HP Operations Smart Plug-Ins

Ensure application infrastructure performance
Data center downtime is getting more expensive as enterprises run critical business operations supported by their IT infrastructures. According to Ponemon Institute, the cost of downtime has increased by 50 percent\(^1\) since 2010 and average cost per incident of downtime is approx. $700,000 USD. IT infrastructure failure contributes to a majority of the downtime costs. Hence, it is increasingly important to maintain the availability and performance of your business-critical IT infrastructure.

In addition, the IT staff faces significant challenges. With IT increasingly becoming an enabler for business, the underlying IT infrastructure has become very complex and involves a wide range of servers, databases, applications, and operating systems. Additionally, IT budgets are constantly flat or decreasing and hence IT is forced to do more with less—and work efficiently with limited resources. IT is expected to keep a close watch over these business-critical applications, infrastructures, and third-party service dependencies, and to be ready to resolve issues before they impact the end user.

The growth of IT infrastructure has resulted in challenges in consolidating events from such complex IT infrastructures into a single event stream. One challenge is that different IT silos monitor events using their own tools and processes. There is no single cross-domain view of an event stream that includes monitoring of disparate technologies as well as products from multiple vendors. This leads to significant duplication of effort for both tier-1 operators and subject matter experts (SMEs). There is no consistency from one team to another, so SMEs typically collaborate using manual processes. In addition, because separate tools do not work together, tasks that could otherwise be automated are not.

With the advent of virtualization and cloud, another challenge that operations personnel face is managing increasingly complex and dynamic IT ecosystems. What used to be straightforward has now become difficult to monitor and manage because of the challenges associated with understanding how an issue with one of these newer technologies impacts the business.

**An integrated solution**

The HP Operations Manager (OM) software monitors key operational activities and events to facilitate high availability and performance of your distributed IT infrastructure and applications including servers, operating systems, network services, virtualization software, applications, and application components. It is a standards-based, modular, and open platform that supports HP and third-party infrastructure monitoring tools.

HP OM has a sophisticated policy engine that can be used to define automated or operator-assisted actions that can be embedded into operational procedures, verifying that correct action is quickly taken—thereby ensuring end-to-end action of a potential problem—from detection to resolution.

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\(^1\) Ponemon Institute, December 2013
[Datacenterknowledge.com/archives/2013/12/03/study-cost-data-center-downtime-rising/](https://datacenterknowledge.com/archives/2013/12/03/study-cost-data-center-downtime-rising/)


**HP Operations Smart Plug-Ins**

The HP Operations Smart Plug-Ins (SPIs) provide out-of-the-box intelligence that help you perform business-centric service management, event management, performance monitoring, and reporting on specific application environments including:

- Databases
- Enterprise Resource Planning (ERP)
- Microsoft Servers
- Web Application Server (WAS) environments
- Middleware

They work in conjunction with other HP Software products, such as HP Operations Orchestration (OO) and HP Business Process Monitor to make it easier to monitor, control, and manage the application services that support your core business processes.

**Key features**

- Auto-discovery and visualization of the application service topology and their dependencies
- Rapid deployment and value through pre-defined, customizable thresholds, with flexibility to customize individual policies over time
- Diagnose, plan, and track service levels through integrations with HP Performance Manager and HP Reporter to display both real time and historical information in a variety of graphical formats
- Flatten the learning curve through familiar interfaces across different application smart plugins, thereby improving operator efficiency
- Reduce mean time to repair by correlating errors across various supported applications, operating systems, and server hardware
- Auto remediate through integrations with HP OO or remotely execute remediation commands on affected systems through the HP Operations Manager console itself

**Out-of-the-box monitoring for databases**

Majority of application bottlenecks arise at the database level—but most often your operations and application teams are informed too late—causing degraded performance or downtime. The HP Operations Smart Plug-In for Databases (DB-SPI) helps administrators efficiently monitor distributed enterprise-wide database environments from a central, best-in-class console. The SPIs help you increase RDBMS availability and performance, visualize capacity shortages and trends, and lower the overall cost of maintaining your database environments. HP Operations Manager has the capability to monitor the database performance of Oracle Database and Oracle Real Application Cluster, Microsoft SQL Server, Informix, and Sybase using the SPIs for each of the databases.

