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TSM - IBM Spectrum Protect 8.1.5

Upgrade Information und Versions-History beginnend mit TSM 6.1

New: TSM / IBM Spectrum Protect 8.1.5 Update Workshop

IMMER auf dem letzten Stand!

++++++ **March 2018 2017** ++++++++++++++++++++++++++++++++

Letzte Neuigkeiten zu TSM / IBM Spectrum Protect 8.1.5

Elektronisch verfügbar ab: **23.03.2018** von der FTP Seite / Fix Central

➔ **APARS / Fixes (swg21998548):**

➔ **und ein paar Neuerungen**

https://www.ibm.com/support/knowledgecenter/SSEQVQ_8.1.5/srv.common/r_wn_tsmserver.html

Server

- Lower the cost of cloud-container storage pools by reclaiming space
- Manage your storage environment to help you support General Data Protection Regulation compliance strategies
- Generate data deduplication statistics for specified nodes and file spaces
- Schedule audit operations to identify corrupted files in a storage pool

Operations Center

- Operations Center updates, including ransomware detection

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TSM - IBM Spectrum Protect 8.1.4

Upgrade Information und Versions-History beginnend mit TSM 6.1

New: TSM / IBM Spectrum Protect 8.1.4 Update Workshop

IMMER auf dem letzten Stand!

++++++ **Dezember 2017** ++++++++++++++++++++++++++++++++

Letzte Neuigkeiten zu TSM / IBM Spectrum Protect 8.1.4

Elektronisch verfügbar ab: **15.12.2017** von der FTP Seite / Fix Central

➔ **APARS / Fixes (swg21998548):**

➔ **und ein paar Neuerungen**

https://www.ibm.com/support/knowledgecenter/SSEQVQ_8.1.4/srv.common/r_wn_tsmserver.html

- To enhance security, the default minimum length of passwords is increased
- Take advantage of automatic certificate exchange between storage agents, library clients, and library manager servers
- Optimize security by using certificates with SHA256 signatures

- Specify whether to enforce FIPS 140-2 requirements for encryption
- Reduce data fragmentation when you move the contents of storage pool containers

++++++ **September 2017** ++++++++++++++++++++++++++++++++

Letzte Neuigkeiten zu TSM / IBM Spectrum Protect 8.1.3

Elektronisch verfügbar ab: **29.09.2017** von der FTP Seite / Fix Central

➔ **APARS / Fixes (swg21998548):**

➔ **und ein paar Neuerungen**

https://www.ibm.com/support/knowledgecenter/en/SSEQVQ_8.1.2/srv.common/r_wn_tsmserver.html

Announcement-Letter:

http://www-01.ibm.com/common/ssi/ShowDoc.wss?docURL=/common/ssi/rep_ca/7/877/ENUSZP17-0497/index.html&lang=en&request_locale=en

- Autodeployment von BA Clients mittels neuem OC Wizard
- IBM Cloud Object Storage Tier offering: neue Preisstruktur
- "Tier to cloud by age for container pools" enables leveraging of high-speed storage for operational recoveries and lower-cost cloud storage for long term retention
- More resilient (elastisch, dehnbar, belastbar) backups to cloud with self-throttling of data ingest enables Spectrum Protect to automatically manage inconsistent bandwidth when writing to cloud storage
- Spectrum Protect server support for Linux x86_64 for Ubuntu

++++++ **August 2017** ++++++++++++++++++++++++++++++++

Letzte Neuigkeiten zu TSM / IBM Spectrum Protect 8.1.2

Elektronisch verfügbar ab: **11.08.2017** von der FTP Seite / Fix Central

➔ **80 APARS / Fixes (swg21998548):**

➔ **und ein paar Neuerungen**

https://www.ibm.com/support/knowledgecenter/en/SSEQVQ_8.1.2/srv.common/r_wn_tsmserver.html

Announcement-Letter:

https://www-01.ibm.com/common/ssi/cgi-bin/ssialias?infotype=AN&subtype=CA&htmlfid=897/ENUS217-281&appname=USN

- Cloud Unterstützung für Microsoft Azure
- Verschlüsselung von Directory Container Pools optional möglich
- Back up NDMP Daten in einen Directory Container Storage Pool
- „Striktere“ Nutzung von TLS 1.2
- Aktuellere Beschreibung von „AUTODEPLOY“ von BA Clients (gab es schon mit dem alten „Admin Center“)

++++++ **March 2017** ++++++++++++++++++++++++++++++++

Letzte Neuigkeiten zu TSM / IBM Spectrum Protect 8.1.1

Elektronisch verfügbar ab: **23.03.2017** von der FTP Seite / Fix Central

➔ **Eine Menge Patches/Fixes mit ein paar Neuerungen:**

- **IM OC:** in der Selektion „Active“ and „Completed Tasks“ ist es jetzt möglich das Activitity TSM/ISP Message Log eleganter zu durchsuchen!

- **IM OC:** Wizard Update für S3 Cloud Interface für Bluemix (Softlayer)

- Windows 2016 support

++++++ **Dezember 2016** ++++++++++++++++++++++++++++++++

Letzte Neuigkeiten zu TSM / IBM Spectrum Protect 8.1.0

Elektronisch verfügbar ab: 09.12.2016 von der FTP Seite / Fix Central

➔ **Patch/Fix Version mit ein paar Neuerungen.**

PLET – Announcement Letter

http://www-01.ibm.com/common/ssi/ShowDoc.wss?docURL=/common/ssi/rep_ca/7/877/ENUSZP16-0637/index.html&lang=en&request_locale=en

Wichtige Neuerungen in der Version IBM Spectrum Protect 8.1.0:

Übersicht:

- IBM Spectrum Protect native object storage support for Amazon S3
- Improved performance for hybrid clouds by optimizing data movement to IBM Cloud Object Storage and Amazon S3 cloud storage
- Support for directory-container pool copies on tape
- Support for predefined cloud container pools
- Simplified LDAP authentication

- Support for conversion of existing data residing on tape, VTL, or file devices to directory or cloud container pools
- Deeper vSphere Web Client integration for deployment and day-to-day monitoring and redriving failed backups
- Data Protection for VMware cooperative application support for Microsoft SQL Server 2016
- Faster Data Protection for VMware backup and restore operations for large VMware virtual machines
- Support for Microsoft Windows™ Server 2016 for the Backup-Archive Client, Data Protection for VMware, Hyper-V, Oracle, SQL, Exchange, Workstations, and Space Management for Windows
- Data Protection for Oracle automation features
- Support for SAP HANA multitenant databases and parallel-stream restores
- Tighter integration of IBM Spectrum Protect for Space Management for UNIX™/Linux™ and IBM Spectrum Scale™
- Usability and performance enhancements for Space Management for Windows

Details zu den neuen Features:

- **IBM Spectrum Protect native object storage integration supports Amazon S3**

  Amazon S3 cloud storage can be defined as a target for IBM Spectrum Protect cloud-container pools. Primary or secondary copies of data can be stored in the IBM Spectrum Protect Server using Amazon S3 object storage. Previously announced support for IBM Spectrum Protect cloud-container pools include IBM Cloud Object Storage (formerly known as Cleversafe®), IBM Softlayer, OpenStack Swift, and IBM Spectrum Scale. IBM Spectrum Protect combines its powerful software-defined, inline data deduplication and compression with Amazon S3 to create a cost-effective data protection solution.

