❄ *Twelve features of Bicep – Christmas edition* ❄

Esther Barthel

@virtuEs_IT

github.com/cognitionit

Microsoft MVP

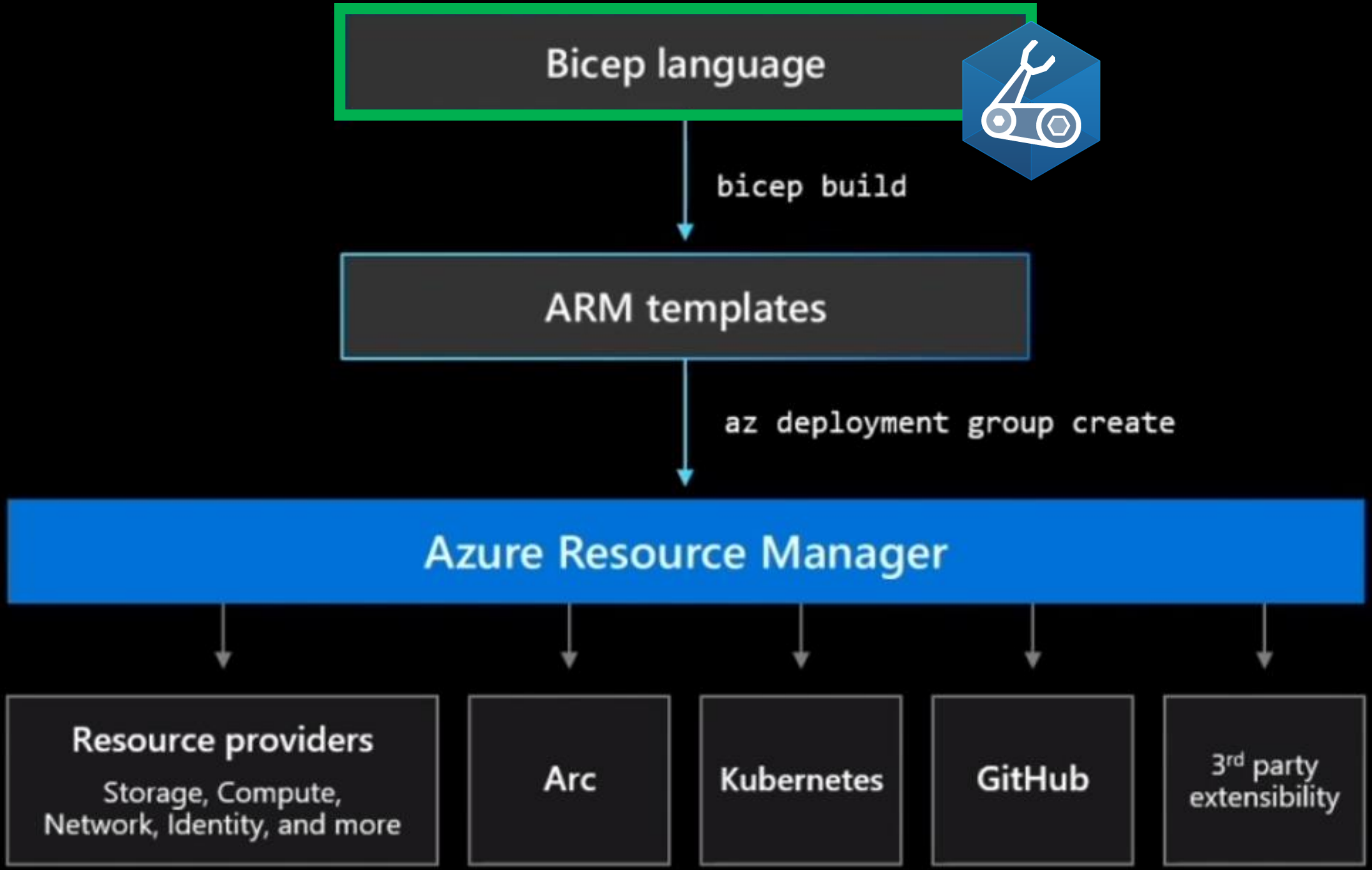
Freek Berson

@fberson

github.com/fberson

Microsoft MVP

On the first day of Christmas, Microsoft sent to me …



Bicep language

`bicep build`

ARM templates

`az deployment group create`

Azure Resource Manager

Resource providers
Storage, Compute, Network, Identity, and more

Arc

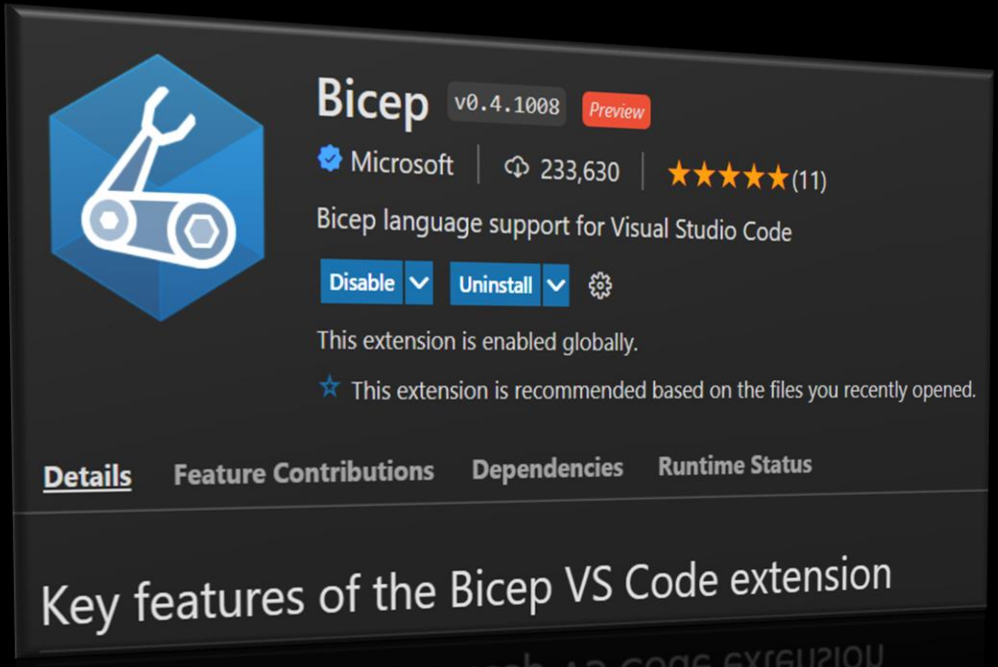
Kubernetes

GitHub

3rd party extensibility

… one CLI to create ARM templates easy as can be!

