



# Cisco Process Orchestrator 3.0 Release Notes

---

**September 2013**

These release notes provide an overview of the release and describe how to access bugs for Cisco Process Orchestrator 3.0.



**Note**

---

To access the most current Process Orchestrator documentation, including these release notes, see [http://www.cisco.com/en/US/customer/products/ps11100/tsd\\_products\\_support\\_series\\_home.html](http://www.cisco.com/en/US/customer/products/ps11100/tsd_products_support_series_home.html).

---

## Contents

These release notes contain the following sections:

- [Introduction, page 1](#)
- [Important Notes, page 2](#)
- [New Features and Enhancements, page 4](#)
- [Deprecated Features, page 13](#)
- [Process Orchestrator 3.0 Bugs, page 14](#)
- [Related Documentation, page 14](#)

## Introduction

Cisco Process Orchestrator is the foundation on which to standardize, unify, and automate best practices for IT processes in complex, heterogeneous environments. Through its unique ability to automate the end-to-end service delivery process across the entire IT landscape, Cisco Process Orchestrator allows organizations to improve business alignment and adaptability, rapidly provision new services, achieve vendor interoperability, and reduce risk. Automating tasks that IT staff would otherwise perform manually improves alignment to best practice and improves security, quality, and productivity.

Traditionally, tools in this category focus on a sequence of IT processes that achieve automation. The process is the focal point of automation. Processes act on lower-level IT elements such as devices, servers, or specific tools. The set of elements on which automation acts are typically delivered in the



---

**Americas Headquarters:**  
**Cisco Systems, Inc., 170 West Tasman Drive, San Jose, CA 95134-1706 USA**

product and through adapters connecting to various layers of the IT technology stack. IT, on the other hand, is focused on services providing value to the business, which are much higher up the stack. The inability of traditional RBA/ITPA tools to act on the business-level services in the environment becomes an inhibitor to delivery and creates a poor abstraction for users.

Cisco Process Orchestrator 3.0 introduces a new set of features providing Service-Oriented Orchestration that enable a paradigm shift vs. traditional run-book automation and IT process automation. This shift enables automation to align to the high-level services provided by IT, and models how a high level service is supported by a topology of lower level services, systems, and devices.

Planning for services and their desired state are the initial focus of automation design. Focus then moves to defining process actions against these services, with implementation of specific process workflows that traverse these services to act on lower level elements as a final implementation step. This enables a declarative approach to automation, focusing primarily on *what* is desired instead of *how* it is achieved.


**Note**

The capabilities are additive and complimentary to traditional orchestration definitions and approaches, so Cisco Process Orchestrator provides both service-oriented and process-based orchestration. This means that you can still program Process Orchestrator as usual, so you can ease into the new concepts or not use them at all. This guide, however, will demonstrate the service-oriented orchestration approach.

## Important Notes

### Cisco Process Orchestrator Support

Cisco Process Orchestrator is primarily purchased as a part of various solutions. The packaged automation packs in these solutions specialize Process Orchestrator to a particular domain and provides the solution's value. Starting with Process Orchestrator 3.0, the solution content ships separately from the platform. With this change, the Process Orchestrator platform can ship on a different schedule.

With this change:

- Process Orchestrator 3.0 is releasing ahead of the solutions it supports, and at the time of its release is not in the compatibility matrix for any prior Cisco Intelligent Automation for Cloud or Cisco Intelligent Automation for SAP version. This matrix governs what is supported, so Process Orchestrator is unsupported with:
  - Cisco Intelligent Automation for Cloud until its 4.0 release.
  - Cisco Intelligent Automation for SAP until its 3.0 release. Note that SAP resells this solution as SAP IT Process Automation by Cisco. SAP Intelligent Automation by Cisco customers should also wait for the 3.0 release.
- Process Orchestrator 3.0 will be immediately available for use with Cisco Network Operations Automation Service and stand-alone offerings.
- Cisco Intelligent Automation for Cloud, Cisco Intelligent Automation for SAP, and SAP IT Process Automation by Cisco will have separate downloads, documentation, and installers. Solution customers will need to download and install Process Orchestrator from [cisco.com](http://cisco.com), then download and install the solution separately as a second step.