- **Optimized performance for hybrid clouds**

  IBM Spectrum Protect Server introduces a temporary cache to optimize the movement of data to IBM Cloud Object Storage (formerly known as Cleversafe) and Amazon S3 cloud storage. Backups are quickly stored to the temporary cache (directory containers) and then transferred to the cloud as larger objects, leveraging the efficiency of S3 transfer mechanisms. This feature enables more use cases for leveraging cost-effective cloud storage.

- **Copy data from directory-container pools to tape**

  Administrators can create a copy of directory-container pools on tape and repair directory-container pool data from this copy. This features lowers infrastructure costs by enabling copies of deduplicated directory-container pools on tape for repairs, compliance, and air gap, especially for environments with a single backup server where a second IBM Spectrum Protect server is not available to store a second copy of backup data.

- **Predefined cloud-container pools**

  Administrators can use predefined cloud S3 bucket names when creating cloud containers. This is important for organizations that require special policy and access rules when using object storage. This feature enables consistency and tighter control when using cloud storage with IBM Spectrum Protect.

- **Simplified LDAP authentication**

  Authentication management with centralized LDAP integration has been simplified by enabling users and administrators to authenticate with the same user IDs that they use to log on to an Active Directory server. IBM Security Directory Server and Microsoft Active Directory are supported. This feature lowers administration costs by simplifying user ID management.

- **Convert existing data on tape and VTL to container pools**

  Easily migrate your environment from VTLs or tape to cloud-container or directory-container pools using an automated, nondisruptive conversion utility that harvests data from your VTL or tape and moves it to container pools. This enables you to reduces costs immediately by leveraging the scalability and space efficiencies of IBM Spectrum Protect container pools.

- **Deeper vSphere Web Client integration and day-to-day monitoring**

  VMware administrators can simplify initial deployments, including centralized configuration of data protection policy and scheduling, directly in the vSphere Web Client. Use VMware tagging to help set policies for retention and schedules, as well as to exclude VMs from backups without leaving the vSphere Web Client interface. They can also perform daily monitoring tasks and redrive failed backups with ease.

- **Data Protection for Oracle automation features**

  Automate configuration and operations in Data Protection for Oracle environments, lowering costs for Oracle DBAs.

- **Support for SAP HANA multitenant database containers and parallel-stream restores**

This feature extends data protection for SAP HANA environments to multiple-container mode configurations and increases performance for recovery operations.

- **Space Management for UNIX/Linux integration with IBM Spectrum Scale and scalability enhancements for IBM Linear Tape File System™ Enterprise Edition environments**

  Tighter integration between IBM Spectrum Protect for Space Management and IBM Spectrum Scale means increased overall performance, improved recall scalability (especially for IBM Spectrum Archive™ Enterprise Edition workloads), and simplified restore for environments with large numbers of files.

- **Space Management for Windows enhancements for usability and performance**

  Space Management on Windows just got easier with GUI enhancements for searching for the filespace, and increased performance during migrations.

- **New support for IBM Spectrum Protect clients:**
  - Data Protection for VMware cooperative application support for Microsoft SQL Server 2016
  - Support for Microsoft Windows Server 2016 for the Backup-Archive Client, Hyper-V, Oracle, SQL, Exchange, Workstations, and Space Management for Windows
  - Support for Ubuntu 16.04 and 14.04 for the Backup-Archive Client on x86 and Linux on Power® (LE)
  - Support for IBM AIX® 7.2 for Data Protection for Oracle

++++++ September 2016 ++++++++++++++++++++++++++++++++

Letzte Neuigkeiten zu TSM 7.1.7

Elektronisch verfügbar ab: 16.09.2016 von der FTP Seite / Fix Central

➔ **Patch/Fix Version mit ein paar Neuerungen.**

IBM Spectrum Protect Version 7.1.7 umfasst di e folgenden "Haupt"-Komponenten (siehe: swg24042235):

- Server V7.1.7
- Backup-archive client at V7.1.6

- Application programming interface (API) at V7.1.6
- Server and Operations Center at V7.1.7
- IBM Tivoli Monitoring for Spectrum Protect at V7.1.3

Sw-Teile-Nummern - IBM Spectrum Protect Version 7.1.7 for Windows and AIX/Linux/UNIX servers:

UNIX: http://www-01.ibm.com/support/docview.wss?uid=swg24042271

Windows: http://www-01.ibm.com/support/docview.wss?uid=swg24042276

Patch Liste:

http://www-01.ibm.com/support/docview.wss?uid=swg21678116

Fix Pack Readme Dateien:

ftp://ftp.software.ibm.com/storage/tivoli-storage-management/maintenance/server/v7r1/WIN/7.1.7.000/README.htm

Wichtige Neuerungen in der Release IBM Spectrum Protect 7.1.7:

Übersicht:

- **Neue Verbindungsmöglichkeit zur AMAZON S3 Cloud**

  With Tivoli® Storage Manager Version 7.1.7, you can configure cloud-container storage pools to use Amazon Web Services (AWS)

- **Nutzung von STG Pool Container Directories als Zwischenspeicher bevor die Daten in die Cloud gesendet werden.**

  Gab es bereits in 7.1.6, wurde aber jetzt entsprechend dokumentiert:

  What was available already in 7.1.6 is now documented: After you define a cloud-container storage pool, create one or more directories that are used for local storage. You can temporarily store data in local storage during the data ingestion, before the data is moved to the cloud. In this way, you can improve system performance (in define stgpooldir command).

- **Neuer Container Copy Storage Pool mit Nutzung von Tape volumes**

  Dies ist ein “device class” stg pool (kein container pool) wie auch z.B. ein file volume sequential pool!

  POoltype = COPYCONtainer

  With V7.1.7, you can protect directory-container storage pools by copying the data to **container-copy storage pools**, where the data is **stored on tape volumes**.

  A ***container-copy storage pool*** is a new type of storage pool that provides an alternative to using a replication server to protect data in a directory-container storage pool.

  Container-copy storage pools can be used to **repair minor to moderate** directory-container storage pool damage, which includes damaged containers or directories.