On the second day of Christmas, Microsoft sent to me …



Bicep v0.4.1008 Preview

Microsoft | 233,630 | ★★★★★(11)

Bicep language support for Visual Studio Code

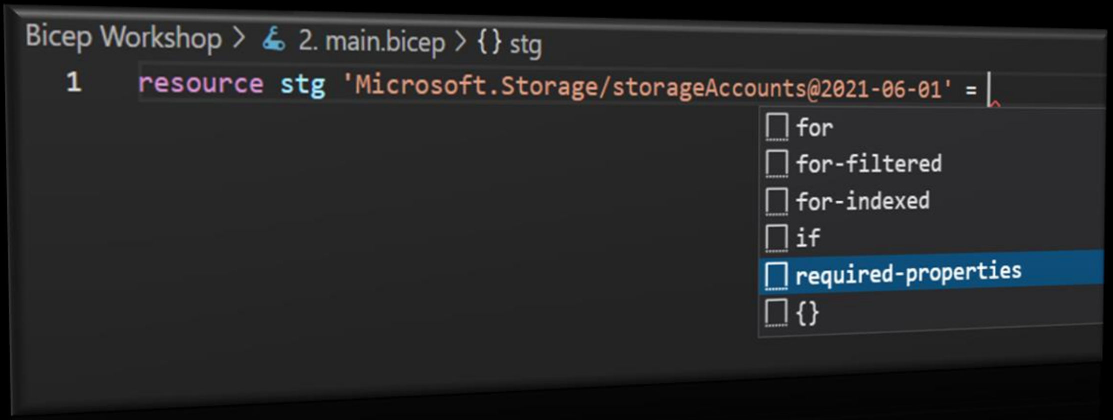
This extension is enabled globally.

☆ This extension is recommended based on the files you recently opened.

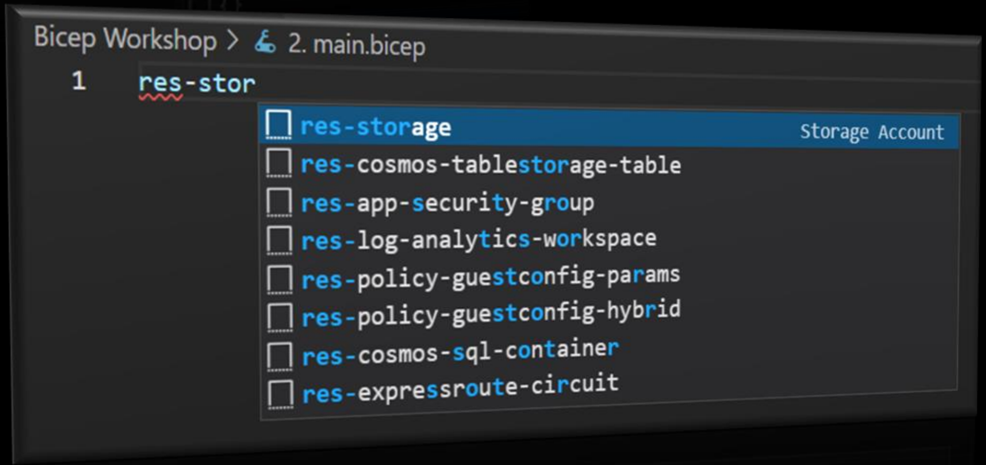
Key features of the Bicep VS Code extension

…a vscode extension to make the experience rich and comfy!

On the third day of Christmas, Microsoft sent to me …



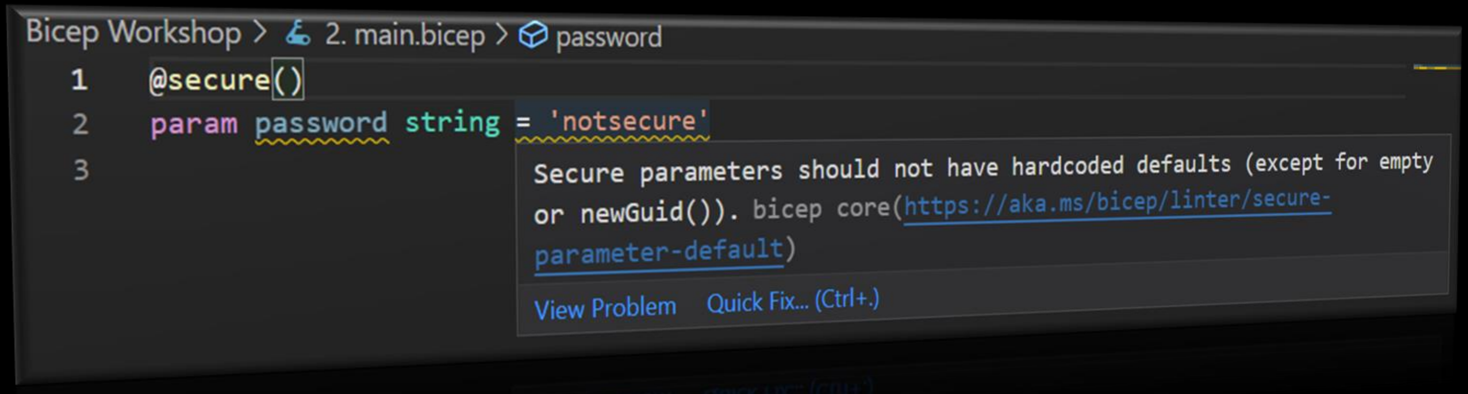
```
resource stg 'Microsoft.Storage/storageAccounts@2021-06-01' =
```


Bicep Workshop > 2. main.bicep
□ res-storage Storage Account
□ res-cosmos-tablestorage-table
□ res-app-security-group
□ res-log-analytics-workspace
□ res-policy-guestconfig-params
□ res-policy-guestconfig-hybrid
□ res-cosmos-sql-container
□ res-expressroute-circuit

```
res-stor
```

…Scaffolding and code snippets which are very tasty!

