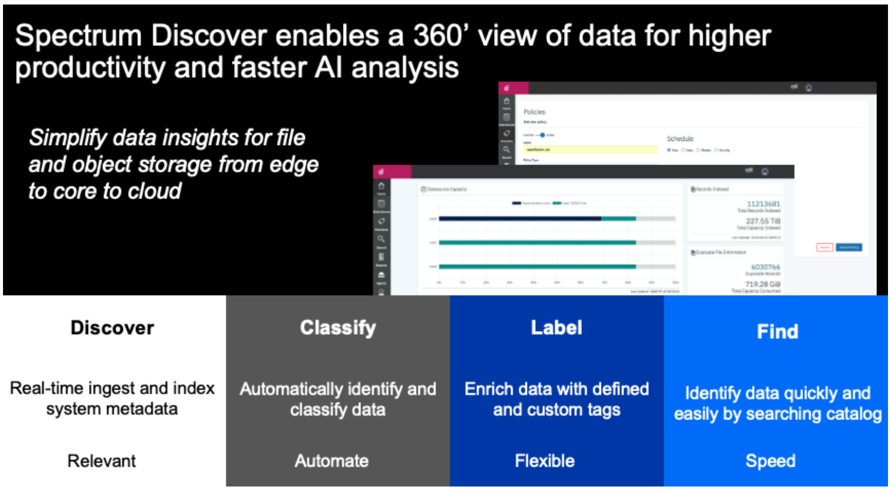
IBM Spectrum Discover

Simplify AI data organization for faster analysis and higher productivity

Highlights

- Create custom reports or use interactive GUI
- Locate data in seconds on-prem and in the cloud
- Gain new insight into storage consumption and data quality
- Empower users with self service analysis
- Quickly differentiate, locate and analyze mission-critical business data
- Easily organize, identify and classify sensitive information
- Apply tags based on occurrence of user-definable keywords
- Automatically classify data based on content or metadata tags
- Supports heterogeneous file and object storage on-premises and in the cloud
- One click integration with IBM Cloud Pak for Data

With digital transformation comes rapid growth of unstructured data. It is no surprise that data users are struggling to keep pace with rapid growth of unstructured data. Data users often find themselves taking too much time to find the data they need or end up missing data that would have been critical to their analysis. Other users such as administrators are blind to important information about their data because of the massive amounts they are managing. They are unable to optimize their storage and many times just end up throwing more storage at the problem or missing vulnerabilities in their data such as improper data governance.



Spectrum Discover enables a 360' view of data for higher productivity and faster AI analysis

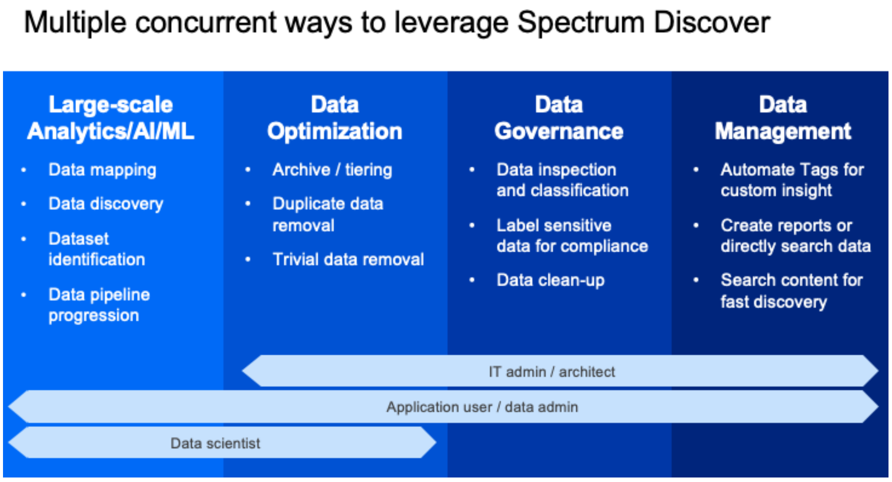
Simplify data insights for file and object storage from edge to core to cloud

