PowerShell Conference Europe

Validate Infrastructure as Code using PSRule

Jan Egil Ring

PRAGUE23

Many thanks to our sponsors:

@JanEgilRing

```
PS C:\> Get-Speaker

Name    : Jan Egil Ring
Work    : Sr Cloud Solution Architect @ Microsoft
E-mail  : janegilring@microsoft.com
Twitter : @JanEgilRing
Website : {www.microsoft.com, www.powershell.no}
Country : Norway
```

@JanEgilRing

Agenda

- Introduction
  - Testing Infrastructure as Code
  - What challenge does PSRule solve?

- Demos

What should we test?

- Cloud Adoption Framework
- Well-Architected Framework

Azure Well-Architected Framework

*As described in **Infrastructure as Code**, the environment where applications are running should be version-controlled and deployed through the **same mechanisms as application code**, and hence can be **tested and validated** using DevOps testing paradigms too.*

Operational Excellence / Release Engineering

What is PSRule for Azure?

Tests and docs for Azure Infrastructure as Code

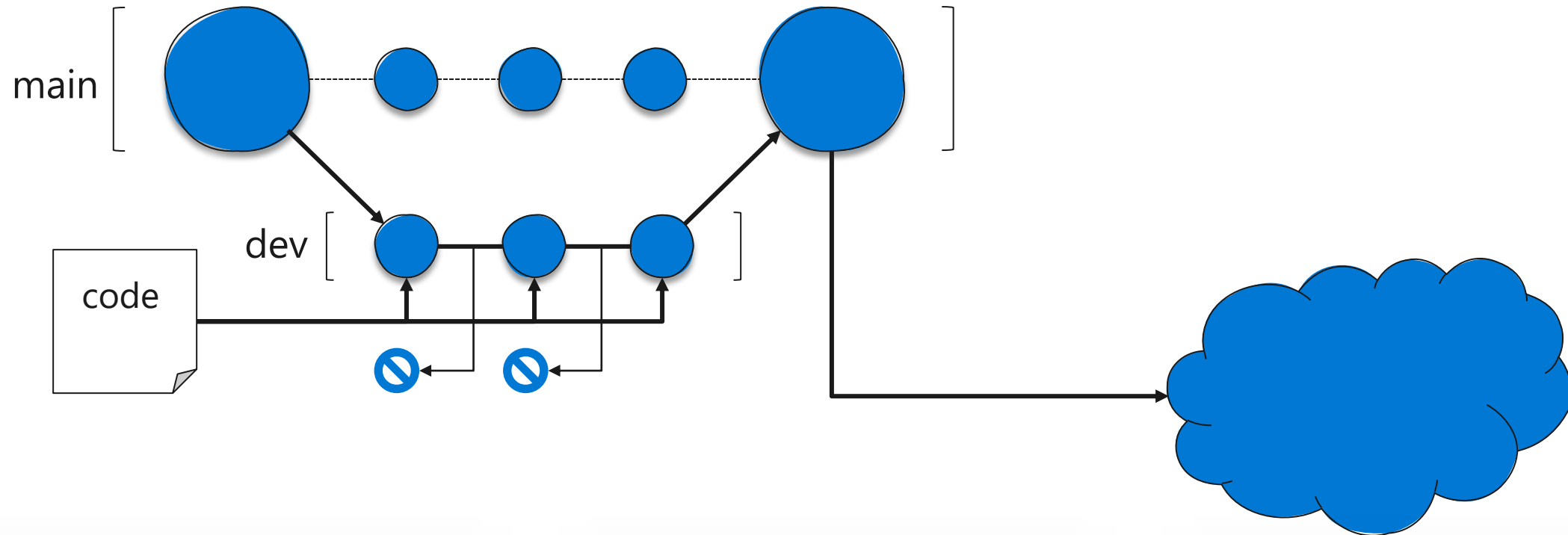Supports Azure Templates and Bicep

Azure Well-Architected Framework aligned

Start with 280+ pre-built tests

Plugs into continuous integration pipelines and DevOps mindset.

Supports GitHub Actions and Azure Pipelines

It makes it easier for you to do this

Write infrastructure code and get feedback

Use the learnings to deploy well architected solutions

Minimize blockers to deploy to Azure

Demos

We love Demos!

START-DEMO

🐦 **@JanEgilRing**
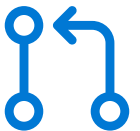
Real-world usage

Increase success on Azure

Catch deployment and configuration issues early before release.

Meaningful guidance

Documentation provides recommendations, WAF references, and examples.

Integrate peer review

Provides feedback to enable continuous improvement and DevSecOps peer reviews.

analysis.yaml
on: push

GitHub Actions

❌ Analyze repository   35s

Annotations
3 errors and 10 warnings

❌ **Analyze repository**
st001 failed Azure.Storage.SoftDelete. Enable blob soft delete on Storage Accounts.

❌ **Analyze repository**
st001 failed Azure.Storage.BlobAccessType. Storage Accounts use containers configured w...
Show more

❌ **Analyze repository**
One or more assertions failed.

Key points

Ready to go

Leverage over 310 pre-built rules to check Azure resources for Azure Well-Architected Framework alignment.

Native tooling

Checks are integrated with GitHub Actions, Azure Pipelines, and Visual Studio Code to provide recommendations as code is written.

