



Azure DevOps – aber in OpenSource

Meine Erfahrungen mit diversen OS Tools in 60 Minuten

Lift and shift in a
real world
scenario...



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- Seit 01.04. bei SoftwareONE
- Vorher IT-Leiter im Mittelstand und IT-Trainer
- Schwerpunkte: Azure, PowerShell, Hyper-V, System Center, AD
- Seit 2016 Microsoft MVP
- Betreibe u.a. auch die Windows Server Usergroup Leipzig



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Auch auf YouTube...



AGENDA

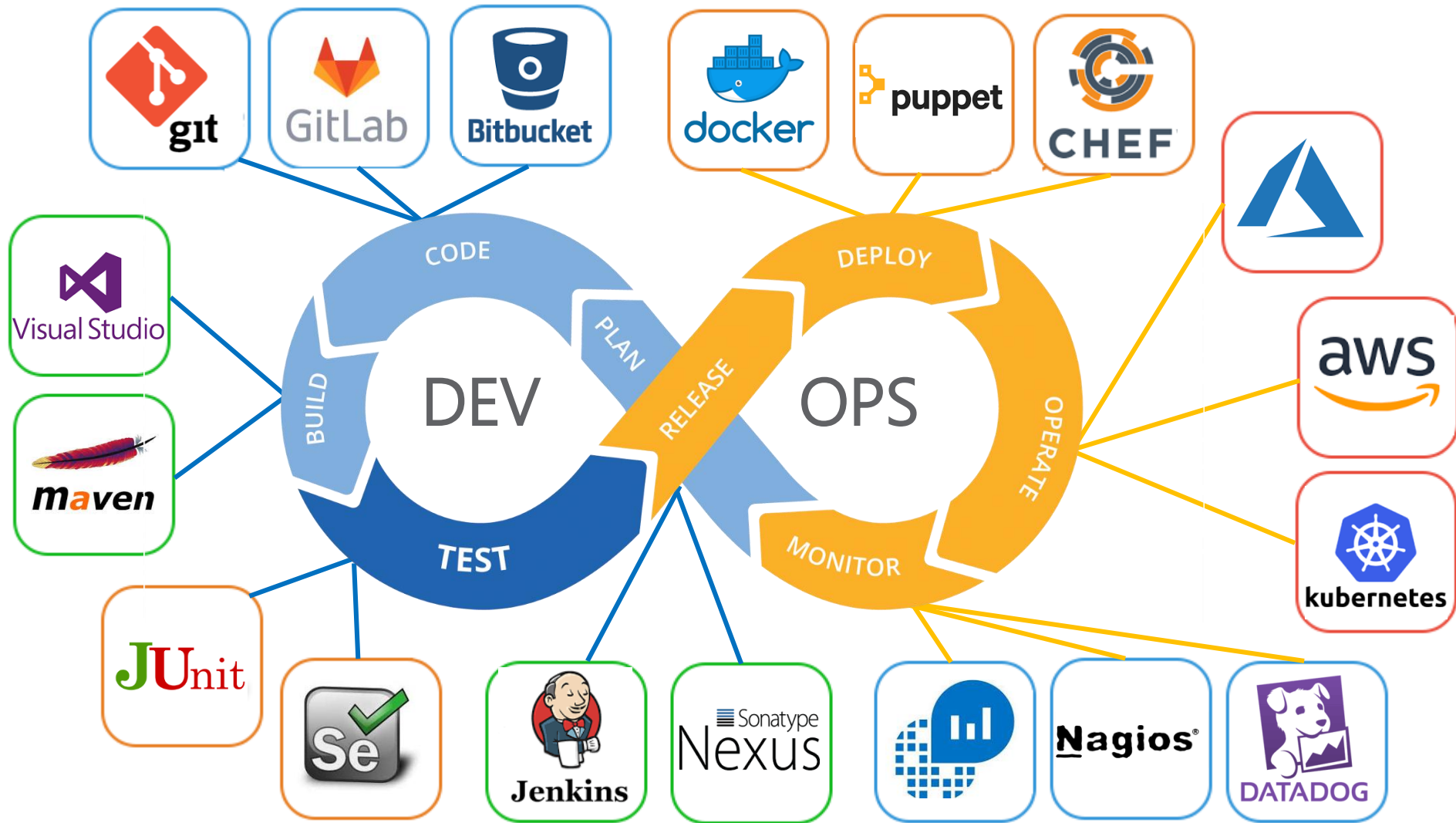
- 01/ Wie alles begann...
- 02/ OpenSource Tooling
- 03/ Demos
- 04/ Fragen / Diskussion



Once upon a time... 

