Overview

Use the new Magstar® 3494 Model B18 Virtual Tape Server (VTS) features to place even more enterprise data under the control of the VTS. Expanding on the Seascape Architecture, new VTS features can provide substantial increases in both sustained and peak performance, and a new 3494 Tape Library capability increases the tape library logical volume capacity.

Features

- **Extended High Performance Option** — enables data compression, which provides larger effective disk capacities, and improved performance.
- **Extended Performance ESCON® Channels** — enables higher levels of performance.
- **Performance Accelerator** — when combined with four Extended Performance ESCON Channels, sustained performance can be improved up to 100% and peak performance can be improved up to 50%.

The Magstar 3494 Model B18 VTS now includes:

- Magstar 3590 Model E1A Tape Drive Support — included in 3494 Model B18 VTS configurations which can decrease the number of physical cartridges required to store logical volumes.
- 3494 Library Manager — extended to allow storage of up to 300,000 logical volumes when two VTSS are included in the 3494 configuration.
- Additional Drive Frame Features — provide increased configuration flexibility.
- DITTO/ESA Utility — provides a VTS Exported Volume Read Utility.

The features and functions described fulfill the following items from the previously announced Magstar 3494 Model B18 VTS enhancements:

- Improved Performance
- Support for the new Magstar 3590 Model E1A Tape Drive

Refer to Hardware Announcement 199-041, dated February 16, 1999.

Product Preview

Future features and capabilities of the Magstar 3494 Model B18 VTS will include:

- Storage Area Network (SAN) attachment
- “Call Home” service support

Previews provide insight into IBM plans and direction. Specific availability dates, ordering information, and terms and conditions will be provided when the product is announced.

Key Prerequisites

- Hardware — Attachment to ES/3090®, ES/9000®, and S/390® systems with ESCON channels.
- Software — Appropriate levels of host system software are required, such as OS/390® (MVS/ESA™), DFSMS/MVS®, TPF, VM/ESA®, or VSE/ESA (as a VM/ESA guest).

Planned Availability Dates

September 24, 1999, except for Model B18 support of MES upgrades to 3590 Model E1A which is October 29, 1999.

At a Glance

The Magstar 3494 B18 Virtual Tape Server expanded capabilities include:

- Performance Accelerator feature that:
  - Enables up to a 50% increased peak performance
  - Enables up to a 100% increased sustained performance
- Extended Performance ESCON Channels
- Support of the 3590 E1A Tape Drive as a new tape storage configuration option
- Increased 3494 Tape Library capacity to 300,000 logical volumes
- Additional 3494 drive frame features for increased configuration flexibility
- DITTO/ESA for MVS™ will provide a VTS Exported Volume Read Utility.

Existing 3494 Model B18s can be upgraded to include the new capabilities.

For ordering, contact:
Your IBM representative, an IBM Business Partner, or IBM Americas Call Centers at 800-IBM-CALL

Reference: YE001

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Customers with 3590 Model B1A Tape Drives may upgrade their configurations to include the 3590 Model E1A Tape Drives. Exported Stacked Volumes created on 3590 Model B1A Tape Drives can be imported into 3590 Model E1A configurations; however, Exported Stacked Volumes created on 3590 Model E1A Tape Drives cannot be imported into 3590 Model B1A configurations. A VTS tape configuration must consist of either all 3590 Model B1A Tape Drives or all Model E1A Tape Drives.

**Increased 3494 Volume Capacity**

The 3494 Library Manager is extended to allow storage of up to 300,000 logical volumes. Each VTS installed in a library may have a maximum of 150,000 logical volumes, for a total, with two VTSs, of 300,000.

**Additional Drive Frame Features**

Installation flexibility for the 3494 Tape Library is increased with two additional frame features available on the 3494 Models L10, L12, and L14. These features provide additional options for model conversions of a 3494 Model B16 to a Model B18. The 3494 Model B16 VTS frame can now be converted into a ESCON Drive Frame (similar to a SCSI Drive attached 3494 Model D12 Drive Frame) with feature number 5503 or into an ESCON Drive Frame (similar to a 3494 Model D14 Drive Frame) with feature number 5504. This is in addition to the two current options of an Additional Storage Unit Frame (#5500) or a Drive Unit for B18 Frame (#5502). Feature conversions are also available to convert to these new frame features.

**DITTO/ESA Utility**

DITTO/ESA for MVS Version 1 Release 3 will provide a VTS Exported Volume Read Utility to:

- Extract a logical volume from an Exported Stacked Volume and create a physical volume containing only the single logical volume
- Provide a list of logical volumes contained on an Exported Stacked Volume

This support will be available in third quarter 1999 through APAR PQ26582.

