Agent for Applications and Databases: Microsoft SharePoint

Symantec Backup Exec™ 2012 Technical Feature Brief

Who should read this paper

Backup Exec Technical 2012 SP2 Feature Briefs are designed to introduce Symantec partners and end users to key technologies and technical concepts that are associated with the Backup Exec 2012 SP2 product family. The information within a Technical Feature Brief is intended to assist partners and end users as they design and implement data protection solutions based on Backup Exec 2012 SP2 in customer environments.

Technical Feature Briefs are authored and maintained by the Backup Exec Technical Field Enablement team.
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Introduction

This feature brief is intended to assist technical personnel as they design and implement Backup Exec 2012 SP2 and the Agent for Applications and Databases to protect servers hosting Microsoft SharePoint, and make related decisions. The business value and licensing of the Agent for Applications and Databases for Microsoft SharePoint servers will be touched upon lightly in this feature brief.

This feature brief includes the following topics:

- How Backup Exec 2012 SP2 integrates with the Microsoft SharePoint
- Technical requirements of certain key features
- Best practices
- Pitfalls and things to avoid
- Performance factors
- Example configurations

For step by step instructions for installing and managing the Agent for Applications and Databases to protect servers hosting Microsoft SharePoint, refer to the Backup Exec 2012 SP2 Administrator’s Guide.
Business Value

Collaboration can be defined as the hosting and exchange of information within an organization or between a business and their customers. Today, as organizations grow, collaboration applications and tools have become a critical need for companies of all sizes. Microsoft’s SharePoint products are designed to improve organizational effectiveness, enabling comprehensive content management and search capabilities, business process sharing and information-sharing across boundaries for better business insight.

Microsoft’s SharePoint products provide a simple web mechanism for management and abstraction of information from the web server, with the ultimate goal of enabling business users to leverage web features without having to understand technical aspects of web development.

Microsoft’s SharePoint products provide many benefits to an organization that include:

- Content publishing
- Content management
- Records management
- Data organization and analysis
- Web portal creation for customized use by individuals or organizations

The Need for Backup Solutions Designed for Microsoft SharePoint

Ensuring the content within a SharePoint infrastructure is safely protected can be a critical component to a company’s ongoing success. The loss of SharePoint data could result in delays in effective communications both internally and externally – leading to losses in productivity and revenues. Today’s information and technology administrators need reliable, easy to manage, and efficient backup and recovery solutions to protect their SharePoint intellectual property.

Administrators responsible for the backup and recovery of SharePoint environments understand the challenges associated with backup technologies that are not specifically designed to protect SharePoint servers. A modern and reliable backup strategy for Microsoft SharePoint provides an essential safeguard to help protect critical data.

Objectives of performing SharePoint backups include:

- Recovering lost data in the event of a disaster
- Recovering unintentionally deleted content
- Minimizing the amount of data lost as the result of a disaster
- Moving data between installations as part of a hardware or software upgrade
- Minimizing the downtime cost of a SharePoint infrastructure being offline

It is important for administrators to choose what to protect and recover in a SharePoint environment. Business requirements will help in making the determination of which SharePoint components to protect, and the granularity with which they need to be recovered.

Typically customers use the Agent for Applications and Databases for three types of SharePoint recovery:

- Granular Recovery of individual SharePoint objects, such as files and list items.
• Recovery of a SharePoint component or database
• Full recovery of a SharePoint environment

Backup Exec 2012 SP2 and the Agent for Applications and Databases include features and capabilities designed specifically to protect SharePoint environments and solve each of the problems listed above. The Agent for Applications and Databases enables backup administrators to perform proper and intelligent backup and restore operations, which incorporates online, non-disruptive SharePoint protection as part of everyday backup routines.