- The solution compatibility matrix governs which Process Orchestrator versions are supported with each solution version. For example, although separate solution downloads will typically not require any updates to the Process Orchestrator release, customers should check the solution's compatibility matrix for specifics because on occasion a specific Process Orchestrator patch level might be required.

## Licensing Information

Customers who purchased prior versions of Cisco Process Orchestrator, Cisco Intelligent Automation for Cloud, Cisco Intelligent Automation for SAP, or Cisco Network Automation must request a new license code to get full access to the new features.



### Note

Cisco Intelligent Automation for Cloud and Cisco Intelligent Automation for SAP customers should wait to upgrade to Process Orchestrator 3.0 (see [Cisco Process Orchestrator Support, page 2](#)). These customers should wait to request a new license code until these solutions formally release.

When an order is placed, the customer receives their Claim Certificate. The Claim Certificate provides the Product Authorization Keys (PAK) and a link to the Cisco Product License Registration Portal where the PAK keys are registered. The licensing team will then issue the customer their keys. Customers should contact Cisco Technical Support and will be referred to the Global Licensing Organization (GLO) to request a new license code. The request should reference the original PAK key, the need for a new license code for Cisco Process Orchestrator, Cisco Intelligent Automation for Cloud, Cisco Intelligent Automation for SAP, or Cisco Network Automation and the host name on which Cisco Process Orchestrator will be installed.

After you receive the new license code, enter the license into the Cisco Process Orchestrator Update Product License dialog.

## Content Rework Required to Achieve High Availability

Cisco Process Orchestrator 3.0 introduces support for High Availability (see [High Availability, page 6](#)) and Active-Active multi-server installations. Customers using these features should review and possibly rework their processes to achieve high availability in content.

There are several constructs in Process Orchestrator that relate to files that exist on the servers. These constructs must now store files on some network share, which is available to all servers, so that if one server writes the file and fails, or if work is shifted for load balancing, other servers can access it to continue the automation. Ideally, the network share would not be a directory on some specific Windows server, but a highly available location with redundancy and fault tolerance. Examples of such elements that should now use a share in a multi-server Process Orchestrator environment are:

- Automation summaries, which are stored as XML files. The server must log in to write automation summaries from multiple servers.
- Files that are written by some process and later read by the same or another process such as email attachments or FTP files. Although Process Orchestrator provides backward compatibility so that processes that rely on the well-known Windows Computer target can run after the upgrade, processes that rely on file locations *local* to a Process Orchestrator server will not be high availability-ready.

Supporting high availability in Cisco Process Orchestrator will require the following content changes:

- Target execution at a *group* of Process Orchestrator servers rather than a single server. Processes that rely on file locations local to a Process Orchestrator server will not be high availability-ready (see [Usability Enhancements, page 6](#)).
- Rework content using high availability-aware file shares that are accessible to all Orchestrator servers.
- Instead of hard-coding file locations into processes, use global variables or target properties.
- Review/rework content that reads or writes files, using:
  - Write File (Microsoft Windows Adapter)
  - Put File (Terminal Adapter)
  - Get File (Terminal Adapter)
  - Email (Email Adapter)

For more information about high availability, see the [Cisco Process Orchestrator User Guide](#).

## New Features and Enhancements

The following table and subsequent sections describe additions and enhancements to Process Orchestrator 3.0.