**Product Preview**

Previewed product features and functions will further enhance the Magstar 3494 Model B18 VTS. Future features and capabilities will include:

- **Storage Area Network Attachment**
  IBM plans to support the attachment of the Magstar 3494 Model B18 VTS to fiber channel capable RS/6000™ processors with the AIX® operating system on Storage Area Networks (SAN) through the IBM Storage Area Network Data Gateway. This attachment will allow the VTS to be a part of the SAN environment and enable data and resource sharing.

- **“Call Home” Service Support**
  The 3494 Model B18 will be able to use the Remote Support Attachment to initiate a call to IBM to report a problem or status information to provide faster service support.

Previews provide insight into IBM plans and direction. Specific availability dates, ordering information, and
terms and conditions will be provided when the product is announced.

**Year 2000**

This product does not have date dependencies and is, therefore, Year 2000 ready.

**Euro Currency**

This product is not impacted by euro currency.

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**Product Positioning**

With today’s Virtual Tape Server (VTS) announcement, and the previous Magstar 3590 Model E1A and E11 Tape Drive announcement (refer to Hardware Announcement 199-099, dated April 20, 1999), and the 3590 Model A60 announcement (refer to Hardware Announcement 199-183, dated July 27, 1999), IBM continues to dramatically extend its range of high-capacity, high-performance, and cost-capacity, cost-performance solutions. The new Magstar 3590 models provide new levels of capacity and performance, while this VTS announcement expands the performance and capability of the industry leading, cost-capacity cost-performance Magstar 3494 VTS line of products.

The IBM Magstar 3494 Model B18 VTS exploits the unique performance and capacity of the Magstar 3590 tape drives to reduce the total cost of ownership of tape solutions for MVS, TPF, VM, VM/VSE, and AIX environments. IBM VTSs have the broadest range of delivered system attachments (TPF, VM, VSE under VM, and AIX are IBM exclusives).

The 3494 Model B18 is a second generation Seascape Solution incorporating key IBM technologies such as Magstar 3590, Magstar 3494, SSA disk, and powerful RS/6000 servers to decrease the cost of tape processing for large system customers. The enhancements announced today further demonstrate IBM’s commitment to the Seascape Architecture and the power of the Seascape Architecture to bring products to the marketplace.

The new Magstar 3494 Model B18 VTS features provide substantial capacity and performance enhancements for the functions provided by the VTS. A streaming file system, increased disk storage capacity, a new extended performance ESCON channel, and an enhanced controller processor dramatically improve performance characteristics over the Model B16. These features together provide new levels of sustained and peak performance. The additional disk storage capacity will improve mount response time and improve performance by increasing the frequency of cache hits for virtual volumes still in cache storage.

The base Model B18 includes two standard ESCON channels and 32 virtual device addressing in an entry configuration at a price similar to the Model B16. Entry configurations or high performance configurations can be upgraded to higher performance solutions by adding the Extended High Performance Option, Extended Performance ESCON channels, and the Performance Accelerator features. With these enhancements, the Magstar 3494 Model B18 VTS is a replacement for even larger configurations of multiple automatic tape libraries as it can reduce ongoing operational expenses and automate more of your tapes.

**Suggested Uses:** The Magstar 3494 Model B18 VTS is an easy-to-use, cost/performance solution intended for environments with a large number of partially-full tape volumes. It provides the “volume stacking” capability to stack multiple virtual volumes onto a single High Performance 3590 Cartridge Tape. It is especially beneficial to installations with IBM automation systems, installations with tape automation systems from other vendors, and non-automated installations that have not previously been able to justify tape automation. For installations with an existing automation system, the Magstar 3494 Model B18 VTS in a Magstar 3494 Tape Library can be used to contain tape growth. The 3490E emulation capability will allow installation of the Magstar VTS without migrating to new software levels.

The Magstar Virtual Tape Server is a key component of IBM’s tape storage solutions for environments requiring high performance and high capacity sequential processing. Solution components are:

- Magstar 3494 Model B18 Virtual Tape Server
- Magstar 3494 Tape Library
- Magstar 3590 Model B1A, B11, E1A, and E11 Tape Drives
- Magstar 3590 Model A60 ESCON Controller
- Magstar 3590 Model A50 ESCON Controller
- Magstar 3590 Models C12 or C14 Silo Compatible Attachment

These components, when used together, provide an excellent solution to address your large system tape processing requirements.

