

PKS

K8S cluster management pack on PKS.
<http://as.zabedu.ru/linux/cont/vra-pks>

1. Create K8S cluster

Create kubernetes cluster on PKS

1.1. Versions

Version	Date	User	Comment
0.0.1	May 21, 2018	pkssuser	
0.1.0	Jan 10, 2019	administra tor	Первая рабочая версия процесса
0.2.0	Jan 10, 2019	administra tor	Использование единого процесса вызова команды на PKS
0.2.1	Jan 16, 2019	administra tor	Renamed com.vmware.vra.pks/getDeploymentFor PKSCluster to com.vmware.vra.pks/getConfigForPKSC luster
1.0.0	Jan 23, 2019	administra tor	Created integration package for PKS

Current version:1.0.0

1.2. Inputs

Name	Type	Description
ClusterName*	string	Name of the PKS cluster
NumOfWorkerNodes*	number	Number of worker nodes
ClusterPlan*	string	Plan for the PKS cluster

*Parameter is mandatory

1.3. Outputs

Name	Type	Description

Create K8S cluster

Name	Type	Description
result	number	0 = OK, Negative = Error, Positive = Number of values returned, after error text
errorText	string	Error text, if any
outputText	string	Result of running the command
PKSCluster	DynamicTypes:PKS.PK SCluster	PKS Cluster resource

1.4. Attributes

Name	Type	Description
cmd	string	Command to create kubernetes cluster
dnszone	string	
outputText_int	string	Result of running the command
ipAddress	string	IP address to add dns-record
config	string	Name of PKS server configuration

1.5. Parameter presentation

Parameter	Description	Parameter Info
ClusterName	Name of the PKS cluster	Mandatory input: true
NumOfWorkerNodes	Number of worker nodes	Mandatory input: true
ClusterPlan	Plan for the PKS cluster	Mandatory input: true

1.6. Workflow schema



1.7. Workflow items

Name	Type	Next item	Description
	WorkflowItemEnd		
Prepare Command	WorkflowItemTask	Run PKS command	Preparing the command and parameters
Run PKS command	WorkflowItemLink	Saving Cluster Info	Login and run PKS command
Saving Cluster Info	WorkflowItemTask	DNS Add record	Saving cluster information in configuration item and create PKSCluster object
DNS Add record	WorkflowItemLink		Создание новой DNS-записи по имени и IP

1.8. Source code for the used actions

1.8.1. Prepare Command

```

cmd = "pks create-cluster " + ClusterName + " --external-hostname " + ClusterName + "." +
dnszone;
cmd += " --plan " + ClusterPlan + " --num-nodes " + NumOfWorkernodes + " --wait --json";
  
```

```
System.log("Create new cluster: " + ClusterName);
```

1.8.2. Saving Cluster Info

```

var props = System.getModule("com.vmware.vra.pks").getClusterProps(outputText_int);
props += "," + config;
  
```

```

var pksClustersConfig =
System.getModule("com.vmware.vra.pks").getConfigForPKSCluster(config);
pksClustersConfig.setAttributeWithKey(ClusterName, props);
  
```

Delete K8S cluster

```
PKSCluster = DynamicTypesManager.getObject("PKS", "PKSCluster", ClusterName);  
ipAddress = PKSCluster["Kubernetes Master IP(s)"]; //for DNS register  
outputText = outputText_int;
```

2. Delete K8S cluster

Delete kubernetes cluster from PKS

2.1. Versions

Version	Date	User	Comment
0.0.1	May 21, 2018	pkuser	
0.1.0	Jan 10, 2019	administra tor	Первая рабочая версия процесса
0.2.0	Jan 10, 2019	administra tor	Использование единого процесса вызова команды на PKS
0.2.1	Jan 14, 2019	administra tor	Renamed com.vmware.vra.pks/getConfirmDeleti on to com.vmware.vra.pks/checkWorckerCoun t
0.2.2	Jan 16, 2019	administra tor	Renamed com.vmware.vra.pks/getDeploymentFor PKSCluster to com.vmware.vra.pks/getConfigForPKSC luster
0.2.3	Jan 16, 2019	administra tor	Renamed com.vmware.vra.pks/getDeploymentFor PKSCluster to com.vmware.vra.pks/getConfigForPKSC luster
1.0.0	Jan 23, 2019	administra tor	Created integration package for PKS

Current version:1.0.0

2.2. Inputs

Name	Type	Description

Delete K8S cluster

Name	Type	Description
pksccluster*	DynamicTypes:PKS.PK SCluster	PKS Cluster Object
confirm	boolean	Do you confirm the deletion of this cluster?

*Parameter is mandatory

2.3. Outputs

Name	Type	Description
result	number	0 = OK, Negative = Error, Positive = Number of values returned, after error text
errorText	string	Error text, if any
outputText	string	Result of running the SSH command

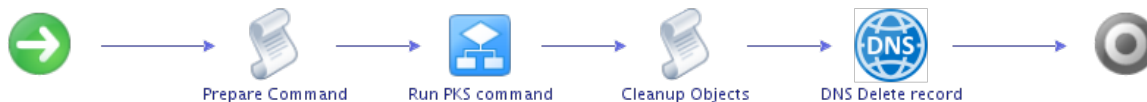
2.4. Attributes

Name	Type	Description
cmd	string	Command to delete kubernetes cluster
clusterName	string	Cluster name to delete
output_dns	string	Result of remove DNS record process

2.5. Parameter presentation

Parameter	Description	Parameter Info
pksccluster	PKS Cluster Object	Mandatory input: true
confirm	Do you confirm the deletion of this cluster?	Default value: __NULL__

2.6. Workflow schema



2.7. Workflow items

Name	Type	Next item	Description
	WorkflowItemEnd		
Prepare Command	WorkflowItemTask	Run PKS command	Preparing the command and parameters
Run PKS command	WorkflowItemLink	Cleanup Objects	Login and run PKS command
Cleanup Objects	WorkflowItemTask	DNS Delete record	Delete cluster information from configuration item
DNS Delete record	WorkflowItemLink		Удаление DNS-записи по имени

2.8. Source code for the used actions

2.8.1. Prepare Command

```

var pksClusterName = pkscluster.id;
clusterName = pksClusterName;

cmd = "pks delete-cluster " + pksClusterName + " --non-interactive --wait";
System.log("Deleting cluster : " + pksClusterName);