On the fourth day of Christmas, Microsoft sent to me …

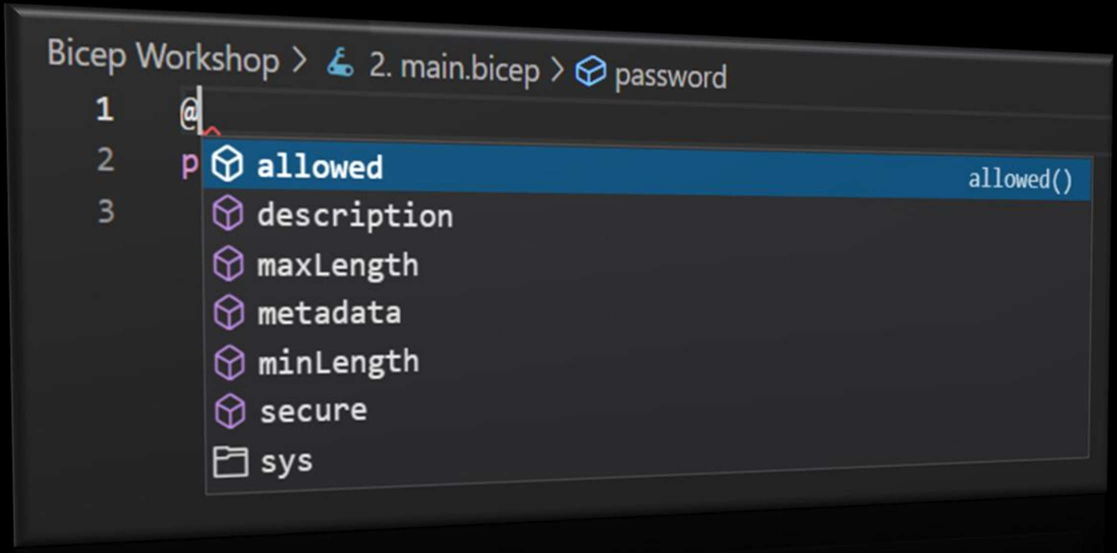


```
@secure()
param password string = 'notsecure'
```

Secure parameters should not have hardcoded defaults (except for empty or newGuid()). bicep core(https://aka.ms/bicep/linter/secure-parameter-default)

…Linter checks that are very nifty!

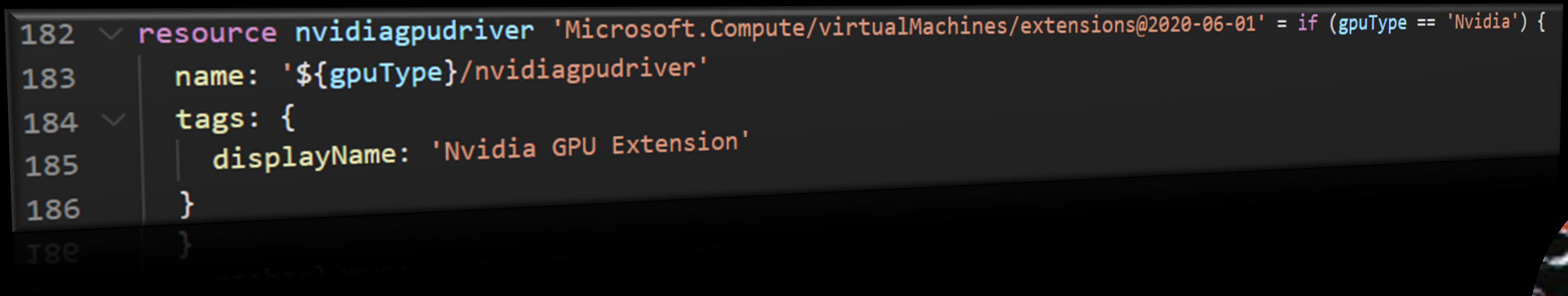
On the fifth day of Christmas, Microsoft sent to me …



```
@
p
```

…Parameter decorators that make you feel almighty!

