Technical White Paper

Cisco Process Orchestrator 3.0 Integrations and Automation Packs

The central function of an orchestrator is to integrate domain managers and other tools in the environment. Cisco Process Orchestrator integrates with these tools rather than trying to replace their function through automation. The orchestrator spans the gaps of how you want domain managers to work together. Examples include:

- Application provisioning via Puppet or Chef

- Event Application provisioning via Puppet or Chef

- Event correlation and response through Event Managers.

  An Orchestrator should receive only the events that require further analysis, ticket enrichment, and remediation.

- Service Desks

- Change Management systems

- Provisioning systems

- Configuration tools

- Configuration management databases

- Virtualization management tools

- Security tools

Process Orchestrator integrates with these domain managers and other elements of the IT environment through two features: adapters and automation packs.

Automation Packs

Automation packs are the primary means of extending integrations in the field. Automation Packs are collections of process definitions, target groups, variables, and other configurations needed to define a set of automated IT processes.

Users can list the installed automation packs and view automation pack properties from the Administration—Automation Packs view in the console.

The automation pack properties dialog box displays general information about the content provided by the automation pack, version number, publish date, the provided objects, the dependencies of the automation pack, and the history of changes made to the automation pack.

NOTE: Additional information regarding Automation Packs can be found in your Cisco Process Orchestrator 3.0 User Guide and in the Cisco Process Orchestrator help.

Adapters

Adapters are one of the extensibility mechanisms in the Process Orchestrator platform, and are only written by members of the Process Orchestrator product development team. The development team uses adapters to extend Process Orchestrator functionality to integrate with devices, environments, applications, or tools.

The Administration > Adapters view displays the licensed adapters that provide specific functionality.

On the Adapters Properties dialog box, you can view general information related to the adapter. Each adapter provides specific functionality within Process Orchestrator. Use the Provides tab in the adapter properties dialog box to view the functionality that is provided by an adapter. Additional information on the property dialog box for each adapter varies.

NOTE: Additional information regarding Adapters can be found in your Cisco Process Orchestrator 3.0 User Guide and in the Cisco Process Orchestrator help.

Automation Packs and Adapters Unify to Enable Integrations

Integration with some domain manager or other IT element is often a combination of automation content from an automation pack combined with the use of several adapters. These two concepts unify to contribute to the ability to integrate with some element of the IT environment. Integration can then take several forms:

- a native Cisco Process Orchestrator adapter

- an automation pack relying on packaged adapter(s)

- a combination of adapter and automation pack

The adapter list is not a list of supported integrations. In fact, it is almost never necessary to write an adapter to achieve integration in the field. Through Process Orchestrator's service-oriented automation, one can model any service in content. Automation content can leverage many existing adapters that are designed to make enable integration scenarios, including:

- Web Service integration – Process Orchestrator supports both SOAP and REST based web services. Most modern applications typically provide web services. For integration with application APIs which are

not web service based, one can easily write a shim which exposes a web service to PO and makes the native API call with any technology.

- Command Line Interface invocations – Most IT tools have some type of command line that provides integration. For example, integration with an enterprise job scheduler would typically be performed through its CLI. The Terminal (SSH) adapter and Windows Adapter allow invocation from these tools.

- Scripting support – on Windows, Linux, and UNIX, Process Orchestrator has the ability to run scripts. Often more sophisticated functions like calling a COM or Java object are possible via scripting.

- Email – many IT tools can send emails for notifications. One can leverage these mechanisms to send data about important events to Process Orchestrator, where the email trigger can be used to initiate a process when the email arrives. Conversely, many IT applications can receive emails. For example, many service desks can create an incident from an incoming email. Automation can send an email from within a process to leverage these integration mechanisms in other products.

- SNMP Integration – Process Orchestrator allows sending SNMP traps for its tasks such as alerts, incidents, change requests, and approvals. This capability can be used to integrate generically with event managers. Process Orchestrator also provides further SNMP implementation capabilities to support for SNMP-based integrations such as SNMP gets and puts, and triggering processes in response to incoming traps.

