

## 4.7.4—HP Surestore XP Disk Array Software

This document provides information on the software products available for the XP family of enterprise disk arrays, including details on requirements/prerequisites, licensing, and ordering.

- For more detailed information on the latest technical requirements/prerequisites for these products and related solutions please consult [STREAMS/SPOCK]
- Please refer to **Subchapter 4.7** of this guide for detailed information on configuration of XP Disk Array platforms (hardware).
- Please refer to the “*HP-UX Servers Ordering Guide*” for detailed information on ordering of XP Disk Array platforms (hardware).
- Please refer to **Subchapter 4.7**, “HP Surestore Disk Array XP128” for information on hardware and software support and services for the XP1024/XP128 Disk Arrays.
- Please refer to **Subchapter 4.7**, “HP Surestore Disk Array XP128” for ordering information for the XP102/XP128 Disk Arrays.
- Please refer to **Subchapter 4.7**, “HP Surestore Disk Array XP512” for information on hardware and software support and services for the XP48/XP256/XP512 Disk Arrays.
- Please refer to **Subchapter 4.7**, “HP Surestore Disk Array XP512” for ordering information for the XP48/XP256/XP512 Disk Arrays.

### XP Disk Array Software

The following software products are available for the XP family of Disk Arrays:

Title	Functions	Typical Solutions
Command View XP	Centralized device management	XP Array Management
LUN Configuration Manager XP	LUN Management and Control (XP256/XP512/XP48 only)	XP Array Management
Secure Manager XP	Secure Host Access (XP256/XP512/XP48 only)	XP Array Management
LUN Configuration & Security Manager XP	LUN Management/Control & Secure Host Access (XP128/XP1024 only)	XP Array Management
Cache LUN XP	Cache Volume Lock	XP Array Management
Auto LUN XP	Auto Performance Optimization	XP Array Management
Performance Advisor XP	Performance Monitoring	XP Array Management
Application Policy Manager XP	I/O Processing Capacity (performance) allocation	XP Array Management, Storage Utility provisioning
Auto Path XP	Path Failover and Load Balancing	High Availability Server Clustering
Business Copy XP	Local Copy	Zero-downtime backup, application testing, data warehousing, business continuity
Continuous Access XP	Synchronous Remote Copy	Business Continuity
Continuous Access XP Extension	Asynchronous Remote Copy	Business Continuity
RAID Manager XP	Host agent for local and remote copy	High Availability Server Clustering/Business Continuity
Cluster Extension XP	Extended High Availability Server Clustering	High Availability Server Clustering/Business Continuity
Resource Manager XP	Mainframe Connectivity	Open Systems/Mainframe consolidation
Data Exchange XP	Mainframe Data Sharing	Open Systems/Mainframe consolidation
Fast Recovery Solutions for Microsoft Exchange 2000	Local Copy-Exchange integration	MS Exchange storage consolidation
OpenView SPI for XP Disk Arrays	Ability to manage XP256, XP48, and XP512 infrastructures from OpenView Operations	XP Array Management
OpenView SPI for XP Disk Arrays	Ability to manage XP128 and XP1024 infrastructures from OpenView Operations	XP Array Management

## Software Descriptions

The following are brief descriptions of the software products available with the XP Family of Arrays.

Important: Most XP Disk Array Software can be obtained for trial use on the XP512, XP48, XP128, and XP1024. Please see the Test Drive Program Newsflash posted on ESP for more information (keyword: testdrive).

### Command View XP

HP Command View is a web-based management platform that provides centralized management for HP disk arrays. Command View reduces the total cost of HP storage ownership by increasing the efficiency of the storage administrator via intuitive tools that ensure data availability is uninterrupted.

Command View's web-based architecture enables collaboration among global team members eliminating the need to travel to remote sites or maintaining a storage expert at each location. Graphical mapping and diagnostic capabilities provide early warning of conditions that may be hampering the efficiency of the XP disk array. A common user interface for all management applications reduces the learning curve and the ability to manage globally distributed XP disk arrays from a single console.

### When to sell Command View XP

Command View should be sold with every new XP customer installation or when a customer is using Hitachi's Remote Control to manage their XP disk arrays. Command View is required to manage the XP128 and XP1024 disk arrays as the dependency on Remote Control has removed.