Discover	Classify	Label	Find
Real-time ingest and index system metadata	Automatically identify and classify data	Enrich data with defined and custom tags	Identify data quickly and easily by searching catalog
Relevant	Automate	Flexible	Speed

Spectrum Discover gives a 360-degree view of data

While storage volume is a challenge, limited visibility into stored data poses an even greater challenge for both data users, storage administrators and users of large volumes of file and object data. Users often find that system information alone doesn't provide the fine-grained view of storage consumption and data quality that is needed for effective storage optimization. Basic system-level information or metadata is also inadequate for data scientists, business analysts and knowledge workers who spend a significant amount of their time searching for data necessary to do their work. Data stewards also struggle to identify files and objects (records) that contain confidential or sensitive data.

To overcome these data challenges, large enterprises are turning to metadata management solutions or data catalogs that offer exceptional data visibility. Once organizations have a clear understanding of their unstructured data, they can optimize storage systems, mitigate risk and harness the value of unstructured data for competitive advantage and critical data insights.



Multiple concurrent ways to leverage Spectrum Discover

Large-scale Analytics/AI/ML
- Data mapping
- Data discovery
- Dataset identification
- Data pipeline progression

Data Optimization
- Archive / tiering
- Duplicate data removal
- Trivial data removal

Data Governance
- Data inspection and classification
- Label sensitive data for compliance
- Data clean-up

Data Management
- Automate Tags for custom insight
- Create reports or directly search data
- Search content for fast discovery

IT admin / architect

Application user / data admin

Data scientist

Muliple ways to leverage Spectrum Discover

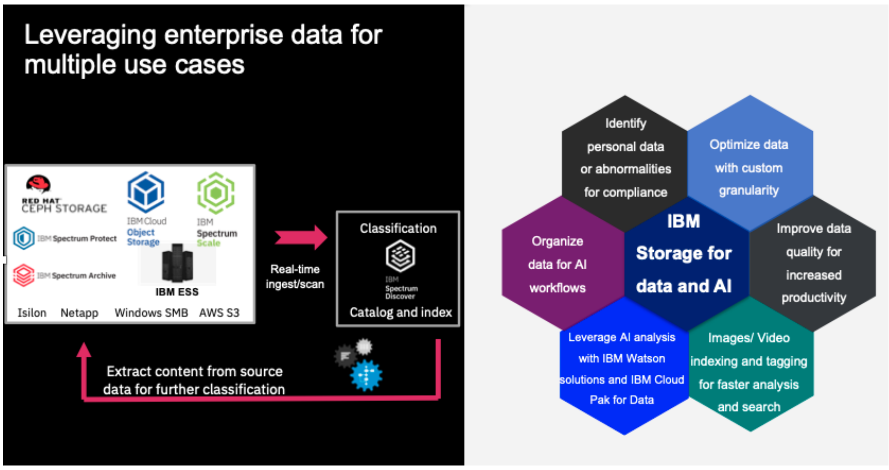
There are four main ways to leverage Spectrum Discover

The first way is for large-scale analytics/artificial intelligence (AI) / Machine learning (ML). This includes data mapping, data discovery, data set identification and data pipeline progression. Overall, this approach leverages Spectrum Discover to find out what is in the data.

The second approach is data optimization. This includes organizing the data to effectively archive or tiering the data based on the usage frequency of the data. Frequently accessed (i.e., hot/warm) data stays in faster storage devices, while infrequently accessed (i.e., cold/frozen) data are moved into lower-performance storage tiers. Other tasks in data optimization may involve de-duplication of data and trivial data removal, ultimately reducing the size of the data set.

The third approach is Data Governance. This includes data inspection and classification, labeling sensitive data for compliance and data clean-up.

The fourth approach is Data Management. This includes automatically tagging data for custom insight, creating reports or directly search data, and search content for fast discovery.