- Windows Event Logs – Process Orchestrator has an activity to write Tasks to the Windows event log. Microsoft supplies a command line to write generic events to the event log that can be invoked in content. Since most enterprise IT systems management tools can read Windows logs, this suffices for event integration with many systems management purposes. PO can also consume logs that other products publish.

- Windows Management Instrumentation – Process Orchestrator's Publish Metrics activities not only publish metrics to the reporting database, but also optionally publish metrics to WMI. This facilitates open integration of performance data with IT tools.

- Messaging / Event integration support via AMQP or Process Events.

- Creation or importing of external files – often systems support Export Transport Load scenarios for integration.

All of these provide integrations that can be used within process definitions. Aspects of integration can be placed in reusable child processes and then re-used across processes. For example, a process that invokes an EMC SAN job can be placed in a process "Invoke EMC SAN Job" with parameters that specify the job name and parameters, then that process can be invoked from other processes where EMC SAN job functionality is needed.
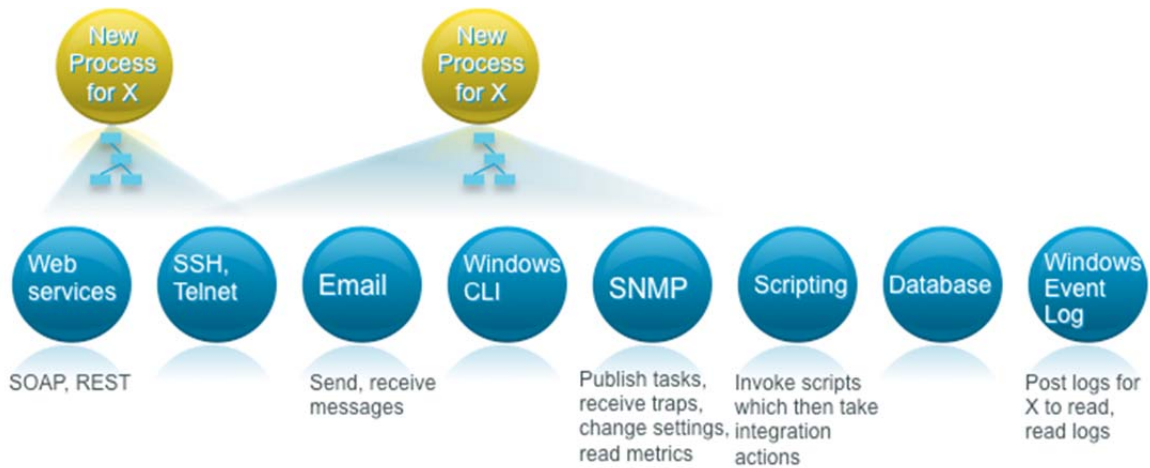
Figure 1 - Integration through Automation Content Leverages PO Adapters

Through these capabilities, integrations can be built, packaged, shipped, and updated via automation packs. If you do not find an integration that already exists, it is easy to build additional integrations. These are typically simple to implement, at the speed needed in the field.
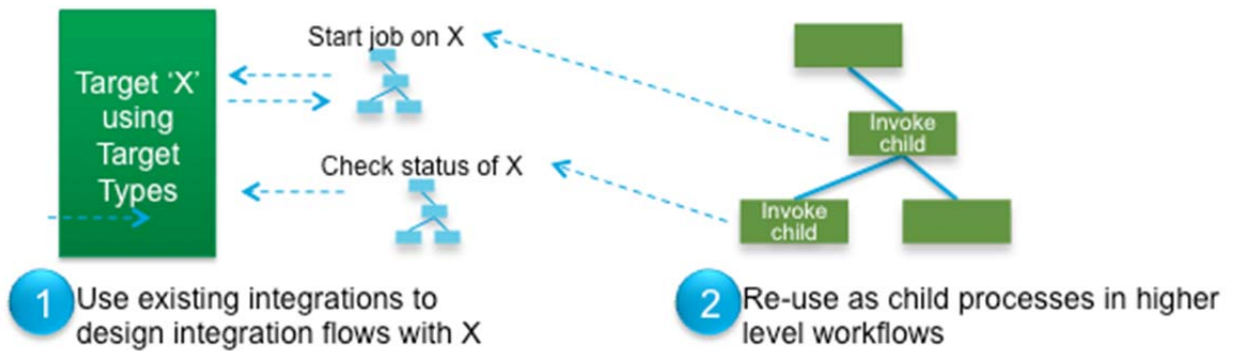
Figure 2 – Leverage Child Processes for Content-Based Integration

Additional Sources for Integrations and Automation Packs

This document focuses on integrations and automation packs which are packaged with the Process Orchestrator Platform. There are other sources for integrations and automation packs.