### What customer needs will Command view solve?

#### ***Need #1—Reduce total cost of storage ownership***

Per Gartner and IDC, for every dollar a customer spends on hardware, they will spend \$7 on maintenance and management of that storage device. 65% of these costs are people-related.

Industry analysts state that a centralized management platform is a key tool towards reducing total cost of storage ownership. Command is a centralized, web-based management platform. It reduces cost of ownership by:

- Common user interface—All management applications launch from a common user interface that increases the use of the product and reduces the learning curve.
- Web-based architecture—As environments become globally distributed and more complex, customers are requiring that management applications be web-based to reduce travel to distant locations. Web-based architectures facilitate collaboration among team members and act as an excellent learning tool for junior staff.
- Graphical mappings and intuitive tools provide the administrator with diagnostics, health/status of XP subcomponents or the location of a particular disk pair that may be experiencing problems. This significantly reduces the amount of time spent troubleshooting allowing the storage administrator to have more time to focus on the business rather than managing the storage.

#### ***Need #2—Only authorized individuals gain access to information***

This accomplished with three levels of security:

- Authentication/authorization—This is the same as your NT logon to the HP network
- Secure IP—This is the ability to register the IP address of any host requiring access to Command View resources. If a rogue IP address tries to gain access, they will be denied access
- Secure Socket Layer Ready—SSL provides an encrypted connection between the web-browser on the host and the XP disk array. SSL encrypts all communications that occur drastically reducing the ability for hackers to steal your most valuable asset.

Command View comes with scripts to integrate into: OpenView Network Node Manager (OV NNM), Computer Associates Unicenter TNG and Tivoli NetView. BMC Patrol is scheduled for 1H 2002. The OpenView SPI for XP Disk Arrays provides customers with a deep level of integration enabling storage to be managed from a service level perspective. For more details, see OpenView SPI for XP Disk Arrays in this section. Command View has also been integrated with OpenView Storage Node Manager version 2.1 only.

#### Specifications

Management Station (provided separately by customer):

- Windows NT 4 SP5+ or Windows 2000
- 800-MHz CPU
- 512-MB RAM
- 350 MB free disk space; 350 MB additional per disk array to be managed
- Internet Explorer 5.0+ or Netscape 4.73+
- Java Runtime Environment 1.3.1 (installed automatically by Command View)
- If Performance Advisor is installed, an additional 2 GB of disk space will be required

#### Supported Hosts

- HP-UX 11.0, 11.11, 11.i
- Sun Solaris 2.6, 7.0, 8.0
- IBM AIX 4.3.3
- Windows NT SP5
- Windows 2000
- Linux (due 1H2002)

#### Installation Dependencies

##### XP512/XP48:

- Microcode 13.37.00+
- Remote Control 13.44.00+

##### XP256:

- Microcode 48.53.00+
- Remote Control 15.51.00+

##### XP1024/XP128:

- Microcode 21.01.24

#### LUN Configuration Manager XP (XP256, XP512, and XP48 only)

Contains the following three applications and can be executed by the customer on the remote console:

- LUN Manager—Allows the capability to create a LUN and assign it to a port.
- LUSE—Allows up to 36 LUNs to be combined into a single large LUN.
- CVS—Allows creation of smaller size LUNs.

*Requires Command View XP.*

#### Secure Manager XP (XP256, XP512, and XP48 only)

This application separates the storage of one server from unwanted access by another server. Works with native Fibre Channel only to allow the array to hide the LUNs assigned to one server from other servers during IOSCAN. As an extra measure of security, it also checks each and every I/O for proper security.

*Requires Command View XP*

#### LUN Configuration and Security Manager XP (XP1024 and XP128 only)

This title combines functions available with LUN Configuration Manager XP and Secure Manager XP in a single product orderable for XP1024 and XP128 only. This product is REQUIRED for all XP1024 and XP128 arrays.

*Requires Command View XP.*

#### Cache LUN XP

Allows a specified area within a LUN to be stored in cache. Accessing data from cache on reads makes the access time much faster. With Cache LUN XP you can designate all or part of a LUN for storage in cache. Customers can also control/configure this product themselves if the Remote Control XP software is purchased.

*Requires Command View XP and LUN Configuration Manager XP (XP256, XP512, XP48) or LUN Configuration and Security Manager XP (XP1024, XP128).*

### Auto LUN XP

Auto LUN XP enables the user to monitor and analyze disk usage on an XP Disk Array. Auto LUN utilizes the usage data to plan and perform manual, automatic or preset volume migration capabilities.