Leveraging enterprise data for multiple use cases

RED HAT CEPH STORAGE
IBM Cloud Object Storage
IBM Spectrum Scale
IBM Spectrum Protect
IBM Spectrum Archive
IBM ESS
Isilon
Netapp
Windows SMB
AWS S3
Real-time ingest/scan
Classification
IBM Spectrum Discover
Catalog and index
Extract content from source data for further classification
Identify personal data or abnormalities for compliance
Optimize data with custom granularity
Organize data for AI workflows
IBM Storage for data and AI
Improve data quality for increased productivity
Leverage AI analysis with IBM Watson solutions and IBM Cloud Pak for Data
Images/ Video indexing and tagging for faster analysis and search

Multiple use cases for Spectrum Discover

Spectrum Discover can ingest from multiple types of unstructured data sources. Spectrum Scale, IBM Cloud Object Storage (COS) and Red Hat Ceph 4.0 can all ingest data in real-time, which means that a data scan only needs to occur initially and all subsequent updates to data are automatically sent to Spectrum Discover.

Spectrum Protect and Spectrum Archive are two IBM backup/archive applications recently enabled to integrate with Spectrum Discover. Spectrum Discover can now easily analyze backed up / archived data from those two products.

Finally, Netapp, Dell EMC Isilon, Windows SMB and Amazon S3 storage can all be scanned by Spectrum Discover to provide a multi-cloud multi-storage catalog and index repository of information.

Improve unstructured data economics, governance and analytics

IBM Spectrum Discover is modern data catalog and metadata management software that provides data insight for exabyte-scale unstructured storage. IBM Spectrum Discover easily connects to multiple file and object storage systems both on-premises and in the cloud to rapidly ingest, consolidate and index metadata for billions of files and objects, providing a rich metadata layer on top of these storage sources. This metadata along with custom and automated tags, enable data scientists, storage administrators, and data stewards to efficiently manage, classify and gain insights from massive amounts of unstructured data. The insights gained accelerate large-scale analytics, improve storage economics, and help with risk mitigation to create competitive advantage and speed critical research.

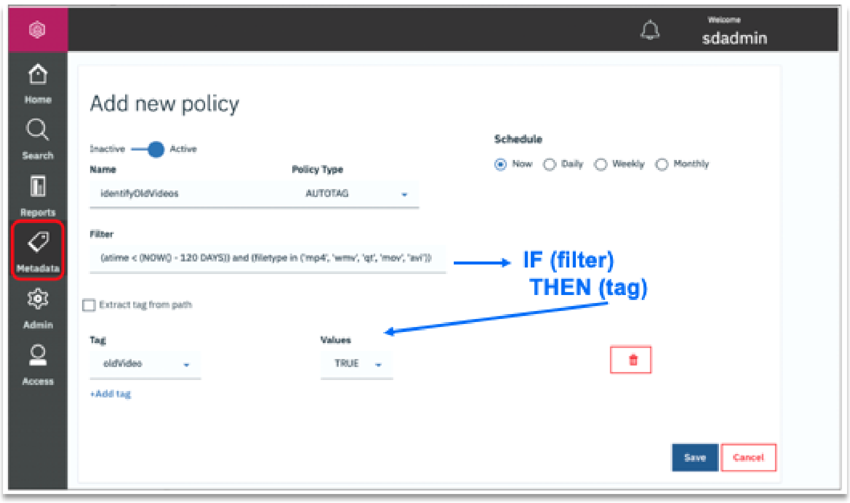
IBM Spectrum Discover highlights include:

- Support for both IBM and non-IBM storage systems as data sources, including IBM Spectrum Scale, IBM Cloud Object Storage, IBM Spectrum Protect, Dell EMC Isilon, NetApp, Amazon S3, Windows SMB and Red Hat Ceph object storage
- Event notifications and policy-based workflows to automate metadata ingestion and metadata indexing at exabyte-scale
- Fine-grained views of storage consumption based on a wide range of system and custom metadata
- Fast, efficient search through exabytes of data, resulting in highly relevant results for large-scale analytics
- Ability to quickly differentiate mission-critical business data from data that can either be deleted or moved to a cheaper, colder tier
- Policy-based custom tagging that enables organizations to classify and categorize data and align this data with the needs of the business
- Ability to apply custom metadata tags based on the occurrence of user-definable keywords
- Automatic identification and classification of sensitive or personally identifiable information
- A Software Developers Kit (SDK) to build Action Agents that extract metadata from file headers and content, automate data movement and provide integration to open source software, such as Apache Spark, Apache Tika, PyTorch, Caffe and TensorFlow, which facilitates data identification and speeds large-scale data processing
- IBM Spectrum Discover Application Catalog enables clients to discover, install and manage third-party Action Agents from a community-supported ecosystem to extend the capabilities of Spectrum Discover without having to write their own code

Policy-based metadata tagging for granular data classification

IBM Spectrum Discover automatically captures system metadata from source storage systems, creates custom metadata from search results and enables extraction of keyword metadata from file headers and content using the IBM Spectrum Discover Action Agent API. Automate the identification and classification of documents that could potentially contain Personally Identifiable Information (PII) and sensitive data. The result is a rich layer of file and object metadata that is managed using one centralized solution. Out-of-the-box support for content-based data classification enables end users to easily set up policies to automatically identify, classify and categorize data, which could be leveraged for specific business needs.

With IBM Spectrum Discover, policies are used to automate actions that enrich metadata. Users can apply policies to any set of records and can configure actions. For example, storage administrators can easily coordinate with departments to archive aging data. To do this, they use the Spectrum Discover Policy Engine that leverages the search function to find records owned by a department (for example, marketing) and that have not been accessed for a specified period of time (for example, more than one year). Then, they select a predefined “archive” tag from a drop-down list and the archive tag is automatically applied to the relevant group of files. Policies can be executed as one-time events, or they can be scheduled to run periodically.



Add new policy

Inactive ● Active

Name: identifyOldVideos

Policy Type: AUTOTAG

Schedule: ● Now ○ Daily ○ Weekly ○ Monthly

Filter: (atime < (NOW() - 120 DAYS)) and (filetype in ('mp4', 'wmv', 'qt', 'mov', 'avi'))

□ Extract tag from path

Tag: oldVideo

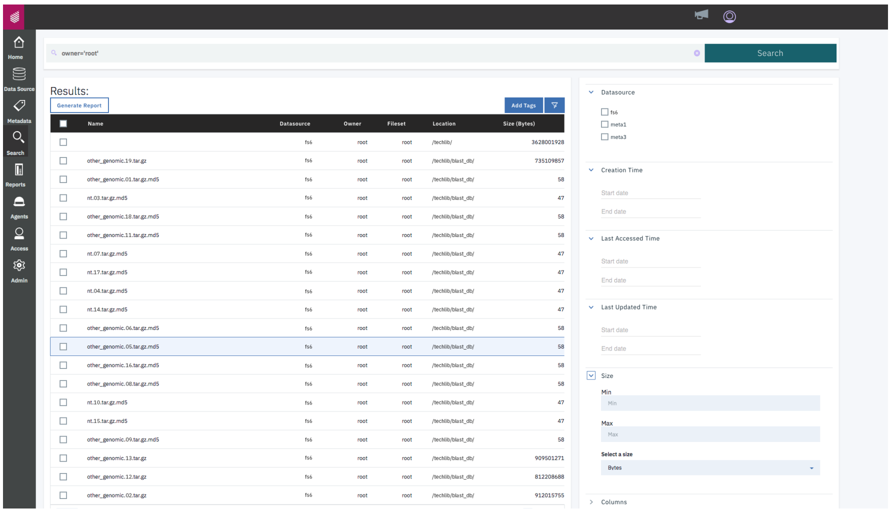
Values: TRUE

+Add tag

Map metadata with easy GUI interface

Fast searching through billions of metadata tags enables rapid discovery of data assets