1. Packaged Cisco solutions – Solutions such as Cisco Intelligent Automation for Cloud include a separate set of packaged automation content build to run on the Process Orchestrator Platform. The automation content needed for the solution is distributed with the solution, outside of the Process Orchestrator product.

2. Solution Accelerators – Cisco Solution Accelerators support the needs of IT by extending management capabilities significantly by reducing the time and simplifying the processes required by solution architects and developers to test and evaluate new uses. For example, Cisco Intelligent Automation for Cloud (IAC) offers cloud accelerators for faster consumption and adoption of new cloud technology. These accelerators are delivered as specialized, compact solution sockets, and they come with the right application programming interface (API) code for quick integration into the IAC front-end user catalog and portal.

   Two types of solution accelerators are available:

   - Cisco-developed accelerators

   - Customer and developer accelerators provided for community use

   Cisco-developed accelerators help ensure alignment with Cisco product strategy. The most prominent solutions may be included in upcoming solution releases. These accelerators also have the full backing and support of the Cisco IAC organization when you need assistance or have questions.

   Browse through the Cisco Cloud Accelerator library. First-time guests will need to register for access.

3. Cisco Advanced Services maintains a collection of integrations that they have performed at prior customers. These pre-built integrations can reduce services cost and implementation time. Contact Cisco Advanced Services to learn more about their catalog of integrations.

New Functionality

Functionality added or changed in the 3.0 release has been marked throughout the document with appropriate footnotes.

Automation Pack Details

The sections that follow provide the detail on automation packs in Cisco Process Orchestrator 3.0 and the processes delivered by each automation pack.

NOTE: The details of the automation packs that ship as part of *Cisco Intelligent Automation for Cloud* and *Cisco Intelligent Automation for SAP* content are covered in other documents, and are omitted from this document.

NOTE: *Microsoft Active Directory Automation Pack* is no longer part of the product. It now ships as a solution accelerator community automation pack.

BMC Remedy

1. Create Remedy Incident From Orchestrator Incident [Renamed in 3.0]

2. Update Remedy Incident From Closed, Resolved or Cancelled Orchestrator Incident [Renamed in 3.0]

3. Update Orchestrator Incident From Closed or Resolved Remedy Incident [Renamed in 3.0]

4. Validate Required Remedy Values

Cisco UCS

1. Check UCS Chassis Power Redundancy

2. Check UCS Cluster Health

3. Check UCS Network Link Status

4. Check UCS Storage Link Status

5. Check UCS Switch Power Redundancy

Common Activities (a set of items which span applications)

This automation pack only includes activities that are listed in the Integrations section.

Core (a set of items which span applications)