...in a company far, far away

DevOps / CI/CD



Once upon a time

- Vorgeschichte
- Neues Projekt (Automotive)
- Softwareentwicklung durch 5 verschiedene (dislozierte) Teams in verschiedenen Tech-Stacks
- Betrieb von 4 Stages in Azure
- Anfängliches Daily Business:
 - Entwickler nutzen verschiedene SCM
 - Entwickler bauen Code lokal
 - Artefakte werden per Mail, Skype, Dropbox, ... an DevOps verschickt
 - Artefakte haben keine Versionsnummer
 - Artefakte werden unter gleicher Version neu gebaut (sind aber verschieden)
 - Manuelles Deployment (FTP-Upload, Kudu, ...)
 - Entwickler haben keinerlei Sicht auf Azure

Warum kein Azure DevOps?

- Kosten
- Keine Erfahrungen
- Entwickler nutzen größtenteils keine MS-Tools
- IP soll on-premises gehalten werden
- Wunsch aus dem Management, keine zu starke Abhängigkeit zu Microsoft aufzubauen



What is already there 



 Sonatype
Nexus

Tool-Vorstellung

- Git-Instanz für On-premises-Einsatz
- Source Code Management
- Gruppen & Projekte
- Branches
- Command Line + Web UI



Hudson / Jenkins

- Als Hudson bei Sun Microsystems entwickelt
- Nach Kauf von Sun durch Oracle: Abspaltung von Jenkins als neuer Fork
- Hudson wird seit 2016 nicht mehr weiterentwickelt
- Continuous integration System
- Durch Plugins sehr gut erweiterbar
- Anbindung an Git, SVN, Nexus, ... möglich
- Durch Build-Slaves gut skalierbar



Hudson / Jenkins

Jenkins

Blog Documentation Plugins Community Sub-projects About English Download

Most installed

Trending

Title

Release date

Categories

Platforms

iOS development

.NET

Android development

Ruby development

User interface

User Interface

List view column plugins

Administration

Agent controllers

Page decorators

Users and security

Cluster management

CLI extensions

Source code management

SCM connections

SCM related

Build management

Build triggers

Build wrappers

Build notifiers

Deployment plugins

Build parameters

Clean-up actions

Build tools

Azure Commons

Installs: 5193
Jenkins 1.625.3++

Common APIs for Azure related Jenkins plugins

Azure DevOps Team AC

Azure App Service

Installs: 998
Jenkins 1.651.3++

A Jenkins plugin to deploys apps to Azure App Service

Azure DevOps Team AA

Azure AD

Installs: 866
Jenkins 2.60.1++

A Jenkins authentication & authorization plugin for Azure Active Directory

Azure DevOps Team AA

Azure Function

Installs: 346
Jenkins 1.651.3++

A Jenkins plugin to deploy Azure Function

Azure DevOps Team AF

Azure Credentials

Installs: 2774
Jenkins 1.625.3++

Manage Azure credentials using Jenkins Credentials API

Azure DevOps Team AC

Azure Container Service

Installs: 739
Jenkins 1.651.3++

Deploy Kubernetes, DC/OS, Docker Swarm application configurations to Azure Container Service cluster.

Azure DevOps Team AC

Azure VM Agents

Installs: 1195
Jenkins 1.653++

Cluster management, Agent controllers, Azure plugin to provision and deprovision agents

Azure DevOps Team AV

Azure Container Agents

Installs: 554
Jenkins 1.651.3++

A Jenkins plugin to provisions agents on Azure Container Service and Azure Container Instances

Azure DevOps Team AC

Azure Service Fabric

Installs: 207
Jenkins 1.651.3++

Plugin for deploying Azure Service Fabric applications.