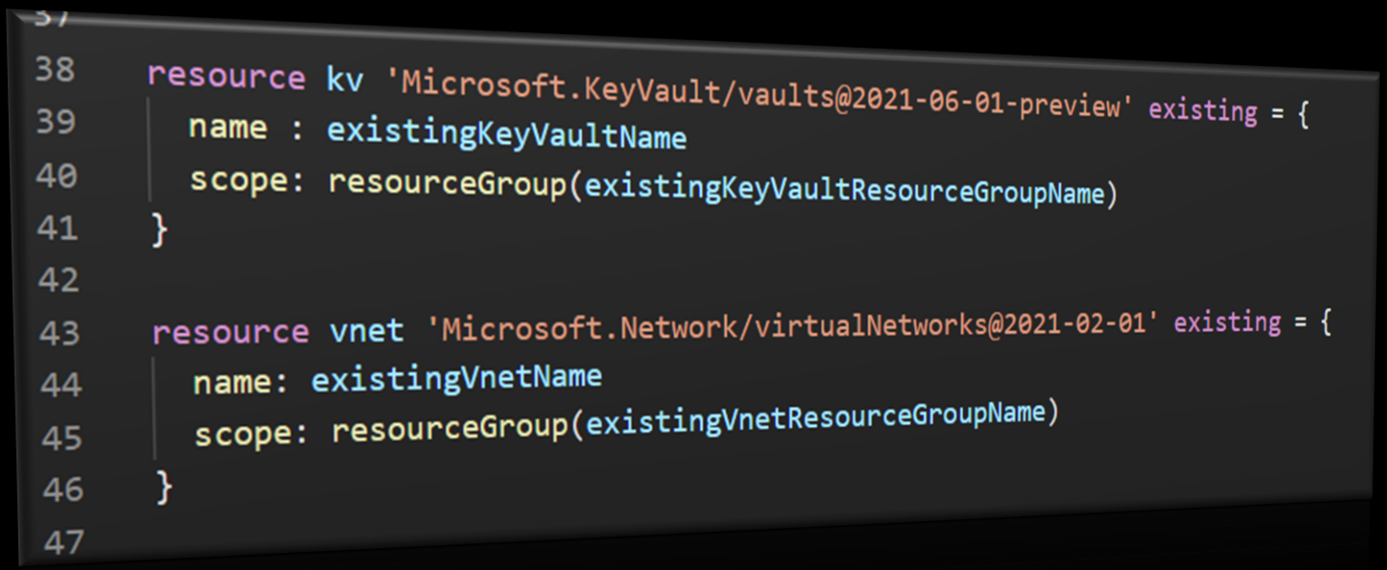
On the sixth day of Christmas, Microsoft sent to me …



```
resource nvidiagpudriver 'Microsoft.Compute/virtualMachines/extensions@2020-06-01' = if (gpuType == 'Nvidia') {
  name: '${gpuType}/nvidiagpudriver'
  tags: {
    displayName: 'Nvidia GPU Extension'
  }
```

…conditional deployments that are very snappy!

On the seventh day of Christmas, Microsoft sent to me …

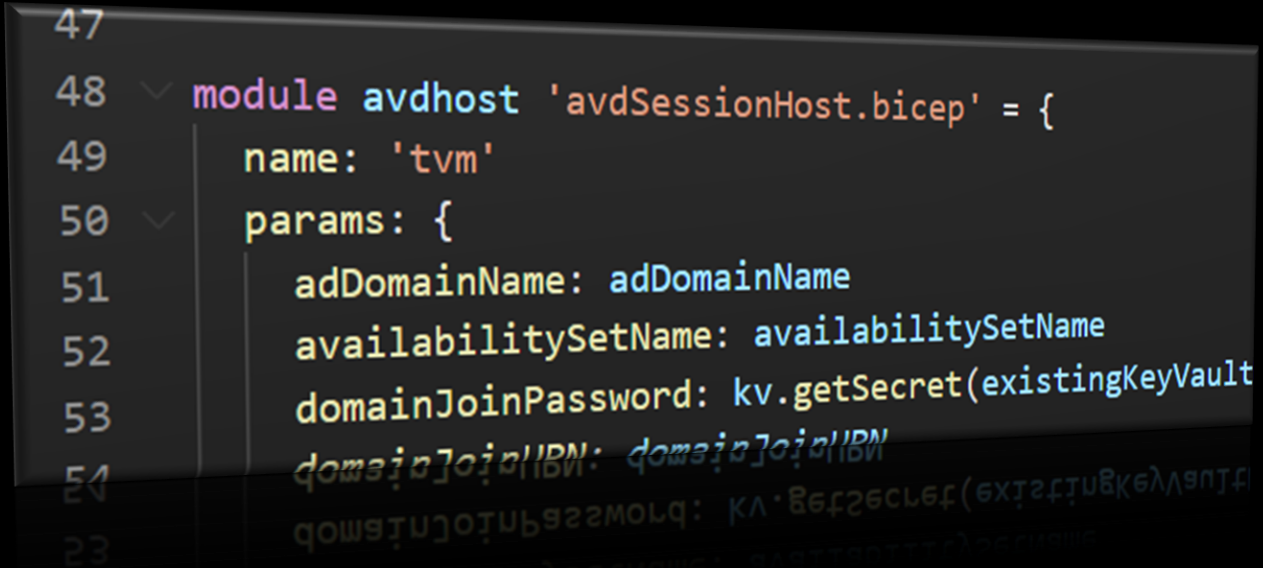


```
resource kv 'Microsoft.KeyVault/vaults@2021-06-01-preview' existing = {
  name : existingKeyVaultName
  scope: resourceGroup(existingKeyVaultResourceGroupName)
}

resource vnet 'Microsoft.Network/virtualNetworks@2021-02-01' existing = {
  name: existingVnetName
  scope: resourceGroup(existingVnetResourceGroupName)
}
```

…Existing keywords that are like candy!