<table>
<thead>
<tr>
<th>Supported applications</th>
<th>Key features monitored</th>
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</thead>
</table>
| Oracle Database          | • Specific areas of focus on space management, table and index performance, and rollback segments  
|                          | • Snapshot reports of database environments when alerts occur                           
|                          | • Thresholds based on ratios and percentages rather than raw data                       
|                          | • Continuous availability monitoring of the Oracle listener—a single point of failure   
|                          | • Integration with Oracle Enterprise Manager                                           |
| Sybase                   | • Predefined threshold events and log file conditions                                     
|                          | • Focus on replication, index tuning, and resource hogs                                 
|                          | • Interception of over 1,000 error log messages, such as corruptions and space shortages |
| Microsoft SQL Server     | • Specific focus on space management, concurrency problems, and workload metrics         
|                          | • Interception of hundreds of error log messages, such as corruptions and space shortages |
|                          | • Collection of various performance metrics about the usage of the Microsoft SQL Server |
**Supported applications** | **Key features monitored**
--- | ---
Informix | • Areas of focus include space management, transaction management, and memory metrics
• Interception of error log messages such as panics, chunk down, and lock-table overflow
IBM DB2 (by Partner) | • Metrics and process monitoring
• Event log monitoring
• Auto-discovery and diagram views of the IBM DB2, topology-like instances, databases partitions, tablespaces and bufferpools, comprising different object types and their interdependencies
• More than 135 predefined metrics evaluate data obtained directly from the DB2 database

**Out-of-the-box monitoring solutions for WASs**
HP Operations SPIs for WASs offer auto-discovery and visualization of the application server service topology, comprised of several object types and their dependencies. Dependencies between services can be visualized by integrating application server components into the HP Operations Manager Service Maps. This helps to understand the criticality of certain infrastructure elements and assist in troubleshooting.

**Supported applications** | **Key features monitored**
--- | ---
Oracle WebLogic | • Server performance and availability
• Transaction throughput, rollback
• Servlet response time, time-outs, request rates
• Java Database Connectivity (JDBC) throughput and connection utilization
• Web application processing and exception counts of scheduled WebLogic server actions
• Java message service processing
• Cluster processing
• User-definable metrics to extend monitoring for the performance of any custom applications that expose MBean management data via Java Management Extensions (JMX)
IBM WebSphere | • Server performance, availability, and memory usage
• Transaction rates
• Servlet response time, time-outs, and request rates
• Enterprise JavaBeans (EJB) resource utilization
• JDBC throughput and connection utilization
• Web applications
Oracle application server | • Server availability
• Server performance
• Java virtual machine (JVM) memory usage
• EJB client and method wrapper active threads, execution times, and calls processed
• Servlet execution times and threads
• JavaServer Pages (JSP) service time and active requests
• Java Message Service connections and messages
• JDBC connection status
• Web application processing and open sessions
• HTTP server active connections and processed data
JBoss application server | • Comprehensive log file monitoring
• Application tools for JBoss Enterprise Application Platform (JBoss EAP)
• JBoss performance metrics
• Predefined thresholds for JBoss EAP health
• Predefined performance graphs
Out-of-the-box monitoring for Microsoft Servers

The HP Operations SPIs for Microsoft Exchange, Microsoft Active Directory, and Microsoft Enterprise Servers provide valuable insight into the current health and ongoing trends in your Microsoft environment. With predefined, out-of-the-box reports and near real-time graphs, the SPIs provide insight into both customer experience and in-depth sub-system performance. The reports show trends in usage, current and historical performance, and help plan infrastructure additions/upgrades. By integrating Microsoft Exchange, Active Directory, and Enterprise Servers’ components into the HP Operations Service Map, service dependencies can be visualized, helping understand the criticality of certain infrastructure elements and assist in troubleshooting. Supplementing this information are role-based views of Exchange and Active Directory—possible through the use of HP Operations Topology Viewer—available with the Microsoft Exchange and Microsoft Active Directory Smart Plug-ins.