1. Close Expired Alerts

2. Close Expired Approval Requests

3. Close Expired Guided Operations Tasks

4. Close Expired Incidents

5. Close Expired Input Requests

6. Close Expired Review Requests

7. Default Alert Notification

8. Default Alert Notification Based on Assignment

9. Default Approval Request Notification

10. Default Approval Request Notification Based on Assignment

11. Default Change Request Notification

12. Default Change Request Notification Based on Assignment

13. Default Guided Operation Request Notification

14. Default Guided Operation Request Notification Based on Assignment

15. Default Incident Notification

16. Default Incident Notification Based on Assignment

17. Default Input Request Notification

18. Default Input Request Notification Based on Assignment

19. Default Review Request Notification

20. Default Review Request Notification Based on Assignment

21. Default SNMP Trap Notification

22. Publish Core Alerts on Windows Event Log

23. Self Monitoring - Collect Persistence Queues Performance Counters **Renamed in 3.0**

24. Self Monitoring - Collect Service Performance Counters **Renamed in 3.0**

25. Self Monitoring - Monitor Service Performance Counters Thresholds **Renamed in 3.0**

26. Self Monitoring - Persistent Queue Error **Renamed in 3.0**

27. Self Monitoring - Report Database Connection Error **Renamed in 3.0**

28. Self Monitoring - Server Health **New in 3.0**

Microsoft Windows Server

1. Analyze CPU Resources

2. Analyze Logical Disk Resources

3. Analyze Memory Resources

4. Analyze Physical Disk Resources

5. Check for Weekly Antivirus Scan

6. Check if Virus Definition is Current

7. Example - Get Network Information

8. Example - Monitor "MyService" and restart when above a threshold

9. Get Logical Drive Information

10. Restart Windows Server

11. Run Antivirus Checks

12. Run Windows Resource Analysis

Integrations

Cisco Process Orchestrator provides integrations with various technologies. Though Cisco Process Orchestrator supports numerous types of integrations, at the core Cisco Process Orchestrator provides the individual steps that make up the workflows in processes. These are called activities.

Activities can be provided by adapters (binary components in Cisco Process Orchestrator) or by automation packs. Therefore both adapters and automation packs may contribute to a particular integration. Additionally, adapters can also support targets and target groups to which processes and activities can be executed, and triggers which can initiate processes.

The following sections summarize Cisco Process Orchestrator's integrations. Where specific items are not tagged, they are activities. Targets, Target Groups, and Triggers are labeled.

NOTE: *Cisco Network Services Manager Adapter* (which first shipped in 2.3.4 release) is no longer part of the product.

AMQP Integrations from the *AMQP* Adapter, New in 3.0

- Target Type: AMQP Broker

- Trigger: AMQP Message Event

- Bind AMQP Queue

- Declare AMQP Exchange

- Declare AMQP Queue

- Delete AMQP Queue

- Get AMQP Message

- Publish AMQP Message

- Purge AMQP Queue

- Unbind AMQP Queue

BMC Remedy Integrations from the *BMC Remedy* Adapter

- Target Type: Remedy Server

- Trigger: Remedy Incident Updated

- Create Remedy Entry

- Create Remedy Incident

- Create Remedy Relationship

- Create Remedy Work Info

- Delete Remedy Entry

- Find Remedy Objects

- Get Remedy Entry Property Values

- Get Remedy Incident Property Values

- Update Remedy Entry

- Update Remedy Incident

Cisco UCS Director Integration ^{from the Cisco UCS Director Adapter New in 3.0}

- Target Type: Cisco UCS Director Server

- Execute Cisco UCS Director Operation

- Execute Cisco UCS Director Task

- Get Cisco UCS Director Workflow Status

- Execute Cisco UCS Director Workflow

Cisco Server Provisioner Integration ^{from the *Cisco Server Provisioner* Adapter}

- Target Type: Cisco Server Provisioner

- Create CSP Runtime User ^{from the *Intelligent Automation for Compute* Automation Pack}

- Create MAC-Specific Imaging Profile

- Create MAC-Specific Provisioning Role

- Delete MAC-Specific Imaging Profile

- Delete MAC-Specific Provisioning Role

- Find MAC-Specific Imaging Profiles

- Find MAC-Specific Provisioning Roles

- Find Provisioning Role Templates

- Update MAC-Specific Imaging Profile

- Update MAC-Specific Provisioning Role

Cisco Prime Service Catalog Integration ^{from the Cisco Prime Service Catalog Adapter, Renamed in 3.0}