ServiceFabric Maintaine Azure DevOps Team AS

Azure Virtual Machine Scale Set

Installs: 265
Jenkins 1.651.3++

A Jenkins plugin to deploy to Azure Virtual Machine Scale Set

Azure DevOps Team AV

Azure Container Registry Tasks

Installs: 214
Jenkins 1.651.3++

Queue an Azure Container Registry quick task request for building image. Source code can be hosted on a Github repo

Azure DevOps Team AC

Azure IoT Edge

Installs: 60
Jenkins 1.651.3++

A Jenkins plugin for continuous integration(build and push docker image) and continuous deployment(create

Microsoft Azure IoT Tool AI

Azure Artifact Manager

Installs: 48
Jenkins 2.121.3++

Jenkins Azure artifact manager plugin

Visual Studio China Jenk AA

Azure Key Vault

Installs: 106
Jenkins 2.138.2++

Build wrapper for retrieving secrets from Azure Key Vault

Tim Jacomb AK

Azure PublisherSettings Credentials

Installs: 294
Jenkins 1.652++

This plugin manage Azure PublisherSettings using Jenkins Credentials API. The Jenkins Azure Publisher

Nicolas De Loof AP

Azure Batch Parallel Test Execution

Installs: 132
Jenkins 1.625.3++

Clean-up actions, Execute tests in parallel with Microsoft Azure Batch service.

Jun Guan Mohammad Minhaz AB

Windows Azure Storage

Installs: 1563
Jenkins 1.651.3++

Artifact uploaders, Clean-up actions, Azure Blob Storage Plugin enables uploading build artifacts to, or downloading blob files from, Microsoft

Visual Studio China Jenk WA

Azure CLI

Installs: 717
Jenkins 1.651.3++

This plugin is a sample to explain how to write a Jenkins plugin.

Tomer Rosenthal AC

Kubernetes Continuous Deploy

Installs: 2938
Jenkins 1.651.3++

A Jenkins plugin to deploy configurations to Kubernetes cluster.

Azure DevOps Team KC

Azure Event Grid Build Notifier

Installs: 71
Jenkins 1.625.3++

This plugin is a sample to explain how to write a Jenkins plugin.