```

2.8.2. Cleanup Objects

```

var pksClustersConfig =
System.getModule("com.vmware.vra.pks").getConfigByClusterName(clusterName);
pksClustersConfig.removeAttributeWithKey(clusterName);

```

```
System.log("Removed cluster object");
```

3. Find all PKSObjects

Find all PKSClusters or PKSServers

3.1. Versions

Version	Date	User	Comment
1.0.0	Jan 23, 2019	administrator	Created integration package for PKS

Current version:1.0.0

3.2. Inputs

Name	Type	Description
type	string	object type

3.3. Outputs

Name	Type	Description
result0bjs	Array/DynamicTypes: DynamicObject	result obj

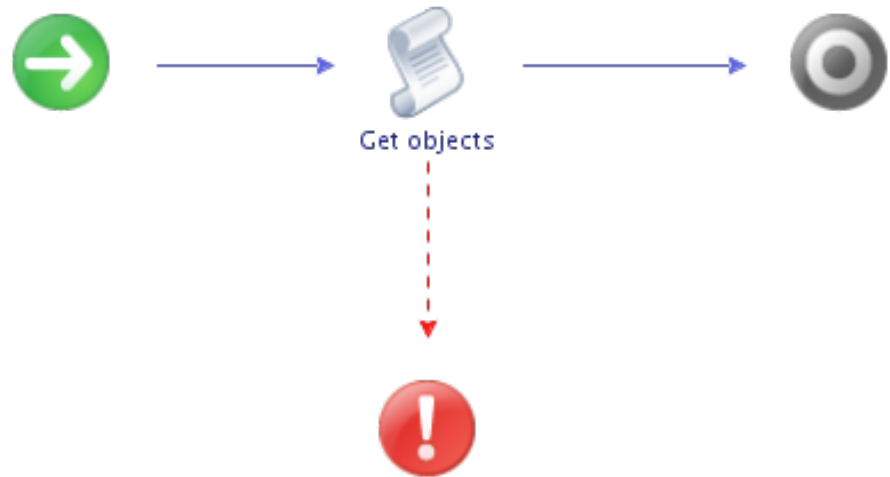
3.4. Attributes

Name	Type	Description
errorCode	String	errorCode

3.5. Parameter presentation

Parameter	Description	Parameter Info
type	object type	

3.6. Workflow schema



3.7. Workflow items

Name	Type	Next item	Description
	WorkflowItemEnd		
	WorkflowItemEnd		
Get objects	WorkflowItemTask		Search all objects of the specified type

3.8. Source code for the used actions

3.8.1. Get objects

```

if (type == "PKS.PKSCluster") {
    resultObjs = System.getModule("com.vmware.vra.pks").getAllClusters();
}
if (type == "PKS.PKSServer") {
    resultObjs = System.getModule("com.vmware.vra.pks").getAllServers();
}

```

4. Find PKSObject by ID

Find PKSObject (server or cluster) by ID

4.1. Versions

Version	Date	User	Comment

Find PKSObject by ID

Version	Date	User	Comment
1.0.0	Jan 23, 2019	administrator	Created integration package for PKS

Current version:1.0.0

4.2. Inputs

Name	Type	Description
type	string	object type
id	string	object id

4.3. Outputs

Name	Type	Description
resultObj	DynamicTypes:DynamicObject	result obj

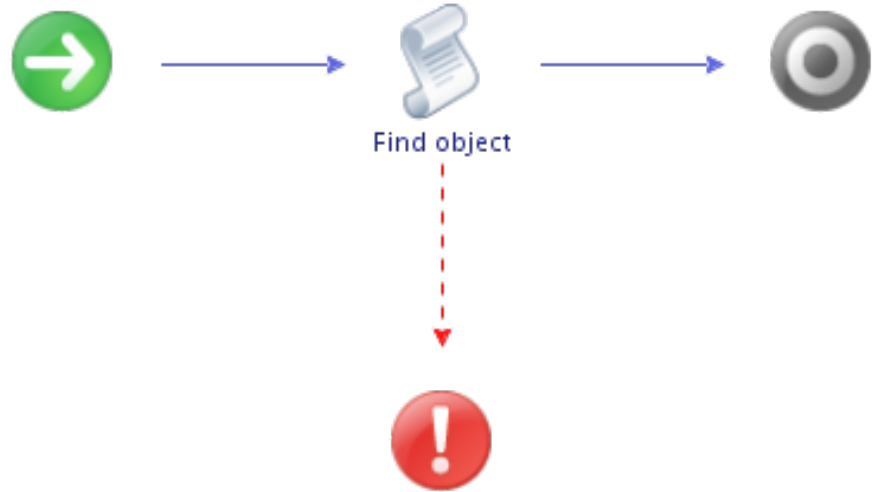
4.4. Attributes

Name	Type	Description
errorCode	String	errorCode

4.5. Parameter presentation

Parameter	Description	Parameter Info
type	object type	
id	object id	

4.6. Workflow schema



4.7. Workflow items

Name	Type	Next item	Description
	WorkflowItemEnd		
	WorkflowItemEnd		
Find object	WorkflowItemTask		Search object by type and ID

4.8. Source code for the used actions

4.8.1. Find object

```
if (type == "PKS.PKSCluster") {  
    var resultObj = System.getModule("com.vmware.vra.pks").getPKSCluster(id);  
    if( resultObj == null ) {  
        errorCode = "Unable to find the PKS Cluster : + <<" + id + ">>";  
    }  
}  
if (type == "PKS.PKSServer") {  
    var resultObj = System.getModule("com.vmware.vra.pks").getPKSServer(id);  
    if( resultObj == null ) {  
        errorCode = "Unable to find the PKS Server configuration : + <<" + id + ">>";  
    }  
}
```

5. Find relation PKSObjects

Find relation between PKSObjects

5.1. Versions

Version	Date	User	Comment
0.0.1	Jan 21, 2019	administra tor	Renamed com.vmware.vra.pks/getAllClustersBy Id to com.vmware.vra.pks/getAllClustersBy Config
1.0.0	Jan 23, 2019	administra tor	Created integration package for PKS

Current version:1.0.0

5.2. Inputs

Name	Type	Description
parentType	string	parent type
parentId	string	parent id
relationName	string	name of relation

