



WEISS Spindeltechnologie GmbH – A Siemens Company

POWERSHELL2TEAMCENTER

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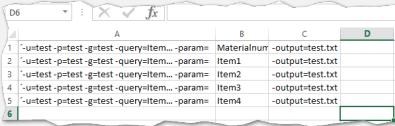
THE PROBLEM...

- Task
 - List from a external System (for example SAP) with ItemId's
 - Query in Teamcenter
 - Find last revision
 - Write a property, how is also in the given list

WORK WITH COMMAND LINE TOOLS

Create list

- Export from SAP

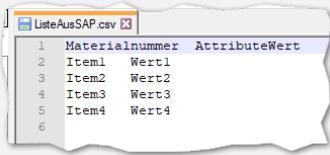
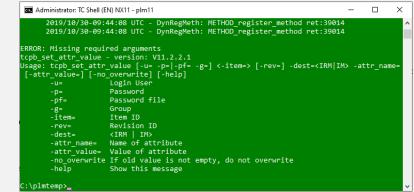


Execute Teamcenter Query
• Export of results



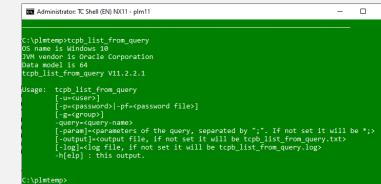
Edit list in Excel

- Read Textfile
- Command Line Parameters



Edit list in Excel

- Read Textfile
- Command line parameters



Merge the list

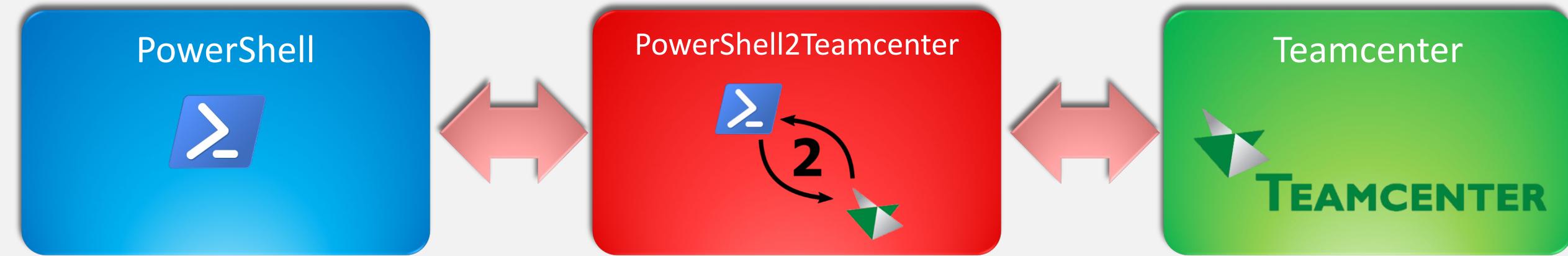
- Merge revision and value from list



Import the values

- A lot of manual effort and maintenance of lists in Excel
- If the source list is changed, the manual steps must be repeated
- Error prone

THE SOLUTION – POWERSHELL2TEAMCENTER



- Implement Cmdlet's
- Access to Teamcenter via the TC SOA interface

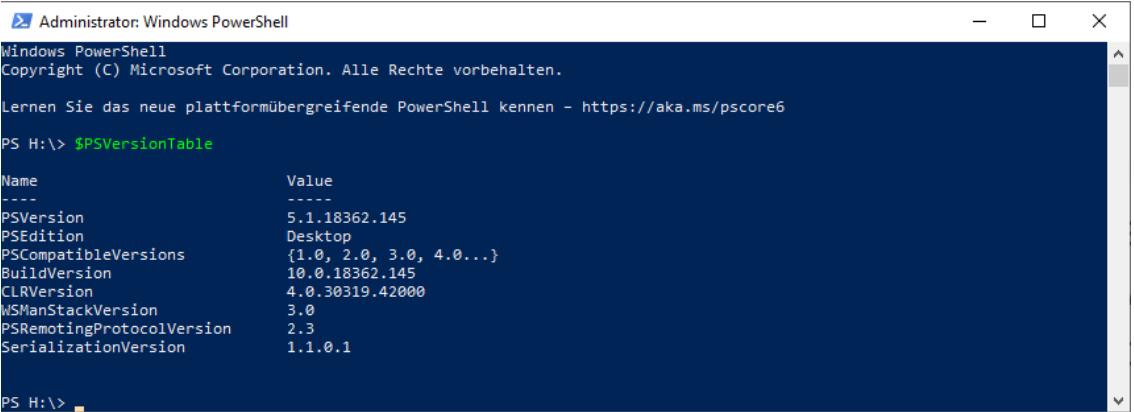
WHAT IS POWERSHELL?

PowerShell is a task automation and configuration management framework from Microsoft, consisting of a command-line shell and associated scripting language.