Tomer Rosenthal AE

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2019
Global Azure
BOOTCAMP

16/

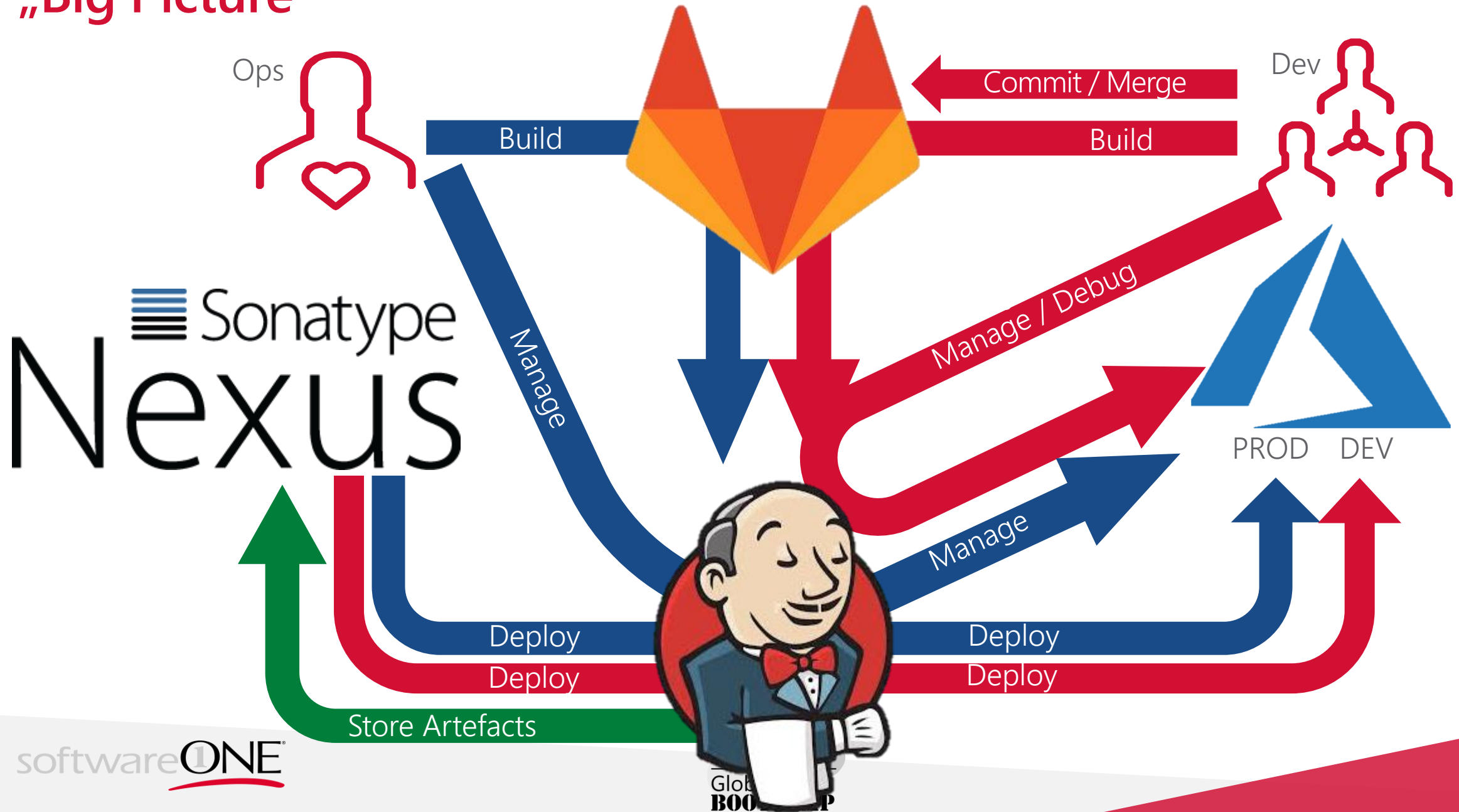
Nexus Repository Manager OSS

- Repository Manager
- Geeignet, um Artefakte zu speichern
- Auch zum Speichern/Cachen externer Bibliotheken gut geeignet