5.3. Outputs

Name	Type	Description
resultObjs	Array/DynamicTypes: DynamicObject	result objs

5.4. Attributes

Name	Type	Description
errorCode	String	errorCode

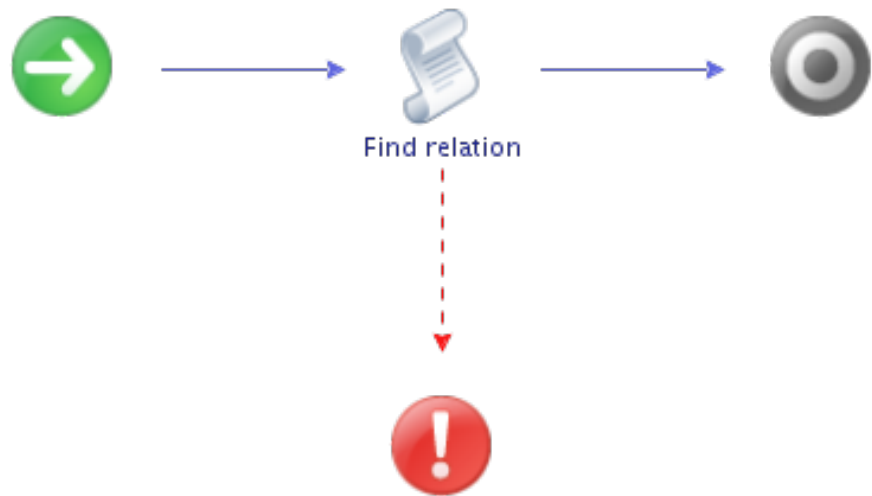
5.5. Parameter presentation

Parameter	Description	Parameter Info

Find relation PKSObjects

Parameter	Description	Parameter Info
parentType	parent type	
parentId	parent id	
relationName	name of relation	

5.6. Workflow schema



5.7. Workflow items

Name	Type	Next item	Description
	WorkflowItemEnd		
	WorkflowItemEnd		
Find relation	WorkflowItemTask		Search for child objects

5.8. Source code for the used actions

5.8.1. Find relation

```
if (relationName == "namespace-children") {  
    resultObjs = System.getModule("com.vmware.vra.pks").getAllServers();  
}  
if (relationName == "server-cluster") {
```

```
resultObjs = System.getModule("com.vmware.vra.pks").getAllClustersByConfig(parentId);
}
```

6. Get K8S cluster info by Id

Get K8S cluster info by DynamicTypes:PKS.PKSCluster

6.1. Versions

Version	Date	User	Comment
0.1.0	Jan 10, 2019	administra tor	Первая рабочая версия процесса
0.2.0	Jan 10, 2019	administra tor	Использование единого процесса вызова команды на PKS
1.0.0	Jan 23, 2019	administra tor	Created integration package for PKS

Current version:1.0.0

6.2. Inputs

Name	Type	Description
id	string	PKS Cluster ID (name)

6.3. Outputs

Name	Type	Description
result	number	0 = OK, Negative = Error, Positive = Number of values returned, after error text
errorText	string	Error text, if any
outputText	string	Result of running the SSH command

6.4. Attributes

Name	Type	Description
cmd	string	
clusterName	string	

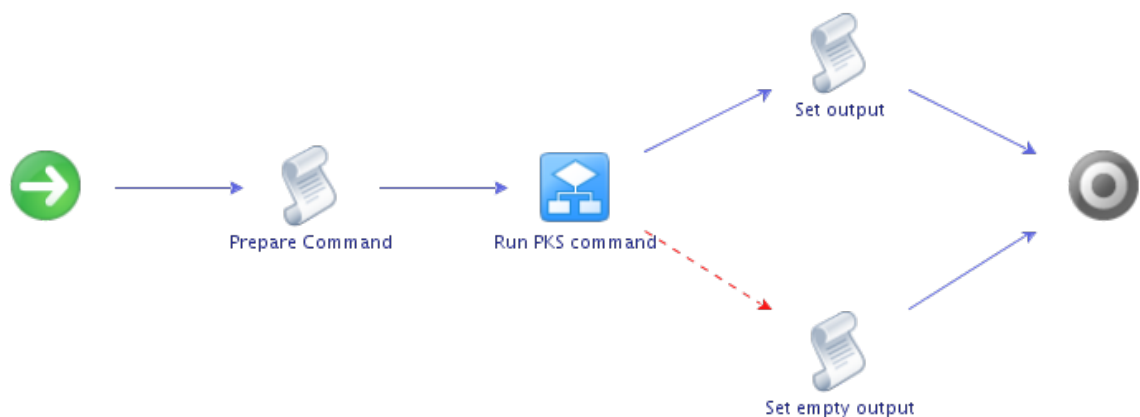
Get K8S cluster info by Id

Name	Type	Description
outputText_int	string	Result of running the SSH command
errorText_int	string	Error text, if any

6.5. Parameter presentation

Parameter	Description	Parameter Info
id	PKS Cluster ID (name)	

6.6. Workflow schema



6.7. Workflow items

Name	Type	Next item	Description
	WorkflowItemEnd		
Prepare Command	WorkflowItemTask	Run PKS command	Preparing the command and parameters
Run PKS command	WorkflowItemLink	Set output	Login and run PKS command
Set output	WorkflowItemTask		Preparation of the output
Set empty output	WorkflowItemTask		Preparing error output

6.8. Source code for the used actions

6.8.1. Prepare Command

```
clusterName = id;  
  
cmd = "pks cluster " + id + " --json";  
System.log("Get cluster info: " + id);
```

6.8.2. Set output

```
outputText = outputText_int;
```

6.8.3. Set empty output

```
outputText = "{}";  
System.log(errorText_int);  
System.log("Cluster info: " + outputText);  
errorText = errorText_int;
```

7. Get K8S credentials

Get cluster credentials from PKS

7.1. Versions

Version	Date	User	Comment
1.0.0	Jan 23, 2019	administra tor	Created integration package for PKS

Current version:1.0.0

7.2. Inputs

Name	Type	Description
pkscluster*	DynamicTypes:PKS.PK SCluster	PKS Cluster Object
toAddressesArray*	Array/string	E-Mails to send the config

*Parameter is mandatory

7.3. Outputs

Name	Type	Description
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Name	Type	Description
result	number	0 = OK, Negative = Error, Positive = Number of values returned, after error text
errorText	string	Error text, if any
outputText	string	Result of running the SSH command

7.4. Attributes

Name	Type	Description
cmd	string	Command to delete kubernetes cluster
clusterName	string	Cluster name to delete
subject	string	Email subject
content	string	Email content (text or HTML)
attachment	MimeAttachment	Attachment for email
toAddress	string	Destination address, comma separated