The following migrations are possible:

- Similar RAID levels with same physical drive type
- Different RAID levels with same physical drive type
- Two different drive types (LDEV size and emulation mode must be identical).
- Auto LUN can migrate up to 36 volumes—migration is performed sequentially.

*Requires Command View XP*

### Performance Advisor XP

This is a real-time Internet-based performance-monitoring tool for XP arrays. It provides user-selectable monitoring of “many-to-many” hosts systems to arrays, and provides for performance alarm notification including email to a pager or message to the VPO SPI. Performance Advisor runs with Command View XP or can be used standalone via its own graphical user interface. It is integrated into Vantage Point MeasureWare, VPO SPI, and Precise (third party) software for Oracle database performance tuning.

*Requires a management station (can be the same one used for CV if CV is installed).*

### Supported Host Agents

- HP-UX 10.20,11.0,11.i
- Windows NT4.0 SP5 and W2K
- Sun Solaris 2.6 and higher
- AIX4.3 and higher
- Linux Red Hat 6.2

### Installation Dependencies

- RAID Mgr. Library that matches spec R21 or higher (INCLUDED ON CD)
- Xpinfo version 4.0 for supported host platforms (INCLUDED ON CD)
- Management Station Requirements:
- NT4.0 or W2K, 500-MHz CPU, 256 MB RAM, 2 GB disk free space, NIC card, CDROM
- XP256 microcode 52.48.53 or higher
- XP512/XP48 microcode
- XP1024/XP128 microcode 21.01.24 or greater

### Application Policy Manager XP (XP512, XP48, XP1024, XP128 only)

Application Policy Manager XP allows the customer to more intelligently manage the compute resources of an XP512, XP48, XP1024, or XP128 disk array. If a customer has a mixture of applications/hosts connected to their XP disk array, they can decide which of those applications/hosts need to be give priority access to array bandwidth (IO/sec and MB/sec). Using customer-definable performance policies, the customer can restrict array throughput to secondary/lower priority HBA WWNs or at the array port level. This allows the customer to ensure that high priority hosts/applications do not experience performance-impacting resource contention with other applications/hosts that have been deemed to be less critical. These performance policies can be defined to be in effect for only a certain time period (of the day or week) if desired. Related HBA WWNs can be conveniently grouped together and named for policy setting purposes, making the policy definition and enforcement process faster and more efficient.

**Example:** A customer has an OLTP system and a data warehouse application running on a single XP Disk Array. Though the customer considers the OLTP system to be 'high priority', at the same time they want to ensure that data warehouse loads can be successfully completed during non-peak times of the day. Say the customer considers 12 midnight through 3 am local time to be off-peak hours and they want to ensure that their data warehouse load completes within this time window. Using Application Policy Manager XP, they could define a policy to restrict IOPS to the OLTP system during these hours, effectively providing unlimited bandwidth to the data warehouse application and ensuring that the load completes within the time window defined.

Multiple XP arrays can be managed from a single Application Policy Manager GUI but a License-to-Use is required for each XP disk array in the configuration.

*Requires Command View XP version 1.30 or higher*

#### Supported Hosts

(Host agent support. One host agent required to be installed in the configuration)

- HP-UX 10.20, 11.0, 11.11, 11.i
- Sun Solaris 2.5 or greater
- Windows NT SP5
- Windows 2000

#### Installation Dependencies

- Command View/Management Console:
  - See Command View XP Specifications for console requirements.
  - Application Policy Manager XP requires 30 MB disk space plus 500GB disk space for each XP Disk Array managed
- XP512/XP48 microcode 01.16.00 or greater
- XP1024/XP128 microcode 21.01.24 or greater

#### Auto Path XP

Enables I/O path failover and load balancing control for dual path connection to servers. Allows for multiple paths (8 maximum) to be configured to a LUN and provides for automatic, application transparent fail over in the event of path failure. Allows for dynamic, multi-path load balancing to a LUN to prevent any single path from becoming overloaded with I/O operations.

There are separate products for Windows NT, Windows 2000, HP-UX, Linux and IBM AIX. Ordering details for each are shown below.

#### Auto Path XP for Windows 2000

Auto Path XP for Windows 2000 supports all XP arrays. Supports the host bus adapters listed in the NSSO SPOCK streams documents. SCSI adapters are not supported. There is a no-cost media product, and license products for a different number of servers—from 1 to 25 servers. Supports the XP disk arrays as well as the VA family of virtual arrays. For clustered configurations, load balancing will be available in a later release.