  Attention: However, replication is the only way to provide complete disaster recovery protection for directory-container storage pools. With replication, you can directly restore client data from the target server if the source server is unavailable.

  Restriction: **It is not recommended to use container-copy storage pools for disaster recovery protection**, even if your storage environment is based on a small blueprint configuration.

  Repairing an entire directory-container storage pool, even for a small blueprint configuration, **can take several days**. Adding more drives or using the latest generation of tape technologies does not decrease the time that is required for the repair activity.

  For information about using container-copy storage pools to protect and recover a server environment in a disaster, and for using container-copy storage pools in storage environments that are based on medium or large blueprint configurations, see technote 7048653.

- **LDAP Verbesserungen**

  Tivoli® Storage Manager Version 7.1.7 simplifies the process of authenticating user IDs by using an Active Directory database. In contrast to previous releases, users and administrators can authenticate **by using the same user IDs that they use to log on to an Active Directory server.**

++++++ **Juni 2016** ++++++++++++++++++++++++++++++++

Letzte Neuigkeiten zu TSM 7.1.6

Elektronisch verfügbar ab: 17.06.2016 von der FTP Seite / Fix Central

➔ **Patch/Fix Version mit ein paar Neuerungen.**

PLET – Program Announcement Letter - siehe:

http://www-01.ibm.com/common/ssi/cgi-bin/ssialias?subtype=ca&infotype=an&appname=iSource&supplier=877&letternum=ENUSZP16-0122

Patch Liste:

http://www-01.ibm.com/support/docview.wss?uid=swg21678116

Fix Pack Readme Dateien:

http://www-01.ibm.com/support/docview.wss?uid=swg27047485

Wichtige Neuerungen in der Release IBM Spectrum Protect 7.1.6:

Weitere Informationen: siehe PLET

- **Schnellere Replication zwischen TSM Servern**

  Mit dem Zukauf: IBM® Aspera®.
  Using high speed data transfer to replicate data rapidly from one Spectrum Protect server to another faster. This capability is particularly beneficial over long distances and impaired networks, and helps to achieve disaster recovery goals for rapid off-site replication of business data.

- **Converts existing file and virtual tape library (VTL)-type deduplicated storage pools to Spectrum Protect directory-container storage pools.**

Neuer CONVERT stgpool Befehl: This automated conversion function enables organizations to take advantage of the space, management, and database improvements in the new storage pools.

- **Neu im Operation Center: Daily tape related management tasks**

  Administrators can view and respond to daily tape related management tasks from within the Operations Center with a real-time understanding of tape related actions.

- **Native object storage support for Cleversafe**

  Extends native object storage support for Cleversafe with its reliable and scalable storage platform. Administrators can now define Cleversafe as a target for on premises object storage pools in Spectrum Protect server.

  (bereits seit 7.1.5)

- **8 TB VMDK disks**

  Supports protected VMware virtual machine disk (VMDK) sizes that are increased from 2 terabytes (TB) to 8 TB.

- **Supports dynamic Microsoft™ Exchange** mailbox restore.
- **Spectrum Protect Operations Center** includes new **customizable reporting** features.
- **Delivers enhanced support for clustered NetAPP storage arrays** running Data ONTAP.
- **Supports IBM Spectrum Protect for Enterprise Resource Planning in SAP HANA environments on IBM Power® systems.**

++++++ **März 2016** ++++++++++++++++++++++++++++++++

Letzte Neuigkeiten zu TSM 7.1.5

Elektronisch verfügbar ab: 11.03.2016 von der FTP Seite / Fix Central

➔ **ist im Wesentlichen eine Patch/Fix Version mit ein paar Neuerungen.**

Sehr umfangreiche Patch Liste siehe:

http://www-01.ibm.com/support/docview.wss?uid=swg21678116

Fix Pack Readme Dateien:

http://www-01.ibm.com/support/docview.wss?uid=swg27047485

Neuerungen IBM Spectrum Protect 7.1.5:

- **Server**

  - **Back up data to a Cleversafe object storage system**

    With Tivoli® Storage Manager Version 7.1.5, you can configure cloud-container storage pools to use Cleversafe®, an IBM® object storage system, to back up data.

    The Cleversafe object storage system uses the Simple Storage Service (S3) protocol to communicate with a cloud server. The Cleversafe object storage system can help you simplify storage management, improve server performance, and secure data by using encryption.

  - **Compress data in container storage pools**

    With Tivoli® Storage Manager Version 7.1.5, you can increase the amount of available space in a storage pool by **enabling inline compression.**

    When you enable inline compression, data is compressed as it is written to a storage pool. Data compression is available for directory-container and cloud-container storage pools.

  - **Repair damaged data on a replication target**

    With Tivoli® Storage Manager Version 7.1.5, when a storage pool protection process runs for a directory-container storage pool on a source server, damaged extents in the **target server's** storage pool are repaired automatically.

    Information about what is repaired is recorded in the activity log for the target server. The automatic repair has the following limitations:

    - Both the source server and the target server must be at V7.1.5 or later.

- To be repaired, extents must already be marked as damaged on the target server. The repair process does not run an audit process to identify damage.
- Only target extents that match source extents are repaired. Target extents that are damaged but have no match on the source server are not repaired.
- Extents that belong to objects that were encrypted are not repaired.
- The timing of the occurrence of damage on the target storage pool and the sequence of REPLICATE NODE and PROTECT STGPOOL commands can affect whether the repair process is successful. Some extents that were stored in the target storage pool by a REPLICATE NODE command might not be repaired.

- **View new, changed, and deleted server messages**

  Beginning with Tivoli® Storage Manager Version 7.1.5, **the server installation directory contains lists** of new, changed, and deleted server messages.

  Use these lists to determine what messages are new, changed, or deleted between versions and releases.

  Related reference:
  ANE messages list
  ANR messages list

Operation Center

- **Operations Center updates**

  New features are available in Tivoli® Storage Manager Operations Center Version 7.1.5. By using the updated Operations Center, you can store client data in a new type of cloud storage pool and monitor data deduplication and compression in directory-container storage pools.

  The following enhancements were made to the Operations Center:

  - You can use the **Add Storage Pool wizard** to create a cloud-container storage pool that backs up data to **Cleversafe**, an IBM object storage system, using the Simple Storage Service (S3) protocol.
  - You can **use inline compression** with a directory-container storage pool to maximize storage pool space. You can complete the following tasks:
    - Specify whether data that is stored to a directory-container storage pool is compressed.

- **View how much space was saved in a storage pool by deduplicating and compressing data**. The savings from both client-side and server-side compression are shown.

For more information about these enhancements, see the Operations Center help.

