EADM™ Software Datasheet
(Easy Analyze DASD Mainframe)

A Prescriptive Analytics Solution to Automate z/OS I/O Performance Analysis and Capacity Monitoring of DASD and Subsystems

Technical Storage

Business Partner IBM™

Questions? Please contact info@interchip.de

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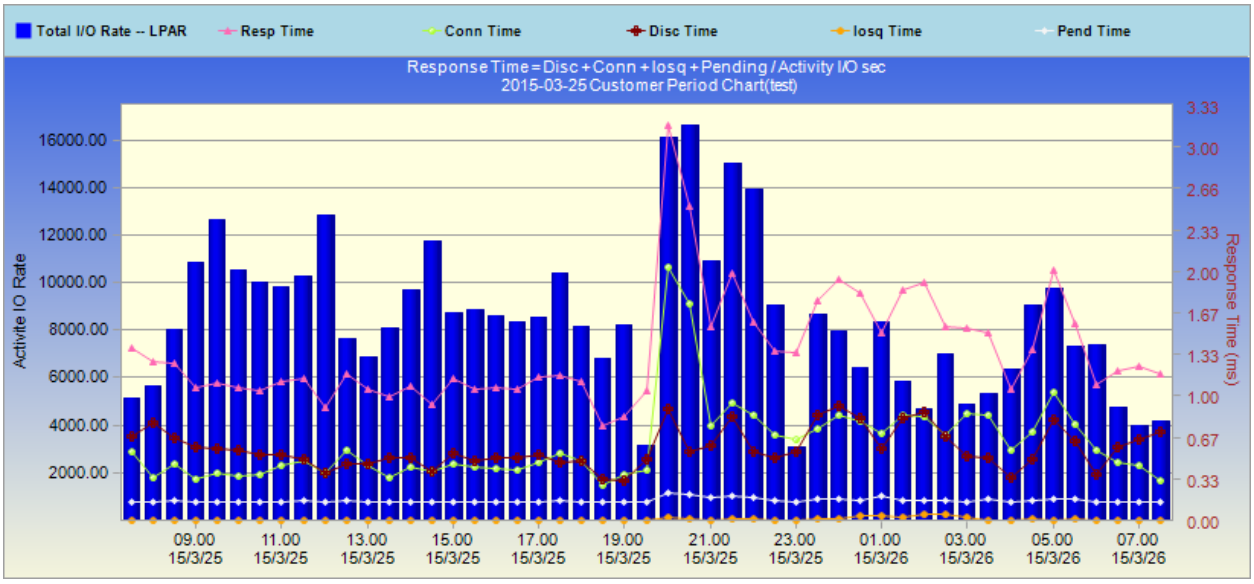
Built for z/OS mainframe Storage Managers, Systems Engineers and Production Directors who wish to gain in time and efficiency in the analysis of information, EADM™ is an **automated Storage Performance Management tool** with three main purposes:

- To improve DASD I/O performance
- To gain time optimizing z/OS storage infrastructures
- To consolidate institutional mainframe skills by running critical operations internally and keeping data in-house

In a world driven by data, patience is not a virtue when it comes to IT. Storage is one of the largest line items in datacenters and fast reliable access to enterprise data is essential to the productivity of thousands of employees and to the success of revenue generating applications. Properly monitoring an ever more complex z/OS infrastructure can be challenging because many enterprises simply lack the resources to do so on a regular basis. While a single mainframe CPU can now process one trillion transactions per day, daily changes in hardware and software configuration create availability risks and jeopardize SLAs.