- Target Type: Cisco Prime Service Catalog Server **Renamed in 3.0**

- Cancel Service Request **New in 3.0**

- Create Service Item

- Create Service Items from Table

- Delete Service Item

- Delete Service Items from Table

- Find Service Items **New in 3.0**

- Get User Information **New in 3.0**

- Get Service Item

- Submit Service Request

- Update Service Item

- Update Service Items from Table

- Update Service Request

Cisco UCS Manager Integration from the *Cisco UCS Manager Software* Adapter

- Target Type: Cisco UCS Manager

- Trigger: UCS Fault

- Associate UCS Service Profile to Server

- Associate UCS VLAN To vNIC

- Bind UCS Service Profile to Template

- Boot UCS Server

- Collect UCS Statistics

- Correlate UCS Faults

- Create UCS Configuration Backup

- Create UCS Service Profile from Template

- Delete UCS Service Profile

- Disassociate UCS Service Profile

- Disassociate UCS VLAN From vNIC

- Execute UCS Manager Command

- Find UCS Managed Objects

- Get UCS Blade Server Configuration

- Get UCS C-Series Server Configuration

- Get UCS Fabric Interconnect Configuration

- Get UCS Interface Card Configuration

- Get UCS IO Module Configuration

- Get UCS Service Profile Fiber Channel and VSAN Configuration

- Modify UCS Service Profile

- Modify UCS VLAN Settings

- Reset UCS Server

- Shutdown UCS Server

- Unbind UCS Service Profile from Template

Core Functions ^{from the *Core Functions* Adapter}

- Target Type: Automation Service

  - Target Type: Generic Service

- Target Group: Virtual Group

- Target Group: Target Type Group

  - Tasks - IT Process Records

    1. Correlate Alerts

    2. Create Alert

    3. Create Change Request

    4. Create Incident

    5. Find Alerts

    6. Find Change Requests

    7. Find Incidents

    8. Update Alert

    9. Update Change Request

    10. Update Incident

    11. Trigger: Alert Created

    12. Trigger: Alert Changed

    13. Trigger: Alert Expired

    14. Trigger: Alert Past Due

    15. Trigger: Change Request Created

    16. Trigger: Change Request Past Due

17. Trigger: Change Request Expired

18. Trigger: Change Request Changed

19. Trigger: Incident Created

20. Trigger: Incident Past Due

21. Trigger: Incident Expired

22. Trigger: Incident Changed

- Tasks - Human Interaction

    1. Create Approval Request

    2. Create Guided Operation

    3. Create Input Request

    4. Create Input Request from Table

    5. Create Review Request

    6. Update Approval Request

    7. Update Guided Operation

    8. Update Input Request

    9. Update Review Request

    10. Trigger: Approval Request Created

    11. Trigger: Approval Request Changed

    12. Trigger: Approval Request Expired

    13. Trigger: Approval Request Past Due

    14. Trigger: Guided Operation Created

    15. Trigger: Guided Operation Changed

    16. Trigger: Guided Operation Expired

    17. Trigger: Guided Operation Past Due

    18. Trigger: Review Request Created

    19. Trigger: Review Request Changed

    20. Trigger: Review Request Expired

    21. Trigger: Review Request Past Due

    22. Trigger: Input Request Created

    23. Trigger: Input Request Changed

24. Trigger: Input Request Expired

25. Trigger: Input Request Past Due

- Tasks - All

  1. Assign Task

  2. Publish Task to Event Log

  3. Wait for Task to Enter State

- Create Automation Summary

- Variables

  1. Set Variable

  2. Set Multiple Variables

  3. Trigger: Variable Updated

  4. Trigger: Extended Property Value Updated ^{Deprecated in 3.0 (replaced with Target Updated)}

- String Functions

  1. Find String

  2. Match Regular Expression

  3. Replace String

  4. Split String

  5. String Escape

  6. String Lowercase

  7. String Uppercase

  8. Substring

  9. Trim String

- Date Functions

  1. Calculate Date

  2. Calculate Date Time Difference

  3. Format Date

  4. Parse Date

- Table Functions

  1. Add Row to Table

  2. Analyze Table

3. Highlight Row

4. Read Table from Text

5. Read Table from XML

6. Remove Row from Table

7. Select from Table

8. Set Table Variable

9. Update Row in Table

- Utility Functions

1. Convert JSON to XML

2. Convert XML to JSON

3. Sleep

4. Test FTP Destination

5. XPath Query

6. XSL Transform

- Process Events

1. Trigger: Process Event

2. Trigger: Process Failed **New in 3.0**

3. Trigger: Process Started **New in 3.0**

4. Trigger: Process Succeeded **New in 3.0**

5. Correlate Process Events

6. Raise Process Event

- Reporting Database Submission Functions

1. Insert Event

2. Insert Multiple Events

3. Publish Metric

4. Publish Multiple Metrics

- Target Functions

    1. Trigger: Target Changed **New in 3.0**

    2. Trigger: Target Created **New in 3.0**

    3. Trigger: Target Deleted **New in 3.0**

    4. Cast Target Type **New in 3.0**

    5. Delete Target **New in 3.0**

    6. Find Targets

    7. Update Target **New in 3.0**

Email Integrations ^{from the *Email* Adapter}

- Target Type: Email SMTP Server **New in 3.0**

- Target Type: Email Account (POP3)

