VCE Vision™ Intelligent Operations
Version 2.0
Technical Overview

Document revision 2.0
June 2013
## Revision history

<table>
<thead>
<tr>
<th>Date</th>
<th>VCE Vision™ Intelligent Operations release version</th>
<th>Document revision</th>
<th>Author</th>
<th>Description of changes</th>
</tr>
</thead>
<tbody>
<tr>
<td>April 2013</td>
<td>2.0.0</td>
<td>2.0</td>
<td>Ellen Hanley</td>
<td>Version 2.0.0 release</td>
</tr>
<tr>
<td>June 2013</td>
<td>2.0.1</td>
<td>2.0</td>
<td>Ellen Hanley</td>
<td>N/A</td>
</tr>
</tbody>
</table>
# Table of contents

## Introduction ................................................................................................................................................. 4

## Accessing VCE documentation ................................................................................................................. 5

## VCE Vision™ Intelligent Operations product suite ......................................................................................... 6
  - Overview ............................................................................................................................................. 6
  - Products and features ....................................................................................................................... 6
  - Architecture ...................................................................................................................................... 9

## VCE Vision™ System Library ....................................................................................................................... 10
  - System Library overview ............................................................................................................... 10
  - Discovery .................................................................................................................................... 10
    - What does System Library discover? ......................................................................................... 10
    - How does System Library discover a Vblock System? .............................................................. 11
    - How often does the discovery occur? ....................................................................................... 11
  - Identification ....................................................................................................................................... 11
  - Health monitoring .......................................................................................................................... 11
  - Logging ........................................................................................................................................ 12
  - Configuration backup and recovery .............................................................................................. 13
    - System Library configuration files .......................................................................................... 13
    - Vblock System configuration files .......................................................................................... 14
    - Restoring configuration files .................................................................................................. 14

## VCE Vision™ Plug-in for vCenter ................................................................................................................. 15
  - Plug-in for vCenter overview ........................................................................................................ 15
  - Compliance Checker ...................................................................................................................... 15

## VCE Vision™ Adapter for vCenter Operations Manager .............................................................................. 16
  - Adapter for vCenter Operations Manager overview ..................................................................... 16
  - Dashboards ................................................................................................................................... 16

## APIs ............................................................................................................................................................ 18
  - API for System Library .................................................................................................................. 18
  - API for Compliance Checker ........................................................................................................ 18

## SDK ............................................................................................................................................................ 19
  - SDK overview .............................................................................................................................. 19
Introduction

The Vblock™ System from VCE is the world's most advanced converged infrastructure—one that optimizes infrastructure, lowers costs, secures the environment, simplifies management, speeds deployment, and promotes innovation. The Vblock System is designed as one architecture that spans the entire portfolio, includes best-in-class components, offers a single point of contact from initiation through support, and provides the industry’s most robust range of configurations.

VCE Vision™ Intelligent Operations enables and simplifies converged operations. The software acts as a mediation layer between Vblock™ Systems and data center management tools, dynamically informing those tools about Vblock Systems. It delivers intelligent discovery to provide a single-objective perspective on Vblock Systems. Comprehensive awareness of the industry-leading components that comprise Vblock Systems promotes infrastructure standardization through automated validation and system assurance. Integration capabilities make it possible to provide this level of intelligence to any toolset. The software has native integration with the VMware Virtualization and Cloud Management Portfolio, and also supports API-enabled integration into other standard industry tools.

This document provides a high-level technical overview of the VCE Vision™ Intelligent Operations suite.

The target audience for this document includes customers, VCE vArchitects, and VCE partners.

The VCE Glossary provides terms, definitions, and acronyms. For more information about Vblock System documentation, refer to Accessing VCE documentation.