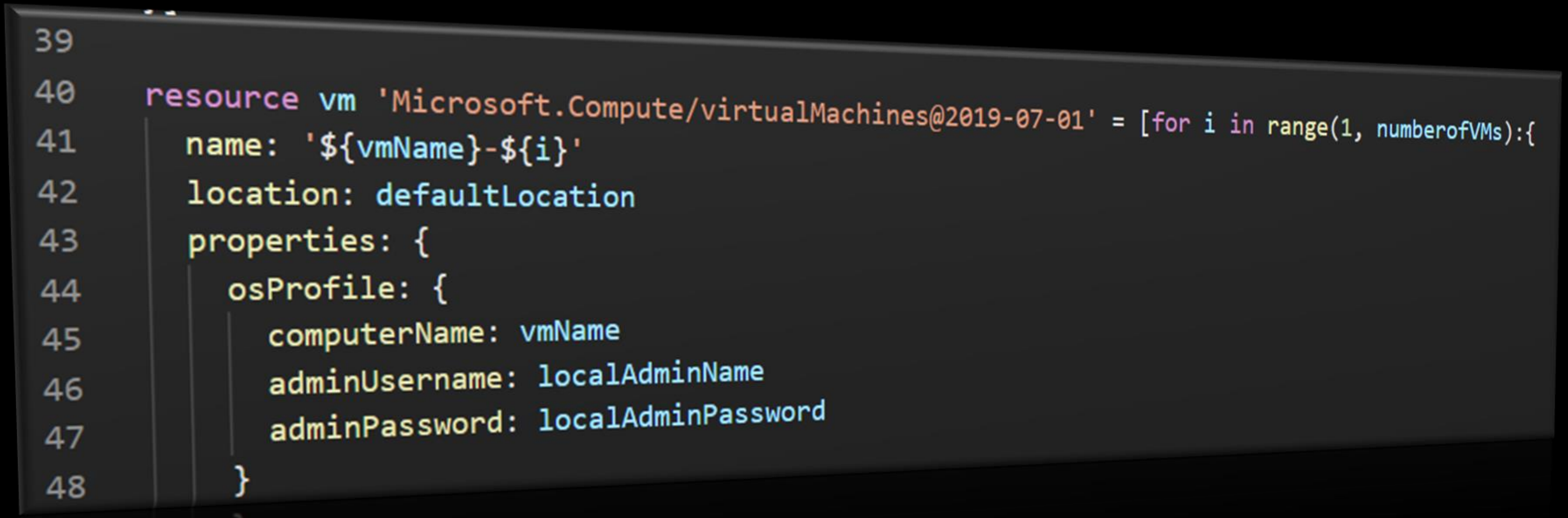
On the eight day of Christmas, Microsoft sent to me …



```
module avdhost 'avdSessionHost.bicep' = {
  name: 'tvm'
  params: {
    adDomainName: adDomainName
    availabilitySetName: availabilitySetName
    domainJoinPassword: kv.getSecret(existingKeyVault
    domainJoinUPN: domainJoinUPN
```

…modules keywords that are very treasury

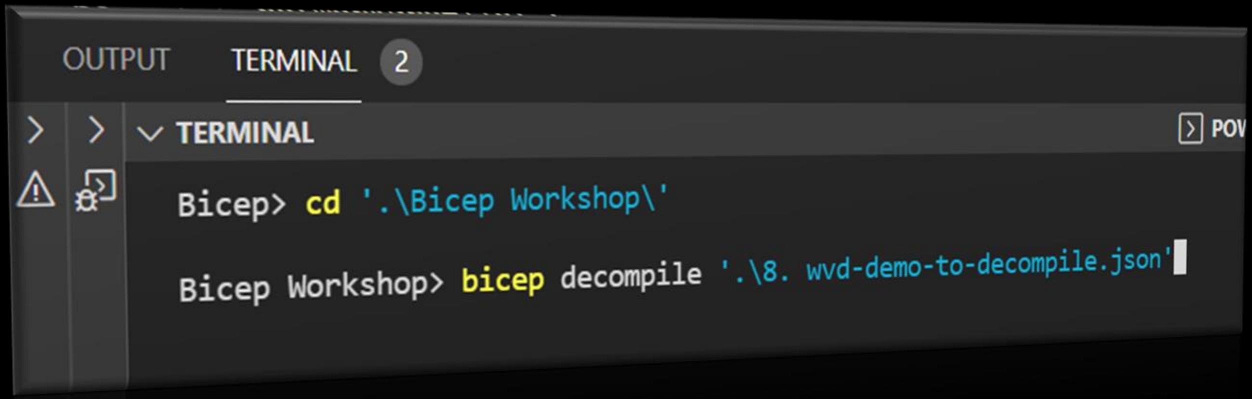
On the nineth day of Christmas, Microsoft sent to me …



```
resource vm 'Microsoft.Compute/virtualMachines@2019-07-01' = [for i in range(1, numberofVMs):{
  name: '${vmName}-${i}'
  location: defaultLocation
  properties: {
    osProfile: {
      computerName: vmName
      adminUsername: localAdminName
      adminPassword: localAdminPassword
    }
```

…loops that are extra ordinally!