7.5. Parameter presentation

Parameter	Description	Parameter Info
pksccluster	PKS Cluster Object	Mandatory input: true
toAddressesArray	E-Mails to send the config	Mandatory input: true

7.6. Workflow schema



7.7. Workflow items

Name	Type	Next item	Description
	WorkflowItemEnd		
Prepare Command	WorkflowItemTask	Run PKS command	Preparing the command and parameters
Run PKS command	WorkflowItemLink	E-Mail config	Login and run PKS command
E-Mail config	WorkflowItemTask	E-mail notification	Preparation of message parameters and cleaning commands
E-mail notification	WorkflowItemLink	Run PKS command	Sends an email with specified content to given email address. Uses the default settings from the Orchestrator Configuration interface for the following optional input parameters: SMTP host, SMTP port, username, password, from Address and from Name. You can override these values by providing input parameters.
Run PKS command	WorkflowItemLink		Login and run PKS command

7.8. Source code for the used actions

7.8.1. Prepare Command

```
var pksClusterName = pkscluster.id;
clusterName = pksClusterName;

cmd = "/opt/vco/tmp/get_pks_credentials.sh " + pksClusterName;
System.log("Get credentials for cluster: " + pksClusterName);
```

7.8.2. E-Mail config

```
var file = new File("/opt/vco/tmp/" + clusterName + ".zip");
attachment = new MimeAttachment(file);
```

Get PKS server info

```
content = "<h3>vRA notification</h3><br>Config file for k8s cluster " + clusterName;  
toAddress = toAddressesArray.join(",");
```

```
cmd = "/opt/vco/tmp/delete_pks_credentials.sh " + clusterName;
```

8. Get PKS server info

Get a list of plans and PKS CLI versions

8.1. Versions

Version	Date	User	Comment
1.0.0	Jan 23, 2019	administra tor	Created integration package for PKS

Current version:1.0.0

8.2. Inputs

Name	Type	Description
config*	ConfigurationElemen t	Configuration element for PKS- server

*Parameter is mandatory

8.3. Attributes

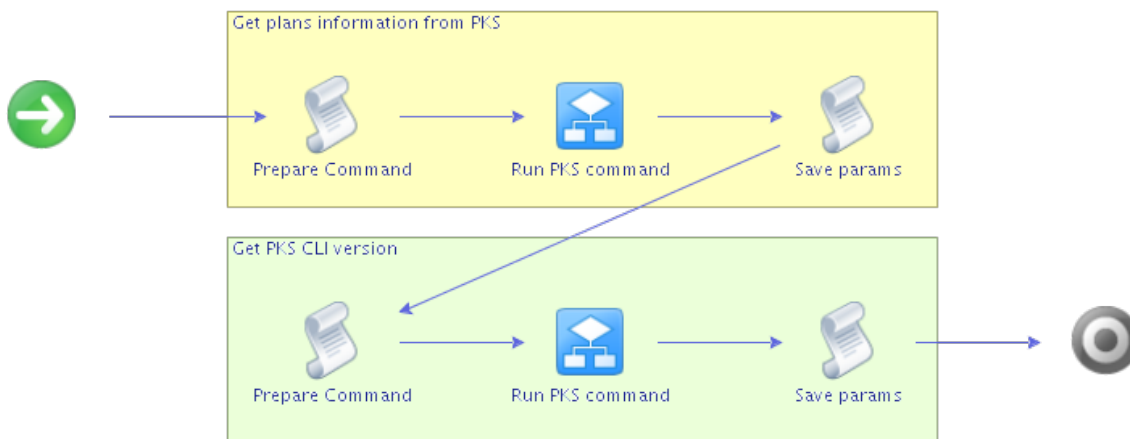
Name	Type	Description
cmd	string	Command to get information about PKS-server
result	number	0 = OK, Negative = Error, Positive = Number of values returned, after error text
errorText	string	Error text, if any
outputText	string	Result of running the SSH command

8.4. Parameter presentation

Parameter	Description	Parameter Info
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Parameter	Description	Parameter Info
config	Configuration element for PKS-server	Mandatory input: true

8.5. Workflow schema



8.6. Workflow items

Name	Type	Next item	Description
Prepare Command	WorkflowItemTask	Run PKS command	Preparing the command and parameters
Run PKS command	WorkflowItemLink	Save params	Login and run PKS command
Prepare Command	WorkflowItemTask	Run PKS command	Preparing the command and parameters
Run PKS command	WorkflowItemLink	Save params	Login and run PKS command
	WorkflowItemEnd		
Save params	WorkflowItemTask	Prepare Command	Save plans list into configuration element
Save params	WorkflowItemTask		Save PKS CLI version into configuration element

8.7. Source code for the used actions

8.7.1. Prepare Command

```
cmd = "pks plans --json";
System.log("Get PKS plans info");
```

8.7.2. Prepare Command

```
cmd = "pks --version";
System.log("Get PKS CLI version info");
```

8.7.3. Save params

```
var plansObj = JSON.parse(outputText);
var plans = new Array();
for each (plan in plansObj) {
    plans.push(plan.name);
}
config.setAttributeWithKey("pksplans", plans.join(","));
```

8.7.4. Save params

```
var cliVersion = outputText.split(":")[1].trim();
config.setAttributeWithKey("pkscliversion", cliVersion);
```

9. Has PKSObject children

Has PKSObject children in relation

9.1. Versions

Version	Date	User	Comment
0.0.1	Jan 21, 2019	administra tor	Renamed com.vmware.vra.pks/getAllClustersBy Id to com.vmware.vra.pks/getAllClustersBy Config
1.0.0	Jan 23, 2019	administra tor	Created integration package for PKS

Current version:1.0.0

9.2. Inputs

Name	Type	Description
parentType	string	parent type
parentId	string	parent id
relationName	string	name of relation