To suggest documentation changes and provide feedback on this book, send an e-mail to docfeedback@vce.com. Include the name of the topic to which your feedback applies.
## Accessing VCE documentation

Select the documentation resource that applies to your role:

<table>
<thead>
<tr>
<th>Role</th>
<th>Resource</th>
</tr>
</thead>
<tbody>
<tr>
<td>Customer</td>
<td>support.vce.com</td>
</tr>
<tr>
<td></td>
<td>A valid username and password are required.</td>
</tr>
<tr>
<td>VCE Partner</td>
<td><a href="http://www.vcepartnerportal.com/resourcelib-vce.asp?loc=331">www.vcepartnerportal.com/resourcelib-vce.asp?loc=331</a></td>
</tr>
<tr>
<td></td>
<td>A valid username and password are required.</td>
</tr>
<tr>
<td>Cisco, EMC, VCE, or VMware employee</td>
<td><a href="http://www.vceportal.com/solutions/68580567.html">www.vceportal.com/solutions/68580567.html</a></td>
</tr>
<tr>
<td>VCE employee</td>
<td><a href="http://www.vceview.com/solutions/products/">www.vceview.com/solutions/products/</a></td>
</tr>
<tr>
<td></td>
<td>or vblockproductdocs.ent.vce.com</td>
</tr>
</tbody>
</table>
VCE Vision™ Intelligent Operations product suite

Overview

The VCE Vision Intelligent Operations software suite provides an integrated set of software products for managing a data center. The VCE Vision suite is the first software suite to provide an intelligent solution to the problem of managing operations in a converged infrastructure environment. These tools enable and simplify converged operations by dynamically providing a high level of intelligence into your existing management toolset.

The VCE Vision suite enables VCE customers and third-party consumers to know that the Vblock™ System exists, where it is located, and what components it contains. It reports on the health or operating status of the Vblock System and reports on how compliant the Vblock System is with a VCE Release Certification Matrix. The VCE Vision suite effectively acts as a mediation layer between your system and the management tools you use now. The software allows for intelligent discovery by providing a continuous, near real-time perspective of your compute, network, storage, and virtualization resources as a single object—ensuring that your management tools reflect the most current state of your Vblock Systems. For information about the VCE Release Certification Matrix, refer to Accessing VCE documentation.

VCE Vision software provides the Vblock System information natively through the VMware vCenter and vCenter Operations Manager. The information can also be consumed using a public API or through SNMP.

This document provides a high-level overview of the technology that drives each feature.

Products and features

The VCE Vision suite is made up of the following products:

- VCE Vision™ Intelligent Operations System Library
- VCE Vision™ Intelligent Operations Plug-In for vCenter
- VCE Vision™ Intelligent Operations Adapter for vCenter Operations Manager
- VCE Vision™ Intelligent Operations Compliance Checker
- VCE Vision™ SDK
- VCE Vision™ Intelligent Operations API for System Library
- VCE Vision™ Intelligent Operations API for Compliance Checker