**Table 1** *New and Enhanced Features in Process Orchestrator 3.0*

Feature Update	Description
<b>Installation and Deployment</b>	
High availability and active-active server	The Cisco Process Orchestrator active-active server provides a highly available and scalable solution, the goal of which is to virtually eliminate down time due to hardware application failures. This solution protects critical pieces of the system from failure and excessive loads.  For more information, see <a href="#">High Availability, page 6</a> .
Installation enhancements	<ul style="list-style-type: none"> <li>• Upgrades from 2.2.X, 2.3.X.</li> <li>• Much faster installs, and less knowledge of Windows is required.</li> <li>• Reduced prerequisites to simplify environment preparation before install. For example, Microsoft Internet Information Server is now configured by the installer, and Java is included so it does not need to be preinstalled.</li> <li>• Additional prerequisite steps to eliminate common misconfigurations (PowerShell 2, server domain membership)</li> <li>• New high availability install modes (see <a href="#">Usability Enhancements, page 6</a>).</li> <li>• It is now easier than ever to install content from solutions and other automation packs. When installing multiple automation packs, dependencies are automatically processed to ensure the proper order of import. Adapter prerequisites are verified when leveraged by the imported automation, and the Northbound Web Service (NBWS) is automatically updated without any manual action.</li> </ul>

**Table 1**      **New and Enhanced Features in Process Orchestrator 3.0**

Feature Update	Description
Run database grooming on demand	Process Orchestrator provides the ability to start database grooming immediately, rather than waiting for the scheduled time.
<b>Server/Client Platform Enhancements</b>	
Product name change	The user interface (UI) and documentation have been updated to reflect the product name change from Tidal Enterprise Orchestrator to Cisco Process Orchestrator.
Target types and service-oriented automation	<p>Service-Oriented Orchestration provides the agility to model and act on IT services. These features make creating orchestration active and dynamic, and allow for:</p> <ul style="list-style-type: none"> <li>• Defining new, higher-level services in the system, and deploying new services quickly.</li> <li>• In real-time, after these new types of services have been defined, creating real-time instances of those new services.</li> <li>• Using events to watch for patterns in these services, enabling policy-driven automation.</li> </ul> <p>Target types are service definitions that allow Process Orchestrator to deliver service-oriented automation, where the <i>service</i>, not the process, is the focal point. In service-oriented automation, the <i>content</i>, not the Process Orchestrator platform, defines the solution models; the platform is open to any model you want to produce. For more information about target types and Service-Oriented Orchestration, see the <a href="#">Cisco Process Orchestrator User Guide</a>.</p>
Usability enhancements	See <a href="#">Usability Enhancements, page 6</a>
Performance enhancements	See <a href="#">Performance Enhancements, page 9</a>
Supportability improvements	See <a href="#">Supportability Improvements, page 10</a>
New adapters and enhancements to existing adapters	See <a href="#">New and Enhanced Adapters, page 11</a>
Northbound Web Service (NBWS)	<p>Enhancements include:</p> <ul style="list-style-type: none"> <li>• Verify Target and Runtime User</li> <li>• NBWS refresh during install and automation pack import</li> <li>• New controls for how automation elements are exposed through the NBWS increase performance, provide more consistent APIs as names change, and enhance security.</li> <li>• When process changes would affect the NBWS changes, users are now prompted for whether it is a good time to refresh.</li> </ul> <p>For more information about the Process Orchestrator northbound web services, see the <a href="#">Cisco Process Orchestrator Northbound Web Services Guide</a>.</p>
Documentation changes	See <a href="#">Related Documentation, page 14</a>

## High Availability

The Cisco Process Orchestrator active-active server provides a highly available and scalable solution, the goal of which is to virtually eliminate down time due to hardware application failures. This solution, which protects critical pieces of the system from failure and excessive loads, includes these features:

- Rather than a single server performing all of the work (running processes, monitoring triggers, and so on), a Process Orchestrator environment can contain many servers. If one server fails, work can continue on the remaining servers.
- In a Process Orchestrator environment, all servers connected to the system share the workload, which helps increase scalability and performance. The more servers that are available in the system, the less work each of them must perform.
- A Process Orchestrator environment is available during routine maintenance, such as rebooting the operating system, applying OS security patches, and performing minor upgrades (even to the Process Orchestrator itself).

### Related Topics

- For more information about high availability, see the [Cisco Process Orchestrator User Guide](#).
- For information about how to configure active-active servers, see the [Cisco Process Orchestrator Installation Guide](#).

## Usability Enhancements

The following sections describe some of the more significant usability enhancements made in Process Orchestrator 3.0. For additional details, see the [Cisco Process Orchestrator User Guide](#).