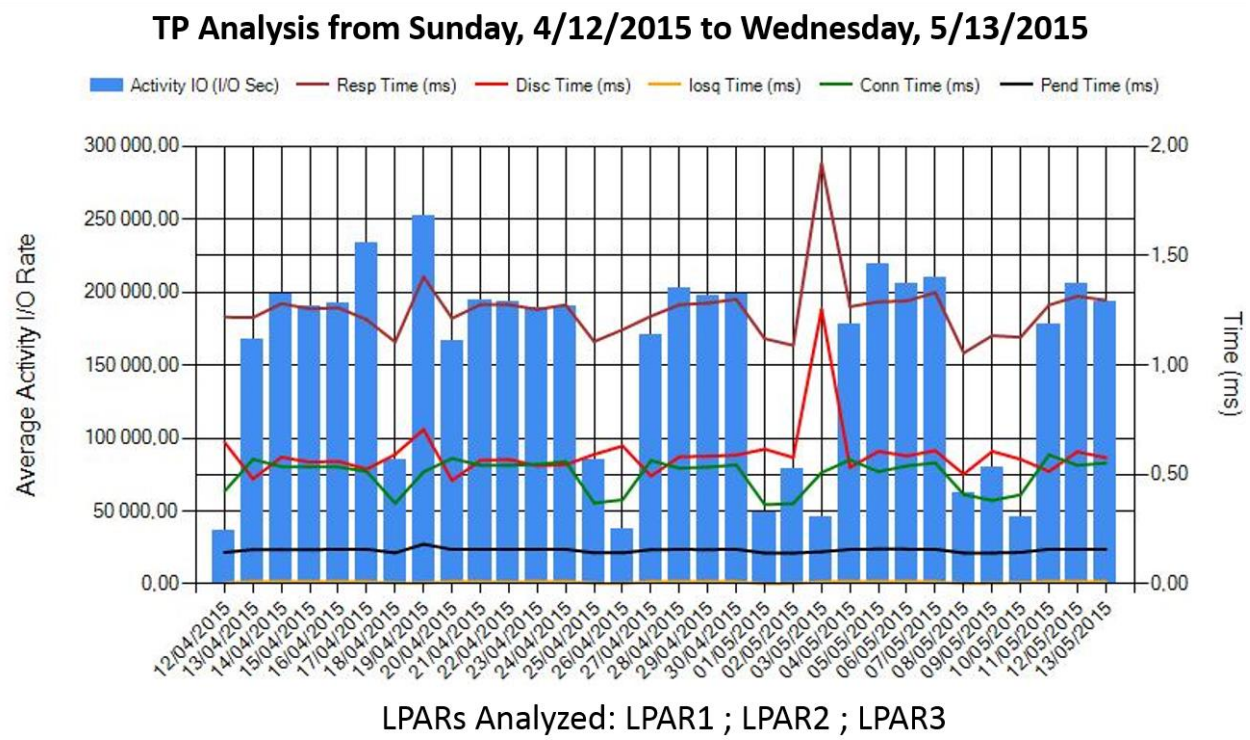
1. Example of a view showing IO and response times (with response time components) for 1 LPAR over 24h as provided by EADM. This curve enables to quickly direct investigations when improving disk IO performance.



Real time monitoring alone does not allow for in-depth detection of bottlenecks and system imbalances (or malfunctions) that will affect performance. In general, when the alarm sounds, mainframe availability has already been disrupted and SLAs are being impacted. Traditional storage performance tools exist but they are no longer adequate to provide the enterprise with a pertinent and inexpensive predictive analytics system, especially when dealing with large LPAR configurations.

Early detection of hotspots and performance trending:
EADM™ provides a daily health check of the entire disk subsystems. The tool works around the clock for the enterprise and delivers customized and **automatic user friendly reports via internal email**. The metrology and performance teams are alerted as soon as performance drifts start occurring and in minutes can identify the underlying **root problems** causing changes in system behavior. Equipped with pertinent I/O performance indicators and the ability to zoom-in, storage managers know if the problem is temporary, permanent, local or global, while **keeping sensitive operations in-house**.

2. Automatic and daily report showing I/O activity and response times for a pool of LPARs over 30 days rolling (TP and/or batch)



Each year RMF (IBM) and CMF (BMC) reports are richer in **critical information about z/OS systems' configuration and performance**. Automatically, EADM™ analyzes SMF, RMF and CMF datasets daily and archives pertinent data to create a **repository of I/O and storage behavior** for better performance and capacity planning. EADM™ is a smart and automated tool that interprets Big Data from RMF and CMF (information certified by IBM and BMC) to help the enterprise make the right decisions, take proactive action, reduce availability risks and save on operational and hardware costs.

EADM and BIG DATA

Unstable LPARs can generate queues in I/O chains of other LPARs, which in turn can jeopardize Service Level Agreements. EADM now embarks new Big Data modules to save time improving z/OS I/O SLAs: once EADM is deployed (a few weeks are necessary to build a pertinent performance historicity), the software quickly points out LPARs deemed unstable at specific times during the month.