Together, these products provide you with the following features:
<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
<th>Product</th>
</tr>
</thead>
<tbody>
<tr>
<td>Discovery</td>
<td>Allows you to manage your Vblock System components based on their most current state by: • Performing an initial discovery in the factory to identify the Vblock System as it was built. • Building a comprehensive Vblock System model. • Discovering both logical and physical components of the Vblock System and updating management tools in near real time. • Performing periodic rediscovery during operation ensuring an up-to-date representation of the Vblock System. • Performing regular backups of the Vblock System component configuration files to allow for disaster recovery.</td>
<td>VCE Vision™ Intelligent Operations System Library</td>
</tr>
<tr>
<td>Identification</td>
<td>Provides a converged, single system view of each Vblock System by: • Presenting a unique identity for each Vblock System. • Providing system-specific information, such as the serial number, model, and location.</td>
<td>VCE Vision™ Intelligent Operations System Library</td>
</tr>
<tr>
<td>Health monitoring</td>
<td>Expedites the diagnosis of potential problems and speeds remediation through: • Providing a health score that incorporates VCE System design principles. • Producing a consolidated health status at the Vblock System level, while also providing the ability to drill down into issues at the component level. • Identifying potential issues in the health of the system. • Delivering out-of-the-box dashboards that expedite diagnosis and remediation. • Producing a stream-lined information flow.</td>
<td>VCE Vision™ Intelligent Operations System Library</td>
</tr>
<tr>
<td>Logging and event messaging</td>
<td>Enables rapid troubleshooting with built-in logging capabilities that: • Forwards aggregated log data from VCE Vision to other log hosts. • Translates events from vendor formats and protocols to standard formats and protocols. • Segregates application logs from AAA logs. • Expedites data collection for troubleshooting. • Uses the RabbitMQ event messaging model (messaging system based on the AMQP standard) to publish messages to the RabbitMQ broker. • Allows clients to subscribe to the broker using customized routing keys to filter and receive messages.</td>
<td>VCE Vision™ Intelligent Operations System Library</td>
</tr>
<tr>
<td>Feature</td>
<td>Description</td>
<td>Product</td>
</tr>
<tr>
<td>----------------------------------------------</td>
<td>-----------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>----------------------------------------------------------------------</td>
</tr>
</tbody>
</table>
| **Validation**                               | Ensuring reliability and performance of your Vblock System by:  
  • Automatically verifying the Vblock System to VCE Release Certification Matrixes.  
  • Providing a standards-based means to establish audit baselines.  
  • Validating successful application of upgrades to Vblock System software.  
  • Accelerating resolution of problems reported to VCE.  
  • Presenting output in standard XCCDF and HTML for easy integration into other services. | **VCE Vision™ Intelligent Operations Compliance Checker**                                                          |
| **Open API**                                 | Simplifies and speeds integration with third-party management solutions by:  
  • Providing an easy way for third-party developers to integrate with the VCE Vision application programming interfaces (Open APIs).  
  • Supporting a RESTful model of application development.  
  • Providing Java bindings that allow developers to access the APIs from Java without having to make REST calls.  
  • Providing a software development kit (SDK) that provides sample code and tools. | **VCE Vision™ Intelligent Operations System Library**                                                            |
| **Native integration with VMware products**  | Seamlessly integrates with familiar management tools by:  
  • Displaying information from the Vblock System in VMware vCenter.  
  • Enabling data center managers to use VMware vCenter Operations Manager to view metrics from a Vblock System. | **VCE Vision™ Intelligent Operations Plug-in for vCenter**  
  **VCE Vision™ Intelligent Operations Adapter for vCenter Operations Manager**                                      |
| **Toolkit for third-party developers**       | Provides the foundation for the VCE Developer Program through:  
  • A new VCE Developer portal  
  • Open APIs  
  • API reference documentation | **VCE Vision™ Intelligent Operations SDK**                                                                          |
Architecture

The VCE Vision software is installed on the following Vblock Systems:

- On the Vblock System 100 and Vblock System 200, it resides on the logical AMP.
- On the Vblock System 300 and Vblock System 700 families, it resides on the AMP.

The following illustration provides a high-level overview of the integration of the VCE Vision Intelligent Operations suite, protocols used, and the products with which they interact:
**VCE Vision™ System Library**

**System Library overview**

The System Library provides the foundation for the rest of the VCE Vision software suite. It is responsible for:

- **Discovering** the Vblock System and its components
- Discovering **identifying** information about the Vblock System
- Calculating the **health** or operating status of the Vblock System and its components
- Forwarding events and messages from the Vblock System

This section provides a high-level overview of how the System Library product works.

**Discovery**

The discovery process consists of using appropriate protocols to discover the inventory, location, and health of the Vblock System and using that information populates an object model. System Library uses the information in the object model to populate a PostgreSQL database that is used by the REST interfaces. The data stored in the object model can also be accessed via SNMP GETs.

**What does System Library discover?**

The System Library discovers the Vblock System itself and the following physical components and logical entities:

<table>
<thead>
<tr>
<th>Group</th>
<th>Physical components</th>
<th>Logical entities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compute</td>
<td>All</td>
<td>ESXi</td>
</tr>
<tr>
<td>Network</td>
<td>All</td>
<td>VLANs, Ports on a VLAN</td>
</tr>
<tr>
<td>Storage</td>
<td>All</td>
<td>Storage groups, RAID groups, LUN relationships to RAID and storage groups, Masking records, Mapping records - LUNs mapped to FA ports so that ports can see the LUNs for access</td>
</tr>
</tbody>
</table>
How does System Library discover a Vblock System?