When you use the Agent for Application and Databases to protect Microsoft SharePoint, you can back up and restore the following:

• Web applications and their associated databases
• Individual documents that are contained in libraries
• Sites and sub-sites (Individual objects and their versions can be restored)
• Lists and list items (Individual objects and their versions can be restored)
• Restore Security Permissions on individual objects
• Configuration database
• Service applications
• Single Sign-on databases
• Shared Service Providers

Supported Versions of Microsoft SharePoint

The Agent for Applications and Databases includes support for protection and recovery of the following versions of Microsoft SharePoint:

• SharePoint Portal Server 2003
• SharePoint Server 2007, 2010, and 2013
  o SharePoint 2013 support is non-GRT only
• Windows SharePoint Foundation 2010
• Windows SharePoint Services (WSS) 2.0 and 3.0

Note: BE 2012 SP2 does not support granular recovery of SharePoint 2013 objects. Support for granular recovery of SharePoint 2013 is planned for a future release of the product.

For the latest detailed list of platforms and applications supported by Backup Exec, refer to the Backup Exec Software Compatibility List: [http://www.symantec.com/docs/TECH175581](http://www.symantec.com/docs/TECH175581).

Complete SharePoint Protection in a Single Solution

The Agent for Applications and Databases delivers state-of-the-art technology for the protection of growing Microsoft SharePoint environments, including the following:

• User-friendly interface
• Centralized management of large or distributed environments
• Integrated data reduction technologies using the Deduplication Option
• Scheduled, on-line backups of SharePoint servers
• Comprehensive backup support for physical or virtualized SharePoint Servers
• Granular recovery of SharePoint components, such as individual documents or document versions
• Redirected restore of SharePoint databases to any SQL instance available on the network
• Redirected restore of web applications to a remote SharePoint farm
• Redirected restore of individual items to a folder location
• Redirected restore of granular SharePoint objects to a different site or farm
• Backup and restore of SQL data over LAN or SAN transport modes

Figure 1: Example SharePoint Backup Configurations
Underlying Principles

The capability to protect Microsoft SharePoint is a feature of the Agent for Applications and Databases. The SharePoint protection feature allows administrators to protect local or remote Microsoft SharePoint Servers, whether they are implemented as physical servers or virtual machines.

After you install the Agent for Applications and Databases, Backup Exec communicates with SharePoint using the SPSWrapper process to detect, enumerate, back up, and restore Microsoft SharePoint components.

Microsoft SharePoint Backup Process

To create online backups of Microsoft SharePoint, the administrator creates a backup job by selecting the appropriate SharePoint farm or by selecting individual objects. Backup Exec 2012 SP2 communicates with the Web servers that participate in Microsoft SharePoint server farms to discover the farm topology. The Agent for Windows needs to be installed on all of the servers participating in SharePoint farm. The Agent for Applications and Databases automatically discovers SharePoint Farm components and protects each component in the farm simultaneously during backup operations.

The Agent for Application and Databases for Microsoft SharePoint supports protecting and recovering physical SharePoint servers as well as SharePoint servers running as virtual machines.
To protect Microsoft SharePoint servers running inside a virtual machine, Backup Exec uses V-Ray technology to collect the information that is required to restore entire SharePoint virtual machines or granular SharePoint objects from within a virtual machine.

When administrators create a backup job for a virtual machine, the Agent for Windows automatically locates any VSS-aware applications within the virtual machine, such as Microsoft SharePoint. During the backup job, Backup Exec collects metadata for the applications using the Agent for Windows. This image-level backup operation, powered by Symantec V-Ray technology, enables optimal backup of guest virtual machines while enabling multiple levels of recovery, such as:

- Full virtual machine recovery
- Virtual disk recovery
- Recovery of the entire SharePoint application and all its components
- Recovery of granular SharePoint objects
- Recovery of granular files and folders within the file system

Backup Exec's integrated V-Ray technology helps reduce backup times and speed up recovery times with a "one pass" backup which supports all of the recovery methods listed above.