On the tenth day of Christmas, Microsoft sent to me …

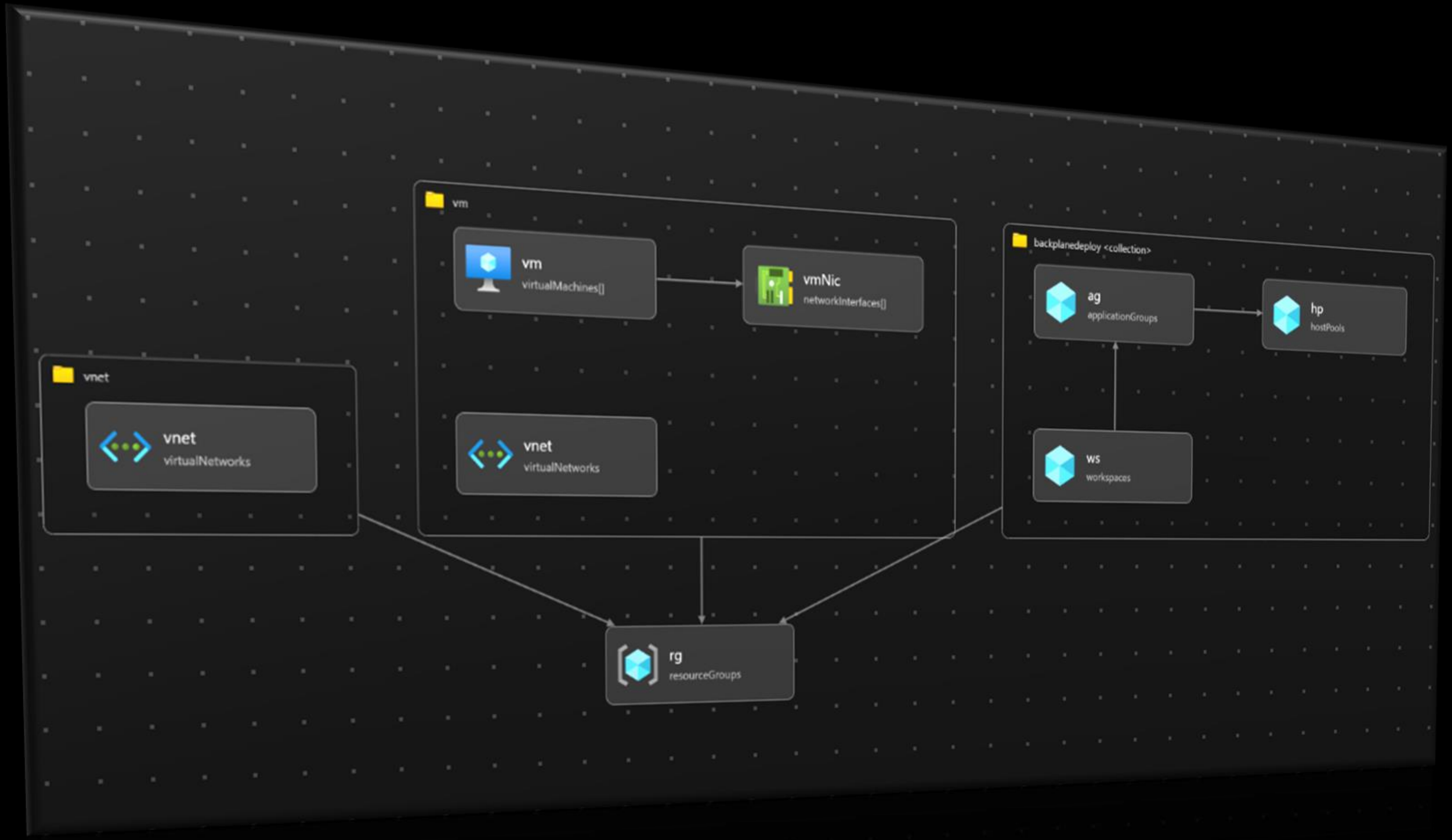


```
Bicep> cd '.\Bicep Workshop\'

Bicep Workshop> bicep decompile '.\8. wvd-demo-to-decompile.json'
```

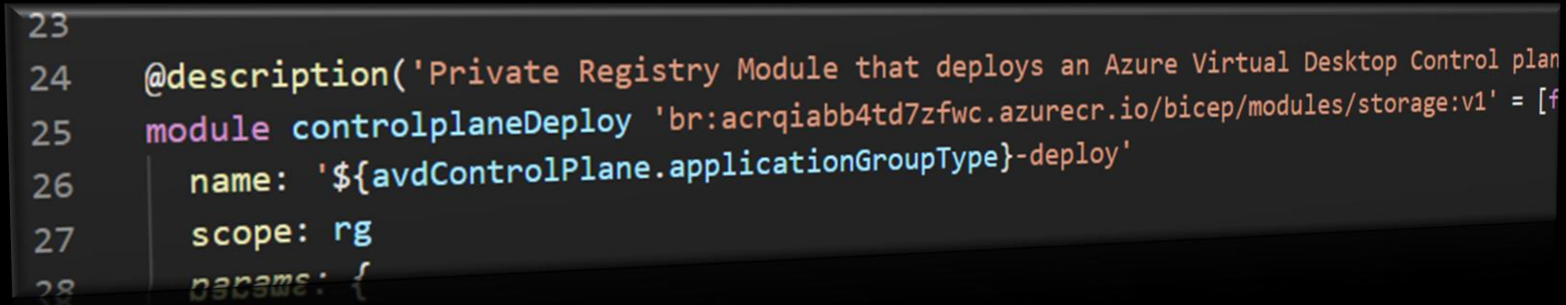
…decompiling which is wickedly!

On the eleventh day of Christmas, Microsoft sent to me …



…a visualizer that is very snappy!

On the twelfth day of Christmas, Microsoft sent to me …



```
@description('Private Registry Module that deploys an Azure Virtual Desktop Control plan
module controlplaneDeploy 'br:acrqiabb4td7zfwc.azurecr.io/bicep/modules/storage:v1' = [f
  name: '${avdControlPlane.applicationGroupType}-deploy'
  scope: rg
  params: {
```

..a private module registry!

