESIGNS IN ACTION
&
SITE DESIGN PANEL

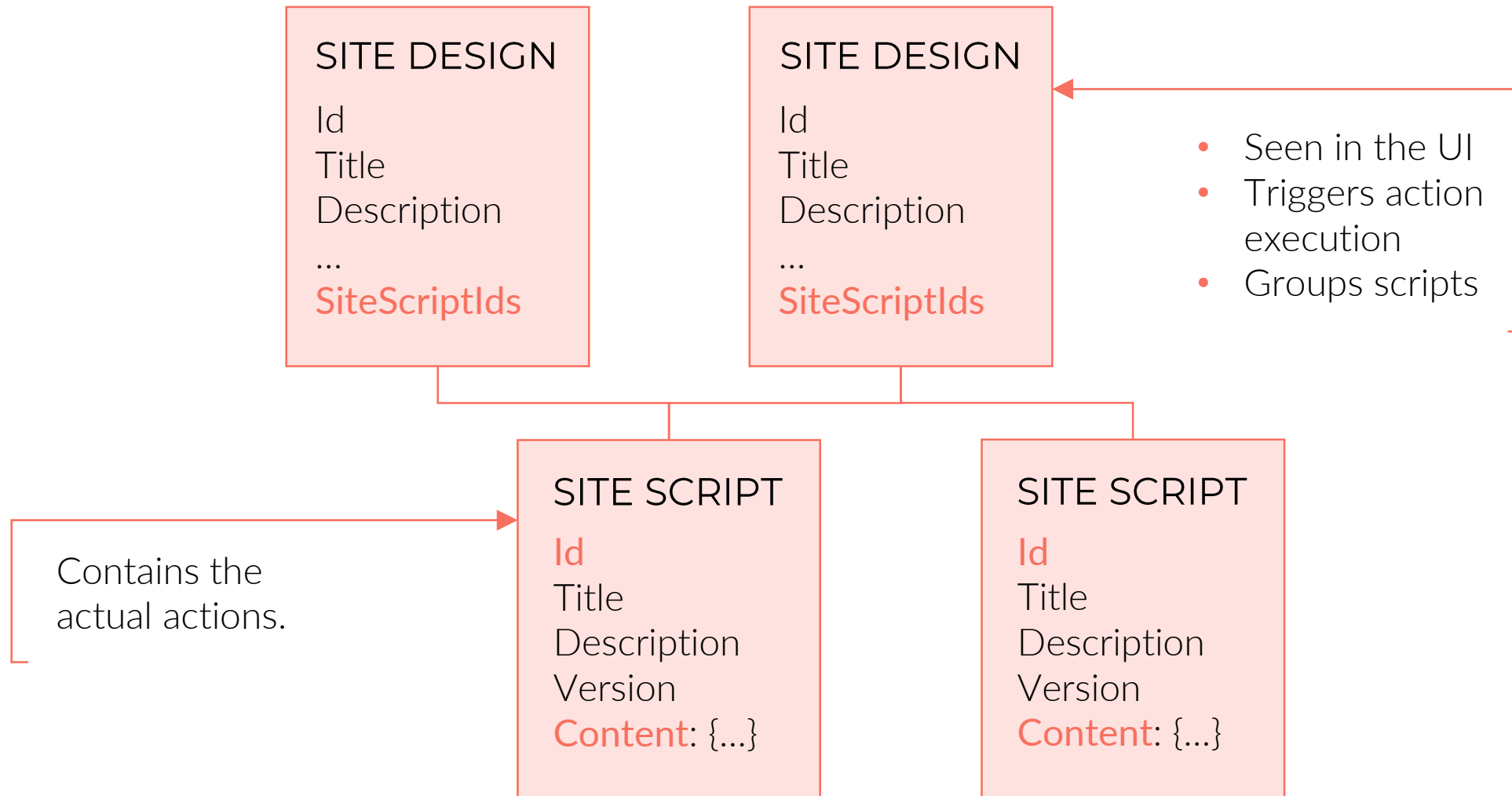
The nature of site designs

|| 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>
 - [Site Design Studio](#)
- || Which way to create?
 - Which is faster for you?
 - Tool avoids typos
 - Documentation updated first
- || **Future: Microsoft's own site design editor!**