The initial discovery process takes place during the manufacturing process. At that time a file is populated with basic information about the Vblock System that was built and configured. Later, when the Vblock System is in place at the customer site, the System Library discovers the Vblock System, and its physical components and logical entities, using the following protocols:

- Common Information Model (CIM)
- Trivial File Transfer Protocol (TFTP)
- Representational State Transfer (REST)
- Simple Network Management Protocol (SNMP)
- Storage Management Initiative – Specification (SMI-S)
- Cisco CIMC firmware

How often does the discovery occur?

The System Library runs every 15 minutes by default, but can be modified to meet your business requirements.

Identification

As part of the initial discovery that takes place during the manufacturing process, System Library gathers the properties and qualities that define a Vblock System as a unique entity such as serial number, model, and location, and stores it in an object model. The regularly scheduled discovery process detects any changes you make to this information and updates the object model.

Health monitoring

System Library monitors health or operational status of the following:

- Individual components of a Vblock System
- Major families of a Vblock System (compute, network, storage)
- Vblock System as a whole

The health status operates separately from the discovery process. System Library listens to communications from the physical components and logical elements to get the health status of each.

System Library uses a VCE-derived algorithm that is based on best practices incorporated into the Logical Build Guides to apply relative weights to the importance of each component. For example, if you have three...
power supplies and one goes down, the state will be major. If another power supply goes down it will be critical.

Using a hierarchical model of the Vblock System inventory (compute, network, and storage families and their components), System Library applies the VCE-derived algorithm to a component, assigns a health status to the component, and then moves up the inventory tree. The health status of each component is based on the status of the lower level component. When all the components in a family have been calculated, the family is assigned a status. The statuses of the families are then used to calculate the health of the Vblock System as a whole.

The following table shows how System Library determines the status of a Vblock System and its components:

<table>
<thead>
<tr>
<th>A component or Vblock System is assigned this status...</th>
<th>When...</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operable</td>
<td>All sub-components are operable</td>
</tr>
<tr>
<td>Minor</td>
<td>A sub-component is inoperable, but no sub-components are in a critical, major, or degraded state</td>
</tr>
<tr>
<td>Degraded</td>
<td>One-fourth of the sub-components are not operating properly</td>
</tr>
<tr>
<td>Major</td>
<td>One-third of the sub-components are not operating properly</td>
</tr>
<tr>
<td>Critical</td>
<td>More than half of the sub-components are not operating properly</td>
</tr>
</tbody>
</table>

Logging

The System Library collects syslog messages generated by the individual components. It can write all consolidated syslog messages it receives from each component to a local log file, or it can forward the syslog messages to a remote syslog server. System Library standardizes events coming from the various components of the Vblock System and forwards the data for root-cause analysis.

Events from the following sources are handled by SNMP and the Advanced Message Queuing Protocol (AMQP):

- SMI-S
- SNMP traps and gets
- CIM indications
- CIMC

Log messages are forwarded using rsylog:

- Component log messages
- Application log messages generated by System Library
System Library does not discover the following and as a result, events from them are not captured:

- EMC VPLEX
- EMC Avamar
- EMC Data Domain
- EMC RecoverPoint
- Vblock System Advanced Management Pod (AMP)

**Configuration backup and recovery**

The System Library is deployed with backups of the following types of files:

- System Library configuration files
- Vblock System configuration files

**System Library configuration files**

The following System Library configuration files are backed up daily and stored in a single tar file:

- System Library configuration files in the following directories
  - `/opt/vce/fm/conf`
  - `/etc/snmp/snmpd.conf`
  - `/etc/logrotate.d/syslog`
  - `/etc/srconf/agt/snmpd.cnf`
- JBoss configuration files, including keystore files
- System Library administrative, configuration, and model database schemas and data files