- B9500A—Auto Path for W2K Media
- B9501A—Auto Path for W2K 1 Server LTU
- B9502A—Auto Path for W2K 5 Server LTU
- B9503A—Auto Path for W2K 10 Server LTU

B9501A provides a license for Auto Path XP for a single server. This server can connect to one or more XP arrays. B9504A provides a license for Auto Path XP for up to 25 servers, enabling connectivity to one or more XP arrays. For different server quantities, order the next larger license product, or a combination of license products.

1-, 5-, and 10-server license products are priced on a sliding scale such that larger increment licenses are less expensive on a per server basis than small increment licenses. As a result, a single larger increment license may be significantly less expensive than multiple smaller increment licenses for a given number of servers.

### **Auto Path XP for Windows NT**

Auto Path XP for Windows NT supports XP arrays. Supports the host bus adapters listed in the NSSO SPOCK streams documents. Supports the XP disk arrays as well as the VA family of virtual arrays. There is a no-cost media product, and license products for a different number of servers—from 1 to 10 servers. For clustered configurations, load balancing will be available in a later release.

- B9505A—Auto Path for NT Media
- B9506A—Auto Path for NT 1 Server LTU
- B9507A—Auto Path for NT 5 Server LTU
- B9508A—Auto Path for NT 10 Server LTU

B9505A provides a license for Auto Path XP for a single server. This server can connect to one or more XP arrays. B9509A provides a license for Auto Path XP for up to 25 servers, enabling connectivity to one or more XP arrays. For different server quantities, order the next larger license product, or a combination of license products.

1-, 5-, and 10-server license products are priced on a sliding scale such that larger increment licenses are less expensive on a per server basis than small increment licenses. As a result, a single larger increment license may be significantly less expensive than multiple smaller increment licenses for a given number of servers.

### **Auto Path XP for HP-UX**

Auto Path XP for HP-UX supports XP arrays. Supports the host bus adapters listed in the NSSO SPOCK streams documents. This product supports the XP arrays as well as the VA family of virtual arrays. There is a no-cost media product, and license products for a different number of servers—from 1 to 10 servers.

- B9510A—Auto Path for HP-UX Media
- B9511A—Auto Path for HP-UX 1 Server LTU
- B9512A—Auto Path for HP-UX 5 Server LTU
- B9513A—Auto Path for HP-UX 10 Server LTU

B9511A provides a license for Auto Path XP for a single HP-UX server. This server can connect to one or more XP arrays. B9514A provides a license for Auto Path XP for up to 10 HP-UX servers, enabling connectivity to one or more XP arrays. For different server quantities, order the next larger license product, or a combination of license products.

1-, 5-, and 10-server license products are priced on a sliding scale such that larger increment licenses are less expensive on a per server basis than small increment licenses. As a result, a single larger increment license may be significantly less expensive than multiple smaller increment licenses for a given number of servers.

### **Auto Path XP for Linux**

Auto Path XP for Linux supports XP arrays. Supports the host bus adapters listed in the NSSO SPOCK streams documents. This product supports the XP arrays as well as the VA family of virtual arrays. There is a no-cost media product, and license products for a different number of servers—from 1 to 10 servers.

- B9515A—Auto Path for Linux Media
- B9516A—Auto Path for Linux 1 Server LTU
- B9517A—Auto Path for Linux 5 Server LTU
- B9518A—Auto Path for Linux 10 Server LTU

B9511A provides a license for Auto Path XP for a single HP-UX server. This server can connect to one or more XP arrays. B9514A provides a license for Auto Path XP for up to 10 Linux servers, enabling connectivity to one or more XP arrays. For different server quantities, order the next larger license product, or a combination of license products.

1-, 5-, and 10-server license products are priced on a sliding scale such that larger increment licenses are less expensive on a per server basis than small increment licenses. As a result, a single larger increment license may be significantly less expensive than multiple smaller increment licenses for a given number of servers.