Exporting site scripts: list

|| Speed up the creation of your site scripts by exporting lists

1. Configure a list the way you want
2. Print the actions required for setting up 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

Exporting site scripts: site!

|| Even better: you can soon™ export entire site configurations!!!

```
Get-SPOSiteScriptFromWeb
```

```
-WebUrl https://org.sharepoint.com/sites/sitename
```

```
-IncludeTheming
```

```
-IncludeBranding
```

```
-IncludeSiteExternalSharingCapability
```

```
-IncludeRegionalSettings
```

```
-IncludeLists /Lists/listname
```

|| Currently “experimental”



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 lines. 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 font in the center of the notebook.

Demo

DEPLOYING YOUR SITE SCRIPT
&
CREATING A SITE DESIGN

Site designs vs. PnP provisioning



|| Site designs

- Completely developed by Microsoft
- Soon 2 years old
- Configurations on site level
- Site designs can do some things PnP provisioning can't (yet)
- JSON
- Can be applied via the **ootb GUI**, REST, PowerShell, CSOM

|| PnP provisioning

- Open source project on GitHub
- Started over 4 years ago
- PnP provisioning is more feature rich
 - Tenant level settings
 - Multiple site collections at once
 - Teams provisioning
 - Etc.
- XML
- Can be applied via PowerShell and CSOM

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.

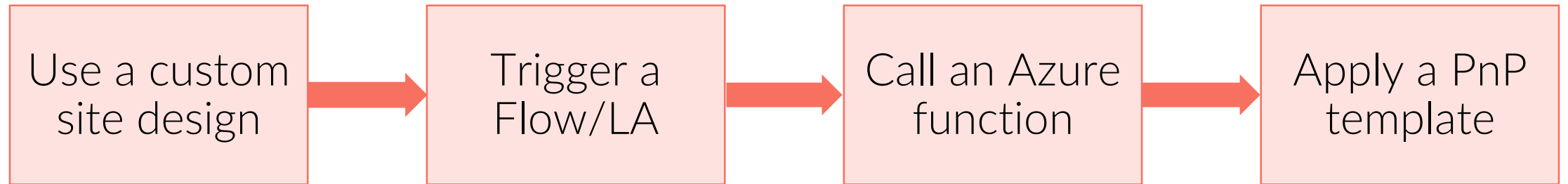
|| SharePoint site designs

- 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!



<https://docs.microsoft.com/en-us/sharepoint/dev/declarative-customization/site-design-pnp-provisioning>

Maintenance & monitoring

- || PowerShell/REST operations for viewing, editing and deleting
- || Take advantage of many-to-many connections
 - Modular structures → changes to only one place
- || Save site script JSON to version control
 - Easy to adjust
 - See what has changed
- || Remember when deleting...
 - Double check
 - Cleanup
- || Monitor what actions have been run via UI or programmatically



