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**IBM Tivoli Workflows V3.1**

**Version: 3.0**

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**QUESTION NO: 1**

The customer wants to install a new application in IBM Tivoli Intelligent Orchestrator. The application consists of three vendor-provided files. One file is an RPM, which installs a custom Linux install utility called RAR. The other two files are packaged in the RAR format. The package names are:

UNRAR.RPM  
RegisterClient.RAR  
DownloadClientCode.RAR

After installation the RegisterClient application needs a 10-minute delay in order to contact the Client server. The customer wants the application to be installed via their existing end-to-end workflow, which uses SoftwareModule.Install LDO.

Which two SoftwareInstallable.Install workflows would implement the customer's request? (Choose two.)

- A. workflow Install\_UNRAR (SoftwareID, DeviceID, SoftwareResourceTemplateID) implements SoftwareInstallable.Install
- B. workflow Install\_RAR\_package (SoftwareID, DeviceID, SoftwareResourceTemplateID) implements SoftwareInstallable.Install
- C. workflow Install\_RPM\_package (SoftwareID, DeviceID, SoftwareResourceTemplateID) implements SoftwareInstallable.Install
- D. workflow Install\_RegisterClient (SoftwareID, DeviceID, SoftwareResourceTemplateID) implements SoftwareInstallable.Install
- E. workflow Install\_DownloadClientCode (SoftwareID, DeviceID, SoftwareResourceTemplateID) implements SoftwareInstallable.Install

**Answer:** B, C

**QUESTION NO: 2**

Click the Exhibit button.

Workflow execution fails. The error message is shown in the exhibit. What is the most likely cause of the problem?

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```

http://stu14.tioclass.ibm.com:9080/tcWebUI/kontent/deploymentengine/deployment-request-error.js - Mic...

ERROR CODE:
      COPDEX044EwiErrorInEmbeddedLDO

ERROR MESSAGE:
      COPDEX044E An error occurred in the embedded logical operation: "COPJEE041E There
      is no workflow specified for the logical device operation. The logical operation is
      "ServiceAccessPoint.ExecuteCommand" and the device is "Host SSH".
  
```

- A. No device driver has been associated with the target server.
- B. No device driver has been associated with a service access point used by the workflow.
- C. No service access point has been defined for the execute-command function on the target server.
- D. The workflow is referencing the Device.CopyFile logical operation instead of the Device.ExecuteCommand logical operation.

**Answer: B**

**QUESTION NO: 3**

An automation package has been downloaded from the IBM On Demand Automation Catalog, and some customizations have been made to the package contents, by the automation team. The automation team has not told you which customizations have been made, and they now ask you to install this package using the Automation Package Manager command line utility.

You run the Automation Package Manager command line utility and this succeeds with no error messages reported. However, during your testing of this automation package, you note that you are missing workflows, which are mentioned in the Automation Package documentation, which you downloaded from the IBM website. Also, some workflows are failing with errors saying the shell scripts are not found in the \$TIO\_HOME/bin directory

Which reasons would explain this situation? Choose two answers.

- A. The wrong user id and password were specified when you ran the Automation Package Manager command line utility.
- B. The workflows are missing and some workflows are failing as entries with the <item> tag have been removed from <items> section in the manifest file contained in the Automation Package.
- C. You forgot to manually extract the files with an extension of .wkf in the Automation Package, and copy them into the \$TIO\_HOME/drivers directory.
- D. You forgot to manually extract the shell scripts in the Automation Package, and copy them into the \$TIO\_HOME/config directory.
- E. Whilst you are running your tests, the automation team has removed some of the shell scripts required by the Automation Package from the \$TIO\_HOME/bin directory.

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**Answer:** B, E

**QUESTION NO:** 4

A target server has a Host SSH SAP with an RSA credential. The RSA credential has "dbadmin" as the search key and "db2inst1" as the username. Which of the following is a true statement about the username for the credential on the corresponding client SAP?

- A. The username must be "dbadmin"
- B. The username must be "db2inst1"
- C. The username must be "tioadmin"
- D. The username does not matter

**Answer:** D

**QUESTION NO:** 5

What are the valid states for a workflow execution request?

- A. Successful, Failed, In Progress, Created
- B. Success, Failed, Running, Created, Canceled
- C. Completed, Failed, In Progress, Created, Canceled
- D. Successful, Failed, In Progress, Created, Canceled

**Answer:** D

**QUESTION NO:** 6

A customer wants two AIX V5.2 images created and set up in IBM Tivoli Intelligent Orchestrator (TIO) with the following specifications:

Operating System Name	Description
AIX V5.2 Normal	SSH daemon installed. RSA credentials for root user with root login enabled
AIX V5.2 High Security	SSH daemon installed. RSA credentials for non-root user with root login disabled. Access to administrative commands will be done through sudo

They want the new images to be used in application deployments in their current TIO installation, which does not contain any third-party TCDRIVERS.

What is sudo?

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- > Sudo is a command that allows users defined in the /etc/sudoers configuration file to have temporary root access to run certain privileged commands.
- > The command to be run first must begin with the word "sudo" followed by the regular command syntax.
- > When running the command, the user is prompted for his regular password before it is executed. The user may run other privileged commands using sudo within a five-minute period without being re-prompted for a password.
- > All commands that run as sudo are logged in the log file /var/log/messages.