### **Auto Path XP for AIX**

This product supports AIX on XP Arrays with the host bus adapters listed in the NSSO SPOCK streams documents, and comes with a choice of two license options and is structured as follows:

- B7949A—Auto Path XP for AIX, Media Only
  - B7950A—Auto Path XP for AIX, LTU on one AIX server only
  - B7951A—Auto Path XP for AIX, LTU on an unlimited number of AIX servers connected to one XP array.
- Supports either SCSI or FC paths. Supports the XP Arrays. This does not support the VA product.*

### **Business Copy XP**

Provides local multi-mirroring, by creating up to nine data copies, for a total of ten images, including the original. This product is useful for allowing non-production activities such as backup and batch processes to take place on the copies. Control can be established with RAID Manager and Command View XP software. Business Copy is also used for Remote Mirroring Solutions in conjunction with Continuous Access XP and XP Extension and for enabling solutions such as Fast Recovery and Direct (server-less) Backup. RAID Manager is included with the purchase of Business Copy XP. See Continuous Access XP for a description of RAID Manager functionality. Requires RAID Manager XP and Command View XP.

### **Continuous Access XP**

Provides synchronous copy mode-only remote data mirroring, allowing data to be mirrored in real time from an array at one site to an array at a remote site. This allows for implementation of a disaster recovery plan. RAID Manager is included with the purchase of Continuous Access XP. This product works in conjunction with RAID Manager XP to provide host based scripting and solution integration. See the RAID Manager XP listing for more information.

*Requires ESCON (XP256, XP512, XP48) or Fibre Channel CHIP pairs for array-to-array connections (see XP256, XP512, XP48, XP128, and XP1024 Configuration Guides for more information), RAID Manager XP, and Command View XP.*

### **Continuous Access XP Extension**

Enables Continuous Access XP to operate in high-performance asynchronous and/or synchronous remote mirroring modes. In asynchronous mode, host writes to the local XP are confirmed immediately while remote mirrors of the write operations are transmitted over the distance link in bandwidth-effective asynchronous fashion to a remote XP. These operations are sequenced-stamped to ensure proper order of execution and sorted at the remote XP. Continuous Access XP is required in addition to Continuous Access XP Extension for full asynchronous mode capability.

Continuous Access XP Extension makes more extensive use of cache memory resources. Rule-of-thumb recommendations are for 1.5-2x cache memory of a nominally configured system when using this product. Continuous Access XP Extension may also be purchased as an upgrade for customers currently using Continuous Access XP (synchronous mode) who wish to enable asynchronous copy mode capability. This product is currently supported with HP-UX, Linux, Sun Solaris, and Windows NT only.

*ESCON or Fibre Channel Requires ESCON (XP256, XP512, XP48) or Fibre Channel CHIP pairs for array-to-array connections (see XP256, XP512, XP48, XP128, and XP1024 Configuration Guides for more information), RAID Manager XP, and Command View XP.*

### **RAID Manager XP**

RAID Manager provides OS-specific, host based software initiated from a server via a command line interface that allows full user control of Continuous Access XP and Business Copy XP from the host server. RAID Manager also provides functionality for synchronized operation with cache and OS, etc. If launching from a host using scripts, a consulting engagement may be recommended.

**Example:** Scripting can be used to implement Metro Cluster ServiceGuard fail-over. The control lines are LAN-based and the remote mirroring data lines are either ESCON- or Fibre Channel-based. If a customer wants to manage from the host server using RAID Manager, and it is scripted at both the local and remote sites, then one RAID Manager will talk to a daemon at the copy of RAID Manager at other site through the LAN connect. In the event of a failure the remote site is notified, the mirrors are broken and the remote site takes over.

RAID Manager XP must be installed on each host acting as failover controller/arbitrator. The customer can control this Command View XP software. The following operating systems are supported by RAID Manager:

- HP-UX
- MPE
- Windows NT/2000
- AIX
- Solaris
- Tru64
- DYNIX
- LINUX

*For XP256, XP512, and XP48, RAID Manager XP is included with Continuous Access XP and Business Copy XP. For XP1024 and XP128, must be ordered separately (at no additional cost).*

### **Cluster Extension XP**

Cluster Extension XP offers disaster-recovery, cluster-specific automatic failover/failback solutions for MC/ServiceGuard for Linux, Windows (with Microsoft Cluster Service), Solaris (with Veritas Cluster Server), and AIX (with HACMP). It also seamlessly integrates cluster operations with XP remote mirroring operations. Provides XP-specific commands and interface to tightly integrate Cluster Software functions with Continuous Access XP and XP Extension. In failover scenarios, it provides automatic takeover and redirection of mirrored pairs and checks over 400 rules for disk state scenarios based on data consistency and currency. It also provides an auto-recover pair-resynchronization monitor that continuously monitors link status and acts to restore mirroring operation if a link has been suspended and restored.