Small 'Addinfo.txt' files are created automatically when EADM performs its daily studies in auto-mode. These small files are used by EADM to give z/OS managers pertinent metrics such as:

- DASD I/O activity over e.g. three months for a pool of LPARs with response times (and their components) between e.g. 09:00 and 10:00
- I/O activity for one month for one LPAR with response times (and their components) between e.g. 09:00 and 12:00, 14:00 and 18:00 (TP) and between 19:00 and 08 :00 (batch)

Another Big Data module in EADM creates small 'Compare.txt' files which EADM uses to compare metrics from day to day / hour to hour. This pertinent feature gives fast answers to questions like:

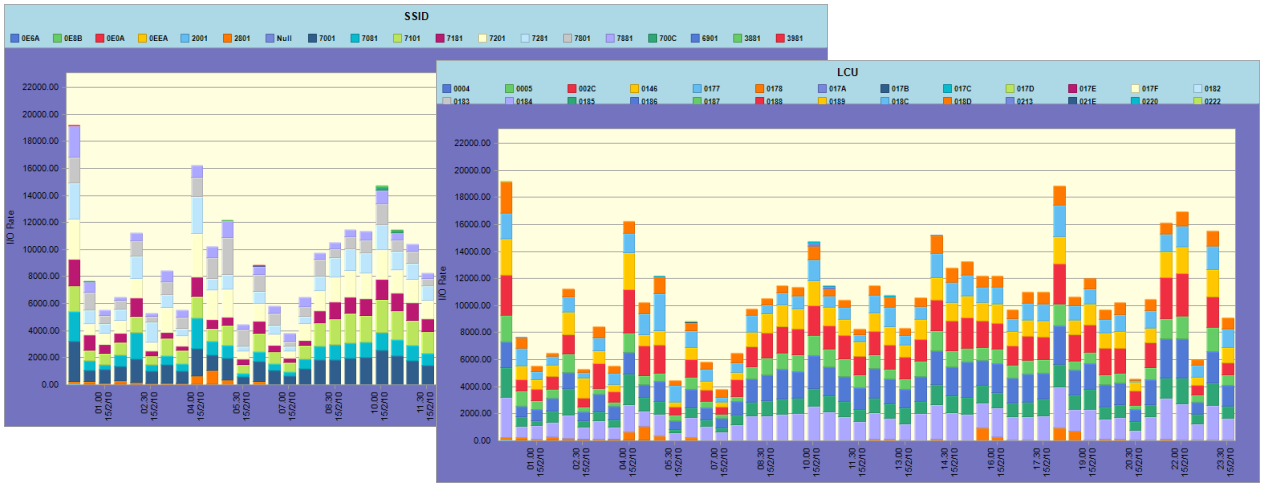
- Which LPAR is most unstable in terms of I/O count and in relation to DASD response times?
- Does this instability occur during batch or TP – at what time exactly?
- Is it possible to have a list of the data-centers' six most unstable LPARs over the last three months to begin a study on SLA improvement?

3. Real case study showing on one graph a z/OS customer with 85 LPARs to pay particular attention to LPAR US85 on Wednesdays because Disconnect Time is causing poor IO performance at 03:30

Features

- Installed in 30 minutes and ready to operate
- Compatible with IBM z/OS V1R2, V2R1 and all actual, past and future versions of RMF / CMF
- Compatible with IBM, HDS and EMC hardware technology
- Smooth interface between z/OS data and Open systems
- Also available on cloud and BYOD for worldwide performance management
- Automatic & manual modes
- Automatic and daily (24h) analysis of I/O response times (batch & TP) of all LPARs
- **Systematic alerts** of early performance drifts with exact occurrence time intervals
- Identification of hotspots down to volume and dataset levels
- Performance trending at SMS STOgroup, LCU, and volume level
- Customized reporting of I/O throughput per SYSPLEX or box (e.g. day, week, month, year)
- **Cache Fast Write** (CFW) utilization rates to drastically improve DB2 (DFSORT) service times
- DR simulations to prevent data loss and forecast datacenter behavior in case of failover
- I/O-WLM indicators to know exactly what impacts performance objectives
- FICON channels and throughput indicators
- HyperPAV / LCU indicators to easily balance volumes and relieve PAV over-allocation
- Back end / front end indicators
- Indicators to measure gains brought about by zHPF
- LCU / SSID / I/O performance monitoring and balancing
- DCOLLECT analysis to optimize assigned vs allocated vs actual disk utilization
- Archiving of z/OS performance data over 36 months for historicity
- 24/7 expert technical assistance hotline
- Lowest TCO on the market
- And many more