```

Customers workflow.
=====
workflow Add_Server(in ClusterID, inout ServerID) implements Cluster.AddServer
  CheckDeviceLocale ClusterID "en_US"
  var Protocol = "TCP"
  var Deployment_Request_ID
  var Port_Number
  var Load_Balancer_ID
  var Switch_ID
  var Managed_Network_Interface_ID
  var Cluster_IP_Address
  var Software_Stack_ID
  var Port_Module
  var NIC_ID
  var True = "true"
  var Out_TCP_Port
  var Subnetwork_ID
  var Virtual_IP_ID
  var Pool_ID
  var RIPMaxConnections = "1000"
  var Pool_VLAN_ID
  var Cluster_VLAN_ID
  var Weight = "1"
  var portID
  var serverName = DCMQuery(/server[@id=$ServerID\]/@name)
  try

java:com.thinkdynamics.kanaha.de.javaplugin.GetCurrentDeploymentRequestId(Deployment_Request_ID)

Virtual_IP_ID = DCMQuery(/cluster[@id=$ClusterID\]/virtualip/@id)
Pool_ID = DCMQuery(/cluster[@id=$ClusterID\]/@poolid)
Load_Balancer_ID = DCMQuery(/virtualip[@id=$Virtual_IP_ID\]/loadbalancer/@id)
Cluster_VLAN_ID = DCMQuery(/cluster[@id=$ClusterID\]/servertemplate/nictemplate/@vlanid)
Pool_VLAN_ID = DCMQuery(/sparepool[@id=$Pool_ID\]/servertemplate/nictemplate/@vlanid)
Subnetwork_ID = DCMQuery(/vlan[@id=$Pool_VLAN_ID\]/nictemplate/networkinterfacetemplate/@subnetid)

  java:com.thinkdynamics.kanaha.de.javaplugin.resourcemanager.RMAllocateServer(ClusterID, Pool_ID,
Deployment_Request_ID, ServerID)

  NIC_ID = DCMQuery(/server[@id=$ServerID\]/nic/@id)
  portID = DCMQuery(/nic[@id=$NIC_ID\]/switchport/@id)
  Port_Number = DCMQuery(/switchport[@id=$portID\]/@portnumber)
  Switch_ID = DCMQuery(/switchport[@id=$portID\]/switch/@id)
  Port_Module = DCMQuery(/switchport[@id=$portID\]/@modulename)

  java:com.thinkdynamics.kanaha.de.javaplugin.datacentermodel.FindDeviceSoftwareStack(ClusterID,
Software_Stack_ID)
  java:com.thinkdynamics.kanaha.de.javaplugin.resourcemanager.RMAllocateIPAddress(Cluster_IP_Address,
NIC_ID, Subnetwork_ID)
  IPSystem.AddNetworkInterface(ServerID, NIC_ID, Subnetwork_ID, <null>, Cluster_IP_Address, <null>, True)

  Managed_Network_Interface_ID = DCMQuery(/server[@id=$ServerID\]/networkinterface[@managed="Y"/]/@id)

  IPSystem.ApplyRoutingTable(ServerID, ClusterID, Managed_Network_Interface_ID, True)
  Switch.MovePortToVLAN(Switch_ID, Pool_VLAN_ID, Cluster_VLAN_ID, Port_Module, Port_Number)
  Device.Ping(ServerID, Cluster_IP_Address, "30", "default", <null>)

  SoftwareModule.Install(Software_Stack_ID, "null", ServerID, "null", "null")

  Out_TCP_Port = DCMQuery(/virtualip[@id=$Virtual_IP_ID\]/@defaultoutputtcpport)

  LoadBalancer.AddRealIPToVirtualIP(Load_Balancer_ID, Managed_Network_Interface_ID, Out_TCP_Port, Protocol,
Weight, RIPMaxConnections, Virtual_IP_ID)
  catchall

  DCMUpdate parent = DCMQuery(/server[@id=$ServerID\]) <<EOUPDATE
    <server name="$serverName" failed="true"/>
  EOUPDATE

  var Reason = "The Cluster.AddServer LDO failed."