By default, configuration files are backed up daily at 12:00 AM. A maximum of seven backups are retained.
Vblock System configuration files

When the Vblock System is built, it is deployed with backups of the Vblock System component’s configurations. Configurations for the following components are backed up:

<table>
<thead>
<tr>
<th>Vblock System</th>
<th>Component</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vblock System 100</td>
<td>Cisco Catalyst 3750-X Switch</td>
</tr>
<tr>
<td></td>
<td>CIMC</td>
</tr>
<tr>
<td>Vblock System 200</td>
<td>Cisco Nexus 5000 Switch</td>
</tr>
<tr>
<td></td>
<td>Cisco Nexus 1000V Switch</td>
</tr>
<tr>
<td></td>
<td>CIMC</td>
</tr>
<tr>
<td></td>
<td>EMC VNX</td>
</tr>
<tr>
<td>Vblock System 300 family</td>
<td>Cisco MDS 9000</td>
</tr>
<tr>
<td></td>
<td>Cisco Nexus 5000</td>
</tr>
<tr>
<td></td>
<td>Cisco Nexus 1000V</td>
</tr>
<tr>
<td></td>
<td>Cisco UCS fabric interconnect</td>
</tr>
<tr>
<td></td>
<td>EMC VNX</td>
</tr>
<tr>
<td>Vblock System 700 family</td>
<td>Cisco MDS 9000</td>
</tr>
<tr>
<td></td>
<td>Cisco Nexus 5000</td>
</tr>
<tr>
<td></td>
<td>Cisco Nexus 1000V</td>
</tr>
<tr>
<td></td>
<td>Cisco UCS fabric interconnect</td>
</tr>
<tr>
<td></td>
<td>EMC Symmetrix VMAX</td>
</tr>
</tbody>
</table>

By default, these configuration files are backed up twice daily at 1:30 AM and 1:30 PM. To meet your business needs, you can change the backup schedule as required.

Restoring configuration files

Vblock System configuration files are stored in the following directories:

- `/opt/vce/backup/storage`
- `/opt/vce/backup/network`
- `/opt/vce/backup/compute`

A REST API is provided to download configuration backup files in the event the configurations need to be restored. It is authenticated by CAS.

Refer to the VCE Vision™ Intelligent Operations Administration Guide for details on administering your Vblock System using these tools. Refer to Accessing VCE documentation.
VCE Vision™ Plug-in for vCenter

Plug-in for vCenter overview

The Plug-in for vCenter is a client that runs on the VMware vSphere Web Client application. Using the API for System Library, it provides a system-level view of a data center's configured physical servers that form a named cluster -- the Vblock System cluster. It also enables a customer to view and monitor information about all the components in the Vblock System you select, including the server, network switches, and storage arrays, as well as their subcomponents within the VMware vCenter interface.

The graphical user interface of the Plug-in for vCenter provides a tree view that displays the name of a Vblock System, as well as its overall system health, description, prior state, serial number, and location. Additional information, such as the health status of the Vblock System and its components can be displayed by drilling down through the tree view.

The Plug-in for vCenter integrates with the VCE Vision™ Intelligent Operations Compliance Checker, which is required for complete monitoring of the Plug-in for vCenter. Together, they enable you to run reports that provide detailed information about how closely your Vblock System complies with established benchmarks and profiles you select.

Compliance Checker

Working in conjunction with the Plug-in for vCenter, the Compliance Checker provides a set of criteria that determines if your Vblock System is compliant with an established benchmark, such as the Vblock System Release Certification Matrix (RCM). The Compliance Checker compares the actual settings found on your Vblock System against the expected values found within the benchmark and profile you select.

The Plug-in for vCenter includes a wizard you use to set up and schedule compliance scans according to the parameters you set. You can run a compliance scan immediately or use the scheduler to run a scan at a later time.