- Target Type: Email Account (IMAP)

- Trigger: Email Event (Simple)

- Trigger: Email Event (Advanced) **Changed in 3.0**

- Email

- Get Email Attachments **New in 3.0**

Generic (Microsoft OLEDB) Database Integrations ^{from the *Generic (Microsoft OLEDB) Database* Adapter}

- Target Type: Generic Data Source (OLEDB)

- Bulk Insert Into Generic Database

- Delete from Generic Database

- Execute Generic Database SQL Script Activity

- Insert Into Generic Database

- Select from Generic Data Source (OLEDB)

- Update Generic Database

IBM DB2 Database Integrations ^{from the *IBM DB2 Database* Adapter}

- Target Type: DB2 Mainframe Database

- Target Type: DB2 Universal Database

- Bulk Insert Into DB2

- DB2 Database Locks

- DB2 Table Space

- Delete from DB2

- Execute DB2 SQL Script Activity

- Insert Into DB2 Database

- List DB2 Running SQL Queries

- Select from DB2

- Update DB2

JMX Integrations , from the *JMX* Adapter

- Target Type: JMX Server

- Get Complex MBean Attribute

- Get MBean Attribute

- Get MBean Names

- Set MBean Attribute

Microsoft Active Directory Integrations from the *Microsoft Active Directory* Adapter

- Target Type: Active Directory Domain

- Target Group: Active Directory OU

- Target Group: Active Directory Group

- Create User

- Resolve Email Address

- Resolve Identity **New in 3.0**

- Set User Password

- Add Member to Group from the *Microsoft Active Directory* Automation Pack **Not part of 3.0 product (solution accelerator)**

- Check Management Chain from the *Microsoft Active Directory* Automation Pack **Not part of 3.0 product (solution accelerator)**

- DCDiag from the *Microsoft Active Directory* Automation Pack **Not part of 3.0 product (solution accelerator)**

- Delete User Account from the *Microsoft Active Directory* Automation Pack **Not part of 3.0 product (solution accelerator)**

- Disable User Account from the *Microsoft Active Directory* Automation Pack **Not part of 3.0 product (solution accelerator)**

- Enable User Account from the *Microsoft Active Directory* Automation Pack **Not part of 3.0 product (solution accelerator)**

- Generate Strong Password from the *Microsoft Active Directory* Automation Pack **Not part of 3.0 product (solution accelerator)**

- Generate User Account Name from the *Microsoft Active Directory* Automation Pack **Not part of 3.0 product (solution accelerator)**

- Get Domain Distinguished Name from the *Microsoft Active Directory* Automation Pack **Not part of 3.0 product (solution accelerator)**

- Get LDAP Path from the *Microsoft Active Directory* Automation Pack **Not part of 3.0 product (solution accelerator)**

- Get Object Property Value from the *Microsoft Active Directory* Automation Pack **Not part of 3.0 product (solution accelerator)**

- Get User Distinguished Name from the *Microsoft Active Directory* Automation Pack **Not part of 3.0 product (solution accelerator)**

- Move User Account to Different OU from the *Microsoft Active Directory* Automation Pack **Not part of 3.0 product (solution accelerator)**

- NetDiag from the *Microsoft Windows* Automation Pack **Not part of 3.0 product (solution accelerator)**

- Remove Member from Group from the *Microsoft Active Directory* Automation Pack **Not part of 3.0 product (solution accelerator)**

- Set Object Property from the *Microsoft Active Directory* Automation Pack **Not part of 3.0 product (solution accelerator)**

- Set User Must Change Password on Next Logon from the *Microsoft Active Directory* Automation Pack **Not part of 3.0 product (solution accelerator)**

- Unlock User Account from the *Microsoft Active Directory* Automation Pack **Not part of 3.0 product (solution accelerator)**