IBM Spectrum Discover provides both a search bar and a more advanced search pane to help users quickly find subsets of records that have been indexed. Search results are displayed in a columnar table that contains information correlated to search criteria. What a user can see or not see is determined using role-based access controls.



owner='root'

□	Name	Datasource	Owner	Fileset	Location	Size (Bytes)
□		fs6	root	root	/techlib/	3628001928
□	other_genomic.19.tar.gz	fs6	root	root	/techlib/blast_db/	735109857
□	other_genomic.01.tar.gz.md5	fs6	root	root	/techlib/blast_db/	58
□	nt.03.tar.gz.md5	fs6	root	root	/techlib/blast_db/	47
□	other_genomic.18.tar.gz.md5	fs6	root	root	/techlib/blast_db/	58
□	other_genomic.11.tar.gz.md5	fs6	root	root	/techlib/blast_db/	58
□	nt.07.tar.gz.md5	fs6	root	root	/techlib/blast_db/	47
□	nt.17.tar.gz.md5	fs6	root	root	/techlib/blast_db/	47
□	nt.04.tar.gz.md5	fs6	root	root	/techlib/blast_db/	47
□	nt.14.tar.gz.md5	fs6	root	root	/techlib/blast_db/	47
□	other_genomic.06.tar.gz.md5	fs6	root	root	/techlib/blast_db/	58
□	other_genomic.05.tar.gz.md5	fs6	root	root	/techlib/blast_db/	58
□	other_genomic.16.tar.gz.md5	fs6	root	root	/techlib/blast_db/	58
□	other_genomic.08.tar.gz.md5	fs6	root	root	/techlib/blast_db/	58
□	nt.10.tar.gz.md5	fs6	root	root	/techlib/blast_db/	47
□	nt.15.tar.gz.md5	fs6	root	root	/techlib/blast_db/	47
□	other_genomic.09.tar.gz.md5	fs6	root	root	/techlib/blast_db/	58
□	other_genomic.13.tar.gz	fs6	root	root	/techlib/blast_db/	909501271
□	other_genomic.12.tar.gz	fs6	root	root	/techlib/blast_db/	812208688
□	other_genomic.02.tar.gz	fs6	root	root	/techlib/blast_db/	912015755

Datasource
□ fs6
□ meta1
□ meta3

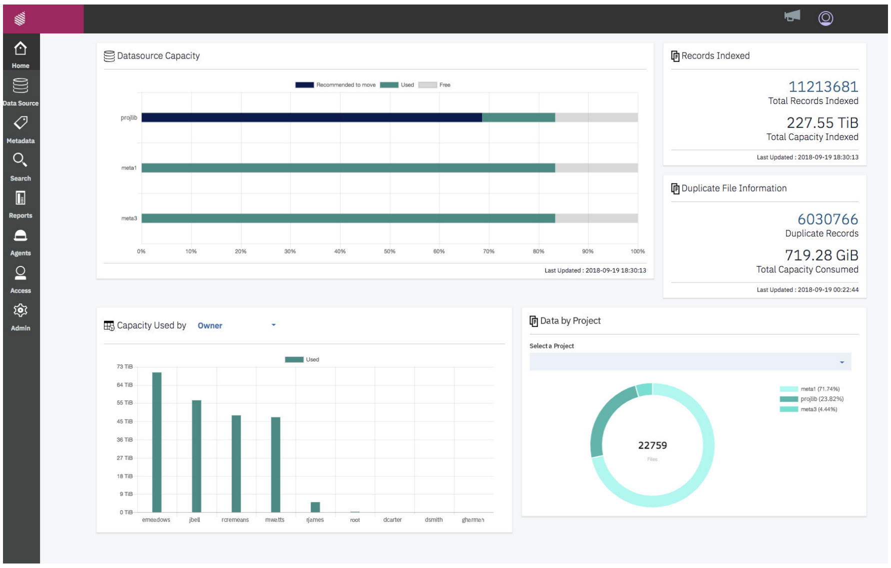
Select a size: Bytes

IBM Spectrum Discover search results are displayed in a columnar table that contains information correlated to search criteria.