The results of the scans are displayed in detailed compliance reports. When you view the reports, the overall compliance score lets you see at a glance how close the Vblock System you scanned is to being compliant with the requirements of the benchmark and profile you selected for the scan. The reports also list all items that were scanned for compliance, and display their individual results. Within a report, you make selections to view more detailed information about a selected component, including lists of the rules that were executed for the selected category. When you select an item from the list of items tested, you can see the actual values of each item, including any expected values. This enables you to make a quick comparison of the expected results to actual values achieved.

For more information on the Plug-in for vCenter and the Compliance Checker, refer to the Plug-in for vCenter online help.
VCE Vision™ Adapter for vCenter Operations Manager

Adapter for vCenter Operations Manager overview

The VCE Vision™ Adapter for vCenter Operations Manager discovers and monitors Vblock Systems hardware and VMware vCenter software components. The Adapter works with VMware vCenter Operations Manager to collect and analyze component metrics. Metric data include health, operability, and resource availability that measure the performance of Vblock System components and determine the health and status of the system.

The Adapter uses the following processes to gather and analyze metrics:

<table>
<thead>
<tr>
<th>Process</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Describe</td>
<td>Determines the types of resources to import and the set of metrics to collect from each type of resource. This process runs automatically during deployment.</td>
</tr>
<tr>
<td>Auto-discovery</td>
<td>Identifies Vblock System resources. The Adapter queries the Vblock System and retrieves a list of the monitored components, or resources. After the query is complete, new resources are created in VMware vCenter Operations Manager and metric data is collected. This is the default method for collecting Vblock System resource information.</td>
</tr>
<tr>
<td>Manual discovery</td>
<td>Monitors components that are manually discovered and added by users. Use the Resource Discovery option in VMware vCenter Operations Manager to manually add Vblock System resources. Manual discovery is useful if you wish to only monitor a subset of Vblock System components.</td>
</tr>
</tbody>
</table>

Dashboards

Four dashboards are added to vCenter Operations Manager when the Adapter is installed. The Vblock Main dashboard presents a consolidated view of metrics. The other three dashboards display compute, storage, and network metrics related to the performance, capacity, and health of a Vblock System. Each dashboard contains widgets that show component health status, metric scores, alerts, and component relationships.

Vblock System component dashboards use widgets to show the health of compute, storage, and network components. Dashboard widgets can be connected to multiple Vblock Systems. The Resources widget shows all Vblock Systems. Vblock Systems selected in the Resources widget are shown in the Health Tree. Components selected in the Health Tree are shown in the Alerts, Metric Selector, and Metric Sparklines widgets.
Dashboard widget | Description
---|---
**Resources** | Lists all Vblock Systems discovered by all Adapter instances. It is configured to show all categorical components in a Vblock System, such as compute, network, and storage. The widget shows the current health score for all discovered Vblock System component groups. Resource health scores are determined by comparing current metric values to reference values. vCenter Operations Manager determines a metric’s reference value by combining values observed over time with predefined hard thresholds.

**Alerts** | Shows alerts for components selected in the Health Tree. The Alerts widget also shows alerts for categorical groups (compute, network, or storage) and their subcomponents. Alerts shown here are also shown in the Alert Summary page and on component icons in the Health Tree.

**Metric Selector** | Shows available metrics for components selected in the Health Tree. The Metric Selector is not used in the Vblock Main dashboard.

**Health Tree** | Shows Vblock System components in the following categories: compute, storage, and network. Connected components are shown in a hierarchical manner. Alerts and sparklines are shown for selected components. Health alerts are shown for the Vblock System, compute, storage, and network categories. The Health Tree widget can also show the parent-child relationship between blade servers and active vSphere ESXi hosts.

**Metric Sparklines** | Shows a line graph of health values over time. The widget shows the values collected for aggregate Vblock System components selected in the Health Tree.

**Heat Map** | Only used in the Vblock Main dashboard. All components for all Vblock Systems that are monitored by the Adapter are shown in the Heat Map widget. The Heat Map’s rectangles represent all components in all monitored Vblock Systems. Components that are not in collection mode are displayed as white squares.