9.3. Outputs

Name	Type	Description
result	boolean	result

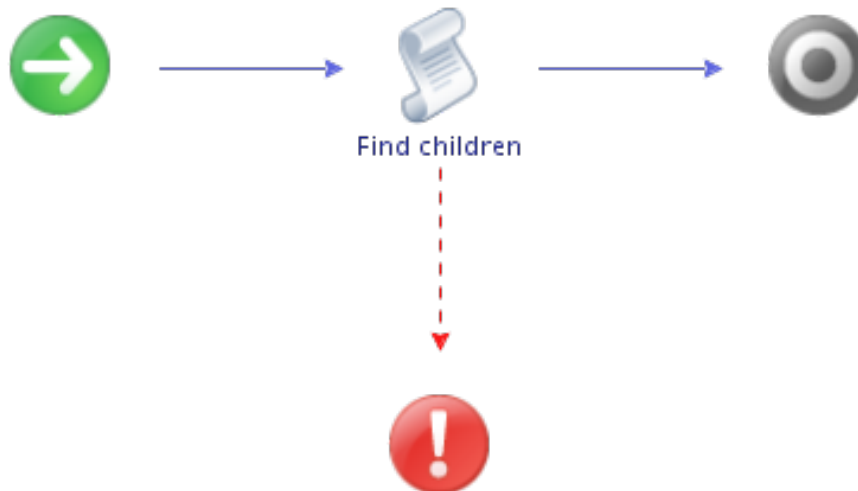
9.4. Attributes

Name	Type	Description
errorCode	String	errorCode

9.5. Parameter presentation

Parameter	Description	Parameter Info
parentType	parent type	
parentId	parent id	
relationName	name of relation	

9.6. Workflow schema



9.7. Workflow items

Name	Type	Next item	Description
	WorkflowItemEnd		
	WorkflowItemEnd		
Find children	WorkflowItemTask		Search for child objects

9.8. Source code for the used actions

9.8.1. Find children

```

if (relationName == "namespace-children") {
    resultObj = System.getModule("com.vmware.vra.pks").getAllServers();
    result = resultObj.length > 0;
}
if (relationName == "server-cluster") {
    resultObj = System.getModule("com.vmware.vra.pks").getAllClustersByConfig(parentId);
    result = resultObj.length > 0;
}

```

10. Register K8S cluster

Register an existing on PKS kubernetes cluster on vRA

10.1. Versions

Version	Date	User	Comment
0.0.1	Jan 16, 2019	administra tor	Renamed com.vmware.vra.pks/getDeploymentFor PKSCluster to com.vmware.vra.pks/getConfigForPKSC luster
1.0.0	Jan 23, 2019	administra tor	Created integration package for PKS

Current version:1.0.0

10.2. Inputs

Name	Type	Description
clusterName*	string	Name of the PKS cluster

*Parameter is mandatory

10.3. Outputs

Name	Type	Description
PKSCluster	DynamicTypes:PKS.PK SCluster	PKS Cluster resource

10.4. Attributes

Name	Type	Description
result_int	number	0 = OK, Negative = Error, Positive = Number of values returned, after error text
errorText_int	string	Error text, if any
outputText_int	string	Result of running the command
config	string	Name of PKS server configuration

10.5. Parameter presentation

Parameter	Description	Parameter Info
clusterName	Name of the PKS cluster	Mandatory input: true

10.6. Workflow schema



10.7. Workflow items

Name	Type	Next item	Description
	WorkflowItemEnd		
Saving Cluster Info	WorkflowItemTask		Saving cluster information in configuration item and create PKSCluster object
Get cluster info	WorkflowItemLink	Saving Cluster Info	Get K8S cluster info by DynamicTypes:PKS.PKSCluster

10.8. Source code for the used actions

10.8.1. Saving Cluster Info

```
var props = System.getModule("com.vmware.vra.pks").getClusterProps(outputText_int);
props += "," + config;
```

```
var pksClustersConfig =
System.getModule("com.vmware.vra.pks").getConfigForPKSCluster(config);
pksClustersConfig.setAttributeWithKey(clusterName, props);
```

```
PKSCluster = DynamicTypesManager.getObject("PKS", "PKSCluster", clusterName);
```

11. Run PKS command

Login and run PKS command

11.1. Versions

Version	Date	User	Comment
0.0.1	May 21, 2018	pkuser	
0.1.0	Jan 11, 2019	administra tor	Первая рабочая версия процесса: запуск локально и через SSH
1.0.0	Jan 23, 2019	administra tor	Created integration package for PKS

Current version:1.0.0

11.2. Inputs

Name	Type	Description
cmd*	string	Command to run on PKS

*Parameter is mandatory

11.3. Outputs

Name	Type	Description
result	number	0 = OK, Negative = Error, Positive = Number of values returned, after error text
errorText	string	Error text, if any
outputText	string	Result of running the SSH command

11.4. Attributes

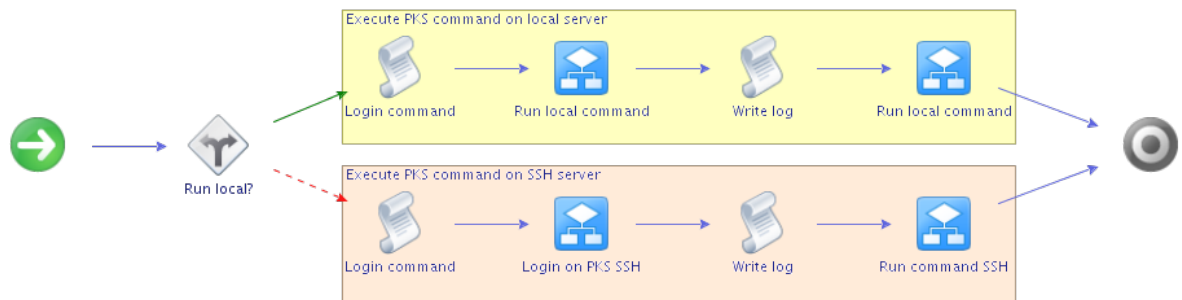
Name	Type	Description
cmdlogin	string	
pkadmin	string	
pkspassword	SecureString	
pkapi	string	

Name	Type	Description
sshuser	string	Username
sshpassword	SecureString	Password
sshpost	number	Target port
sshHostIp	string	Hostname or IP address of the SSH host
passwordAuth	boolean	
runLocal	boolean	true - run on local server; false - run on SSH server

11.5. Parameter presentation

Parameter	Description	Parameter Info
cmd	Command to run on PKS	Mandatory input: true

11.6. Workflow schema



11.7. Workflow items

Name	Type	Next item	Description
	WorkflowItemEnd		
Run local command	WorkflowItemLink		Runs an local vRO command
Login command	WorkflowItemTask	Run local command	Preparing the command and parameters for loginparameters

Name	Type	Next item	Description
Run local command	WorkflowItemLink	Write log	Runs an local vRO command
Run local?	WorkflowItemGenericCondition	Login command	Choosing a way to call a command
Run command SSH	WorkflowItemLink		Runs an SSH command
Login command	WorkflowItemTask	Login on PKS SSH	Preparing the command and parameters for login
Login on PKS SSH	WorkflowItemLink	Write log	Runs an SSH command
Write log	WorkflowItemTask	Run local command	Writing log message
Write log	WorkflowItemTask	Run command SSH	Writing log message