Cluster Extension XP is a host-based utility and runs on all servers in a cluster environment. It is XP-platform independent and is compatible XP array-based clustering/mirroring configurations. This product is licensed per Cluster Configuration with multiple servers connected to one or more XP Arrays.

*Requires Continuous Access XP/XP Extension. Cluster Extension XP for MSCS requires Secure Manager XP.*

### **Cluster Extension XP for Veritas Cluster Server**

Cluster Extension XP for Veritas Cluster Server supports Veritas Cluster Server clustering environments. Currently, this products supports Veritas Cluster Server running on Sun Solaris only. The following Veritas Cluster Server versions and Sun Solaris releases are supported:

- Veritas VCS 1.1.2a\* (VxVM 3.0.2) on Sun Solaris 2.6, 7
- Veritas VCS 1.3.0 and 2.0 \* (VxVM 3.1) on Sun Solaris 2.6, 7, 8

*\* Restrictions apply. Please consult the User's Guide for more information.*

### **Cluster Extension XP for IBM HACMP**

Cluster Extension XP for IBM HACMP supports HACMP clustering environments. Currently, this product supports IBM HACMP running on IBM AIX only. The following IBM HACMP versions and IBM AIX releases are supported:

- IBM HACMP 4.3.1, 4.4, 4.4.1 on IBM AIX 4.3.3\*

*\* Restrictions apply. Please consult the User's Guide for more information.*

### **Cluster Extension XP for MS Cluster Service**

Cluster Extension XP for MSCS supports Microsoft Cluster Service clustering environments. This product is supported on MS Windows 2000 Advanced Server and Datacenter Server only. The following MS Windows 2000 releases are supported:

- MS Windows 2000, Service Pack 2 with Advanced Server or Datacenter Server and Microsoft Cluster Service 5.0.

### **Cluster Extension XP for MC/ServiceGuard for Linux**

Cluster Extension XP for MC/ServiceGuard for Linux provides the industry's first complete DR solution for Linux, allowing mission critical applications to run on Linux.

- Cluster Extension XP for MC/ServiceGuard for Linux supports MC/ServiceGuard for Linux clustering environments.
- This product is supported on Red Hat Linux 7.1, kernel 2.4.2-2 servers only.
- This product is also supported with HP Auto Path XP for Linux on Red Hat Linux 7.1

### **Resource Manager XP**

Allows the disk array to be connected to mainframe systems using ESCON or FICON connections to the XP. It allows the data on the array to be shared among MVS systems and Open Systems servers. Requires Command View XP.

### **Data Exchange XP**

One Data Exchange product will work with all of the following servers (however, one license is required for each server connected to the array):

- HP-UX, Windows NT/2000, Sun Solaris, AIX, and Tru64.

Enables high-speed bi-directional data exchange between MVS systems (via ESCON or FICON links) and open systems servers listed above. Provides file translations as required through a file conversion utility. *Requires Resource Manager XP and Command View XP.*

### **Fast Recovery Solutions for Microsoft Exchange 2000**

Fast Recovery Solutions are designed to enable quick recovery of Microsoft Exchange 2000 databases. Fast Recovery utilizes the duplicate secondary volume technology of HP Surestore Business Copy XP, and in the future Surestore Continuous Access XP, to manage database volumes, prepare for database recovery, and recover databases from the secondary volume. Databases can be recovered in minutes rather than the hours typically required for a conventional restore from tape backup.

*Requires Surestore Business Copy XP or in a future release Surestore Continuous Access XP,*

### **Installation Dependencies**

- RAID Manager Library 01.04.02 or higher
- XP256 microcode 52-48-06 or higher
- XP512/48 microcode 01-12-18 or higher
- XP1024/XP128 microcode 21.01.24 or greater

### **OpenView SPI for XP Disk Arrays and OpenView SPI for Storage Devices**

The OpenView SPI for XP Disk Arrays and OpenView SPI for Storage Devices integrate XP events and performance alarms from Performance Advisor XP into OpenView Operations message browser window located on the Operations management console. The SPI also provides a service level view of the XP components and maps said components into OpenView Service Navigator. This integration accomplishes two things: provides end-to-end management from a single console and provides the deepest integration level of any storage vendor into the OpenView management platform.