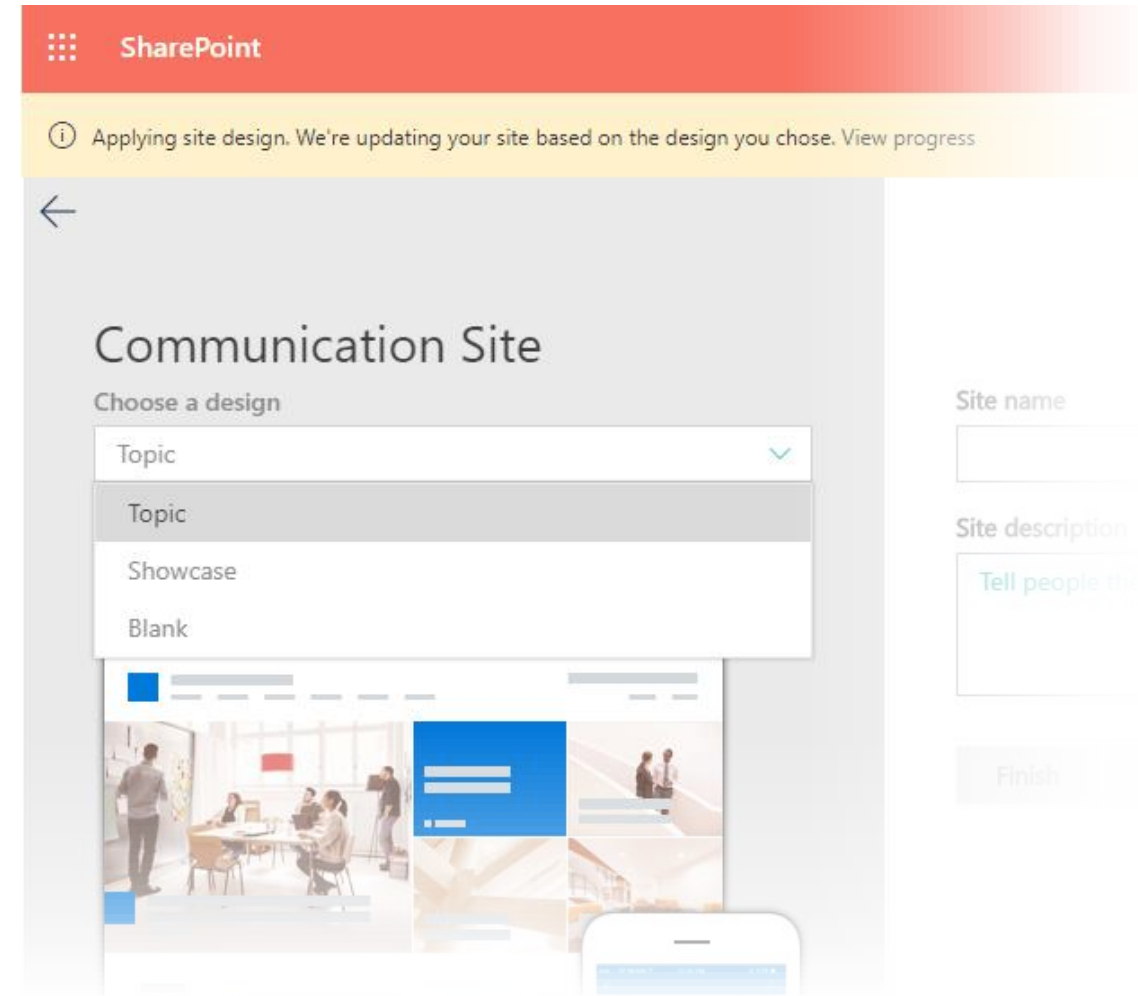
Limiting permissions

- || 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



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

A top-down photograph of a white, lined notebook. Two pens are resting on the pages: a pink pen with a silver clip 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 printed in a smaller, dark brown, sans-serif 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