○ TSM Monitoring

- **Tivoli Monitoring for Tivoli Storage Manager updates**

  You can use IBM® Tivoli® Monitoring for Tivoli Storage Manager Version 7.1.3 **to monitor Tivoli Storage Manager V7.1.5** or earlier servers and to produce historical reports about server and client activities.

  For product documentation, see Tivoli Monitoring for Tivoli Storage Manager in the Tivoli Storage Manager wiki.
  Related information:
  Installing and upgrading Tivoli Monitoring for Tivoli Storage Manager

++++++ **Dezember 2015** ++++++++++++++++++++++++++++++++

Letzte Neuigkeiten zu TSM 7.1.4

Elektronisch verfügbar ab: 07.12.2015 von der FTP Seite / Fix Central

➔ **ist im Wesentlichen eine Patch/Fix Version mit ein paar Neuerungen.**

Patch Liste siehe:

http://www-01.ibm.com/support/docview.wss?uid=swg21678116

Fix Pack Readme Dateien:

http://www-01.ibm.com/support/docview.wss?uid=swg27046834

Neuerungen IBM Spectrum Protect 7.1.4:

- Operation Center Updates

  manage email reports and monitor network-attached storage (NAS) file servers.

Reports
You can complete the following tasks:

- Configure and manage a general operations report and a license compliance report. These predefined reports are available by default.
- Configure and manage custom reports, which use SQL SELECT statements to query one or more managed servers.
- Schedule reports to be sent automatically, or manually send a report.

NAS file servers
You can complete the following tasks:

- View capacity and status information for NAS file servers that are registered as Tivoli Storage Manager clients.
- View the capacity of volumes that are defined on NAS file servers.
- Track the status and performance of full and differential volume backups.

- Simplify backup operations for data in NetApp clusters

  With Tivoli® Storage Manager Version 7.1.4, you can simplify the process of backing up data that is on a network-attached storage (NAS) device in a NetApp cluster. You can configure Tivoli Storage Manager to use the NetApp Cluster Aware Backup extension, which facilitates backup operations in a clustered environment.

- Improve performance for backup operations from NetApp file servers

  When you configure Tivoli® Storage Manager Version 7.1.4 to back up data from a NetApp network-attached storage (NAS) device, backup operations use a 256 KB tape-block size. In earlier releases, a 64 KB tape-block size was used. The 256 KB tape-block size can improve system performance (mit ONTAP 8.3 or later).

- Prevent error messages when your system fails to use TLS 1.1 or earlier protocols

  With Tivoli® Storage Manager Version 7.1.4, you can prevent error messages about failures to use Transport Layer Security (TLS) 1.1 or earlier protocols for Secure Sockets Layer (SSL) ports. To prevent the error messages, specify a value of YES for the new SSLHIDELEGACYTLS server option.

When you specify a value of YES, servers and storage agents preclude the use of TLS 1.1 and earlier protocols for SSL ports. The option is useful in situations such as the following one:

- To enhance security, you restrict communications to TLS 1.2 by specifying a value of YES for the SSLDISABLELEGACYTLS option.
- To ensure that failures to use earlier protocols are not logged as errors, you specify a value of YES for the SSLHIDELEGACYTLS option.

++++++ **September 2015** ++++++++++++++++++++++++++++++++

Letzte Neuigkeiten zu TSM 7.1.3 (neu: IBM Spectrum Protect)

Elektronisch verfügbar ab: 11.09.2015

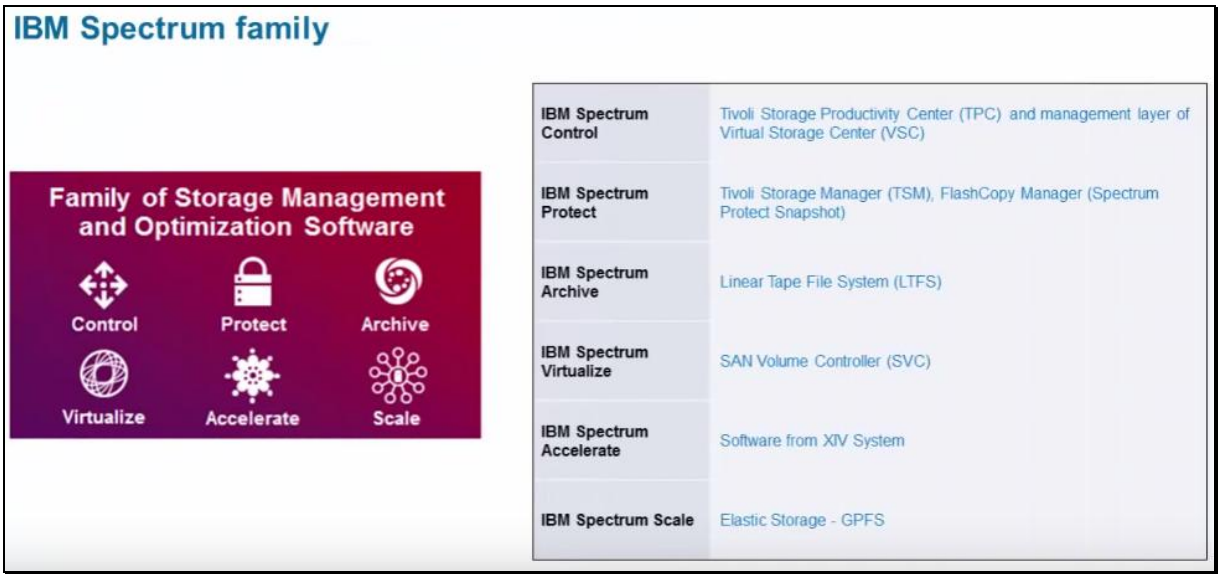
Wichtig: TSM wurde als Teil einer neuen Storage „Familie" unter dem Dach „IBM Spectrum" umbenannt ("rebranded")

Der erst in der Version **7.1.2** kolportierte neue Name:

"IBM® Tivoli® Storage Manager for Unified Recovery (SUR)"

wurde folgendermaßen umbenannt:

- IBM Spectrum™ Protect V7.1.3



PLET: IBM Spectrum Protect V7.1.3 (=TSM) and IBM Spectrum Protect Snapshot V4.1.3 provide breakthrough deduplication, native cloud storage, and a user-centric portal for file restore from virtual machines

http://www-01.ibm.com/common/ssi/cgi-bin/ssialias?subtype=ca&infotype=an&appname=iSource&supplier=877&letternum=ENUSZP15-0411

Wichtige Neuerungen IBM Spectrum Protect 7.1.3 (Auszug):

- IBM Spectrum Protect Snapshot V4.1.3 (formerly IBM Tivoli Storage FlashCopy® Manager) is **now part** of each IBM Spectrum Suite,
- Up to **ten** times improvement **in capacity per Spectrum Protect server** using built-in software defined deduplication technology, enabling a storage pool to protect petabytes of backup data.