When using image-level backups to protect virtual machines hosting SharePoint, granular recovery of SharePoint objects is only supported for single server (single-virtual machine) implementations of SharePoint. In order to achieve granular recovery support from multiple SharePoint virtual machines implemented in a distributed manner or SharePoint farm, the SharePoint virtual machines must be protected using the legacy agent-based method leveraging the local Agent for Windows to capture and transmit backup data from each virtual machine to the Backup Exec server. Using the agent-based protection method essentially treats each virtual machine as if it were a standalone physical server.
The Agent for Applications and Databases is designed to be flexible and easy-to-use, and gives administrators of Microsoft SharePoint comprehensive and customizable protection. Backup Exec’s dynamic inclusion feature automatically protects any new resources that were added after a backup job was created. If Backup Exec discovers that you added a new child resource to a currently protected resource, the new child resource is automatically protected at the next job run time. Because the backup job may include new resources, the job may require more storage space and more time to run than you anticipated.
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<td>Search Index</td>
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<td>OFFICESERVERS\SharePoint_Administration</td>
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Figure 5: Microsoft SharePoint Backup Selection
Licensing Considerations

Backup Exec is designed to accommodate the needs of environments of all sizes, whether it’s a single Windows server or a large, multi-domain Windows enterprise. The Agent for Applications and Databases is licensed on a per-application instance basis.

Here are a few examples of Microsoft SharePoint environments protected by Backup Exec and the licensing requirements of each:

Example 1: Backup Exec Protecting a Physical SharePoint Server

![Figure 6: Backup Exec Protecting a Physical SharePoint Server](image)

The above environment includes a Backup Exec server and a physical Microsoft Windows server running Microsoft SharePoint. This environment would require the following Backup Exec licenses to be both fully protected and fully in compliance with license requirements:

<table>
<thead>
<tr>
<th>Backup Exec Licensable Component</th>
<th>Required Licenses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Backup Exec Server</td>
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</tr>
<tr>
<td>Agent for Applications and Databases</td>
<td>1</td>
</tr>
</tbody>
</table>

Example 2: Backup Exec Protecting Physical SharePoint Farm Servers
The above environment includes a Backup Exec server and two physical Microsoft Windows servers each running a separate Microsoft SharePoint farm. This environment would require the following Backup Exec licenses to be both fully protected and fully in compliance with license requirements:

<table>
<thead>
<tr>
<th>Backup Exec Licensable Component</th>
<th>Required Licenses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Backup Exec Server</td>
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</tr>
<tr>
<td>Agent for Applications and Databases</td>
<td>2</td>
</tr>
</tbody>
</table>

**Example 3: Backup Exec Protecting Multiple Servers in a SharePoint Farm**
The above environment includes a Backup Exec server and two physical Microsoft Windows servers participating in a Microsoft SharePoint farm. This environment would require the following Backup Exec licenses to be both fully protected and fully in compliance with license requirements:

<table>
<thead>
<tr>
<th>Backup Exec Licensable Component</th>
<th>Required Licenses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Backup Exec Server</td>
<td>1</td>
</tr>
<tr>
<td>Agent for Applications and Databases</td>
<td>1</td>
</tr>
<tr>
<td>Agent for Windows</td>
<td>1</td>
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</tbody>
</table>

Example 4: Backup Exec Protecting a Virtualized SharePoint Server

Figure 8: Backup Exec Protecting Multiple Servers in a SharePoint Farm

Figure 9: Backup Exec Protecting a Virtualized SharePoint Server
The above environment includes a Backup Exec server and a virtual (Hyper-V or VMware) with two virtual machines participating in a Microsoft SharePoint farm. This environment would require the following Backup Exec licenses to be both fully protected and fully in compliance with license requirements:

<table>
<thead>
<tr>
<th>Backup Exec Licensable Component</th>
<th>Required Licenses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Backup Exec Server</td>
<td>1</td>
</tr>
<tr>
<td>Agent for Applications and Databases</td>
<td>1</td>
</tr>
<tr>
<td>Agent for VMware and Hyper-V</td>
<td>1</td>
</tr>
</tbody>
</table>