### Target Operations Views

Target views in the Operations workspace of the console allow the user to view ongoing automation in the context of the targets or services on which it acts. Users can filter the list of all targets to focus in on a specific type, or by the name of a target such as an Cisco Intelligent Automation for Cloud service request. After selecting a target, users see:

- Available user-startable actions (processes)
- All process activity related to that target (filterable by a time range or by a specific process)

For more information about target views, see the [Cisco Process Orchestrator User Guide](#).

### Finding Prime Service Catalog Request Automation

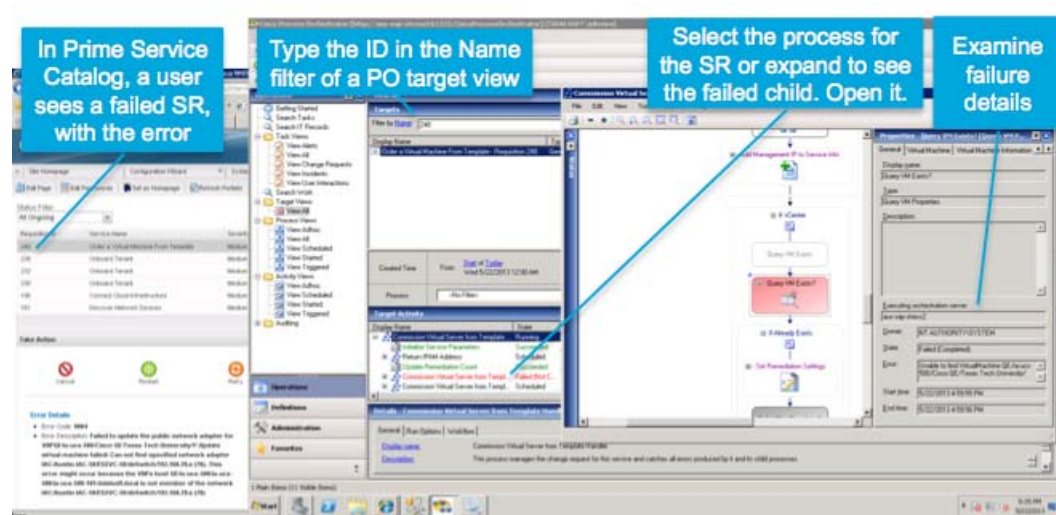
In prior versions of the Process Orchestrator, it was difficult to find a process for a service request or failure.

New for Process Orchestrator 3.0, Target Views in the Console's Operations workspace greatly simplify this case. For example:

1. The user sees a failed service request in the Cisco Prime Service Catalog.
2. In the Process Orchestrator Console, the user:
  - a. Enters the ID in the Name filter of a target view.

- b. Selects the process for the service request, or expands the view to see the failed child, then opens that item.
3. The failure details display in the Properties dialog.

**Figure 1** Finding a Process for a Service Request or Failure



## Modeless Process Editor

In prior versions of the Process Orchestrator, Process Editors were modal; you could only open one process at a time.

New for Process Orchestrator 3.0, Process Editors are modeless; that is, you can open many processes and edit them simultaneously. Property pages for many objects are now modeless as well.

### Benefits

- Copy and paste groups of activities quickly from one process to another
- Drag and drop groups of activities from one process to another
- Easily compare two similar workflows to find differences
- Easily use a workflow as a “reference” while working on a different process
- More easily break parts of an original process into multiple processes. You can:
  - Create and save a new process with the necessary input/output parameters
  - Drag activities from an original process into a new child process
  - Drag a new process toolbox item back into the original process

## Reference Control Remembers State

In prior versions of the Process Orchestrator, the reference control in the Process Editor was always opened in the initial collapsed state, so many clicks were required to navigate to the location of interest.

New for Process Orchestrator 3.0, within a single editor, the reference control remembers the last reference that was selected.

**Benefits**

- Improved process authoring productivity

## Trigger Filter in Processes View

New for Process Orchestrator 3.0, two new filters have been added to the Processes view in the Definitions workspace and the Process Views in the Operations workspace:

- Trigger Type
- Trigger Name

**Benefits**

- Improved ability to find process definitions that might be triggered by a particular type of event
- Improved ability to see what ran from a particular trigger

## Automation Pack Import from the UI

In prior versions of the Process Orchestrator, the user was able to select only one automation pack at a time. If dependent automation packs were missing, import errors were displayed one message at a time.