11.8. Source code for the used actions

11.8.1. Login command

```
//cmdlogin = "pks login -a " + pksapi + " -u " + pksadmin + " -p " + pkspassword + " -k";
//var cmdloginForLog = "pks login -a " + pksapi + " -u " + pksadmin + " -p " + "*****" + " -k";
cmdlogin = "/opt/vco/tmp/login_to_pks.sh";
var cmdloginForLog = cmdlogin;
```

```
System.log("Login to PKS API with the following command : '" + cmdloginForLog + "'");
```

11.8.2. Run local?

```
//Generated by the system, cannot be edited
return (runLocal == true) ;
```

11.8.3. Login command

```
cmdlogin = "pks login -a " + pksapi + " -u " + pksadmin + " -p " + pkspassword + " -k";
var cmdloginForLog = "pks login -a " + pksapi + " -u " + pksadmin + " -p " + "*****" + " -k";
```

Run PKS command and wait

```
//cmdlogin = "/opt/vco/tmp/login_to_pks.sh";  
//var cmdloginForLog = cmdlogin;
```

```
System.log("Login to PKS API with the following command : '" + cmdloginForLog + "'");
```

11.8.4. Write log

```
System.log("Start on PKS the following command : '" + cmd + "'");  
cmdlogin = "";
```

11.8.5. Write log

```
System.log("Start on PKS the following command : '" + cmd + "'");  
cmdlogin = "";
```

12. Run PKS command and wait

This workflow will pause the calling workflow until the PKS-command has been completed.

Returns the PKS-command result if there was one.

12.1. Versions

Version	Date	User	Comment
1.0.0	Jan 23, 2019	administra tor	Created integration package for PKS

Current version:1.0.0

12.2. Inputs

Name	Type	Description
timeout*	number	How long before we give up waiting (minutes)
cmd*	string	Command to run on PKS

*Parameter is mandatory

12.3. Outputs

Name	Type	Description
------	------	-------------

Name	Type	Description
result	number	0 = OK, Negative = Error, Positive = Number of values returned, after error text
errorText	string	Error text, if any
outputText	string	Result of running the SSH command

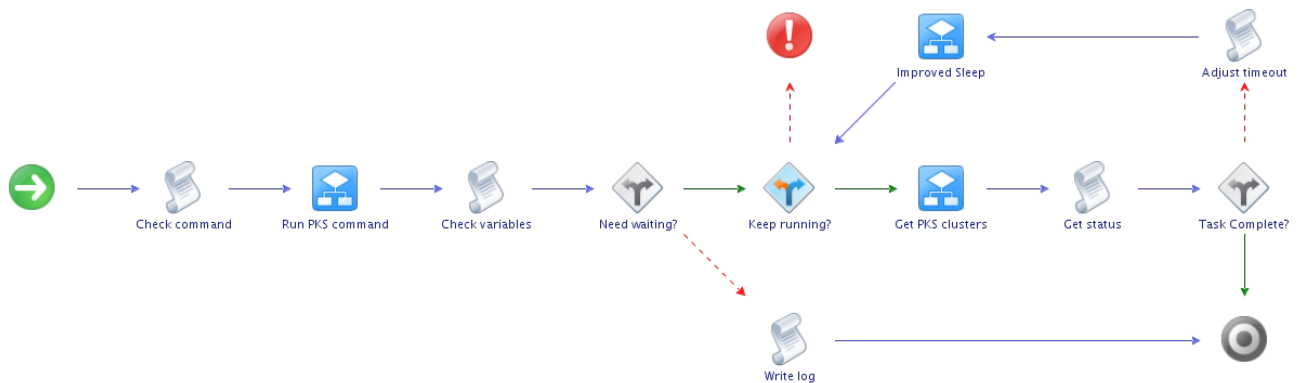
12.4. Attributes

Name	Type	Description
endDate	Date	The end time of the process
errorCodeTimeout	string	Error code for timeout
actualDelay	number	Actual delay
taskComplete	boolean	The result of the task completion check
delay	number	Time to wait between checking (seconds)
result_info	number	0 = OK, Negative = Error, Positive = Number of values returned, after error text
errorText_info	string	Error text, if any
outputText_info	string	Result of running the SSH command
clusterName	string	PKS cluster name
cmdGetClusters	string	Command to get PKS clusters status
clusterCmd	string	Current PKS command name
cmdWithoutWait	string	Input PKS-command without option "-wait"
needWaiting	boolean	Waiting flag

12.5. Parameter presentation

Parameter	Description	Parameter Info
timeout	Timeout (seconds)	Mandatory input: true
cmd	Command to run on PKS	Mandatory input: true

12.6. Workflow schema



12.7. Workflow items

Name	Type	Next item	Description
	WorkflowItemEnd		
Check variables	WorkflowItemTask	Need waiting?	Preparation of parameters for the process
Improved Sleep	WorkflowItemLink	Keep running?	Politely pauses a workflow for the specified time. If the requested delay is more than 5 seconds just sleeps.
Keep running?	WorkflowItemCustomCondition	Get PKS clusters	Continue the process?
	WorkflowItemEnd		
Adjust timeout	WorkflowItemTask	Improved Sleep	Adjust timeout
Task Complete?	WorkflowItemGenericCondition		Checking job status

Name	Type	Next item	Description
Run PKS command	WorkflowItemLink	Check variables	Login and run PKS command
Get PKS clusters	WorkflowItemLink	Get status	Login and run PKS command
Get status	WorkflowItemTask	Task Complete?	Request the status of the work PKS-command
Check command	WorkflowItemTask	Run PKS command	Delete option "--wait" from PKS-command
Need waiting?	WorkflowItemGenericCondition	Keep running?	Checking the need for a time delay
Write log	WorkflowItemTask		Writing log

12.8. Source code for the used actions

12.8.1. Check variables

```

endDate = new Date((new Date()).getTime() + timeout * 60 * 1000);
actualDelay = delay;

var parseCmd = cmd.split(" ");
var pksCmds = new Array("create-cluster", "delete-cluster", "resize");
clusterCmd = parseCmd[1];
needWaiting = pksCmds.indexOf(clusterCmd) != -1;
if (needWaiting) {
    clusterName = parseCmd[2];
}