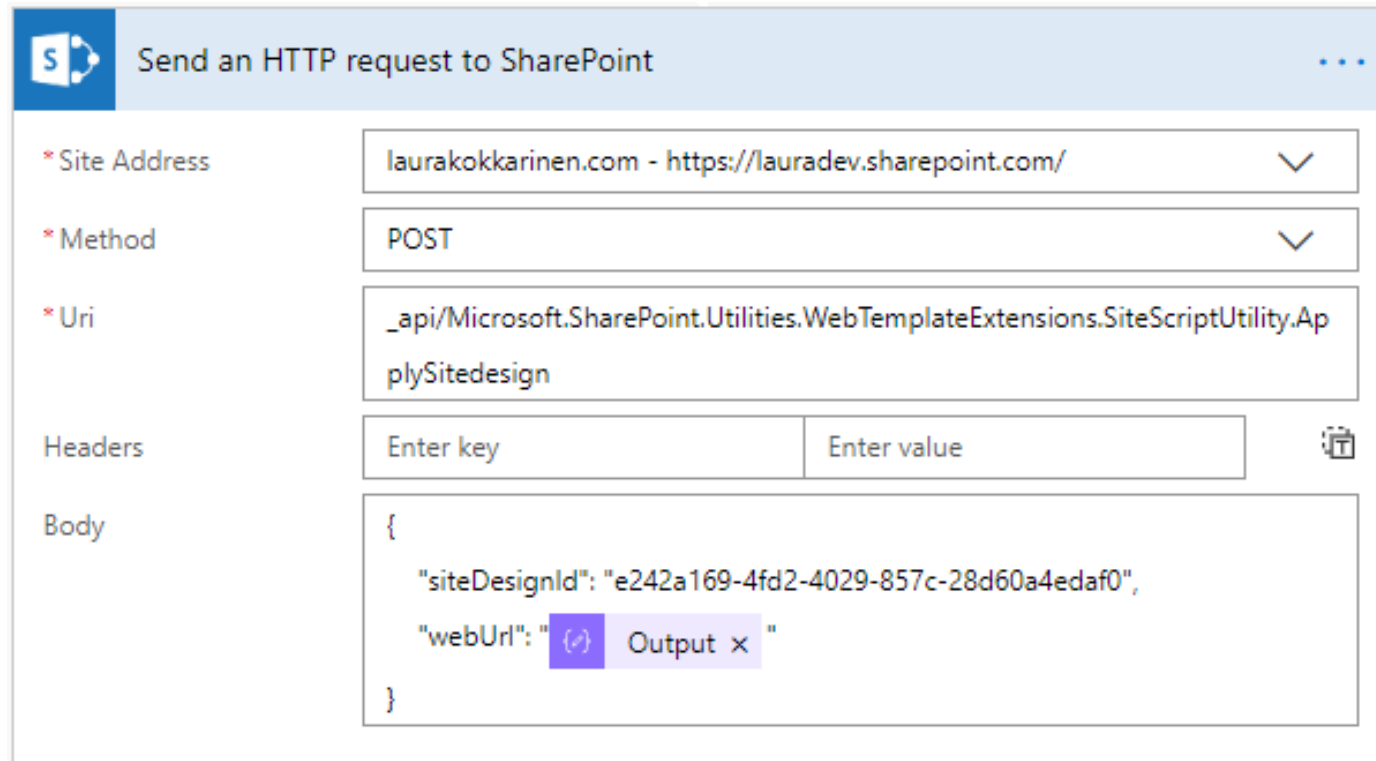
|| CSOM

```
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



The screenshot shows a web application titled "Send an HTTP request to SharePoint". It contains several input fields for configuring an HTTP request:

- * Site Address:** A dropdown menu showing "laurakokkarinen.com - https://lauradev.sharepoint.com/" with a downward arrow.
- * Method:** A dropdown menu showing "POST" with a downward arrow.
- * Uri:** A text input field containing the path "_api/Microsoft.SharePoint.Utilities.WebTemplateExtensions.SiteScriptUtility.ApplySitedesign".
- Headers:** A section with two input fields labeled "Enter key" and "Enter value", and a small icon to the right.
- Body:** A text area containing a JSON object:

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

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 normal AND large site designs



Normal vs. large site designs