Configure and customize

Custom rules and baselines can be created for customer specific uses cases or application exceptions.
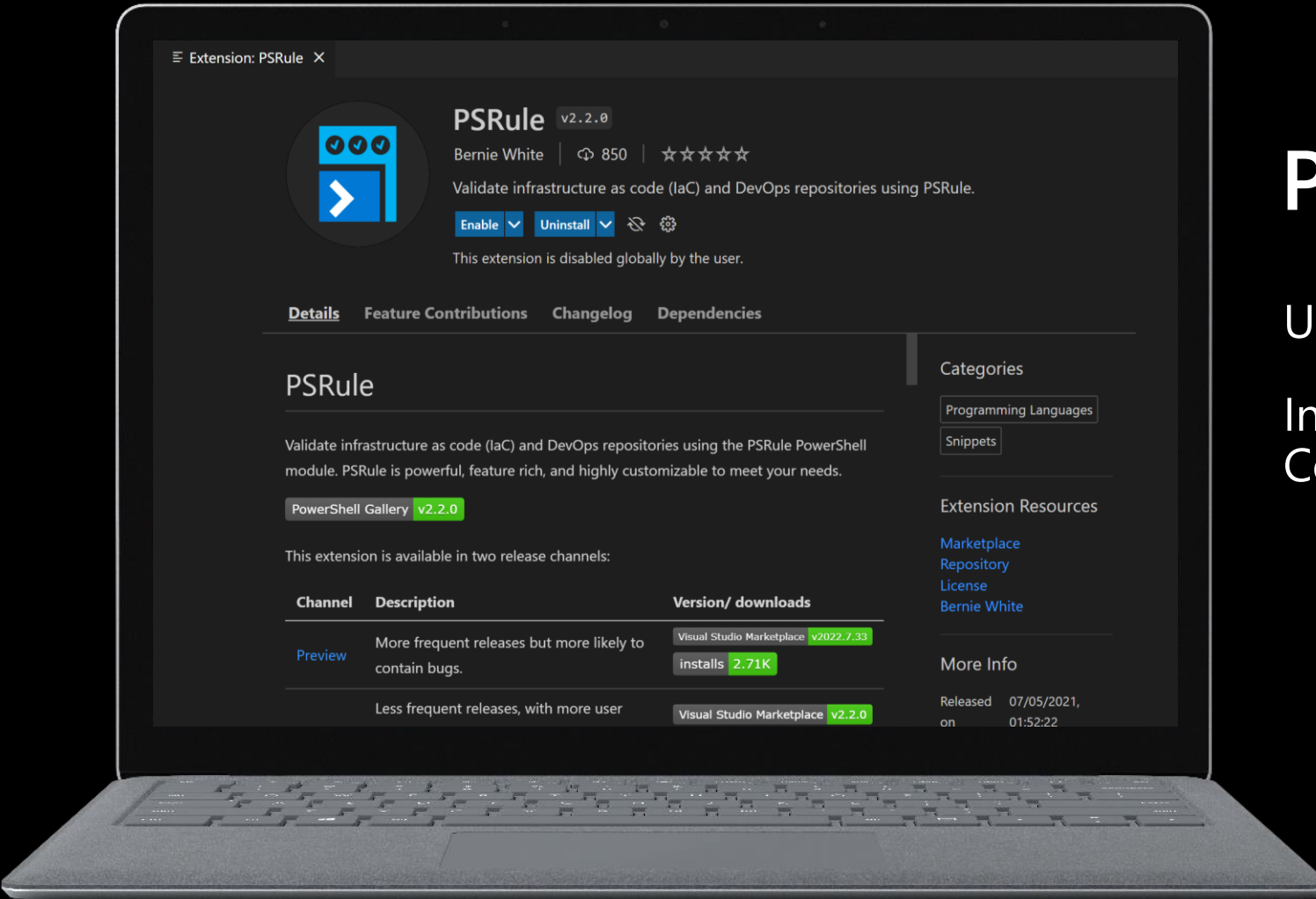
230+ releases shipped to date

PSRule for Azure

Use the action or task for pipelines

Install the extension for Visual Studio Code support

Baselines

A baseline is a standard set of rules and configuration.

Greater consistency

Quarterly baselines provides a stable checkpoint of rules to use. New rules are added to the next quarterly baseline.

Incremental adoption

It may not be possible to implement new rules immediately. Existing backlogs or timelines may make it impossible to add new requirements until a future sprint.

Rules

+

Configuration

Handling exceptions

Ignore specific rules that are not applicable. Rules can be excluded entirely or suppressed per resource.

Suppression option

An individual per rule per resource exception defined through options.

Suppression Groups

Query-based suppression that skips a specified set of rules using a selector expression to query properties of the resource.

```yaml
---
# Synopsis: Ignore GRS for development Storage Accounts.
apiVersion: github.com/microsoft/PSRule/v1
kind: SuppressionGroup
metadata:
  name: Dev.Environment
spec:
  rule:
  - 'Azure.Storage.UseReplication'
  if:
    field: tags.env
    in:
    - 'dev'
```

Reporting

Output results in a range of formats including NUnit, JSON, and Markdown.

SARIF

Report issues using the industry standard Static Analysis Results Interchange Format (SARIF).

Integration with Azure Monitor

Upload results to a Log Analytics workspace to query, configure alerts, or report using workbooks or Power BI.

Resources

- Slides and demos - https://aka.ms/psconfeu2023/psrule

- PSRule documentation - https://aka.ms/ps-rule
- PSRule for Azure documentation - https://aka.ms/ps-rule-azure
- PSRule for Azure QuickStart repository - https://aka.ms/ps-rule-azure-quickstart
- Using Bicep code with PSRule for Azure - https://aka.ms/ps-rule-azure/bicep
- Working with baselines in PSRule for Azure - https://aka.ms/ps-rule-azure/baselines
- Configuring options in PSRule for Azure - https://aka.ms/ps-rule-azure/options
- Options for PSRule - https://aka.ms/ps-rule/options

@JanEgilRing

Q&A

15 minutes

@JanEgilRing