Note: When using image-level backups to protect virtual machines hosting SharePoint, granular recovery of SharePoint objects is only supported for single server (single-virtual machine) implementations of SharePoint. In order to achieve granular recovery support from multiple SharePoint virtual machines implemented in a distributed manner or SharePoint farm, the SharePoint virtual machines must be protected using the legacy agent-based method leveraging the local Agent for Windows to capture and transmit backup data from each virtual machine to the Backup Exec server. Using the agent-based protection method essentially treats each virtual machine as if it were a standalone physical server.
Backup Strategies for Microsoft SharePoint

Backup Exec incorporates online, non-disruptive Microsoft SharePoint protection as part of everyday backup routines. This minimizes data loss in the event of a disaster or failure without inhibiting daily SharePoint activity.

Using full and incremental backup methods provides a good balance between managing backup windows and minimization of time required to recover information if the need arises. The easiest way to reduce backup windows is to reduce the amount of SharePoint data included in every backup. This can be achieved through Backup Exec 2012 SP2 deduplication technology. Backup Exec 2012 SP2 includes advanced data deduplication capabilities which allow companies to dramatically reduce the amount of backup storage required and more efficiently centralize backup data from multiple sites for assured disaster recovery.

To create SharePoint backup strategies, identify the critical components within a SharePoint environment that require backup protection and the frequency with which backups should occur. While creating backup jobs, ensure you always combine full backup jobs with incremental jobs. Incremental backup jobs will only back up information that is new, or that has been changed or updated since the last backup job. This can greatly reduce the time required for backup jobs to complete.

![Figure 10: SharePoint Backup Options](image)

When developing a SharePoint backup and recovery strategy, consider tools that offer granular recovery and enable the restoration of data directly into the production or test environment to help reduce interruptions to
the business and simplify the restoration process. This is where the Agent for Applications and Databases plays an important role. You can restore items to their original location or you can redirect the restore to a new location.

What do you want to restore?

**SharePoint individual items**
Restore individual documents, images, sites, subsites, lists, and list items.

**SharePoint web applications or portal sites**
Restore SharePoint web applications or portal sites and their associated content.

**SharePoint farm components**
Restore SharePoint components such as configuration databases, service applications, shared service providers, or other components.

**Microsoft SharePoint items located through Search**
Search for individual items, such as documents, sites, and list items, and restore selected items.

Data growth is a constant problem that modern administrators must manage. It’s important for administrators to regularly analyze their SharePoint infrastructures and adjust their backup strategies as needed. To decide which backup methods to use for optimal protection of SharePoint environments, consider the following:

- In small environments, consider running a daily full backup every evening in addition to hourly incremental/differential backups
- In mid-sized environments, consider running a weekly full backup and daily incremental/differential backups
- In large environments, consider running daily incremental/differential backups, with full backups occurring twice a month
- Use the checksum feature to check database integrity
- Perform test restores periodically
- Combine different backup types to optimize the backup strategy
- Leverage compression and encryption features when creating a backup job to ensure data security
Performance Recommendations

Listed below are recommendations for optimizing the performance of SharePoint backup operations. These include the following:

- Schedule backup jobs when activity on SharePoint servers is low
- Consider a disk-to-disk-to-tape (D2D2T) backup strategy; backing up to disk will greatly increase both backup and recovery performance
- Use a separate network for SharePoint backups
- Avoid disk-intensive SharePoint operations during backups
- For physical SharePoint servers, consider using client-side Deduplication
- Use daily differential or incremental backups in addition to periodic full backups
- Upgrade your Backup Exec infrastructure to the latest available version
- Use a disk maintenance utility to keep SharePoint disk defragmentation low
- If multiple networks are available, use the Central Admin Server Option to alternate what network interfaces are used for backups
# For More Information

<table>
<thead>
<tr>
<th>Link</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><a href="www.backupexec.com/compatibility">www.backupexec.com/compatibility</a></td>
<td>Compatibility Docs</td>
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<td><a href="www.backupexec.com/skugenerator">www.backupexec.com/skugenerator</a></td>
<td>SKU Generator and BEST Tool</td>
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