<table>
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<tr>
<th>Supported applications</th>
<th>Key features monitored</th>
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<tbody>
<tr>
<td>Microsoft SharePoint</td>
<td>• Topology and service mapping</td>
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<td>Microsoft Lync®</td>
<td>• Service monitoring</td>
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<tr>
<td>Microsoft BizTalk</td>
<td>• Measurement threshold monitoring</td>
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<td>Microsoft Active Directory</td>
<td>• Replication latency for both inter-site and intra-site purposes</td>
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<td></td>
<td>• Flexible Single-Master Operations and consistency</td>
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<td></td>
<td>• Directory Information-Tree monitoring</td>
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<td>• DNS services and components</td>
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<td>• Global Catalogs</td>
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<td>• System Volume (SYSVOL)</td>
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<td></td>
<td>• Response Time</td>
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<td>• Trust Monitoring</td>
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<tr>
<td>Microsoft Exchange</td>
<td>• Performance, usage, and availability of information stores</td>
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<td></td>
<td>• Transaction log monitoring for size and back up</td>
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<td>• SLA message delivery monitoring and reporting</td>
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<td>• Top users of messaging and storage</td>
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<td>• Message traffic analysis</td>
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<td>• Queue monitoring, delivery time, and usage trends of the messaging system</td>
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<td>• Directory access and client access performance management</td>
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<td>• Process and service monitoring and event forwarding</td>
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<td>• Knowledge-filled alarms with troubleshooting links into the Microsoft knowledgebase</td>
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Out-of-the-box monitoring for ERP solutions

Enterprise Resource Planning (ERP) solutions run a majority of critical customer and internal processes. Downtime of ERP solutions directly affects your revenue stream. The HP Operations SPI for ERP monitors key operational activities, proactively sends alarms about critical situations, and provides guidance for problem resolution. It also offers auto-discovery and visualization of the SAP® or PeopleSoft topology.

<table>
<thead>
<tr>
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<th>Key features monitored</th>
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<tbody>
<tr>
<td>SAP</td>
<td>• Monitor alerts from CCMS, syslogs, batch jobs, processes, files, SAP NetWeaver® system status, and so on</td>
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<td></td>
<td>• Consolidated view of SAP NetWeaver system performance information and overall system-resource characteristics, including frequency, response, and wait time for Dialog, Update, Batch, and Spool processes</td>
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<td></td>
<td>• Ability to monitor SAP systems running in unsupported environments via remote monitoring</td>
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<td></td>
<td>• Checks the status and availability of the various components of the SAP ITS (Internet Transaction Server), including AGate, WGate, and Web server</td>
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<td>• Trend analysis via reports that correlate and display long-term data about customer’s IT environment</td>
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<td></td>
<td>• Additional monitors are provided by the SPI for SAP to enrich the CCMS-based SAP monitoring</td>
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<td></td>
<td>• Integration with the SAP Solution Manager is available in the SPI</td>
</tr>
</tbody>
</table>
### Supported applications | Key features monitored

#### PeopleSoft
- PeopleSoft and Tuxedo log files, including dynamic log file names
- Availability of key processes, including PeopleSoft process scheduler
- Batch job status, includes failed or delayed
- Ad hoc status and configuration reports
- Ad hoc user activity reports
- Predefined instructions and actions for alarms generated by the HP SPI
- PeopleSoft admin tasks, including start/stop process scheduler, Tuxedo domains, and start specific PeopleSoft tools, such as HP Project and Portfolio Management Center (PPMC)
- Consolidated monitoring and management of multi-OS, multi-instance PeopleSoft environment from one console

#### Siebel (by Partner)
- Monitoring status and performance of Siebel servers and their components
- Tracking Siebel remote user activities
- Simple monitoring of Siebel data sources and log files
- Notifications about errors in the Siebel environment
- Service reports and service views
- SARM analyzer—diagnostic tools for Oracle Siebel CRM end-user performance and availability
- Oracle Business Intelligence monitoring

### Out-of-the-box monitoring for Middleware software
Middleware forms the core of data processing integration across an organization—with millions of messages being transformed for ease of communication between applications. Any downtime to such software makes day-to-day business come to a complete halt. The HP Operations SPIs for middleware ensure the health and performance of your middleware applications—TIBCO and Tuxedo.

#### Supported applications | Key features monitored

#### TIBCO
- Discovers and monitors TIBCO infrastructure elements
- Monitors Rendezvous (RV), Enterprise Messaging Service (EMS), and TIBCO ActiveMatrix Business Work (BW)
- Monitors log files for BW, EMS, and RV
- Graphs and reporting for historical analysis
- Monitors custom apps with user defined metrics

#### Oracle Tuxedo
- Monitoring Tuxedo system events
- Monitoring Tuxedo system central event user log (ULOG)
- Monitoring critical server performance metrics
- Starting and stopping the administration servers in the Oracle Tuxedo domain
- Starting and stopping the application servers in the Oracle Tuxedo domain
- Viewing the servers and services in the Tuxedo domain
- Viewing the transactions (set of operations that act as a logical unit) in the Tuxedo domain
- Viewing the Tuxedo configuration (TUXCONFIG) file for the Tuxedo domain
- Compressing or deleting outdated ULOG files
- Administering the Tuxedo server