|| Add-SPOSiteDesignTask

- Executed asynchronously in the background
- Site design gets added to a queue and is executed on a schedule
- You can monitor progress with separate commandlets

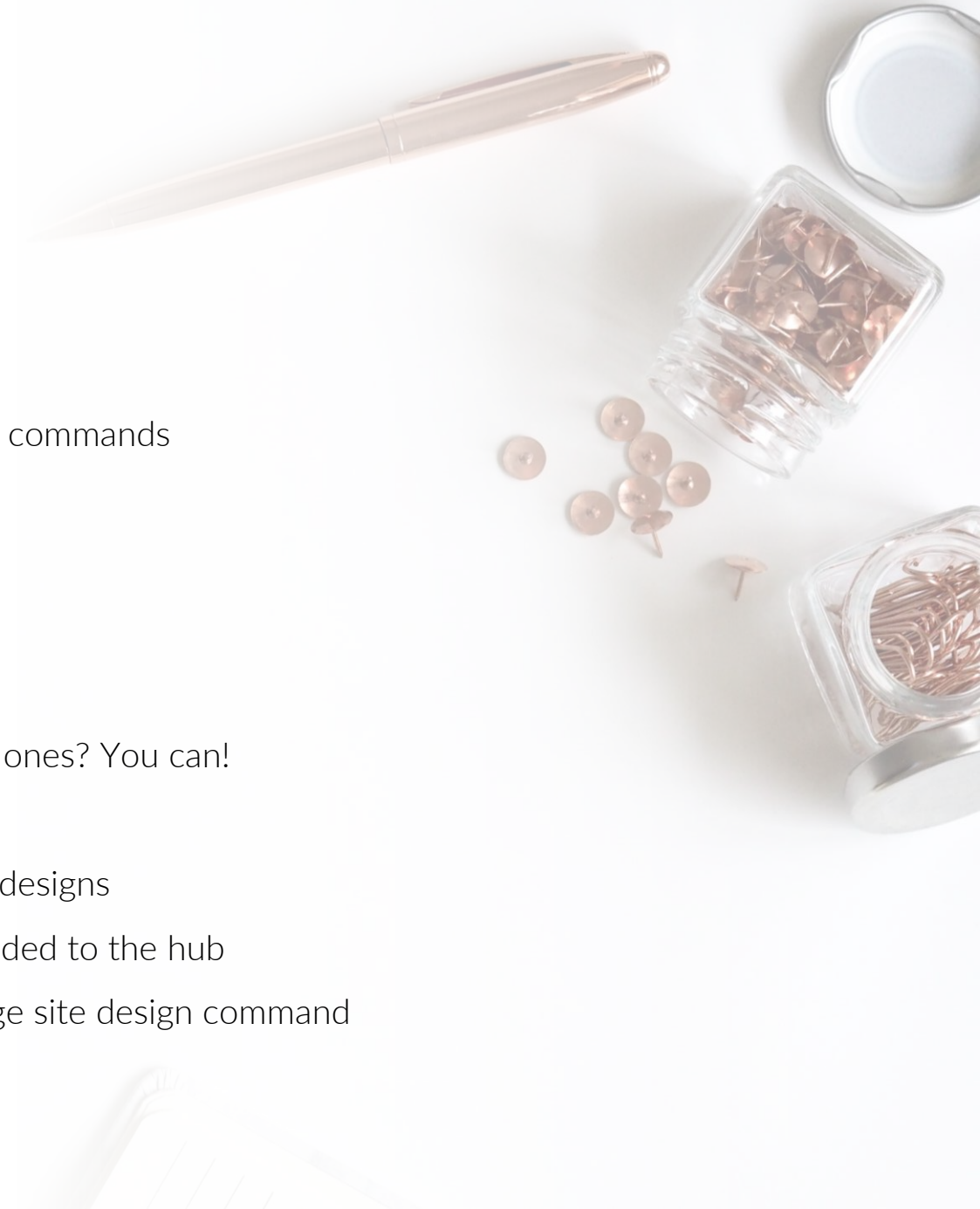
|| Large site designs can't be used for creating sites via UI

- Specify, e.g., 0 as the web template to hide it from create site UI



Recap

- || 100 site designs and 100 site scripts per tenant
- || Many-to-many connections
- || Take advantage: JSON schema, third party tools, export list and site commands
- || 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 script actions for adding sublinks to navigation (this year)
- || Site script actions for site pages and web parts
- || Script actions for other Office 365 applications
- || Site design management from the admin center
- || Site script editor



Thank you!



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