 Sonatype
Nexus

„Big Picture“

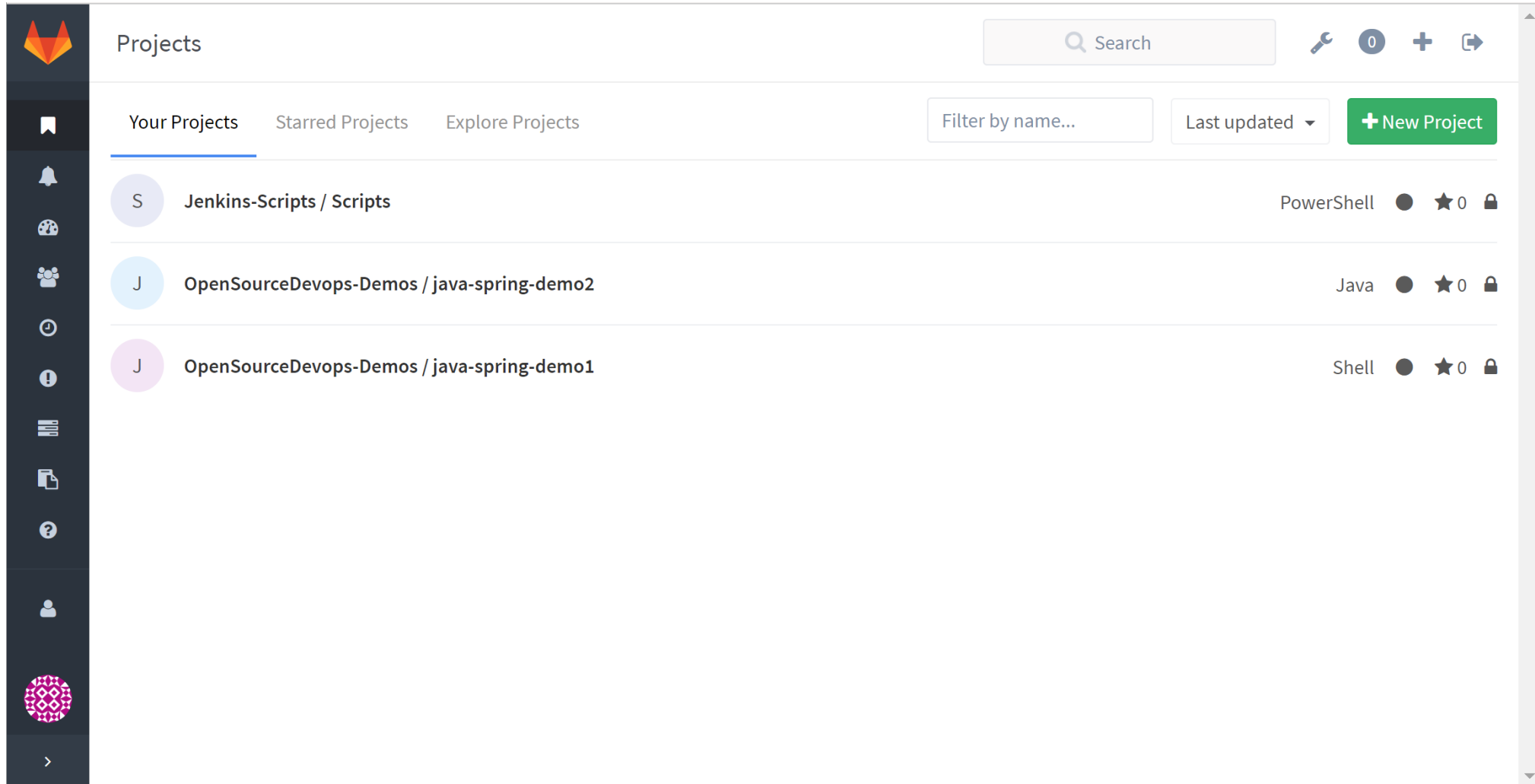


DEMOS

- Code
- Build
- Deploy
- Manage

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Demo: Code



The screenshot shows the 'Projects' page in the Azure DevOps web interface. On the left is a dark sidebar with icons for Home, Backlog, Build, Test, Release, Pipelines, Repos, Security, and a profile icon. The main content area has a 'Projects' header with a search bar and icons for settings, notifications (0), a plus sign, and a refresh icon. Below the header are tabs for 'Your Projects', 'Starred Projects', and 'Explore Projects'. A filter bar contains a 'Filter by name...' input, a 'Last updated' dropdown, and a green '+ New Project' button. The project list shows three items:

Project Name	Language	Stars	Lock
Jenkins-Scripts / Scripts	PowerShell	0	Yes
OpenSourceDevops-Demos / java-spring-demo2	Java	0	Yes
OpenSourceDevops-Demos / java-spring-demo1	Shell	0	Yes

Demo: Build

Jenkins > OpenSourceDevops > Build > Build java-spring-demo1

General

Source Code Management

Build Triggers

Build Environment

Pre Steps

Build

Post Steps

Build Settings

Post-build Actions

Source Code Management

None

Git

Repositories

Branches to build

Repository browser

Additional Behaviours

Repository URL

http://osdevops-gitlab.westeurope.cloudapp.azure.com/OpenSourceDevops-Demos/java-spring-demo1.git

Credentials

root/***** (GitLab Root User)

Advanced...

Add Repository

Branch Specifier (blank for 'any')

\${Branch}

Add Branch

Repository browser

(Auto)