The following illustration shows the Vblock Main dashboard view with the Heat Map:

For more information on the Adapter, refer to the VCE Vision Intelligent Operations Version Adapter for vCenter Operations User Guide. Refer to Accessing VCE documentation.
APIs

API for System Library

The API for System Library provides a set of RESTful resources for retrieving information about Vblock Systems. The API provides a complete set of resources that allow you to retrieve data on the entire model associated with each Vblock System.

Representational State Transfer (REST) is an application architecture for distributed systems that relies on HTTP. Each REST call specifies a URL for a resource along with an HTTP verb (GET, PUT, POST, or DELETE). The URLs can be tested with most standard browsers. The response for each URL is typically formatted in XML or JSON.

All URLs for the API for System Library that retrieve data about the model use the GET verb and return an XML response. A few of the URLs retrieve configuration information about the system. These return ZIP files.

The complete reference documentation for the API for System Library is provided on the VCE Developer Portal. The following link brings you to the Home page for the API for System Library:
www.vce.com/asset/protected/systemlibraryrestdocs/index.html

API for Compliance Checker

The API for Compliance Checker provides a set of RESTful resources for retrieving benchmarks and profiles, as well as for starting compliance scans and looking at the results. The API also provides the ability to create and update schedules that manage the process of running compliance checks.

The API for Compliance Checker allows you to:

- Perform compliance checks
- Customize or add new benchmarks and profiles
- Create or update schedules to perform scans at desired intervals
- Obtain previous search results using search criteria

The complete reference documentation for the API for Compliance Checker is provided on the VCE Developer Portal. The following link brings you to the Home page for the API for Compliance Checker:
www.vce.com/asset/protected/compliancecheckerrestdocs/index.html
SDK overview

The SDK provides a set of examples and components that third-party developers can use to build custom applications that run with the VCE Vision™ Intelligent Operations software. The examples provide an introduction to application development with the VCE Vision™ Intelligent Operations API for System Library and the VCE Vision™ Intelligent Operations API for Compliance Checker.

The SDK works with a simulator that allows you to simulate a running VCE Vision software environment during the application development phase. The SDK Simulator is packaged separately from the SDK itself.

The SDK Simulator provides support for REST and SNMP. All of the examples included with the SDK use the RESTful style of application development.

If you want to take advantage of the SNMP support included with the Simulator, you need to follow the steps outlined in the VCE Vision™ Intelligent Operations System Library Integration Guide for SNMP, which is included with the SDK package.

The SDK has the following components:

- Sample code examples that illustrate how to use the API for System Library and the API for Compliance Checker:
  - Basic REST example that uses Java and REST to access Vblock System resource information by using the API for System Library
  - Event consumer example that uses AMQP to access information about Vblock System events
  - Compliance example that demonstrates a simple use case for working with the API for Compliance Checker
- Java binding library that gives Java developers an easy way to access the API for System Library and the API for Compliance Checker without having to make REST calls
- Event schema files for:
  - The API for System Library
  - The System Library FMEvent
  - The API for Compliance Checker
- SNMP MIBs for the Vblock System
• Related documentation:
  – VCE Vision™ Intelligent Operations Integration Guide for SNMP

The contents of the SDK can be downloaded from the Developer Portal at www.vce.com/developer. The Developer Portal provides registered developers with quick and easy access to all of the resources necessary to develop functionality using the VCE Vision API.
ABOUT VCE

VCE, formed by Cisco and EMC with investments from VMware and Intel, accelerates the adoption of converged infrastructure and cloud-based computing models that dramatically reduce the cost of IT while improving time to market for our customers. VCE, through Vblock Systems, delivers the industry’s only fully integrated and fully virtualized cloud infrastructure system. VCE solutions are available through an extensive partner network, and cover horizontal applications, vertical industry offerings, and application development environments, allowing customers to focus on business innovation instead of integrating, validating, and managing IT infrastructure.

For more information, go to www.vce.com.