  New "Next Generation" deduplication and object container storage pools not using "volumes" any more.

  - **Three new Container based Storage Pool** with

    stgtype of "**cloud**" or "**directory**"

  where **cloud** can be **On-premises** or **Off-premises** and for

  the stgtype of "**directory**" stgpool you have to define directory with "**define stgpooldirectory**". Therefore it is also called directory stgpool. You could also define an overflow stgpool, if the container fills up.

  Remark Malitz: In addition, container stgpools simplify stgpool maintenance because a lot of processes – like migration, collocation, identify duplicates, etc. – are not necessary anymore AND we have less DB objects to track.

- Up to **four** times improvement in **backup throughput** using highly efficient in-line server-side deduplication technology.
- New, efficient, server-side, in-line deduplication allows the use of inexpensive backup storage pool disks.
- define a **lifecycle** for **decommission of client nodes** data, which streamlines the process of removing backup data for decommissioned systems.

- Node will be locked, all data will be “inactivated” and policy rules apply.

- **Maintenance Mode** for TSM / IBM Spectrum Protect DSMSERV Server start

- **Node Replication for complete Storage Pool** → new command “**Protect** stgpool”

➢ IBM Spectrum Protect V7.1.3 Operations Center

A lot of new wizards……

➢ Name changes:

Prior product name	VRM	Prior PID	New product name	VRM	New PID
IBM Tivoli Storage Manager	7.1.2	5608-E01	IBM Spectrum Protect	7.1.3	5725-W98
IBM Tivoli Storage Manager Extended Edition	7.1.2	5608-E02	IBM Spectrum Protect Extended Edition	7.1.3	5725-W99
IBM Tivoli Storage Manager for Virtual Environments	7.1.2	5725-A44	IBM Spectrum Protect for Virtual Environments	7.1.3	5725-X00
IBM Tivoli Storage Manager for Databases	7.1.2	5608-E04	IBM Spectrum Protect for Databases	7.1.3	5725-X01
IBM Tivoli Storage Manager for Mail	7.1.2	5608-E06	IBM Spectrum Protect for Mail	7.1.3	5725-X02
IBM Tivoli Storage Manager for Enterprise Resource Planning	6.4.2	5608-E05	IBM Spectrum Protect for Enterprise Resource Planning	7.1.3	5725-X03
IBM Tivoli Storage Manager for Storage Area Networks	7.1.1	5608-E07	IBM Spectrum Protect for SAN	7.1.3	5725-X18
IBM Tivoli Storage Manager for Space Management	7.1.2	5608-E12	IBM Spectrum Protect for Space Management	7.1.3	5725-X04
IBM Tivoli Storage Manager Suite for Unified Recovery	7.1.2	5724-Z12	IBM Spectrum Protect Suite	7.1.3	5725-X05
IBM Tivoli Storage Manager Suite for Unified Recovery Entry	7.1.2	5725-H25	IBM Spectrum Protect Suite Entry	7.1.3	5725-X06
IBM Tivoli Storage Manager Suite for Unified Recovery - Front End	7.1.2	5725-R37	IBM Spectrum Protect Suite - Front End	7.1.3	5725-X07
IBM Tivoli Storage Manager Suite for Unified Recovery Entry - Front End	7.1.2	5725-R38	IBM Spectrum Protect Suite Entry - Front End	7.1.3	5725-X08
IBM Tivoli Storage Manager Entry	7.1.2	5725-Q58	IBM Spectrum Protect Entry	7.1.3	5725-X11
IBM Tivoli Storage Manager Fastback for Workstations	7.1.1	5724-Y96	IBM Spectrum Protect for Workstations	7.1.3	5725-X12
IBM Tivoli Storage Manager Fastback for Workstations -Starter Edition	7.1.1	5724-S64	IBM Spectrum Protect for Workstations - Starter Edition	7.1.3	5725-X13
IBM Tivoli Storage Manager HSM for Windows™	7.1.2	5608-E13	IBM Spectrum Protect HSM for Windows	7.1.3	5725-X14
IBM Tivoli Storage FlashCopy Manager	4.1.2	5608-ACB (AAS)	IBM Spectrum Protect Snapshot	4.1.3	5608-AB3 (AAS)
IBM Tivoli Storage FlashCopy Manager	4.1.2	5724-X94 (PPA)	IBM Spectrum Protect Snapshot	4.1.3	5725-X22 (PPA)
IBM System Storage® Archive Manager	7.1.2	5608-E03	IBM Spectrum Protect for Data Retention	7.1.3	5725-X15

Weitere Neuerungen – siehe PLET.

++++ **April 2015** ++++++++++++++++++++++++++++++++

Letzte Neuigkeiten zur **TSM 7.1.2 Ankündigung:**

Elektronisch verfügbar ab: 17.04.2015

PLET: jetzt genannt: IBM Tivoli Storage Manager Suite for Unified Recovery (SUR) V7.1.2

http://www-01.ibm.com/common/ssi/cgi-bin/ssialias?subtype=ca&infotype=an&appname=iSource&supplier=877&letternum=ENUSZP15-0260

Stichworte:

Wichtig: es gibt KEINE TSM Server Version 7.1.2. Die Version 7.1.1 ist nach wie vor aktuell!!!

Neuerungen:

TSM Version 7.1.2 besteht aus den folgenden Komponenten / Code Levels:

- Backup-Archive Client Version 7.1.2 (mit Ubuntu 14.04 x86_64 Support).
- Application programming interface (API) at V7.1.2.
- TSM Server Version 7.1.1.100.
- Operations Center, Tivoli Monitoring for Tivoli Storage Manager, and device driver components, V7.1.1 (so wie bisher).

Weitere Neuerungen – z.B. TSM for VE oder MAIL – siehe PLET.

++++ **September 2014** ++++++++++++++++++++++++++++++++

Letzte Neuigkeiten zu TSM Server 7.1.1:

Elektronisch verfügbar ab: 12.09.2014

Stichworte:

- **Node Replication: Beschädigte Dateien (Damaged Files) von einem Replikationsserver wiederherstellen**

Mit Tivoli Storage Manager Version 7.1.1 können Sie die Knotenreplikationsverarbeitung verwenden, um beschädigte Dateien wiederherzustellen. Wird diese Funktion aktiviert, werden vom System alle beschädigten Dateien auf einem Quellenreplikationsserver (Source-Server) erkannt und durch unbeschädigte Dateien von einem Zielreplikationsserver (Target Server) ersetzt.