**Reference Information**

Refer to:


**Trademarks**

ES/3090, MVS/ESA, MVS, and RS/6000 are trademarks of International Business Machines Corporation in the United States or other countries or both.

Magstar, ESCON, ES/9000, S/390, DFSMS/MVS, OS/390, VM/ESA, and AIX are registered trademarks of International Business Machines Corporation in the United States or other countries or both.

Other company, product, and service names may be trademarks or service marks of others.
Publications

A revised copy of the IBM Magstar® 3494 Tape Library Introduction and Planning Guide (GA32-0279) is planned to be available by August 1999.

The IBM Magstar 3494 Tape Library Operator’s Guide (GA32-0280) will be updated to include these features. This revision will be available concurrent with planned availability of these features.

These publications can be downloaded from the following Web site:

http://www.storage.ibm.com/hardsoft/tape

Displayable Softcopy Publications: The product books are offered in displayable softcopy form. The displayable manuals are shipped on a CD-ROM as part of the Online Library Omnibus Edition Hardware Collection publication (SK2T-5843).

These displayable manuals can be used with the BookManager® READ licensed programs in any of the supported environments. Terms and conditions for use of the machine-readable files are shipped with the files.

Technical Information

Specified Operating Environment

Hardware Requirements: The Magstar 3494 Model B18 VTS Extended Performance ESCON® Channels attach to ESCON channels on ES/390™, ES/9000®, and S/390® systems. Using ESCON Directors, the 3494 Model B18 can be up to 43 kilometers from the host system. The Model B18 is externally attached to the Magstar 3494 Tape Library Model L10, L12 or L14. Each Extended Performance ESCON Channels feature (#3412) provides two independently operating enhanced ESCON channel adapters to maximize VTS performance. A maximum of two #3412 features, for a total of four Extended Performance ESCON Channels, can be installed. To have Extended Performance ESCON Channels, one of the following features is required:

- 3200 (ESCON High Performance Option)
- 3400 (Extended High Performance Option)

Two 30.5 meter (100 foot) ESCON cables are included with each feature number 3412 to attach it to host system ESCON channels. If different ESCON cable lengths are needed, they must be ordered separately. Refer to the IBM Magstar 3494 Tape Library Introduction and Planning Guide (GA32-0279) for ESCON cable planning information.

For the Extended High Performance Option (#3200) and the Extended High Performance Option (#3400) features, the valid quantities of channel features are shown in the following table:

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<tr>
<td>#3400</td>
<td>0   1   2</td>
</tr>
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</table>

The Performance Accelerator feature (#5236) provides a high performance streaming file system. This feature requires the following prerequisites:

- One of the following channel feature combinations:
  - Feature #3200 plus one feature #3412
  - Feature #3200 plus two of feature #3422
  - Feature #3400 plus two of feature #3412
  - Feature #3400 plus one feature #3412 plus two of feature #3422

- Two or four Disk Storage Capacity features (#3702)
- A minimum of four 3590 Tape Drives in the associated 3494 Model D12 (or #5502)

The new Magstar 3590 Model E1A Tape Drives can now be installed in a 3494 Model D12 (or #5502) Drive Frame associated with the Magstar 3494 Model B18 VTS. All 3590 Tape Drives in the associated Model D12 must be the same model type (either all 3590 Model E1A or all Model B1A Tape Drives).

Two additional frame features are now available on the 3494 Models L10, L12, and L14. These features provide additional options for model conversions of a 3494 Model B16 to a Model B18. The 3494 Model B16 VTS frame can now be converted into a SCSI Drive Unit frame (similar to a SCSI Drive attached 3494 Model D12 Drive Unit frame) with feature number 5503 or into an ESCON Drive Unit frame (similar to a 3494 Model D14 Drive Unit frame) with feature number 5504. This is in addition to the two current options of an Additional Storage Unit Frame (#5500) or a Drive Unit for B18 Frame (#5502). Feature conversions are also available to convert from features number 5500 or number 5502 to these new frame features.

Software Requirements: The Magstar 3494 Model B18 Virtual Tape Server (VTS) appears to host systems as two or four fully configured “3490E” tape subsystems. Four emulated 3490E tape subsystems requires either the ESCON High Performance Option feature number 3200 or

This announcement is provided for your information only. For additional information, contact your IBM representative, call 800-IBM-4YOU, or visit the IBM home page at: http://www.ibm.com.
the Extended High Performance Option #3400, and at least 144 GB of cache (two or more of #3702). The software support is thus the same as the support for 3490E. The minimum levels of currently supported software support for 3490E are as follows.

**Note:** Earlier levels of software that are no longer in service may operate with the hardware but are not tested or recommended.