- Validate User Membership from the *Microsoft Active Directory* Automation Pack **Not part of 3.0 product (solution accelerator)**

Microsoft System Center Operations Manager 2007 Integrations from the *Microsoft System Center Operations Manager 2007* Adapter

- Collect SCOM Performance Counter

- Update SCOM Alert

- Target Type: SCOM Management Server

- Trigger: SCOM Alert

Microsoft SQL Server Database Integrations from the *Microsoft SQL Server Database* Adapter

- Target Type: SQL Server Database

- Bulk Insert Into SQL Server

- Check SQL Server Buffer Hit Rate

- Check SQL Server Database Space

- Check SQL Server Disk Space

- Check SQL Server Locks

- Check SQL Server Memory

- Check SQL Server Page Life Expectancy

- Delete from SQL Server

- Execute SQL Server SQL Script Activity

- Insert Into SQL Server

- List SQL Server Running SQL Queries

- Select from SQL Server

- Select from Cisco Process Orchestrator Server Reporting Database ^{Renamed in 3.0}

- SQL Server Lock Information

- Update SQL Server

Microsoft Windows Integrations ^{from the *Microsoft Windows* Adapter}

- Target Type: Windows Computer

- Trigger: Windows Event

- Control Windows Service

- Correlate Windows Events

- Execute Windows Command

- Execute Windows PowerShell Script

- Execute Windows Script

- Query Windows Events

- Query Windows Performance Counter

- Query Windows Registry

- Query Windows Service

- Update Windows Registry

- Update Windows Service

- Write File

- Copy Folder ^{from the *Microsoft Windows* Automation Pack}

- Create Folder ^{from the *Microsoft Windows* Automation Pack}

- Get Folder Properties ^{from the *Microsoft Windows* Automation Pack}

- Restart Server ^{from the *Microsoft Windows* Automation Pack}

- Stop Windows Processes ^{from the *Common Activities* Automation Pack}

- Uninstall Application ^{from the *Microsoft Windows* Automation Pack}

Networking

- Convert Integer to IP Address [from the Common Activities Automation Pack]

- Convert IP Address to Integer [from the Common Activities Automation Pack]

- NSLookup [from the Microsoft Windows Server Automation Pack]

- Ping [from the Common Activities Automation Pack]

- Trace Route [from the Microsoft Windows Server Automation Pack]

- Clear DNS Cache [from the Microsoft Windows Server Automation Pack]

- IPConfig [from the Microsoft Windows Server Automation Pack]

OLAP Database Integrations [from the OLAP Database Adapter]

- Select from SAP BI Warehouse

- Target Type: SAP BI Warehouse

Oracle Database Integrations [from the Oracle Database Adapter]

- Target Type: Oracle Database

- Bulk Insert Into Oracle

- Check Oracle Library Cache

- Check Oracle Row Cache Hit Ratio

- Check Oracle Table Scan

- Delete from Oracle

- Display Oracle Free Memory

- Execute Oracle SQL Script Activity

- Insert Into Oracle

- List Oracle Heavy Queries

- List Oracle Running SQL Queries

- Oracle Database Lock

- Oracle Table Space

- Select from Oracle

- Select from Cisco Process Orchestrator Oracle Reporting Database **[Renamed in 3.0]**

- Update Oracle

SAP ABAP Integrations ^{from the *SAP ABAP* Adapter}

SAP ABAP Integrations from the *SAP ABAP* Adapter

- Target Type: SAP ABAP Connection

- Target Type: SAP System

- Trigger: CCMS Alert

- Trigger: SAP Server Down Event

- CCMS Performance Attribute

- CCMS Status Attribute

- Complete CCMS Alert

- Correlate CCMS Alerts

- Create User

- Delete User

- Get Profile List

- Get SAP Server Down Time

- Get User Information

- Lock User

- Remove All User Profiles

- SAP RFC Function

- Unlock User

- Update User

SAP Java Integrations ^{from *the SAP Java* Adapter}

- Target Type: SAP Java Application Server

- iView Portal Metrics

- Read Generic Java File

- Read Java Log

- SAP Java Shell Command

- Start Java Application

- Start Java Service

- Stop Java Application

- Stop Java Service

SAP Solution Manager ^{from the *SAP Solution Manager* Adapter}

- Target Type: SAP Solution Manager

- Trigger: Solution Manager Alert

- Correlate Solution Manager Alerts

- Get Solution Manager Alert Metrics **New in 3.0**

- Get Solution Manager Managed Object Metrics **New in 3.0**

- Update Solution Manager Alert

SNMP Integrations ^{from the *SNMP* Adapter}

- Trigger: SNMP Trap Received

- Target Type: SNMP Device (Agent)