Users familiar with SQL syntax can enter a search string in the search bar. Or, IBM Spectrum Discover provides an easy-to-use search pane to filter records using predefined selection boxes. For example, the “File System” selection box allows users to select one or more source storage systems. The “Time” selector allows users to specify a range of time based on when records were last accessed. The “Size” selector allows users to identify records based on minimum and/or maximum file sizes. These and other search capabilities allow users to employ any combination of search boxes that best suits their needs.

Dashboard and customizable reporting for record visualization

The IBM Spectrum Discover dashboard represents a user's environment at a glance. What a user can see or not see is determined using role-based access controls. The dashboard contains widgets that graphically present information about records indexed by Spectrum Discover allowing users to visualize their data environment. For example, the dashboard can show usage vs. capacity of their registered storage systems, information about potential duplicate files, and breakdowns of how capacity is being used by projects or departments.



Last Updated : 2018-09-19 18:30:13

Records Indexed

11213681
Total Records Indexed

227.55 TiB
Total Capacity Indexed

Last Updated : 2018-09-19 18:30:13

Duplicate File Information

6030766
Duplicate Records

719.28 GiB
Total Capacity Consumed

Last Updated : 2018-09-19 00:22:44

IBM Spectrum Discover Dashboard includes widgets that show a user's environment at a glance.

For users who want additional record detail, IBM Spectrum Discover provides customizable reports. Both summary and detailed reports can be generated. Summary reports aggregate and group information, such as record count or record capacity by different criteria, for example: object vault, file system or user. Detailed reports provide detailed information for each record in the system that matches a report's filtering criteria.

Integration with IBM Watson Knowledge Catalog

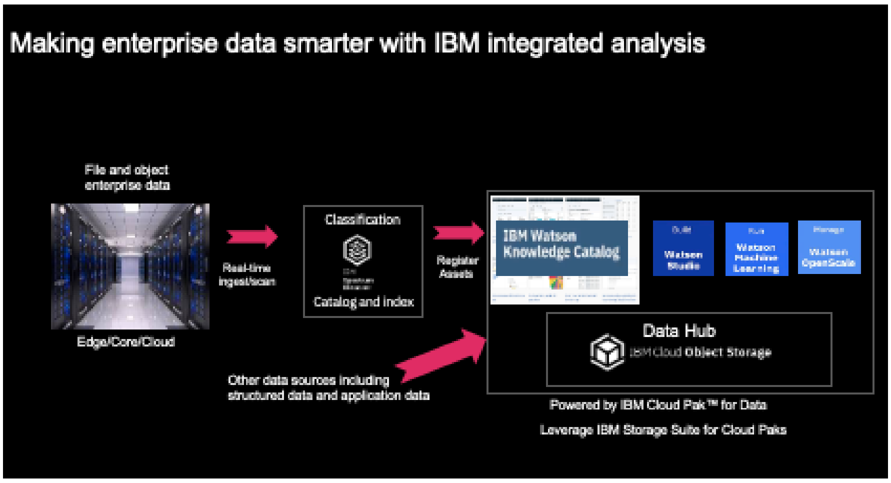
Data scientist and data users can now integrate any information from Spectrum Discover with a single click directly into IBM Watson Knowledge Catalog. This means that data information in the form of metadata along with custom and automated tags from Spectrum Discover can be leveraged by IBM Watson Knowledge Catalog and all the tools that connect to the catalog.

IBM Watson Knowledge Catalog, powered by **IBM Cloud Pak** for Data, is a data **catalog** that is tightly integrated with an enterprise data governance platform. IBM Watson knowledge Catalog can help your data citizens easily find, prepare, understand and use the data they need. By providing an end-to-end experience rooted in metadata and active policy management, the solution can be leveraged to find success across top use cases like regulatory compliance for the California Consumer Privacy Act (CCPA) and the General Data Protection Regulation (GDPR), governing data lakes, and self-service consumption of high-quality data.