- **Node Replication: Replizierte Daten mit Maßnahmen (Policies) verwalten, die auf dem Zielreplikationsserver definiert sind**

  SET dissimilarpolicies on/off

  Mit Tivoli Storage Manager Version 7.1.1 können Sie die Maßnahmen verwenden, die auf dem Zielreplikationsserver definiert sind, um replizierte Clientknotendaten unabhängig vom Quellenreplikationsserver zu verwalten. In vorherigen Releases wurden Clientknotendaten auf dem Zielreplikationsserver durch Maßnahmen auf dem Quellenreplikationsserver verwaltet.

- **SSL-Protokolle auf TLS 1.2 oder höher beschränken**

  Mit Tivoli Storage Manager Version 7.1.1 können Sie die Verwendung von SSL-Protokollen (SSL = Secure Sockets Layer) vor TLS 1.2 mit der neuen Serveroption SSLDISABLELEGACYTLS verhindern.

- **Offlinereorganisation von Tabellen und Indizes**

  Mit Tivoli Storage Manager Version 7.1.1 können Sie Indizes und Tabellen offline reorganisieren, um die Stabilität des Servers aufrechtzuerhalten und die Datenbankleistung zu verbessern. Um diese Funktion zu aktivieren, definieren Sie die Serveroptionen DISABLEREORGTABLE, DISABLEREORGINDEX und DISABLEREORGCLEANUPINDEX.

- **Archivprotokolle komprimieren**

  Mit Tivoli Storage Manager Version 7.1.1 können Sie die Komprimierung der Archivprotokolldateien aktivieren oder inaktivieren, die in das Archivprotokollverzeichnis geschrieben werden. Durch die Komprimierung der Archivprotokolldateien können Sie den Speicherbedarf reduzieren, der zum Speichern der Dateien erforderlich ist.

- **Datenbanksicherungen komprimieren**

  Mit Tivoli Storage Manager Version 7.1.1 können Sie die Tivoli Storage Manager-Datenbanksicherungen auswählen, die komprimiert werden

- **Banddatenträger überprüfen**

Sie können jetzt jeden Datenträger in einem Bandarchiv mit dem Befehl AUDIT LIBVOLUME prüfen, der in Tivoli Storage Manager Version 7.1.1 für einige Speicherarchivtypen und Bandlaufwerke verfügbar ist. Wenn dieser Befehl ausgegeben wird, wird ein vollständiger physischer Banddatenträger und nicht nur ein Speicherpooldatenträger geprüft.

- **Seiten während der Datenbanksicherungsverarbeitung prüfen**

  Tivoli Storage Manager Version 7.1.1 verwendet IBM DB2-Datenbanktechnologie, um Datenbankseiten während der Datenbanksicherungsverarbeitung zu prüfen.

- **Operation Center**

  Das Operations Center kann nicht auf HP-UX- oder Oracle Solaris-Systemen installiert werden. Sie können das Operations Center jedoch verwenden, um Tivoli Storage Manager-Server mit Version 6.3.4 oder einer höheren Version zu verwalten, die auf HP-UX- oder Oracle Solaris-Systemen ausgeführt werden. Und wieder ein paar Verbesserungen im Bereich der Menüführung, Alerts & Anzeigen.

- **Verfügbarkeit des „alten“ Administration Center (ISC und Nachfolger TIP (Tivoli Integrated Portal))**

  Das Tivoli Storage Manager Administration Center wird zwar mit Version 7.1 oder einer späteren Version nicht bereitgestellt, aber Sie können stattdessen das Operations Center verwenden, das eine webbasierte Schnittstelle zum Verwalten Ihrer Speicherumgebung ist.
  Sie können das Administration Center der Version 6.3.4 mit einem beliebigen Tivoli Storage Manager-Server der Version 6.3 oder höher verwenden, einschließlich für die automatische Aktualisierung von Clients für Sichern/ Archivieren.

- **Verfügbarkeit von Tivoli Monitoring for Tivoli Storage Manager**

  IBM Tivoli Monitoring for Tivoli Storage Manager wird mit Version 7.1.1 bereitgestellt. Die vorhandenen BIRT-Berichte, die in vorherigen Releases verfügbar waren, sind als Cognos-Berichte verfügbar.

- **Verschiedenes**

  Die Datei **logattr.chk** (ehemals dsmserv.dsk) wird gar nicht mehr verwendet. Alle Parameter sind nun direkt in der DB2 gesetzt.

  ACTIVE LOG Size: now up to 512GB (not documented yet)

PLET:
http://www-01.ibm.com/common/ssi/cgi-bin/ssialias?infotype=AN&subtype=CA&appname=gpateam&supplier=897&letternum=ENUS214-340&pdf=yes

++++ **Dezember 2013** ++++++++++++++++++++++++++++++++

Letzte Neuigkeiten zu TSM Server 7.1:

Elektronisch verfügbar ab: 13.12.2013

Stichworte:

1. **IBM Installation Manager**

   Installation statt mit InstallAnywhere Installer und Deployment Engine ist vorbei! Der neue – auch für andere IBM SW Produkte verwendete – Installation Manager (seit 7.1) wird jetzt verwendet. rpm auf Linux und installp auf AIX werden nicht verwendet (kein "rpm -qa" oder "lslpp -l" mehr „verfügbar“).

   In Tivoli Storage Manager Version 7.1.1 verwenden der Server, das Operations Center und Tivoli Monitoring for Tivoli Storage Manager IBM Installation Manager für die Installation oder Aktualisierung von Software. Wenn die erforderliche Version von IBM Installation Manager noch nicht installiert ist, wird sie automatisch installiert oder aktualisiert, wenn Sie den Tivoli Storage Manager-Server, das Operations Center und Tivoli Monitoring for Tivoli Storage Manager installieren. Die Software muss auf dem System installiert bleiben, damit der Server, das Operations Center und Tivoli Monitoring for Tivoli Storage Manager später nach Bedarf aktualisiert oder deinstalliert werden können..

   ATTENTION: Software Prereqs z.B. W 2008 Server R2 und 12 GB RAM werden „erzwungen“ (aber „Umgehung steht natürlich zur Verfügung).

2. **Performance Verbesserungen**: A single Tivoli Storage Manager server can handle up to ten times daily ingest of deduplicated and replication data over previously published rates. The total time required for Tivoli Storage Manager server to ingest, deduplicate, replicate, expire, and reclaim data is reduced significantly between Tivoli Storage Manager V6.3 and Tivoli Storage Manager V7.1.

3. **Objekt-Größen:** Tivoli Storage Manager is able to process large objects of sizes 10 GB, or larger, more efficiently.

4. **Node replication** for data access, with automated client redirection in case of lack of a server availability.

5. **DB2 will be V10.5**

6. **Deprecated Device Ttypes**:

   3490
   3570
   CARTRIDGE
   OPTICAL
   WORM
   QIC

   DTF

7. **File-space level collocation groups are introduced in Tivoli Storage Manager** Version 7.1.