4. SSID/LCU activity over 24h, e.g. to optimize balancing of IO activity per SSID and LCU when some volumes are saturated



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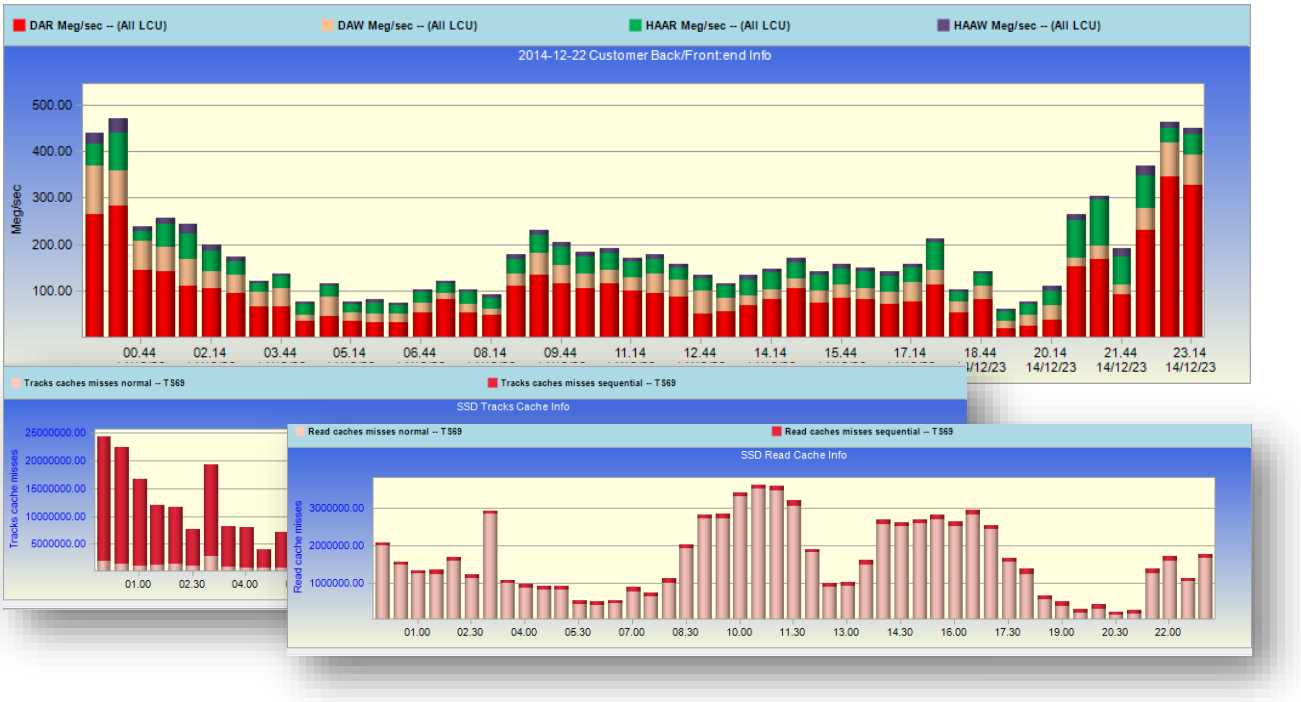