Check out to specific local branch

Branch name

Wipe out repository & force clone

Add

Subversion

Build Triggers

Build whenever a SNAPSHOT dependency is built

Save

Apply

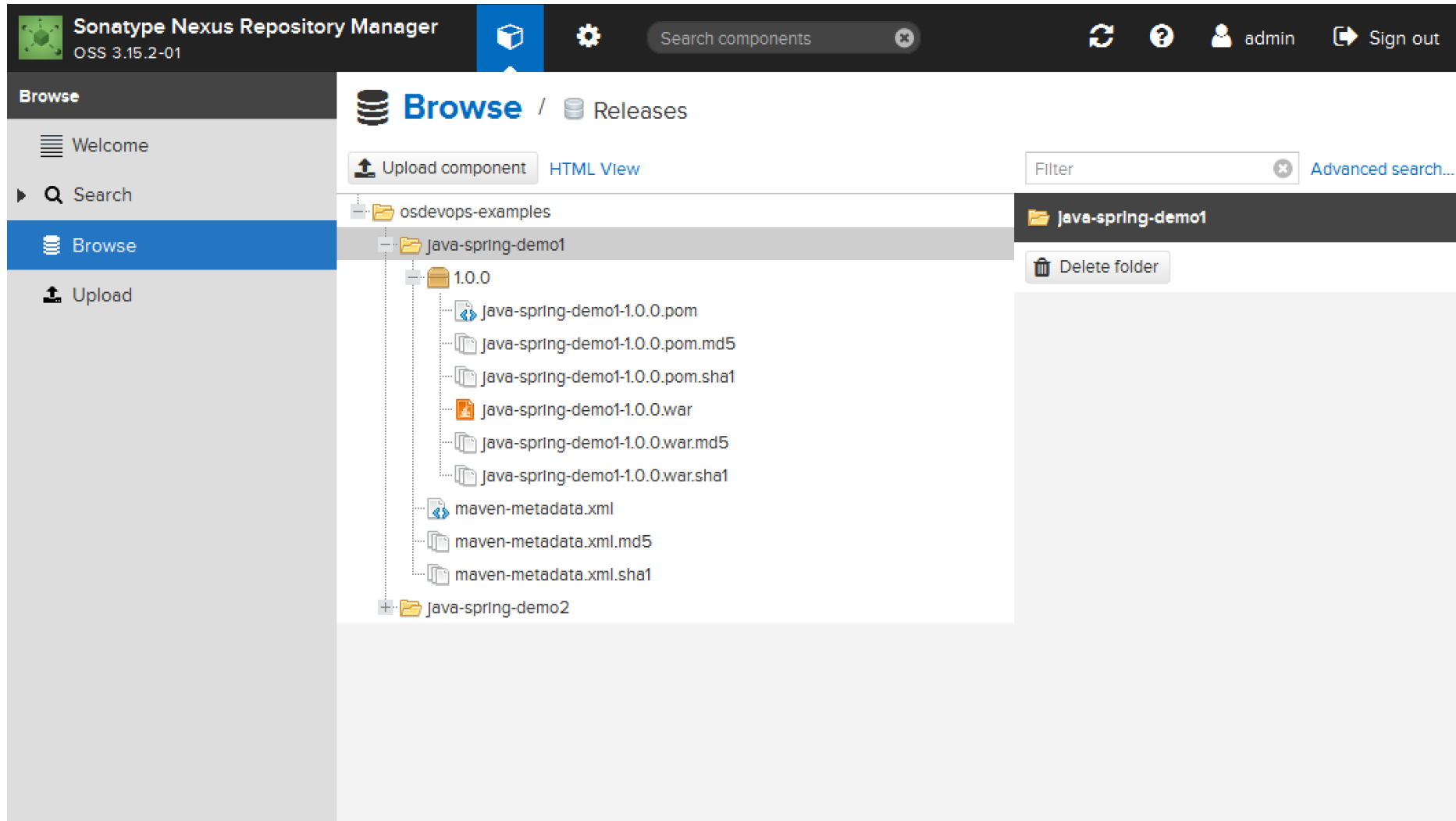
Schedule build when some upstream has no successful builds