- Target Type: SNMP Server (Manager)

- Correlate SNMP Trap Received **Deprecated in 3.0**

- Generate SNMP Trap

- Generate SNMP Trap from Task

- SNMP Get Request

- SNMP Set Request

Terminal Integrations (SSH, Telnet) ^{from the *Terminal* Adapter}

- Target Type: Terminal

- Target Type: Linux/Unix System

- Target Type: Network Device Module

- Close Terminal Session

- Execute Terminal Command(s)

- Execute Unix/Linux SSH Command

- Execute Unix/Linux SSH Script

- Get File

- Open Terminal Session

- Put File

- Stop Unix Process (via SSH) (found under "Unix") ^{from the *Common Activities* Automation Pack}

VMware vCenter, ESX and ESXi Integration ^{from the} *VMware vSphere Adapter*, Improved in 3.0 (now accepts PowerCLI-styled inputs)

- Target Type: VMware vSphere Hypervisor **Renamed in 3.0**

- Target Type: VMware Virtual Center Server

- Trigger: VMware Virtual Machine Power Event

- Trigger: VMware Host Performance Event **Deprecated in 3.0**

- Trigger: VMware Virtual Machine Performance Event **Deprecated in 3.0**

- Add Host

- Add Host Port Group

- Add Host to vSphere Distributed Switch **New in 3.0**

- Add Optical Drive to VM **New in 3.0**

- Add Physical Adapter to vSphere Distributed Switch **New in 3.0**

- Add VM Hard Disk

- Add VM Network Adapter

- Clone VM

- Create Folder

- Create New VM

- Create Resource Pool **New in 3.0**

- Create Snapshot

- Customize Linux VM

- Customize Windows VM

- Delete VM

- Enter VM Host Maintenance Mode

- Enumerate Datastores

- Enumerate Networks

- Enumerate Resource Pools

- Execute PowerCLI Script

- Exit VM Host Maintenance Mode

- Migrate VM

- Mount ISO Image **New in 3.0**

- Power Down Host to Standby

- Power Off VM

- Power On VM

- Power Up Host from Standby

- Query Host Network Adapters

- Query Host Properties

- Query Host Storage Adapters

- Query Hosts

- Query VM Devices

- Query VM Network Adapters

- Query VM Properties

- Query VM Snapshots

- Query VMs

- Reboot Guest

- Reboot VM Host

- Reconfigure VM

- Relocate VM

- Remove Adapter from vSphere Distributed Switch **New in 3.0**

- Remove All Snapshots

- Remove ESX Host

- Remove Folder **New in 3.0**

- Remove Host from vSphere Distributed Switch **New in 3.0**

- Remove Snapshot

- Remove VM Device

- Rename Snapshot

- Reset VM

- Revert to Current Snapshot

- Revert to Snapshot

- Shutdown Guest

- Shutdown Host

- Standby Guest

- Suspend VM

- Unmount ISO Image **New in 3.0**

- Update Host Port Group

- Update VM Hard Disk

- Update VM Network Adapter

- Upgrade VM Hardware

- Upgrade VM Tools

VMware vCloud Director Integration from the VMware vCloud Director Adapter

- Target Type: VMware vCloud Director Server **Changed in 3.0**

- Execute vCloud Command

- Execute vCloud Query **New in 3.0**

Web Service Integrations from the Web Service Adapter

- Target Type: Web Target

- URL Ping

- Web HTTP Request **Changed in 3.0**

- Web HTTP Save File

- Web Service Execute **Changed in 3.0**

Workflow Activities

The core engine provides the following workflow constructs (outside of integrations):

- Parallel

- Sequence

- While

- Completed

- Condition

- Condition Branch

- For Each

- Start Point