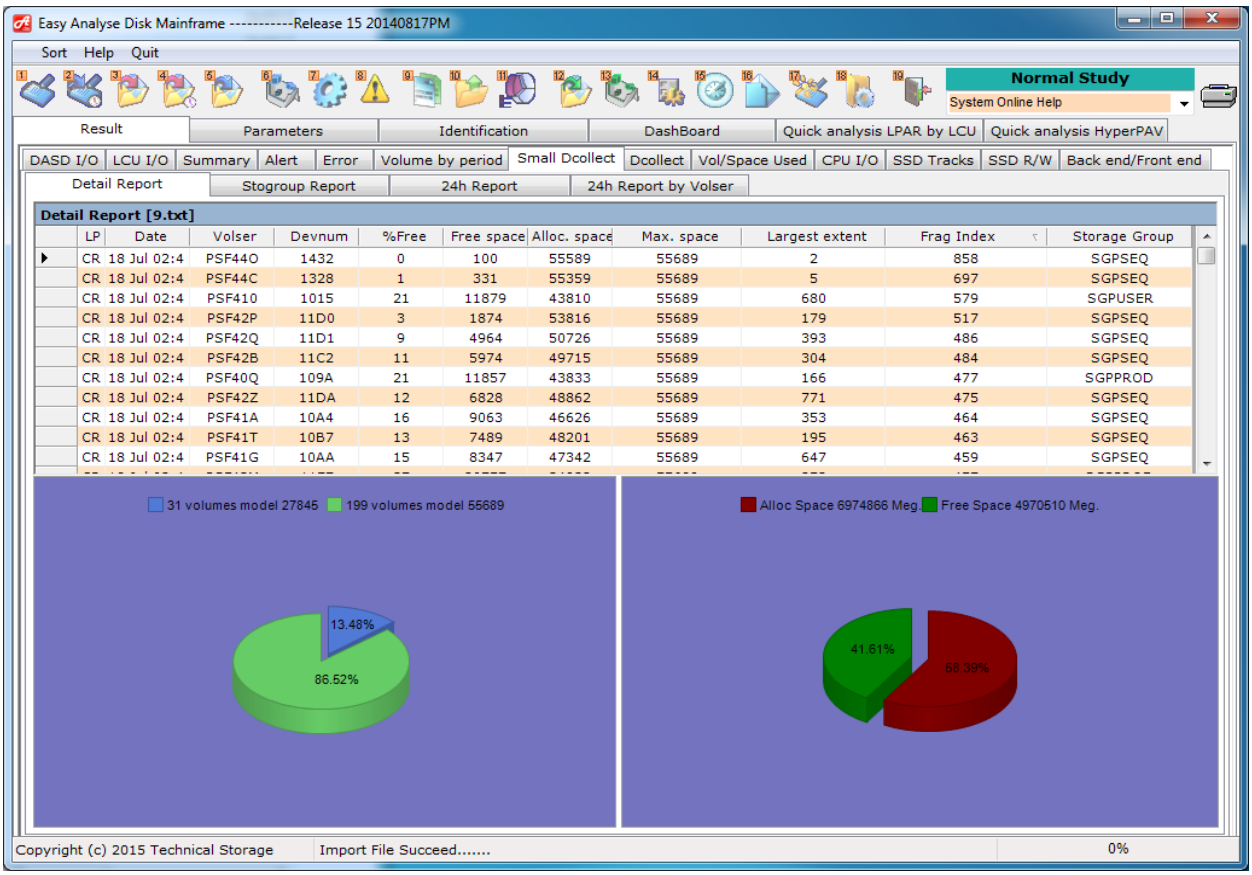
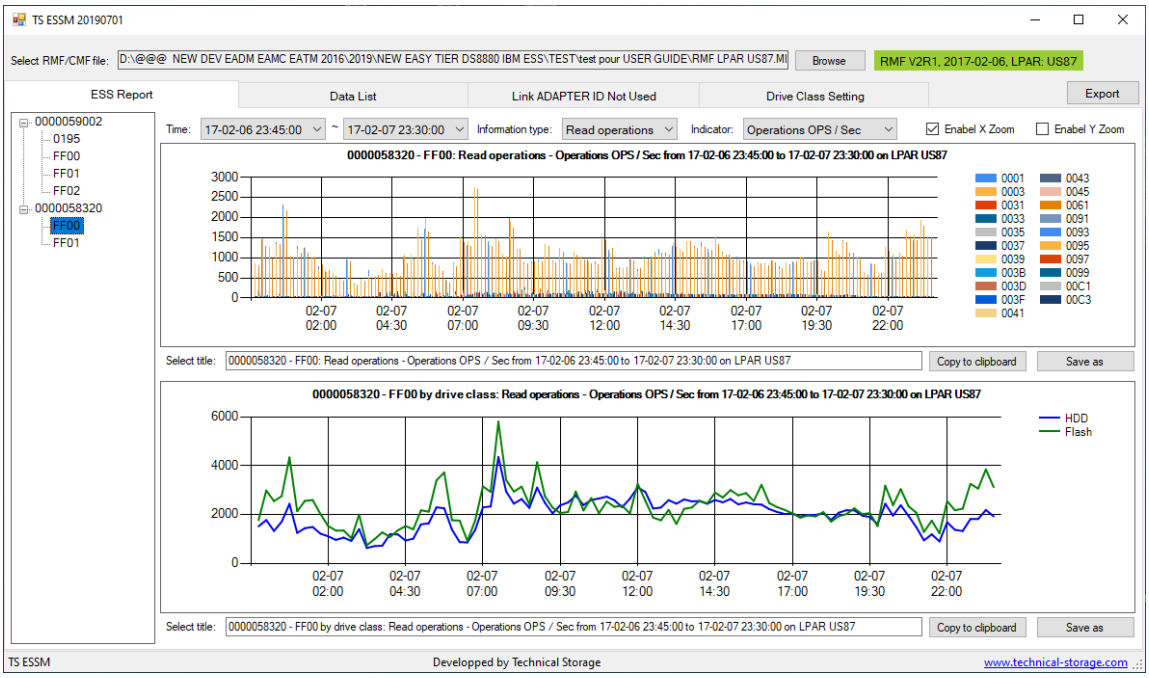
*5. Back-end/front-end indicators with track/read cache misses also locate **application** bottlenecks (e.g. snap activity)*