How does it work? The SPI installs an agent on the remote console that intercepts and filters over 1,000 RSIMs coming from the XP disk array. In the unlikely event that your XP disk array will counter a problem, the OpenView SPI ensures you can address the problem before it effects your applications or the end-users of those applications. Features of the SPI include:

- Intercepts, monitors, filters and prioritizes over 1,000 conditions on the XP disk array
- Monitors applications to provide XP event information
- Provides root-cause analysis of component and sub-component failures
- Forwards error messages, configuration changes and performance alarms from Performance Advisor XP to the OpenView management console
- Provides a service level view of the XP SPI components in OpenView Service Navigator while mapping the messages to the service objects enabling management to service level agreements. OpenView SPI for XP Disk Arrays should be sold for XP256, XP512 and XP48 platforms. OpenView SPI for Storage Devices should be sold for XP128 and XP1024 platforms. As of May 1, 2002, both products are officially OpenView (PL87) solutions. This means that storage sales representatives will receive extra compensation for selling these solutions.

### **Direct Backup Engine XP (XP512, XP48 only, XP1024, and XP128 planned support June 2002)**

The Direct Backup engine feature of the XP Disk Array with the use of a backup application, in this case Veritas NetBackup 4.5, provides “server-free” backup solutions between the disk array and backup devices such as tape devices and disk devices. Direct Backup Engine enables non-disruptive back-up directly from disk to tape (or disk) in a storage area network environment, eliminating server CPU and I/O overhead during actual movement of data and shortening the time required for backups.

### **Installation Dependencies**

- Open System host server
- XP Remote Console PC (see Command View requirements)
- Veritas NetBackup 4.5 (including SeverFree Agent)
- Backup application and devices
- HP Surestore Tape Library 2/20, 4/40, 6/60 (DLT7000, DLT8000, Ultrium)
- HP Surestore Tape Library 10/180, 20/700 (DLT8000, Ultrium)
- XP512/XP48 microcode 01-16-55 or higher
- XP1024/XP128 (pending) microcode TBD

### **Supported Hosts**

- HP-UX 11.0
- Sun Solaris 2.6 or greater

## **XP Software Licensing**

### **Capacity-licensed Software Titles**

Many XP software titles are licensed based on some measure of the storage capacity of the system. This structure allows customer’s costs for software to scale with the cost for their hardware solution. In all cases, a 1-TB increment is the smallest increment available. Therefore, for all capacity requirement calculations, capacity figures should be rounded up to the next highest TB.

### **Raw Capacity-licensed Software Titles**

The following XP Family Software Titles are licensed based on the raw storage capacity of the array:

- LUN Configuration Manager XP (XP256, XP512, XP48)
- Secure Manager XP (XP256, XP512, XP48)
- LUN Configuration & Security Manager (XP1024, XP128)
- Auto LUN XP
- Cache LUN XP

For these titles, customers license the use of the software by purchasing License products that “cover” them for the amount of physical (raw) storage capacity present on their array (i.e. for the total nominal storage capacity represented by all installed disk array groups in the array excluding spare disks).

**Example:** Customer has an XP512 disk array with 8×72-GB and 4×18-GB disk array groups. Each array group has four disk drives. The total physical/raw capacity of this disk array is:

$8^1 \times (4 \times 72\text{-GB})^2 + 4^3 \times (4 \times 18\text{-GB})^4 = 2,592 \text{ GB}$ . Rounded up to the next highest TB: 3 TB total raw capacity

<sup>1</sup> 8×72-GB array groups

<sup>2</sup> 4 × disk drives per group, 72 GB per drive

<sup>3</sup> 4×18-GB array groups

<sup>4</sup> 4 × disk drives per group, 18 GB per drive

### Used Capacity-licensed Software Titles

The following XP Family Software Titles are licensed based on the amount of storage actually employed by the Software:

- Continuous Access XP
- Continuous Access XP Extension
- Business Copy XP

For these titles, customers license the use of the software by purchasing License products that “cover” them for the amount of storage capacity actually employed (used) by the software title in question.

### For Continuous Access XP and XP Extension

Used<sup>1</sup> capacity is defined as the total capacity of all volumes that are Continuous Access XP/XP Extension P-Vols (CA source volumes on a primary XP Array) or S-Vols (CA copy volumes on a secondary XP Array). This amount represents the true usable capacity of these volumes corresponding with the configured LDEV sizes (i.e. the amount excludes RAID mirroring overhead).