Summary

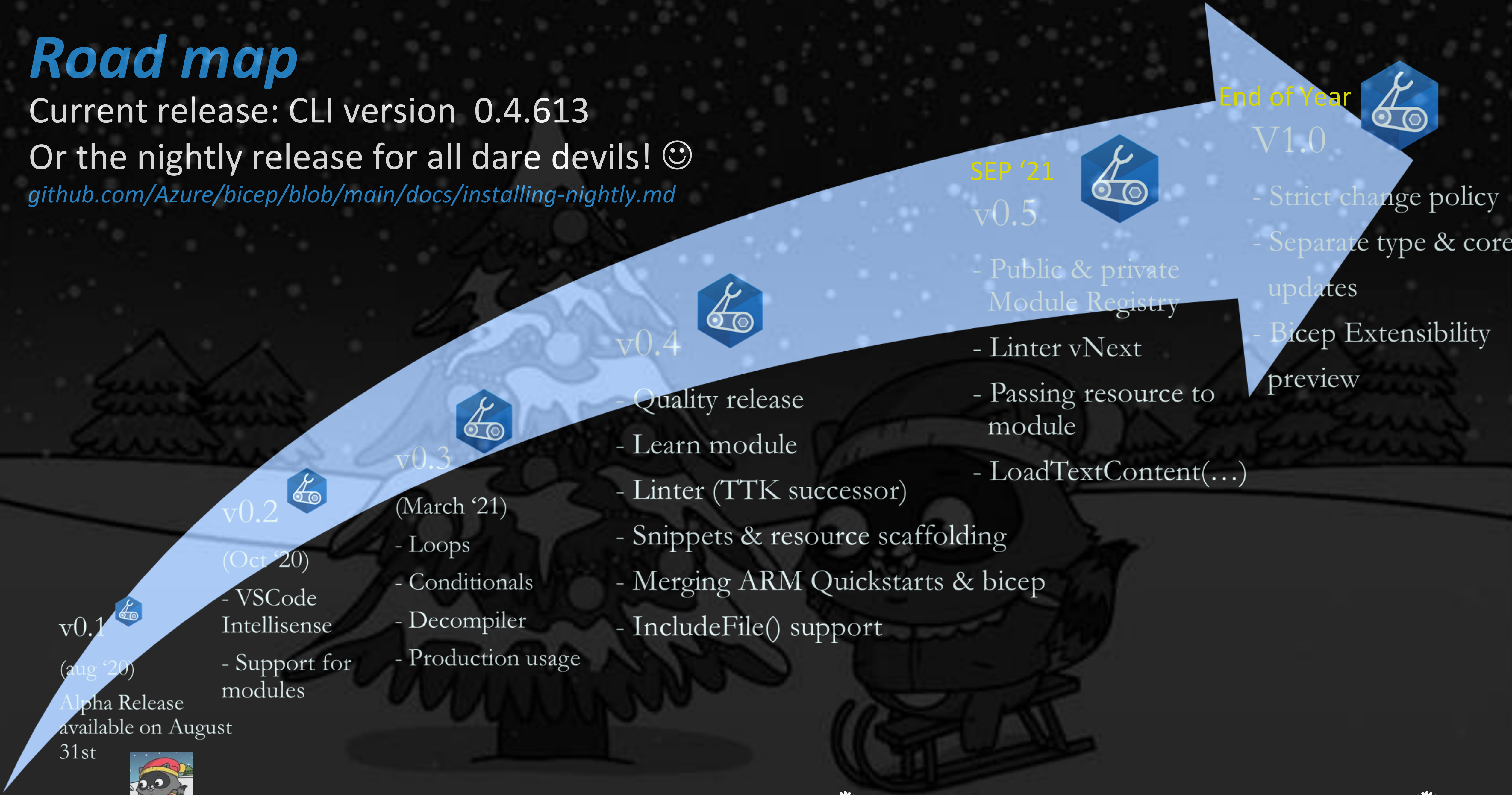
On the first day of Christmas, Microsoft sent to me …
… one Bicep CLI to create ARM templates easy as can be!
… vscode extension
…scaffolding and code snippets
…linter checks
…Parameter decorators
…conditional deployments
…existing keywords
…modules keywords
…loops
…decompiling
…a visualizer
...a private module registry!

Road map

Current release: CLI version 0.4.613

Or the nightly release for all dare devils! ☺

github.com/Azure/bicep/blob/main/docs/installing-nightly.md



v0.1

(aug '20)

Alpha Release available on August 31st

v0.2

(Oct '20)

- VSCode Intellisense
- Support for modules

v0.3

(March '21)

- Loops
- Conditionals
- Decompiler
- Production usage

v0.4

- Quality release
- Learn module
- Linter (TTK successor)
- Snippets & resource scaffolding
- Merging ARM Quickstarts & bicep
- IncludeFile() support

SEP '21

v0.5

- Public & private Module Registry
- Linter vNext
- Passing resource to module
- LoadTextContent(…)

End of Year

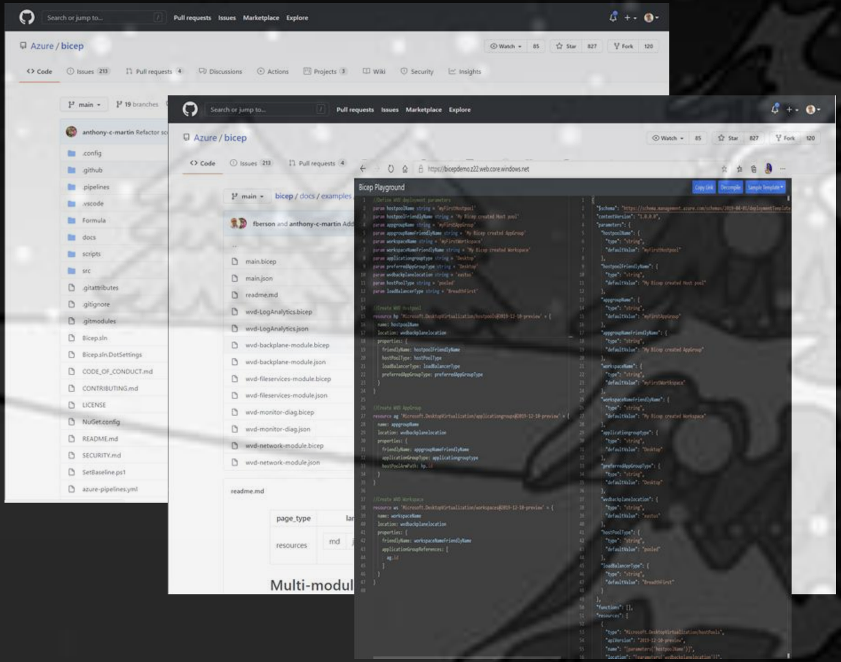
V1.0

- Strict change policy
- Separate type & core updates
- Bicep Extensibility preview