New for Process Orchestrator 3.0, you can select multiple automation packs to import at the same time. The Process Orchestrator now:

- Detects interdependencies
- Warns about missing dependent automation packs
- Orders the automation pack for import to ensure success

**Benefits**

- Improved usability of importing content consisting of multiple automation packs

## Automation Pack Import from the CLI

New for Process Orchestrator 3.0, several new commands have been added related to automation packs:

- Get-OrchestratorAutomationPack
- Export-OrchestratorAutomationPack
- Import-OrchestratorAutomationPack

Note that import is limited to the automation packs that do not require user input.

Use the Get-Help commandlet to learn more about these commands.

**Benefits**

- Improved ability to back up automation packs during content development, such as to add an automation pack to a version control system.
- Improved ability to move content between the development and production environments for customers
- The ability to import all files in a directory



## Performance Enhancements

The following sections describe some of the more significant performance enhancements made in Process Orchestrator 3.0. For additional details, see the [Cisco Process Orchestrator User Guide](#).

### UI Performance Improvements

In prior versions of the Process Orchestrator:

- Refreshing any view in the Console requested and received all objects from the server (for example, all targets or all process definitions).
- Expanding or observing a process instance fetched complete set of data (for all activities).

New for Process Orchestrator 3.0:

- The Console only requests and receives configuration objects that have changed on the server since the last fetch.
- Refresh requests to the server are done in small batches.
- Only a subset of activity instance data is received when processes are observed (the rest is requested on demand as individual activity instances are selected).

#### Benefits

- Fewer calls from the Console to the server
- Smaller amounts of data are sent over the network
- More responsive user interface
- Less loaded server(s)

### New Process Archival Settings

New for Process Orchestrator 3.0, there are two new archival options:

- Archive failed instances only—Automation development teams should consider using this option as the default for most processes.
- Archive if condition is true.

#### Benefits

- Improved server performance due to less data saved to the database
- Improved ability to diagnose process failures

### Archival Settings in Automation Packs

In prior versions of the Process Orchestrator:

- Shipping content allowed changes to archival settings but on a per-process basis only.
- To debug in a customer environment required tedious manual changes to many process definitions.
- Content authors accidentally shipped processes as “persistent” without intending to do so.

New for Process Orchestrator 3.0:

- Ability to increase archival settings for all processes in an automation pack

- Available to users of an automation pack (not just to authors)

**Note**


---

Use this feature as a short term solution only; it has severe performance implications.

---

**Benefits**

- Improved field debuggability of out-of-the-box content
- Ability to persist in development environments, while allowing one to export with persistence off

## Supportability Improvements

The following sections describe some of the more significant supportability improvements made in Process Orchestrator 3.0. For additional details, see the [Cisco Process Orchestrator User Guide](#).

### Automation Pack Style Validation

New for Process Orchestrator 3.0, the authors of processes can now validate their content against several best practice rules. The validation can be done for an individual process definition or during automation pack export. The rules check processes and other objects for design, reliability, performance, and maintainability issues.

**Benefits**

- Ability to detect performance or design problems in content early, before they reach the end consumer
- Allow for development of more maintainable content

### Process Execution Limits

New for Process Orchestrator 3.0, there are new process execution features:

- A new property page in Environment Properties exposes a set of configurable limits:
  - The maximum number of loop iterations
  - The maximum number of activity instances in a process instance
  - The maximum size of a string variable (New in 3.0)
  - The maximum size of an event instance (New in 3.0)

**Note**


---

All limits have a dual setting: a warning level when a message is written to the product's system log, and an error level when the process fails.

---

- The limit on the number of loop iterations (which was configurable through a configuration file) is now exposed in the console
- Configurable limits on process execution

**Benefits**

- Improve supportability (warnings about potentially bad content are visible in the system event log)
- Prevent customer environment meltdowns due to poorly designed content

## Changing the Reporting Database Name

Multiple Process Orchestrator environments can share a reporting database. However, because each Process Orchestrator version has a unique reporting schema, there is a need to segment reporting databases by Process Orchestrator version. There may also be a need to segment reporting instances due to security concerns.