In PowerShell, administrative tasks are generally performed by cmdlets (pronounced command-lets), which are specialized .NET classes implementing a particular operation. These work by accessing data in different data stores, like the file system or registry, which are made available to PowerShell via providers. Third-party developers can add cmdlets and providers to PowerShell.[6][7] Cmdlets may be used by scripts and scripts may be packaged into modules.



Windows PowerShell
App



The screenshot shows a Windows PowerShell window titled "Administrator: Windows PowerShell". The output of the command PS H:\> \$PSVersionTable is displayed, showing various PowerShell version details:

Name	Value
PSVersion	5.1.18362.145
PSEdition	Desktop
PSCompatibleVersions	{1.0, 2.0, 3.0, 4.0...}
BuildVersion	10.0.18362.145
CLRVersion	4.0.3019.42000
WSManStackVersion	3.0
PSRemotingProtocolVersion	2.3
SerializationVersion	1.1.0.1

DIFFERENCE BETWEEN POWERSHELL AND CMD

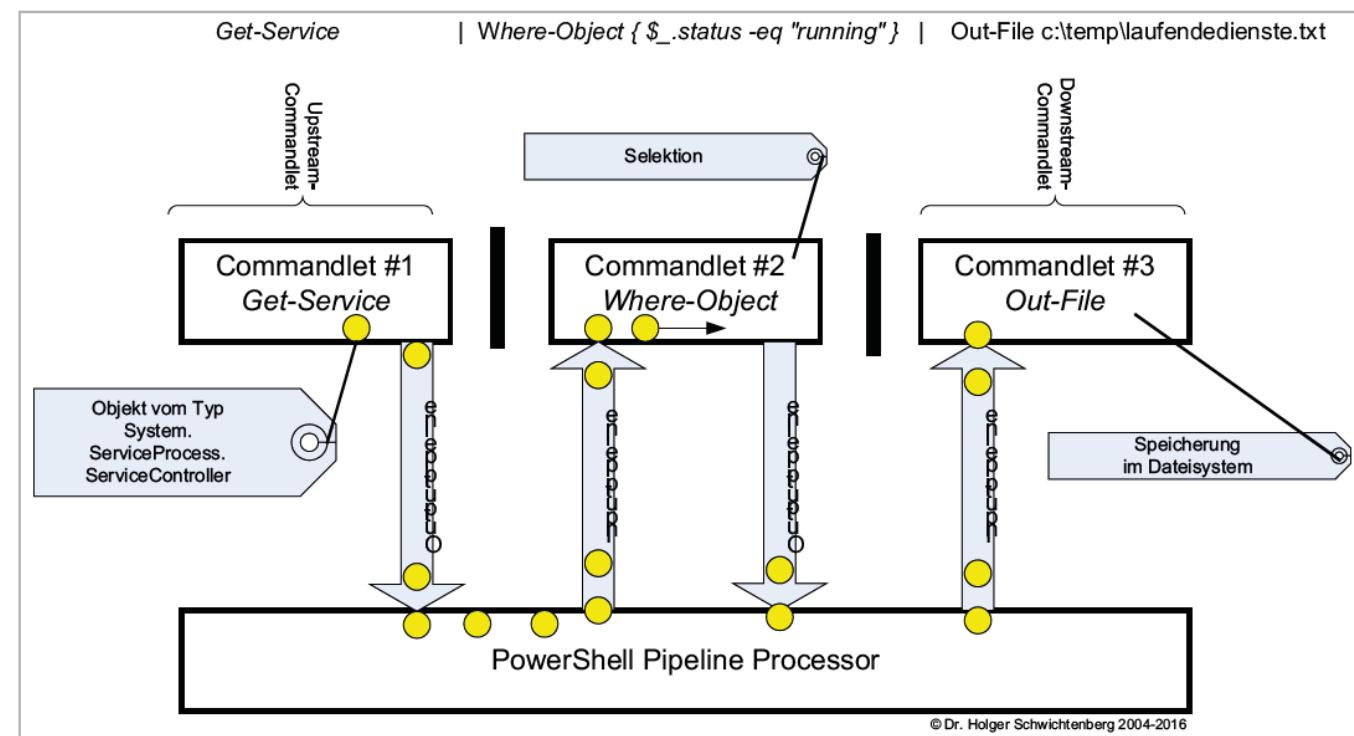
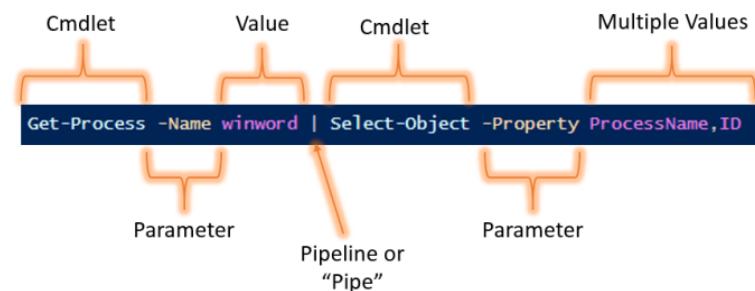
POWERSHELL VERSUS COMMAND PROMPT	
PowerShell	Command Prompt
It's a task-based command line interface and scripting environment based on .Net framework.	It's the command line interpreter for the Microsoft Windows operating systems.
It uses much more powerful functions called cmdlets.	It is mostly string-based and is the older batch language with a standard set of functions.
It can interpret both Batch commands and PowerShell commands.	It can only interpret Batch commands.
The output generated is not just a stream of text but a collection of objects.	The output generated is just a stream of characters (text).