```

12.8.2. Keep running?

```
return (endDate > new Date());
```

12.8.3. Adjust timeout

```

var timeUntilTimeout = (endDate.getTime() - (new Date()).getTime()) / 1000;
if( timeUntilTimeout < actualDelay )
{
    System.log("Adjusting delay in the last loop to " + timeUntilTimeout);
    actualDelay = timeUntilTimeout + 1;
}

```

```
}
```

12.8.4. Task Complete?

```
//Generated by the system, cannot be edited  
return (taskComplete == true) ;
```

12.8.5. Get status

```
if (result_info >= 0) {  
    var clusterFound = false;  
    var commandStatus = false;  
    var clusters = JSON.parse(outputText_info);  
    for each (clusterInfo in clusters) {  
        clusterFound = clusterFound || (clusterName == clusterInfo.name);  
        commandStatus = commandStatus || (clusterFound && (clusterInfo.last_action_state ==  
"succeeded"));  
    }  
  
    // Success when removing a cluster is the absence of a cluster  
    taskComplete = commandStatus || (!clusterFound && (clusterCmd == "delete-cluster"));  
} else {  
    throw "Error executing PKS command: '" + cmdGetClusters + "'";  
}
```

12.8.6. Check command

```
cmdWithoutWait = cmd.replace("--wait", "");
```

12.8.7. Need waiting?

```
//Generated by the system, cannot be edited  
return (needWaiting == true) ;
```

12.8.8. Write log

```
System.log("The command does not require waiting for execution");
```

13. Scale a K8S cluster

Scale a kubernetes cluster on PKS

13.1. Versions

Version	Date	User	Comment
---------	------	------	---------

Version	Date	User	Comment
0.0.1	May 21, 2018	pkuser	
0.1.0	Jan 10, 2019	administra tor	Первая рабочая версия процесса
0.2.0	Jan 10, 2019	administra tor	Использование единого процесса вызова команды на PKS
0.2.1	Jan 14, 2019	administra tor	Renamed com.vmware.vra.pks/checkWorckerCoun t to com.vmware.vra.pks/checkWorckerCoun t2
0.2.2	Jan 14, 2019	administra tor	Renamed com.vmware.vra.pks/checkWorckerCoun t2 to com.vmware.vra.pks/getConfirmDeleti on
0.2.3	Jan 14, 2019	administra tor	Renamed com.vmware.vra.pks/checkWorckerNumb er to com.vmware.vra.pks/checkWorkerNumbe r
0.2.4	Jan 14, 2019	administra tor	Renamed com.vmware.vra.pks/checkWorkerNumbe r to com.vmware.vra.pks/checkWorkerNumbe rs
0.2.5	Jan 16, 2019	administra tor	Renamed com.vmware.vra.pks/getDeploymentFor PKScluster to com.vmware.vra.pks/getConfigForPKSC luster
0.2.6	Jan 16, 2019	administra tor	Renamed com.vmware.vra.pks/getDeploymentFor PKScluster to com.vmware.vra.pks/getConfigForPKSC luster

Version	Date	User	Comment
1.0.0	Jan 23, 2019	administrator	Created integration package for PKS

Current version:1.0.0

13.2. Inputs

Name	Type	Description
pksCluster*	DynamicTypes:PKS.PK SCluster	
workerNodes*	number	

*Parameter is mandatory

13.3. Outputs

Name	Type	Description
result	number	0 = OK, Negative = Error, Positive = Number of values returned, after error text
errorText	string	Error text, if any
outputText	string	Result of running the SSH command

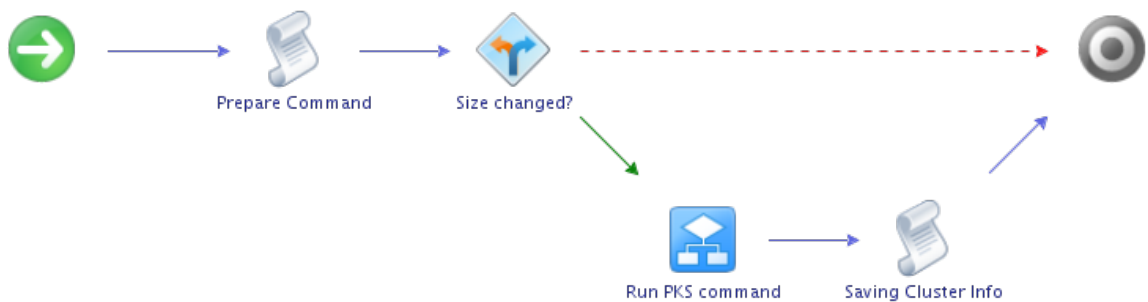
13.4. Attributes

Name	Type	Description
cmd	string	Command to scale a kubernetes cluster
clusterName	string	Name of the PKS cluster
outputText_int	string	Result of running the command
clusterSize	string	Count of worker nodes in the PKS cluster

13.5. Parameter presentation

Parameter	Description	Parameter Info
pksCluster	pksCluster	Mandatory input: true
workerNodes	Number of worker nodes	Mandatory input: true

13.6. Workflow schema



13.7. Workflow items

Name	Type	Next item	Description
Prepare Command	WorkflowItemTask	Size changed?	Preparing the command and parameters
Run PKS command	WorkflowItemLink	Saving Cluster Info	Login and run PKS command
	WorkflowItemEnd		
Saving Cluster Info	WorkflowItemTask		Saving cluster information in configuration item
Size changed?	WorkflowItemCustom Condition	Run PKS command	Checking the change in the number of nodes

13.8. Source code for the used actions

13.8.1. Prepare Command

```

clusterName = pksCluster.id;
clusterSize = pksCluster["Worker Nodes"];
  
```

Add DNS record

```
cmd = "pks resize " + clusterName + " --num-nodes " + workerNodes + " --non-interactive --wait";
```

```
System.log("Resizing the cluster with the following command : " + cmd);
```

13.8.2. Saving Cluster Info

```
var servers =  
Server.getConfigurationElementCategoryWithPath("PKS/Clusters").configurationElements;  
for(i=0; i < servers.length; i++) {  
  System.log(servers[i].name);  
  var attribute = servers[i].getAttributeWithKey(clusterName);  
  if( attribute != null ) {  
    var propsValues = attribute.value.split(",");  
    propsValues[7] = workerNodes;  
    var props = propsValues.join(",");  
  }  
}
```

```
var pksClustersConfig =  
System.getModule("com.vmware.vra.pks").getConfigByClusterName(clusterName);  
pksClustersConfig.setAttributeWithKey(clusterName, props);
```

```
outputText = outputText_int;
```