In Process Orchestrator 3.0, the reporting database name can be customized so that multiple reporting instances can coexist on the same database server.

## Clearer Boundaries of Packaged vs Custom Content

In prior versions of the Process Orchestrator:

- Poorly authored content was seen as a part of the platform, and therefore customers perceived it as a product quality issue.
- The boundary of what is Cisco Technical Assistance Center (TAC)-supported vs. custom was unclear.

New for Process Orchestrator 3.0:

- A new “Base Product” column in the Processes and Automation Packs views distinguishes content shipped within a Cisco product such as Cisco Process Orchestrator, Cisco Intelligent Automation for Cloud, or Cisco Intelligent Automation for SAP, vs. content which extends these products.
- Separately, the Company Name column in the Automation Packs view can help distinguish what content is from other trusted sources such as Cisco Services.

## New and Enhanced Adapters

Cisco Process Orchestrator 3.0 supports the following new adapters:

**Table 2**      **New Adapters**

Adapter Name	Description
Cisco UCS Director Adapter	Automates converged data center infrastructure, allowing enterprises and service providers to simplify the deployment and configuration of physical and virtual resources from a single management console.
Advanced Message Queuing Protocol (AMQP) Adapter	The AMQP Adapter provides integration to the AMQP message services, allowing publishing and receiving AMQP messages and subscribing to AMQP message queue. It also enables the event-driven capabilities of Enterprise Service Bus-style design.

In addition, Process Orchestrator 3.0 also provides the following enhancements to these existing adapters:

**Table 3 Enhancements to Existing Adapters**

Adapter Name	Enhancements
Core Functions Adapter	<ul style="list-style-type: none"> <li>• New Process State Changed triggers.</li> <li>• Date time values are now supported in table variables.</li> <li>• New Delete Target and Update target activities.</li> <li>• Many activities now use paged output that did not before, which should improve performance.</li> </ul>
Cisco Prime Service Catalog Adapter	<ul style="list-style-type: none"> <li>• Property Browser: A new service item definition that allows users to set up integration rapidly. The integration must leverage a live Cisco Prime Service Catalog connection to access the new definition.</li> <li>• New activities:               <ul style="list-style-type: none"> <li>– Find Service Items</li> <li>– Get Service Item</li> <li>– Cancel Service Request</li> <li>– Get User Information</li> </ul> </li> </ul>
Oracle Adapter	<ul style="list-style-type: none"> <li>• Support for connecting to Oracle Real Application Clusters</li> <li>• Execute Oracle SQL Script activity was enhanced to support data tables</li> <li>• Enhanced SQL injection prevention in Select, Update, Insert and Delete activities</li> </ul>
Microsoft SQL Server Adapter	<p>Enhanced SQL injection prevention in Select, Update, Insert and Delete activities</p>
VMware vSphere Adapter	<ul style="list-style-type: none"> <li>• VMware Adapter was renamed to “VMware vSphere Adapter”. The VMware ESX Server target is now called “VMware vSphere Hypervisor”.</li> <li>• Managed object reference-to-path conversion (and back)</li> <li>• New capabilities:               <ul style="list-style-type: none"> <li>– Add /remove a host to/from virtual distributed switch</li> <li>– Add/remove physical adapter to/from VDS uplink</li> <li>– Add optical drive</li> <li>– Mount/unmount ISO</li> <li>– Remove folder from data center</li> <li>– Create resource pool</li> </ul> </li> </ul>
vCloud Director Adapter	<ul style="list-style-type: none"> <li>• Support VCloud Director 5.1 via both API version 1.5 and 5.1.</li> <li>• New capability: Query vCloud objects</li> </ul>