#### WebSphere Message Queue (by Partner)
- Automatically discovers your entire WebSphere Message Queue (WMQ) environment
- Issues commands to all WMQ nodes from a single console
- End-to-end monitoring of the health of your WMQ queues and channels
- Configures and controls WMQ objects such as queue managers, channels, messages, and processes and generates configuration reports
- Automatically create events based on conditions and thresholds or through operator initiated actions, with email or pager notification
- Rapidly generates environment-specific policy and templates
- Automatically issues queue depth warnings for dead letter and other local queues
- Displays WMQ logs on demand and lets you monitor and trim the size of log files that exceed the threshold
Out-of-the-box monitoring for physical, virtual, and cluster infrastructure

**Supported applications** | **Key features monitored**
--- | ---
Infrastructure (including Virtualization) | • Auto discovery of physical, virtual, and cluster infrastructures
  • Collects essential performance data from virtualized resources, including but not limited to, unused resources, host systems with critical loads, and virtual systems that are running in a critical state.
  • Configuration information, CPU and memory utilization of data center, host servers, and guest virtual machines (VMs) configured on them
  • Virtualization architects can use the detailed historical and trend performance data to plan for physical-to-virtual and virtual-to-virtual migration, maintain performance for expanding applications, and proactively optimize resource utilization
  • List of top 10 CPUs according to usage, host machines according to disk space consumed by them, VMs reaching thresholds in terms of memory usage

Citrix (by Partner) | • Monitor system health in real time and gain an end-to-end view of your Citrix estate
  • Measure efficiency of your Citrix estate
  • Identify performance degradations
  • Track Citrix infrastructure resource utilization
  • Fault identification, confirmation, and correlation
  • Support of multiple Citrix components—XenServer, XenDesktop, XenApp, Provisioning Services

Out-of-the-box monitoring for enterprise content management

**Supported applications** | **Key features monitored**
--- | ---
EMC Documentum (by Partner) | • Graphical representation of your EMC Documentum environment and its hierarchy
  • Automatic discovery of your EMC Documentum environment
  • Service management is based on measurement, tracking, and reporting business transactions from beginning to end
  • Policies define what, how, and when is monitored in your EMC Documentum environment
  • Policies also provide advanced features for detecting and resolving issues in your EMC Documentum environment, and enable to define automated actions for resolving specific issues
  • Integrated tools (Windows®) or applications (UNIX®) enable you to inspect, analyze, and manage your EMC Documentum environment, check the current status of the environment, and react to issues in your environment
  • Collected system performance data is represented in graphs or as web-based reports

Out-of-the-box integration for BMC Remedy

Integrate your ticketing service with ease via out-of-the-box integration with BMC Remedy.

**Supported applications** | **Key features monitored**
--- | ---
Remedy ARS | • HP Operations Manager status updates to the Remedy AR System
  - Automatic message forwarding
  - Manual message forwarding
  - Annotation forwarding
  - Ownership change
  - Message acknowledgment
  - Message escalation
  - Action completion
  • HP Operations Manager operations status updates from the Remedy AR System
  - AR System modification
  - AR System notification system
  - AR System status change
Extending HP Operations Manager

Managing business services goes beyond just monitoring. It means managing the entire lifecycle of an event, which includes automatic submission with service desks and automated remediation using run books.

HP OO software allows for the execution of automated process steps—IT process workflows or "run books"—which are called by OM. With more than 4,000 out-of-the-box workflows, OO software enables automatic remediation of recurring incidents—with no intervention from operations staff or SMEs.

HP Operations Manager also integrates with HP Service Manager software and third-party service-desk offerings to automatically create and synchronize trouble tickets and third-party notification systems to notify IT staff (for example, via paging and SMS) for greater incident-handling efficiency.

A complete solution

HP provides a comprehensive curriculum of HP software courses, which provide the training you need to realize the full potential of your HP solutions and achieve better ROI. For more information about educational courses, visit hp.com/learn.

HP provides high-quality software services that address all aspects of your software application lifecycle needs. The wide range of HP service offerings—from online, self-solve support to proactive mission-critical services—enables you to choose the services that best match your business needs. For an overview of HP software services, visit hp.com/go/bsmprofessionalservices.

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