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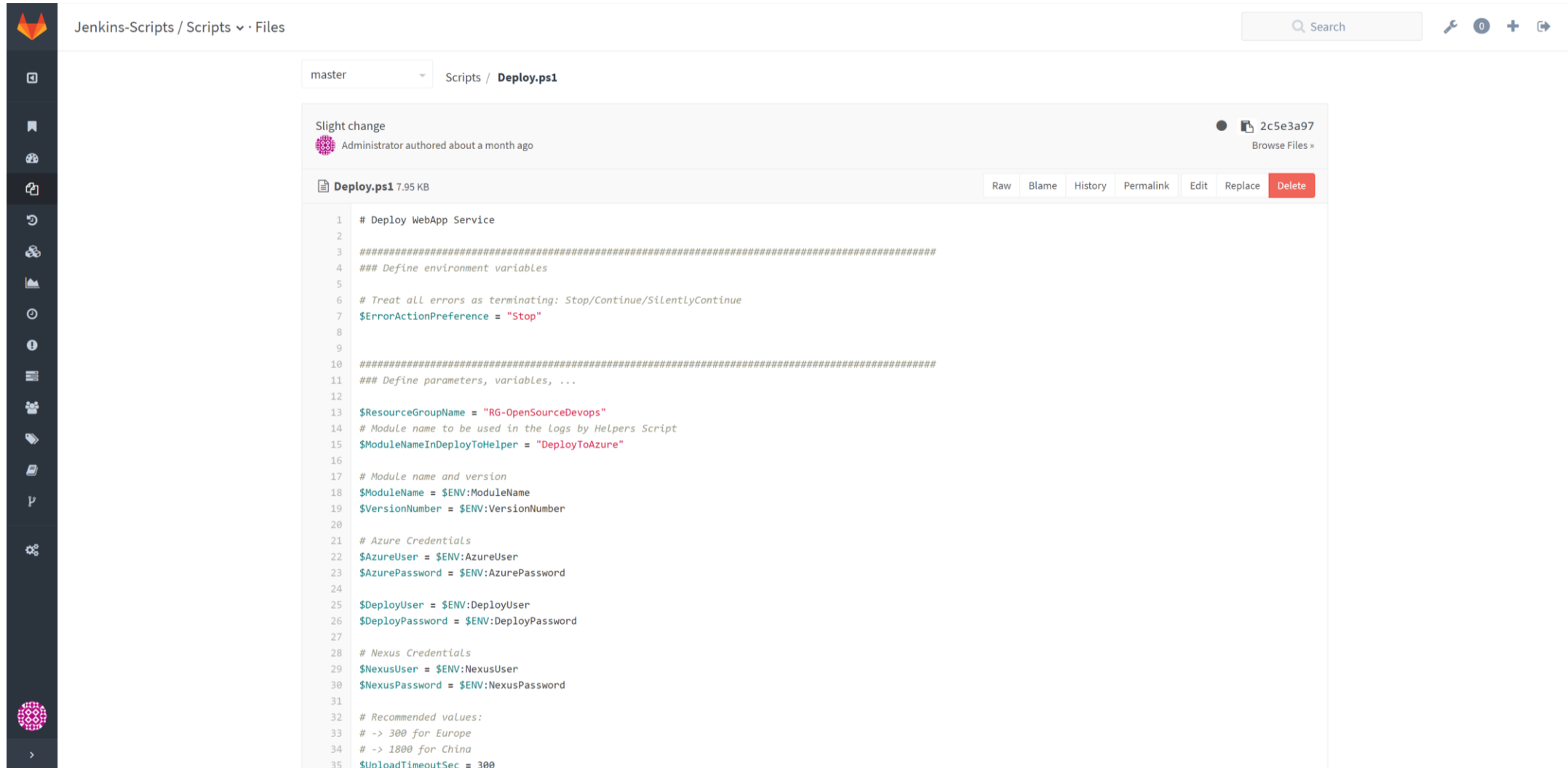
21/

Demo: Build



The screenshot displays the Sonatype Nexus Repository Manager interface. The top header bar includes the Sonatype logo, version 'OSS 3.15.2-01', a search bar, and user information 'admin' with a 'Sign out' link. The left sidebar shows navigation options: 'Browse' (selected), 'Welcome', 'Search', and 'Upload'. The main content area is titled 'Browse / Releases' and shows a tree view of repositories. The 'osdevops-examples' repository is expanded, showing a folder 'java-spring-demo1'. Inside this folder, there is a sub-folder '1.0.0' containing several files: 'java-spring-demo1-1.0.0.pom', 'java-spring-demo1-1.0.0.pom.md5', 'java-spring-demo1-1.0.0.pom.sha1', 'java-spring-demo1-1.0.0.war', 'java-spring-demo1-1.0.0.war.md5', 'java-spring-demo1-1.0.0.war.sha1', 'maven-metadata.xml', 'maven-metadata.xml.md5', and 'maven-metadata.xml.sha1'. A 'Delete folder' button is visible on the right side of the interface.