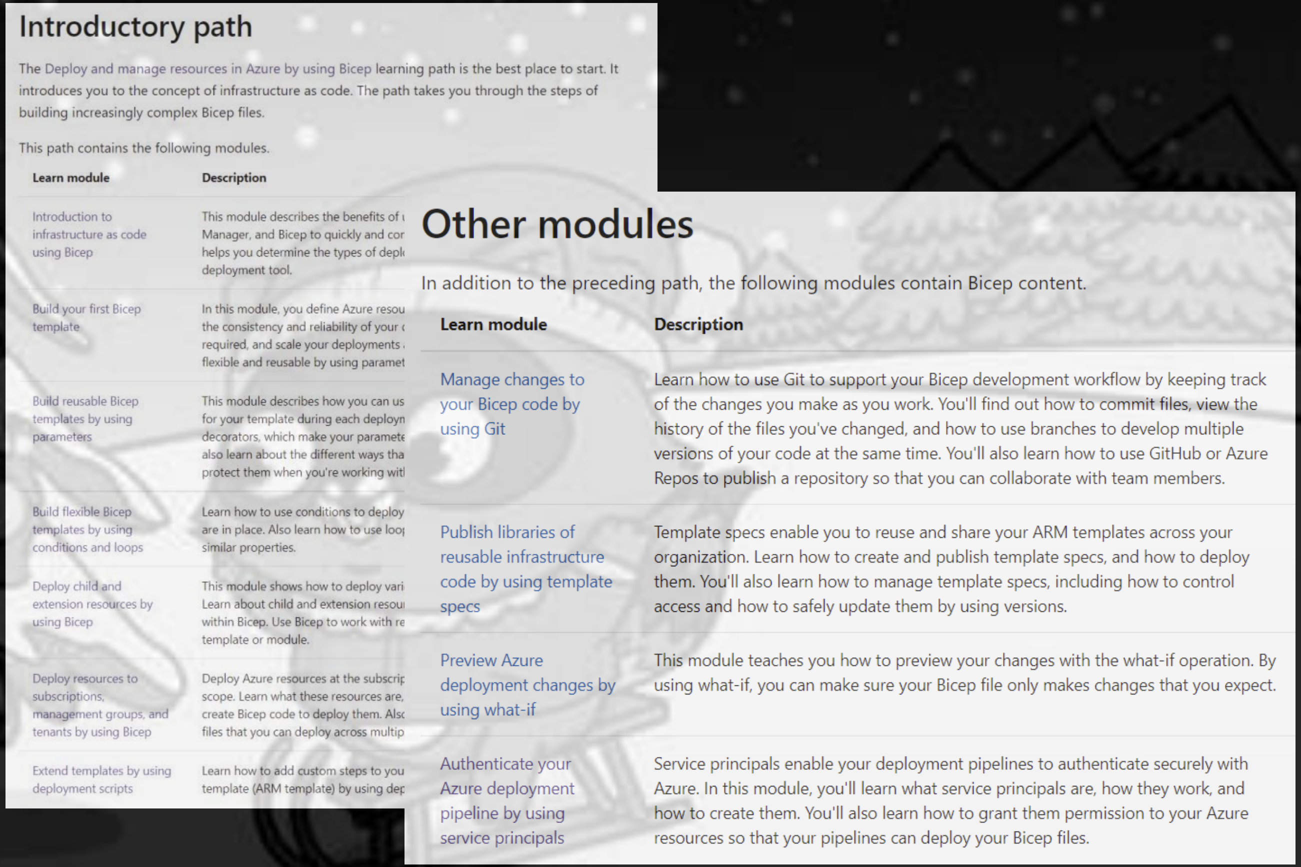
Call to actions:

Install guides, tutorials, example code & playgrounds!

aka.ms/bicep



Aka.ms/learnbicep



Introductory path

The Deploy and manage resources in Azure by using Bicep learning path is the best place to start. It introduces you to the concept of infrastructure as code. The path takes you through the steps of building increasingly complex Bicep files.

This path contains the following modules.

Learn module	Description
Introduction to infrastructure as code using Bicep	This module describes the benefits of u Manager, and Bicep to quickly and cor helps you determine the types of depl deployment tool.
Build your first Bicep template	In this module, you define Azure resou the consistency and reliability of your c required, and scale your deployments a flexible and reusable by using paramet
Build reusable Bicep templates by using parameters	This module describes how you can us for your template during each deploym decorators, which make your paramete also learn about the different ways tha protect them when you're working wit
Build flexible Bicep templates by using conditions and loops	Learn how to use conditions to deploy are in place. Also learn how to use loo similar properties.
Deploy child and extension resources by using Bicep	This module shows how to deploy vari Learn about child and extension resou within Bicep. Use Bicep to work with re template or module.
Deploy resources to subscriptions, management groups, and tenants by using Bicep	Deploy Azure resources at the subscrip scope. Learn what these resources are, create Bicep code to deploy them. Also files that you can deploy across multip
Extend templates by using deployment scripts	Learn how to add custom steps to you template (ARM template) by using dep

Other modules

In addition to the preceding path, the following modules contain Bicep content.

Learn module	Description
Manage changes to your Bicep code by using Git	Learn how to use Git to support your Bicep development workflow by keeping track of the changes you make as you work. You'll find out how to commit files, view the history of the files you've changed, and how to use branches to develop multiple versions of your code at the same time. You'll also learn how to use GitHub or Azure Repos to publish a repository so that you can collaborate with team members.
Publish libraries of reusable infrastructure code by using template specs	Template specs enable you to reuse and share your ARM templates across your organization. Learn how to create and publish template specs, and how to deploy them. You'll also learn how to manage template specs, including how to control access and how to safely update them by using versions.
Preview Azure deployment changes by using what-if	This module teaches you how to preview your changes with the what-if operation. By using what-if, you can make sure your Bicep file only makes changes that you expect.
Authenticate your Azure deployment pipeline by using service principals	Service principals enable your deployment pipelines to authenticate securely with Azure. In this module, you'll learn what service principals are, how they work, and how to create them. You'll also learn how to grant them permission to your Azure resources so that your pipelines can deploy your Bicep files.