TASK WITH POWERSHELL2TEAMCENTER

- One line in PowerShell
 - `Import-Csv -Path "ListeAusSAP.csv" |`
 - `% { Get-TeamcenterItemAndObjects -ItemId $_.Teilenummer -RevisionRule Last |`
 - `Set-TeamcenterProperty @("object_desc") @($_.AttributWert) }`
- Advantage
 - No manual adjustment of Excel lists
 - If the list is changed, no steps have to be repeated

POWERSHELL

- A cmdlet (pronounced “command-let”) is a lightweight script for Windows PowerShell, which serves only one specific purpose at a time. ... Even if the PowerShell already contains several hundred cmdlets, administrators can also write and share their own cmdlets.



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STRUCTURE POWERSHELL2TEAMCENTER

The cmdlet's are divided into 4 different areas



Session-Management

- Manage Teamcenter Session



Load Data

- Query Teamcenter
- Load Objects via Uids
- ...



Navigation

- Read BOMßs
- Referenced By etc.
- ...



Select and Edit

- Set Properties
- Start workflow
- ...



Exchange via PowerShell Pipeline



EXAMPLES

- `Invoke-TeamcenterQuery "Item..." @("Item ID") @("*177330*") |
Select-TeamcenterProperties -Properties "item_id", "owning_user" |
Export-Csv -Path "C:_trash\test.csv"`

- `Get-TeamcenterUID "RxSJ1vIlgv45BA" |
New-TeamcenterWorkflow -WorkflowTemplate "01_Serienfreigabe"`

- `Invoke-TeamcenterQuery "Item Revision..." @("Item ID", "Revision") @("FL_177330_V_1", "00") |
Get-TeamcenterBOM |
Select-TeamcenterProperties -Properties "bl_rev_release_status_list", "bl_item_item_id"`



POWERSHELL2TEAMCENTER

PowerShell2Teamcenter App

```
Administrator: PowerShell2Teamcenter
--PowerShell2Teamcenter--

Write 'Get-Help *teamcenter*' to get Help-Information
PS C:\plm\PowerShell2Teamcenter> ct
PS C:\plm\PowerShell2Teamcenter> Get-TeamcenterSessionInfo

UserName : [REDACTED]
UserId : [REDACTED]
Group : [REDACTED]
Role : [REDACTED]
Bypass : [REDACTED]
ServerVersion : [REDACTED]
GroupMembership : [REDACTED]
GroupMembershipNames : [REDACTED]
ExtraInfo_locationCodePref : [REDACTED]
ExtraInfo_TCServerLocale : en_US
ExtraInfo_hostName : [REDACTED]
ExtraInfo_displayCurrentCountryPage : false
ExtraInfo_systemType : Teamcenter
ExtraInfo_TransportSchema : 2.0.0
ExtraInfo_DisplayVersion : 11.3.0.1:20170726.00
ExtraInfo_TcServerID : tcserver430@8085@[REDACTED]@18128
ExtraInfo_TcServerEncoding : windows-1252
ExtraInfo_sysLogFile : C:\plmtemp\netmgr_plm11\tcserver_netmgr_plm11.exe27c41

PS C:\plm\PowerShell2Teamcenter>
b2 C:/bOMgLR2U6TIS169WC6Uf6L>
```

```
Administrator: PowerShell2Teamcenter
PS C:\plm\PowerShell2Teamcenter> Invoke-TeamcenterQuery "Weiss Item..." @("Item ID") @() |Select-Object -First 15 | Select-TeamcenterProperties -Properties @("object_name", "object_type")
ModelObject          object_name          object_type
-----            -----
Teamcenter.Soa.Client.Model.Strong.Item [REDACTED]           W6_Part
Teamcenter.Soa.Client.Model.Strong.Item [REDACTED]           W6_Part
Teamcenter.Soa.Client.Model.Strong.Item [REDACTED]           W6_Part
Teamcenter.Soa.Client.Model.Strong.Item [REDACTED]           W6_Part
Teamcenter.Soa.Client.Model.Strong.Item [REDACTED]           W6_Document
Teamcenter.Soa.Client.Model.Strong.Item [REDACTED]           W6_Part
Teamcenter.Soa.Client.Model.Strong.Item [REDACTED]           W6_PurchasedPart
Teamcenter.Soa.Client.Model.Strong.Item [REDACTED]           W6_Part
Teamcenter.Soa.Client.Model.Strong.Item [REDACTED]           W6_Part
Teamcenter.Soa.Client.Model.Strong.Item [REDACTED]           W6_Document
Teamcenter.Soa.Client.Model.Strong.Item [REDACTED]           W6_PurchasedPart

PS C:\plm\PowerShell2Teamcenter>
```



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