IBM Watson Knowledge Catalog helps accelerate business value and AI projects as part of a DataOps practice by providing unique capabilities like:

- Real-time data virtualization support
- Automated data discovery and metadata generation
- ML-extracted business glossary from most common regulatory terms
- Dynamic data masking to protect sensitive data
- Automated scanning and risk assessments of unstructured data via Watson Knowledge Catalog InstaScan

IBM is committed to help clients deliver business-ready data to feed AI and analytics projects with IBM Watson Knowledge Catalog for IBM Cloud Pak for Data The integration of enterprise file and object data information from Spectrum Discover helps to bring more data and more value to AI and analytics projects.


Making enterprise data smarter with IBM integrated analysis

Integration to IBM Cloud Pak for Data

Technical Specifications

Single node trial	
Memory	128 GB (64 GB minimum)
CPU	24 logical processors (8 minimum)
Storage	
Single node trial	
Base OS and Software	Thick-provision and lazy-zero HDD or SSD/flash VMDK (500 GB)
Persistent message queue	Thick-provision and lazy-zero HDD or SSD/flash VMDK (50 GB, 2 GB per 20 million indexed files)
Database (includes backup)	Thick-provision and lazy-zero SSD/flash VMDK (100 GB minimum, 2 GB per 2 million indexed files)
Database (does not backup)	Thick-provision and lazy-zero SSD/flash VMDK (100 GB minimum, 1 GB per 2 million indexed files)
Network	Single gigabit Ethernet or 10 Gb Ethernet
Single node production	
Memory	128 GB
CPU	24 logical processors
Storage	
Base OS and Software	Thick-provision and lazy-zero SSD/flash VMDK (500 GB)
Persistent message queue	Thick-provision and lazy-zero SSD/flash VMDK (700 GB)
Database (includes backup)	Thick-provision and lazy-zero SSD/flash VMDK (2.5 TB)
Network	Single gigabit Ethernet or 10 Gb Ethernet
Multi-node (3 nodes) production	
Memory	256 GB
CPU	32 logical processors
Persistent message queue	Thick-provision and lazy-zero SSD/flash VMDK (1.4 TB per node)
Database (includes backup)	Thick-provision and eager-zero SSD/flash VMDK (14 TB SAN storage)
Network	10 Gb Ethernet
Software prerequisites	
VMware ESXi 6.0 or higher	
Supported data sources	
IBM Spectrum Scale	
IBM Cloud Object Storage (S3)	
IBM Spectrum Protect IBM SPectrum Archive	
Dell-EMC Isilon (NFS)	
NetApp (NFS)	

Amazon S3
Red Hat Ceph (S3) Windows SMB

IBM Spectrum Discover Capabilities

Continuous metadata ingestion	• Built-in connectors provide integration with IBM Cloud Object Storage, IBM Spectrum Scale, Dell EMC Isilon, NetApp, Amazon S3, Ceph • Event notifications automate continuous metadata ingestion (IBM Spectrum Scale only) • Metadata indexing enables rapid data queries
Systematic metadata curation	• Policy-driven workflows automate custom labeling • Custom data labels help pinpoint data for large-scale analytics • Ability to link system and custom data labels accelerates storage optimization
Real-time data insight	• Fast search locates highly relevant files and objects in seconds • Dashboards with drill-down chart elements simplify storage management • Customizable reports expedite audits and communication
Secure and extensible architecture	• Role-based access control ensures only authorized access to data • Action Agent API supports integration with customer-developed and/or third-party software • Policy engine hooks enable automated workflows • Content-based data classification

Why IBM?

As an industry-leading provider of data storage products, IBM is investing in data management solutions that improve storage economics, data quality, data governance and data identification for large-scale analytics and AI. IBM Spectrum Discover is a key aspect of the overall IBM data management advantage, and provides powerful metadata management that brings visibility and classification to improve storage optimization and increase data science.

For more information

To learn more about IBM Spectrum Discover, please contact your IBM representative or IBM Business Partner, or visit: ibm.com/us-en/marketplace/spectrum-discover

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Discover

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