Demo: Deploy



Jenkins-Scripts / Scripts ▾ · Files

Search

master Scripts / **Deploy.ps1**

Slight change
Administrator authored about a month ago 2c5e3a97
Browse Files »

Deploy.ps1 7.95 KB Raw Blame History Permalink Edit Replace Delete

```
1 # Deploy WebApp Service
2
3 #####
4 ### Define environment variables
5
6 # Treat all errors as terminating: Stop/Continue/SilentlyContinue
7 $ErrorActionPreference = "Stop"
8
9
10 #####
11 ### Define parameters, variables, ...
12
13 $ResourceGroupName = "RG-OpenSourceDevops"
14 # Module name to be used in the Logs by Helpers Script
15 $ModuleNameInDeployToHelper = "DeployToAzure"
16
17 # Module name and version
18 $ModuleName = $ENV:ModuleName
19 $VersionNumber = $ENV:VersionNumber
20
21 # Azure Credentials
22 $AzureUser = $ENV:AzureUser
23 $AzurePassword = $ENV:AzurePassword
24
25 $DeployUser = $ENV:DeployUser
26 $DeployPassword = $ENV:DeployPassword
27
28 # Nexus Credentials
29 $NexusUser = $ENV:NexusUser
30 $NexusPassword = $ENV:NexusPassword
31
32 # Recommended values:
33 # -> 300 for Europe
34 # -> 1800 for China
35 $UploadTimeoutSec = 300
```


Demo: Deploy

Jenkins > OpenSourceDevops > Deploy > Deploy demos >

General Source Code Management Build Triggers Build Environment **Bindings** Build Post-build Actions

Username and password (separated) X ?

Username Variable

Password Variable

Credentials ☒ Specific credentials ☐ Parameter expression
 Add

Username and password (separated) X ?

Username Variable

Password Variable

Credentials ☒ Specific credentials ☐ Parameter expression
 Add

Add

☐ Abort the build if it's stuck

☐ Add timestamps to the Console Output

☐ Inspect build log for published Gradle build scans

☐ With Ant ?

Build

Execute shell X ?

Command

```
export AzureRegion="Global"
export ResourceGroupName="RG-OpenSourceDevops"

pwsh Deploy.ps1
```

[See the list of available environment variables](#)

Save Apply Advanced...

Demo: Manage




Manage

 [add description](#)

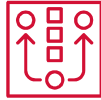
All 

S	W	Name ↓	Last Success	Last Failure	Last Duration	
		Get AppSettings	19 hr - #13	1 mo 6 days - #10	8.8 sec	
		Get LogFiles	19 hr - #9	1 mo 6 days - #1	7 sec	
		Restart WebApps	1 mo 6 days - #5	1 mo 6 days - #3	6.8 sec	
		SQL Query Example	18 hr - #4	1 mo 6 days - #1	24 sec	
		Stop WebApps	1 mo 6 days - #2	1 mo 6 days - #1	3.7 sec	

Icon: [S](#) [M](#) [L](#)

[Legend](#)  [RSS for all](#)  [RSS for failures](#)  [RSS for just latest builds](#)

Demo: Manage



```
General Source Code Management Build Triggers Build Environment Bindings Build Post-build Actions

function Invoke-SQL {
    param(
        [string] $DBServer,
        [string] $DB,
        [string] $User,
        [string] $Password,
        [string] $SqlCommand = $(throw "Please specify a query.")
    )

    $connectionString = "Server=tcp:$DBServer,1433;Initial Catalog=$DB;Persist Security Info=False;User
ID=$User;Password=$Password;MultipleActiveResultSets=False;Encrypt=True;TrustServerCertificate=False;Connection Timeout=30;"

    $connection = new-object system.data.SqlClient.SqlConnection($connectionString)
    $command = new-object system.data.sqlclient.sqlcommand($SqlCommand,$connection)
    $connection.Open()

    $adapter = New-Object System.Data.sqlclient.sqlDataAdapter $command
    $dataset = New-Object System.Data.DataSet
    $adapter.Fill($dataSet) | Out-Null

    $connection.Close()
    $dataSet.Tables
}

#####
# Load DeployTo_Helpers script and parameters file

# Load DeployHelperClass
Write-Host $("$(Get-Date -Format "yyyy-dd-MM HH:mm:ss") [I] Load: DeployHelperClass.ps1")
. .\DeployHelperClass.ps1

# Load Environment variables
Init-DeployToHelper -AzureRegion $AzureRegion
#####

# Start processing
Log-Info -Message "Starting SQL Query Example processing..."

[string]$SqlStatement = "SELECT TOP (100) [Id]
,[OrderDate]
,[OrderNumber]
,[CustomerId]
,[TotalAmount]
FROM [dbo].[Order]"

Save Apply
```

Fragen?

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