**Table 3**      *Enhancements to Existing Adapters*

Adapter Name	Enhancements
Email Adapter	<ul style="list-style-type: none"> <li>• New Email SMTP Server target                             <ul style="list-style-type: none"> <li>– Move the Global SMTP setting to a “Default SMTP Server” target</li> <li>– Email activity uses email SMTP Server target</li> </ul> </li> <li>• Support credential-authenticated Email SMTP Servers</li> <li>• Support TLS authentication</li> <li>• Support attachment filter for Email Advanced Event (IMAP)</li> <li>• New Get Email Attachments activity</li> </ul>
Web Service Adapter	<ul style="list-style-type: none"> <li>• Support for client certificates</li> <li>• Performance improvements in Web Service Execute activity</li> </ul>
Solution Manager Adapter	<ul style="list-style-type: none"> <li>• Support for metrics</li> <li>• Drop downs for alert names to simplify the alert usage</li> <li>• Hide Alert ID field</li> </ul>



**Note**

For additional information about adapters, see the *Cisco Process Orchestrator 3.0 User Guide* and the Cisco Process Orchestrator help.

## Deprecated Features

- Correlate SNMP Trap Received has been deprecated (it will not work after upgrade to 3.0).
- The Windows Active Directory automation pack has been removed from the product; it is now published as a community automation pack on the solutions accelerators web site.
- The Cisco Network Services Manager (NSM) adapter has been removed from the product.
- Extended Property Value Update trigger has been replaced with Target Updated trigger. The old triggers, defined prior to 3.0, will continue to function, but it is not possible to create new processes with such triggers in them.
- VMware Host Performance and VMware VM Performance triggers have been deprecated.

## Process Orchestrator 3.0 Bugs

Use the Bug Search tool to search for a specific bug or to search for all bugs in a release.

- 
- Step 1**    Go to <http://tools.cisco.com/bugsearch>.
  - Step 2**    At the Log In screen, enter your registered Cisco.com username and password; then, click **Log In**. The Bug Search page opens.



---

**Note** If you do not have a Cisco.com username and password, you can register for them at <http://tools.cisco.com/RPF/register/register.do>.

---

**Step 3** To search for a specific bug, enter the bug ID in the Search For field and press **Return**.

**Step 4** To search for bugs in the current release, click the **Search Bugs** tab and specify the following criteria:

- a. In the Search For field, enter **Process Orchestrator 3.0** and press **Return**. (Leave the other fields empty.)
- b. When the search results are displayed, use the filter tools to find the types of bugs you are looking for. You can search for bugs by modified date, status, severity, and so on.



---

**Tip** To export the results to a spreadsheet, click the **Export All to Spreadsheet** link.

---

## Related Documentation

See the [Process Orchestrator 3.0 Documentation Overview](#) for a list of Process Orchestrator 3.0 guides. Note that major changes to the documentation deliverables for Process Orchestrator 3.0 include the following:

- The Reference Guide has been renamed to the User Guide.
- The Resiliency Strategy document has been merged into the User Guide.
- The adapter guides are available via the online help.
- The Powershell CLI Guide content is available via the CLI online help.

## Obtaining Documentation and Submitting a Service Request

For information on obtaining documentation, using the Cisco Bug Search Tool (BST), submitting a service request, and gathering additional information, see *What's New in Cisco Product Documentation* at: <http://www.cisco.com/en/US/docs/general/whatsnew/whatsnew.html>.

Subscribe to *What's New in Cisco Product Documentation*, which lists all new and revised Cisco technical documentation, as an RSS feed and deliver content directly to your desktop using a reader application. The RSS feeds are a free service.

Cisco and the Cisco logo are trademarks or registered trademarks of Cisco and/or its affiliates in the U.S. and other countries. To view a list of Cisco trademarks, go to this URL: [www.cisco.com/go/trademarks](http://www.cisco.com/go/trademarks). Third-party trademarks mentioned are the property of their respective owners. The use of the word partner does not imply a partnership relationship between Cisco and any other company. (1110R)

Any Internet Protocol (IP) addresses used in this document are not intended to be actual addresses. Any examples, command display output, and figures included in the document are shown for illustrative purposes only. Any use of actual IP addresses in illustrative content is unintentional and coincidental.

© 2013 Cisco Systems, Inc. All rights reserved.