   You can group file spaces that belong to a single node, which allows data for these file spaces to be collocated efficiently without requiring separate volumes for each file space. When you use file-space level collocation groups, you can group data for a limited set of file systems, for example, virtual machines. Fewer volumes are required for the data and placement can be coordinated in the server storage

8. **File Space Level Migration possible now!.**

   With the new functions that are added to migration processing, you can improve the efficiency of the server by using file space level migration. Nodes with multiple large file spaces can take advantage of faster migration processing for random-access storage pools.

9. **Shared memory for database backup and restore operations**

   You can now use shared memory to reduce processor load and improve throughput, if the database backup performance is slow.
   You can manually configure a Tivoli Storage Manager server, or use the instance configuration wizard, to use shared memory with DB2.

10. **Immediate use of space that is added to the server database**

    When you add space to the database, new database directories are now available for immediate use and parallel I/O performance is improved.
    You can add directories to the database by using the EXTEND DBSPACE command. In Version 7.1, the updates for this operation include distributing data across all database directories and then reclaiming unused space and returning it to the system. Because redistribution operations take considerable system resources, plan ahead when you want to add space to

the database. You must complete the process while the server is not handling a heavy load.

Achtung: die TSM Versionen 5.5 und 6.1 sind nur mehr bis 30.04.2014 unterstützt („end of support“).

PLET:

http://www-01.ibm.com/common/ssi/cgi-bin/ssialias?infotype=AN&subtype=CA&htmlfid=897/ENUS213-447&appname=USN

++++ Juni 2013 ++++++++++++++++++++++++++++++++

Letzte Neuigkeiten zu TSM Server 6.3.4 (erwähnt im Announcement Letter TSM 6.4.1 (PLET):

Elektronisch verfügbar seit: 14.06.2013

Stichworte:

1. Tivoli Storage Manager migration to V6.3.4 or later on Linux x86_64 (for AIX, Solaris and HP UX). → this means, support for: server consolidation, load balancing, or standardization on the Linux operating system
2. Tivoli Monitoring for TSM Updates
3. Tivoli Operation Center (TOC) 6.4.1
4. Code Level Übersicht:

   - ➔ Backup-archive client at V6.4
   - ➔ Application programming interface (API) at V6.4
   - ➔ Server at V6.3.4, including Administration Center, Tivoli Monitoring for Tivoli Storage Manager, and device driver components, also at V6.3.4
   - ➔ Operations Center at V6.4.1

Achtung: die TSM Versionen 5.5 und 6.1 sind nur mehr bis 30.04.2014 unterstützt („end of support“).

PLET:

http://www-01.ibm.com/common/ssi/cgi-bin/ssialias?subtype=ca&infotype=an&appname=iSource&supplier=897&letternum=ENUS213-225

++++ Dezember 2012 ++++++++++++++++++++++++++++++++

Letzte Neuigkeiten zu TSM 6.3.3 (erwähnt im TSM 6.4 Announcement Letter TSM 6.4 (PLET):

Elektronisch verfügbar seit: 16.11.2012

Stichworte:

1. LDAP authenticated passwords
2. Tivoli Monitoring for TSM Updates
3. Enhancements for expire processing
4. und mehr…

PLET:

➔ http://www-01.ibm.com/common/ssi/cgi-bin/ssialias?subtype=ca&infotype=an&appname=iSource&supplier=877&letternum=ENUSZP12-0488

++++ Mai 2012 ++++++++++++++++++++++++++++++++

Letzte Neuigkeiten zu TSM 6.3:

Elektronisch verfügbar seit: 21.10.2011

Stichworte:

1. DB ist jetzt 4 TB (2 TB V6.2 und 1 TB bei TSM 6.1)
2. Reporting mit Cognos
3. Selective Node Replication to second TSM Server
4. JBB für Linux
5. Central Client upgrades für mehrere Plattformen
6. …

PLET:

➔ http://www-01.ibm.com/common/ssi/cgi-bin/ssialias?infotype=AN&subtype=CA&htmlfid=897/ENUS211-372&appname=USN

Overview - Tivoli Storage Manager Supported Operating Systems

➔ **http://www-01.ibm.com/support/docview.wss?uid=swg21243309**

Storage-agent and library-client compatibility with the IBM Tivoli Storage Manager server

➔ **http://www-01.ibm.com/support/docview.wss?uid=swg21302789**

Letzte Neuigkeiten zu TSM 6.2.3:

++++ May 2011 ++++++++++++++++++++++++++++++++

ISC is called now TIP (Tivoli Integrated Portal) and is a little bit slower in terms of performance.

Attention: TXNGROUPMAX default is now 4096!!!

Fix Pack 03 is out: TSM V6.2 Fix Pack 3 (6.2.3)
https://www-304.ibm.com/support/docview.wss?uid=swg24029217

++++ May 2010 ++++++++++++++++++++++++++++++++

A new **6.2.1** / ISC /Admin Center Version and the
Fix Pack TSM 6.2.1 is available

e.g. for Windows: **6.2.1.0**-TIV-TSMAC-WindowsI32.exe

++++ March 2010 ++++++++++++++++++++++++++++++++

ITM 6.2 is available

Letzte Neuigkeiten zu TSM 6.1.3.0: (and 6.1.3.1)

++++ 18. Januar 2010 ++++++++++++++++++++++++++++++++

- **Upcomming fix-packs -- 6.1.3.0 REMOVED !!!!!!!!!**

	Removed from FTP site 1/12 due to IC65409, to be replaced by **6.1.3.1**. comes 22. January

→ Info from:
https://www.ibm.com/developerworks/wikis/display/tivolistoragemanager/TSM+Schedule+for+Fix-Packs

Letzte Neuigkeiten zu TSM 6.1.2.0:

++++ 09.Oktober 2009 ++++++++++++++++++++++++++++++++

- **Größe der TSM 6.1 DB2 Datenbank - empirische Herangehensweise:**

  To be on the „save side" – pragmatische Kalkulation:

  → Wenn Sie TSM 6.1 ohne Dedup verwenden: TSM 5.5 DB Größe mal 3

  → mit dedup: TSM 5.5 DB Größe mal 5

- **UND** wichtig: **technote 1399352 für das Bereinigen des ARchive Logs**

  "At 6.1, a successful dbbackup has to be accompanied by a successful volhist backup. If the volhist backup is not successful, the backupdb will not clear the archivelog even if the dbbackup was successful".

++++ 29.September 2009 ++++++++++++++++++++++++++++++++

Achtung: obwohl für das **TSM Reporting und Monitoring Feature** ebenfalls ein 6.1.2.0 Patch existiert, ist es nicht zwingend erforderlich diesen zu installieren: Nach meiner Überprüfung habe ich nur 2 APARS/Patches gefunden, welche in keiner Weise die Funktionalität „tangieren", sondern nur klassische Tivoli Probleme wie DB2 Password „Regel-Einhaltung" addressieren! That's it.