**ES/3090, ES/9000, S/390**

- **MVS** 3490E support:
  - MVS/EESA™ SP™ Version 5.1, or 5.2 (for JES3: JES3 Version 5.1.1, or 5.1.2 is required)
  - OS/390® Release 1, or later
  - DFSMS/MVS® Version 1.2, or later
  - Basic Tape Library Support (BTLS) under DFSMS/MVS Version 1.2, or later
  - EREP Version 3.5 plus Program Temporary Fixes (PTFs)

For additional information about JES3 support of BTLS, refer to Washington Systems Center Flash 9421.

- **VM/ESA®** 3490E support:
  - VM/ESA Version 2.2, or later for guest operating system support
  - DFSMS/VM® Function Level 221 required for native VM support

- **VSE/ESA (as a VM/ESA guest) 3490E support:**
  - VSE: VSE/ESA Version 1.4 plus PTFs, or later
  - VM: VM/ESA Version 2.2, or later
  - VM: DFSMS/VM Function Level 221 plus PTFs
  - EREP Version 3.5 plus PTFs

- **TPF 3490E support:**
  - TPF Version 4.1 plus PTFs

**DITTO/ESA for MVS Support**

DITTO/ESA for MVS Version 1 Release 3 will provide a VTS Exported Volume Read Utility to:

- Extract a logical volume from an Exported Stacked Volume and create a physical volume containing only the single logical volume
- Provide a list of logical volumes contained on an Exported Stacked Volume

This support will be available in third quarter 1999 through APAR PQ26582.

**RS/6000™ SCSI Host Attachment Support**

SCSI host attachment of the Magstar 3494 Model B18 VTS to a RS/6000 requires AIX® Version 4.2.1, or later.

**Compatibility:** The Magstar 3494 Model B18 VTS presents an image of four fully configured “3490E” tape subsystems (64 virtual addresses) with associated tape cartridges to attached host system software. This allows host software that supports IBM’s current 3490E tape drives and automation systems to easily use the Model B18. Data stored on 3494 Model B16 stacked volumes is compatible with the 3494 Model B18.

**Limitations**

- The 3494 Model B18 must be located within 14 meters of the associated 3494 Model D12 (or #5502).
- Each Model B18 can be attached to ESCON host systems that are located up to 43 km away with ESCON cables and directors.
- Cartridges in the 3494 created by the Virtual Tape Server that contain stacked volumes of active data should not be removed from the 3494.
- Exported Stacked Volumes created on 3590 Model E1A Tape Drives cannot be imported into a VTS that has 3590 Model B1A Tape Drives.

**Planning Information**

**Customer Responsibilities:** Physical planning is a customer responsibility. Detailed physical planning information is in the Magstar 3494 Introduction and Planning Guide (GA32-0279).

**Cable Orders:** Two 30.5 meter (100 foot) ESCON cables are included with each feature #3412 on the 3494 Model B18 to attach to ESCON channels of ES/3090, ES/9000, or S/390 systems. If different ESCON cable lengths are needed, they must be ordered separately. Refer to the IBM Magstar 3494 Tape Library Introduction and Planning Guide (GA32-0279) for ESCON cable planning information.

**Direct Customer Support:** Eligible customers can obtain installation and usage assistance through ASK Support. To obtain information on customer eligibility and registration procedures, refer to IBMLink® ASKQ, using the search word 3494.

**Supplies:** None required with the machine order.

**Security, Auditablety, and Control**

This product uses the security and auditability features of host hardware, host software, or application software.

The customer is responsible for evaluation, selection, and implementation of security features, administrative procedures, and appropriate controls in application systems and communications facilities.

**Terms and Conditions**

This product is available for purchase under the terms of the IBM Customer Agreement.

IBM hardware products are manufactured from new parts and used parts. In some cases, the hardware product may have been previously installed. Regardless, IBM’s warranty terms apply.

**MES Discount Applicable:** Equal to the volume commitment discount

**Field Installable Feature:** Yes

**Warranty Period:** One year

**Customer Setup:** No

**Licensed Internal Code:** Same license terms and conditions as designated machine
### Charges

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**MMC** = Monthly Maintenance Charge
**NC** = No Charge

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ESA Maintenance Charges

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**Feature Conversion Purchase Price**

The following applies to feature conversions on the 3494 Models L10, L12, L14, or B18:

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<th>Feature From</th>
<th>Feature To</th>
<th>Returned Parts</th>
<th>Continuous Maintenance</th>
<th>Feature Conversion Purchase Price</th>
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</table>

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