13.8.3. Size changed?

```
return workerNodes != ClusterSize;
```

14. Tools

14.1. Add DNS record

Create DNS-record

14.1.1. Versions

Version	Date	User	Comment
0.1.0	Jan 23, 2019	administrator	Create and test workflow

Current version:0.1.0

14.1.2. Inputs

Name	Type	Description
------	------	-------------

Add DNS record

Name	Type	Description
dnsName	string	HostName to add dns-record
ipAddress	string	IP address to add dns-record

14.1.3. Outputs

Name	Type	Description
output	string	

14.1.4. Parameter presentation

Parameter	Description	Parameter Info
dnsName	Name VM	
ipAddress	IP address to add dns-record	

14.1.5. Workflow schema



14.1.6. Workflow items

Name	Type	Next item	Description
	WorkflowItemEnd		
Set script args	WorkflowItemTask		

14.1.7. Source code for the used actions

14.1.7.1. Set script args

```
output = "";  
System.log("Empty workflow");
```

14.2. Delete DNS record

Delete DNS-record

14.2.1. Versions

Version	Date	User	Comment
0.1.0	Jan 23, 2019	administra tor	Create and test workflow

Current version:0.1.0

14.2.2. Inputs

Name	Type	Description
dnsName	string	dns-record to delete

14.2.3. Outputs

Name	Type	Description
output	string	

14.2.4. Parameter presentation

Parameter	Description	Parameter Info
dnsName	Name VM	

14.2.5. Workflow schema



14.2.6. Workflow items

Name	Type	Next item	Description
	WorkflowItemEnd		
Set script args	WorkflowItemTask		

14.2.7. Source code for the used actions

14.2.7.1. Set script args

```

output = "";
System.log("Emoty Wokrflow");
  
```

14.3. E-mail notification with attachment

Sends an email with specified content to given email address

14.3.1. Versions

Version	Date	User	Comment
0.1.2	Jan 26, 2017	Internal	Imported from content from package
0.2.0	Jan 23, 2019	administra tor	Test workflow with attachment

Current version:0.2.0

14.3.2. Inputs

Name	Type	Description

Name	Type	Description
subject*	string	Email subject
content*	string	Email content (text or HTML)
toAddress	string	Destination address
ccAddress	string	CC destination address
attachment	MimeAttachment	Attachment for email

*Parameter is mandatory

14.3.3. Attributes

Name	Type	Description
smtpHost	string	SMTP host
smtpPort	number	SMTP port
username	string	Username for authentication
password	SecureString	Password for authentication
fromName	string	Sender's name
fromAddress	string	Sender's address
useSsl	boolean	If set to true, use SSL to connect
useStartTls	boolean	If true, enables the use of the STARTTLS command (if supported by the server) to switch the connection to a TLS-protected connection before issuing any login commands.

14.3.4. Parameter presentation

Parameter	Description	Parameter Info
subject	Email subject	Mandatory input: false
content	Email content	Mandatory input: false
toAddress	Destination address	

Parameter	Description	Parameter Info
ccAddress	CC destination address	
attachment	Attachment for email	

14.3.5. Workflow schema



14.3.6. Workflow items

Name	Type	Next item	Description
Send Email	WorkflowItemTask		
	WorkflowItemEnd		

14.3.7. Source code for the used actions

14.3.7.1. Send Email

```

var message = new EmailMessage();

// Override default settings if and only if input parameter is set
if ( smtpHost != null && smtpHost.length > 0 ){
    message.smtpHost = smtpHost;
}
if ( smtpPort != null && smtpPort > 0 ){
    message.smtpPort = smtpPort;
}
if ( username != null && username.length > 0 ){
    message.username = username;
}
if ( password != null && password.length > 0 ){
    message.password = password;
}
    
```

Run local command

```
if ( fromName != null && fromName.length > 0){
    message.fromName = fromName;
}
if ( fromAddress != null && fromAddress.length > 0){
    message.fromAddress = fromAddress;
}

if ( useSsl ){
    message.useSsl = true;
}

if ( useStartTls ){
    message.useStartTls = true;
}

if ( ccAddress != null && ccAddress.length > 0 && ccAddress != "null" ) {
    message.ccAddress = ccAddress;
}

message.toAddress = toAddress;
message.subject = subject;
message.addMimePart(content,"text/html; charset=UTF-8");
if (attachment) {
    message.addMimePart(attachment, attachment.mimeType);
}

System.log( "sending mail to host: " + message.smtpHost + ":" + message.smtpPort + " with
user:" + message.username
    + ", from:" + message.fromAddress + ", to:" + message.toAddress + ", cc:" +
message.ccAddress );

message.sendMessage();
```

14.4. Run local command

Runs an local vRO command

14.4.1. Versions

Version	Date	User	Comment
0.1.0	Jan 23, 2019	administra tor	Create and test workflow

Current version:0.1.0

14.4.2. Inputs

Name	Type	Description
cmd	string	The local command to run

14.4.3. Outputs

Name	Type	Description
result	number	0 = OK, Negative = Error, Positive = Number of values returned, after error text
errorText	string	Error text, if any
outputText	string	Result of running the SSH command

14.4.4. Attributes

Name	Type	Description
output	string	Standard output
error	string	Error output
exitCode	number	Returns 0 if successful, and a negative value if there is a failure

14.4.5. Parameter presentation

Parameter	Description	Parameter Info
cmd	The command to run	Default value: uptime

14.4.6. Workflow schema



14.4.7. Workflow items

Name	Type	Next item	Description
Assign output	WorkflowItemTask		
Execute command	WorkflowItemTask	Assign output	
	WorkflowItemEnd		

14.4.8. Source code for the used actions

14.4.8.1. Assign output

```

outputText = output;
errorText = error;
if(exitCode == 0){
    result = 1;
} else {
    result = -1;
    throw "Execute command failed. Reason: " + error;
}

```

14.4.8.2. Execute command

```

// Output cmd in parent WorkFlow to hide passwords
//System.log("Executing local vRO command: '" + cmd + "'");

// Create and execute the local command
var command = new Command(cmd);
command.execute(true);

// Display command results and output

```

Run local command

```
exitCode = command.result;
System.log("Script Result: " + exitCode);

output = command.output;
System.log("Script Output: " + output);

if (exitCode == 0) {
    error = "";
} else {
    error = output;
}
```