++++ Mitte September 2009 ++++++++++++++++++++++++++++++

→ sehr gute neue preview Option!

- **backup sets** or tables of contents (**TOC**s) can be upgraded to V6 and **backup**

NAS with TOCs can be used).

- **TSMDLST** (Device List) → since years, this utility is available for Windows

  → **NOW it is also available for AIX!**

- **PREVIEW** for **DSMSERV INSERTDB**

  When you use the **PREVIEW=YES** parameter, the operation **includes all the steps of the process, except for the actual insertion of data into the new database**. When you preview the insertion operation, you can quickly verify that the source database is readable. You can also identify any data constraint violations before you run the actual upgrade process for your server.

+++ end latest news +++++++von Mitte September +++++++++++++++

Die neue TSM Version steht seit 27. März 2009 zur Verfügung.

Neben vielen anderen Neuerungen stechen dabei 3 neue „Haupt-Features" hervor, wobei eine Änderung einen „revolutionären" Technologie-Austausch darstellt!

1. **Data de-Duplikation** für bestimmte Storage Pools / Device-Classes
2. **Eine neue Datenbank Technik** als 100%iger Ersatz der bisherigen TSM Datenbank (DB/2)

   sowie

3. **Reporting and real-time Monitoring -** Feature, - ein für TSM komplett neuer Ansatz.

   → Dieses Feature basiert auf dem bereits seit längerer Zeit bestehenden IBM Tivoli Monitoring **ITM 6.2** in Kombination mit dem Tivoli Common Reporting (**TCR**), welches wiederum – man höre und staune – auf dem **Open Source** Reporting Werkzeug **"BIRT"** (Business Intelligence Reporting Tools) aufbaut!

   → **Overview: click on:**

   http://www.mm-it.at/de/downloads/TSM_6.1_Overview_Reporting_Monitoring_Komponenten_V2_English.pdf

And new: es existiert ein neuer TSM Reporting Workshop zu diesem Thema:

→ **click on:**

http://www.mm-it.at/de/downloads/TSM_6.1_Reporting_und_Real-Time_Monitoring_Workshop.pdf

and English Version:

http://www.mm-it.at/de/downloads/TSM_6.1_Reporting_and_Real-Time_Monitoring_Workshop__English.pdf

Jedes TSM Upgrade ist mit einem gewissen Maß an Planung verbunden.

→ Im Fall der neuen Version TSM 6.1 bedarf es dabei - im Gegensatz zu früheren Versions-Upgrades – aber noch **zusätzlicher** Planungs- und Konzept-Überlegungen.

Ein Tip: generell sollten Sie diese Migration / das Upgrade zum Anlass nehmen, Ihre bestehende gewachsene TSM Umgebung einem Design-Check zu unterziehen.

→ Um Ihnen einen Eindruck bezüglich der zu beachtenden Punkte eines TSM 6.1 Upgrades zu geben, habe ich nachfolgend ein paar Punkte zusammengefasst.

TSM 6.1/6.2 Upgrade – einige - zu beachtende Punkte:

- **Neue DB/2 Datenbank**

  Entscheidung für Upgrade Technik (Media, Netzwerk, Import/Export !), das gleiche oder ein separates System.

  1. Upgrade to new system, using external media
  2. Upgrade to new system, using network
  3. Upgrade in place (on same system), using external media
  4. Upgrade in place (on same system) using network
  5. TSM Export/Import from 5.x -> 6.1
     - TSM Export/Import supported from 5.x -> V6 (server-to-server or external media to new system only)

- **Disk Space Abhängigkeiten**

  Beispiel Recovery Log:

  → **NEU**: das Recovery Log setzt sich in der neuen TSM 6.1 Version aus mehreren Logs zusammen. Und zwar aus den **zwei zwingend erforderlichen** Logs:

  - **Active Log** (max 128 GB) - (not yet committed transactions) **und**
  - **Archive Log** („quasi no Limit!“ siehe unten) - (Kopien von abgeschlossenen „closed“ Active Log Files/Records),

  sowie den **zwei optionalen** Logs

  - **Log Mirror** - (Kopie des „Active Logs“) **und**
  - **Archive Failover Log** **(oder auch “secondary Archive Log“)** - (speichert Archive Log Files, wenn das Archive Log voll ist).

Das Archive Log ist - „unser Space Problemkind“ - Warum?

→ Weil es sehr viele Platten-Ressourcen binden kann. Die **GRÖSSE** ist abhängig von:

1.) **Anzahl der gesicherten Client Objekte zwischen zwei Datenbank Backups**

und

2.) **Von der Tatsache, das immer ZWEI weitere komplette Datenbank** Sicherungen durchgeführt werden müssen, bevor alte Records „gepruned“ bzw. aus dem Archive Log entfernt werden können.

Rechenbeispiel (Quelle TSM 6.1 Admin Guide) – Annahme Full Backup wird jeden Tag durchgeführt:

→ 5.000.000 Files werden täglich gesichert
→ ca. 3000 Bytes Speicherplatz werden pro Objekt im Archive Log benötigt und dies
→ multipliziert mit 2 (notwendige DB Backups dazwischen) ergibt:

→ Für **5 Millionen Objekte** werden 30 GB Speicherplatz im Archive Log benötigt!

- **MMC (Microsoft Management Console) – Reporting → nicht mehr offiziell supported**

→ check der bestehenden Abläufe.
→ Bei Verwendung der alten MMC: eine Anpassung der bestehenden Selects auf die zum Teil „strengere“ DB/2 Syntax, sowie geänderte Tabellenformate ist erforderlich.
→ Evaluierung der neuen TSM Reporting Möglichkeit mittels ITM 6.2 / TCR und BIRT (ein separates System ist erforderlich).

- **Serverscripts**

→ wie auch bereits beim MMC Reporting, könnte eine Änderung der Selects erforderlich sein.
→ Überprüfung der bestehenden täglichen „Maintenance“-Befehle auf Gültigkeit.

- **Überprüfung der Server- und Client-Optionen**

- **TSM Library Manager and Library Client / STA (Storage Agent)-Überlegungen**

- **ISC/AC Upgrade Überlegungen**

- **Upgrade Überlegungen – allgemein**

  → NIC (Network Interface Cards) im Windows Bereich
  → SW Kompatibilitäten Server, STA und Client
  → Archive Server - Retention
  → Evaluierung der neuen Befehle
  → neuer ODBC DB/2 Treiber

- **Evaluierung Data De-Dup**

- **Und noch vieles mehr…**

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