  DCMUpdate parent = DCMQuery(/server[@id=$ServerID\]) <<EOUPDATE
    <server name="$serverName" in-maintenance="true" />
  EOUPDATE
  log info Jython(Reason)
  rethrow
endtry
=====

```

Which three types of workflows must be implemented to enable the AIX V5.2 High Security OS

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image to be used by the customer to deploy an application using the given workflow? (Choose three.)

- A. SoftwareModule.Install workflow
- B. Switch.MovePortToVLAN workflow
- C. IPSystem.Add IP Address workflow
- D. IPSystem.Apply Routing Table workflow
- E. LoadBalancer.AddRealIPToVirtualIP workflow
- F. any specific SoftwareInstallable.Install workflows that are executed directly on the target machine and require root access

**Answer:** C, D, F

### QUESTION NO: 7

Which of the following constructs allow for the section of code represented by the ellipse (? to be repeated)? (Choose two.)

- A. foreach var in (array) do?done
- B. do until (condition) done
- C. while (condition) doone
- D. for(condition) do... done
- E. while (condition) loop

**Answer:** A, C

### QUESTION NO: 8

The customer has two resource pools and one application that currently uses both resource pools.

How would you define a new application tier for the existing application?

- A. define a new application, define a new application tier, associate tier with a resource pool
- B. define a new resource pool, associate a server template with resource pool, define a new application tier
- C. define a new application tier, associate tier with a resource pool, associate workflows for application tier, and associate server template with application tier
- D. define a new application tier, associate tier with both resource pools, associate workflows for application tier, and associate server template with application tier

**Answer:** C

### QUESTION NO: 9

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You want to write a simple workflow to delete all access rules associated with the ACL named "test" using the DCMAccess constructs. Which string would you include in the workflow?

- A. `foreach rule in DCMQuery (/acl[@name="test"]/accessRule) do ACMDelete(/acl[@name=$rule]) done`
- B. `DCMDelete(/acl[@name="test"]/accessRule/@id="*")`
- C. `DCMDelete(/acl[@name="test"]/accessRule/@id="*")`
- D. `foreach rule in DCMQuery (/acl[@name="test"]/accessRule) do ACMDelete(/accessRule[@id=$rule]) done`

**Answer: D**

### QUESTION NO: 10

The following is the contents of a file called myWorkflow.wkf:

```
workflow Gees_Workflow LocaleInsensitive
```

```
var vlan1 = "786"  
var vlan2 = "787"  
var subnet1 = "194.168.786.86"  
var subnet2 = "194.168.787.87"  
var netmask = "255.255.255.192"
```

```
DCMInsert <<EOINSERT
```

```
    <subnetwork ipaddress="$subnet1" netmask="$netmask">  
        <vlan vlan-number="$vlan1" fabric="Default Fabric"/>  
    </subnetwork>
```

```
EOINSERT
```

```
DCMInsert <<EOINSERT
```

```
    <subnetwork ipaddress="$subnet2" netmask="$netmask">  
        <vlan vlan-number="$vlan2" fabric="Default Fabric"/>  
    </subnetwork>
```

```
EOINSERT
```

```
DCMInsert <<EOINSERT
```

```
    <switch name="gee-sw1" is-device-model="Cisco 3548" fabric="Default Fabric"  
    locale="en_US">
```

```
        <switch-module name="0">  
            <switch-port vlan="$vlan1" port-number="24"/>  
            <switch-port vlan="$vlan2" port-number="19"/>  
        </switch-module>
```

```
    </switch>
```

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EOINSERT

When this workflow file is imported, compiled, and executed, which statement is true?

- A. The Workflow Execution succeeds.
- B. The Workflow Execution fails because multiple subnets cannot be defined in the same workflow.
- C. The Workflow Execution fails because a subnet and switch cannot be defined in the same workflow.
- D. The Workflow Execution succeeds, but a warning is displayed because OINSERT is a reserved deployment engine keyword.

**Answer:** A

### QUESTION NO: 11

What is a valid argument to the Automation Package (tcdriver) Manager?

- A. forceDriver
- B. listDeviceModels
- C. listDeviceDrivers
- D. listInstalledModels

**Answer:** B

### QUESTION NO: 12