6. DCOLLECT analysis shows the actual utilization rates of 3390 disks, STOgroup SMS + optimization of Thin Provisioning.



7. FLASH and HDD disk drive utilization during TIERRING activation to check if the 75% 25% rule is applied.



8. Creation of Rolling Reports with the new AI module. Now EADM gives recommendations on which manufacturer hardware and software features should be installed (e.g.zHyperWrite/Link, zHPF…) in order to reduce the four I/O response time components (Connect /Disconnect/IOSQ and Pending Times).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EADM AI Report Rolling

AI Report Rolling is a new EADM feature that shows which I/O components have degraded over a given period of time. AI Report Rolling goes further and highlights axes of improvement.

ACER CUSTOMER LYON 08 2019: LPAR ZERT, PROD, SERT

Customer Work Document (RELEASE 09 2019) 28 08 2019

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9. It *is important to note that IBM clearly recommends DEFRAG on a regular basis for all volumes with a high fragmentation index. This is true too for newer DASDs and virtualized environments because all are linked to VTOCs.*

Fragmentation of z OS disk volume space is frequently caused by:
… the reoccurring creation, extension and deletion of data sets
… and the nature of allocation algorithms

Consequences include:
… insufficient utilization of disk space
… increasing space errors
… degradation of performance caused by DISC TIME and Reload buffer L1/L2 CPU z 14
… increasing time needed for disk space management features

Major Benefits

- Guarantee high mainframe availability and prevent IO bottlenecks
- Maintain critical application SLAs
- Significant cost reductions: ROI within 3 months
- Substantial gains in time measured in weeks per year
- Increased internal storage expertise / sensitive operations remain in-house
- All DASD indicators are centralized in a single place
- Ensure DB2 performance is not affected by disk response time
- Certified data (IBM / BMC) to ensure hardware is performing up to specifications
- Independent from hardware manufacturers
- Better anticipate real needs when upgrading hardware to avoid infrastructure overprovisioning
- Energy saving
- Simpler and more efficient reporting within IT divisions, suppliers and partners
- No dedicated team required to operate and maintain the software
- No hidden costs linked to MSU consumption or changes in configuration

Installation Requirements
• RMF (IBM) and / or CMF (BMC)
Desktop / Laptop (64 bits Windows XP, Vista, 7, 8 or 8.1 10)
VMware or HyperV Server (64 bits Windows Server 2003, 2008 , 2012 or 2016)
• Microsoft Office 2003 to 2016 • 2 processors with 4 GB RAM • 40 GB of disk space on C and 60 GB on disk D (C and D for example) • Microsoft .NET Framework 3.5, 4.0 (minimum) • Zip software (Winzip, Winrar or equivalent) • Adobe Reader or equivalent • Admin rights to PC or server

About Technical Storage

Technical Storage was founded in 1997 and has 30 years of expertise in mainframe storage and factory know-how with IBM, EMC2, HDS, STK/SUN/Oracle. Technical Storage is an **IBM Partner** and ISV whose solutions have been deployed in major datacenters for over 10 years. Customers are key players in the banking, insurance, retailing, aerospace and defense industries. Storage manufacturers are also customers. Headquarters are located in Lyon, France with liaison offices in Santa Monica, California. Because Technical Storage is an IBM ISV, EADM customers have a tool that is compatible with all new z/OS versions and RMF / CMF changes.

EADM™: WHAT'S IN YOUR TOOLBOX?