```
<device-models>
  <device-model          name="MyCompany_Solution_SoftwareInstallable"
category="MyCompany_SampleSolution">
    <workflow name="MyCompany_Solution_Install"/>
    <workflow name="MyCompany_Solution_UnInstall"/>
  </device-model>

  <device-model          name="MyCompany_Solution_Installation"
category="MyCompany_SampleSolution">
    <workflow name="MyCompany_Solution_RemoveInstance"/>
    <workflow name="MyCompany_Solution_AddInstance"/>
    <workflow name="MyCompany_Solution_UpDateDCM"/>
  </device-model>

  <device-model          name="MyCompany_Solution_Instance"
category="MyCompany_SampleSolution">
    <workflow name="MyCompany_Solution_StopInstance"/>
  </device-model>
</device-models>
```



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```
<workflow name="MyCompany_Solution_StartInstance"/>
</device-model>
```

Given the example representing the device models for the MyCompany\_Solution software solution, which two workflows are in the wrong device model based on the IBM Tivoli Intelligent Orchestrator software model? (Choose two.)

- A. MyCompany\_Solution\_AddInstance
- B. MyCompany\_Solution\_UnInstall
- C. MyCompany\_Solution\_UpDateDCM
- D. MyCompany\_Solution\_RemoveInstance
- E. MyCompany\_Solution\_Install

**Answer:** B, D

### QUESTION NO: 13

Which command(s) can be used to successfully launch a workflow using the command line?

Command 1:

```
soapcli.cmd                gee                gee
http://localhost:9080/tcSoap/wsdl/com/ibm/soap/MessageTranslatorService.wsdl
createDeploymentRequest Cluster_AddServer lusterID=786,ServerID=19
```

Command 2:

```
soapcli.cmd                gee                gee
http://localhost:9080/tcSoap/wsdl/com/ibm/soap/MessageTranslatorService.wsdl
createDeploymentRequest Cluster_AddServer lusterID=786,ServerID=19
```

Command 3:

```
soapcli.cmd                gee                gee
http://localhost:9080/tcSoap/wsdl/com/ibm/soap/MessageTranslatorService.wsdl
createDeploymentRequest Cluster_AddServer lusterID=786,ServerID=19
```

- A. Command 1 only
- B. Command 2 only
- C. Command 1 and Command 2
- D. Command 3

**Answer:** B

### QUESTION NO: 14

Which of the following is true if a server "belongs to" an application tier?

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- A. The server may be provisioned to only that one tier from its home resource pool.
- B. The server automatically inherits SAP configurations from the tier.
- C. Once de-provisioned, the server may be provisioned to other tiers if they draw from the same resource pool.
- D. The server may not be de-provisioned from this tier.

**Answer: D**

### QUESTION NO: 15

Click the Exhibit button AND review the error log below.

A workflow is performing an SSH\_RSA\_Execute\_Command and the following error message is given:

ERROR CODE:

COPTDM076EdeCannotFindMatchingClientCredentials

ERROR MESSAGE:

COPTDM076E The system cannot find matching client credentials on device ID: "3306" against host SAP ID: "3157".

ERROR DETAIL:

Workflow line: 23

Error Code = COPTDM076EdeCannotFindMatchingClientCredentials

ERROR MESSAGE = COPTDM076E The system cannot find matching client credentials on device ID: "3306" against host SAP ID: "3157".

IP = 9.23.109.220

THREAD = Deployment Request 17996

STACK TRACE ==>

com.thinkdynamics.kanaha.de.DeploymentException: COPTDM076E The system cannot find matching client credentials on device ID: "3306" against host SAP ID: "3157".

at

com.thinkdynamics.kanaha.de.javaplugin.sap.GetSapExecutionCredentials.doIt(GetSapExecutionCredentials.java:93)

at

com.ibm.tivoli.orchestrator.de.instruction.impl.INVOKE\_JAVA.execute(INVOKE\_JAVA.java:95)  
at com.ibm.tivoli.orchestrator.de.instruction.impl.AbstractInstructionExecutor.execute(AbstractInstructionExecutor.java:91)

at

com.ibm.tivoli.orchestrator.de.engine.DeploymentWorker.executeWorkflow(DeploymentWorker.j