**Example:** Based upon their total storage need, a customer requires a primary XP disk array with 5TB raw capacity. The customer also requires Continuous Access XP for the purpose of deploying a disaster recovery solution. For their solution, they determine that they will mirror 70 LUNs of equal LDEV size to a secondary XP disk array in their remote data center. Each LUN LDEV is roughly 14.5 GB in size. Each source LUN is a P-Vol and each copy LUN is an S-Vol. On both the primary and secondary, the customer must purchase license capacity to cover all LUNs being managed as a Continuous Access XP P-Vol or S-Vol. In this case, the total used capacity would be calculated at follows:

#### On the Primary array:

Used Capacity = P-Vol (source) LUNs  
= 70×14.5-GB  
= 1,015 GB  
= 1,015 GB. Rounded up to the next highest TB: 2 TB total used capacity

#### On the Secondary array:

Used Capacity = S-Vols (copy) LUNs  
= 70×14.5-GB  
= 1,015 GB  
= 1,015 GB. Rounded up to the next highest TB: 2 TB total used capacity

So for the primary and secondary disk arrays, the customer must purchase at least 2 TB worth of license capacity on each array.

**For Business Copy XP**

'Used' capacity is defined as the total capacity of all volumes that are either Business Copy P-Vols (BC source) or S-Vols (BC copy). This amount represents the true usable capacity of these volumes corresponding with the configured LDEV sizes (i.e. it excludes RAID mirroring overhead).

**Example:** Based upon their total storage need, a customer requires a 5 TB raw capacity XP Disk Array. The customer also requires Business Copy XP for the purpose of online backup and application testing. For their solution, they determine that they will mirror 70 LUNs of equal LDEV size, with one copy each for the first 30 LUNs and two copies each for the other 40 LUNs. Each LUN LDEV is roughly 14.5 GB in size. Each source LUN is a P-Vol and each copy LUN is an S-Vol. The customer must purchase license capacity to cover all LUNs being managed as a Business Copy XP P-Vol or S-Vol. In this case, the total used capacity would be calculated at follows:

Used Capacity	=	P-Vol (source) LUNs	+	S-Vols (copy) LUNs
	=	70×14.5-GB	+	1×30×14.5-GB + 2×40×14.5-GB
	=	1,015 GB	+	1,595 GB
	=	2,610 GB. Rounded to the next highest TB: 3 TB used capacity		

**Continuous Access XP/XP Extension and Business Copy XP**

Purchased under old (raw capacity) terms (XP256/XP512/XP48 only)

For existing customers who have licensed Continuous Access XP, Continuous Access XP Extension, or Business Copy XP under the old (raw capacity) terms, the new license terms are retroactive. In other words, the purchased license capacity, which was to provide for license capacity to cover the raw storage capacity of the array, now covers the storage capacity utilized (used) by the software. If the customer's current use of the software is less than the raw capacity of the array, then they will not be required to purchase license capacity upgrades as they add raw storage capacity as long as the used capacity does not exceed the existing license capacity.

**Example:** Based upon their total storage need at the time, a customer bought a 5-TB raw capacity XP512 Disk Array. The customer also required Business Copy XP for the purpose of online backup and application testing. Under the old licensing terms they would have purchased license capacity for the entire 5-TB raw capacity of the array (regardless of actual utilization of the Business Copy XP software). It happens that the customer's actual used capacity for Business Copy XP is 2.6 TB. Under the new terms their 5 TB of license capacity now covers them for 5 TB of used capacity. After August 1st, the customer decides to expand the raw disk capacity of the array by purchasing disk upgrades in the amount of 1 TB. At the same time, the customer wishes to expand their use of Business Copy XP from 2.6 TB to 3.1 TB (adding 500 GB). Under the new terms, the customer is not obligated to purchase additional license capacity for Business Copy XP since their total used capacity (3.1 TB) is less than their total licensed capacity (5 TB). With future raw/used capacity upgrades, the customer will not be required to buy license capacity upgrades so long as the used capacity for Business Copy XP remains below 5 TB.

**XP256, XP512, XP48 Capacity-licensed Product Structure**

For the XP256, XP512, and XP48, license products come in 1-TB, 5-TB, 10-TB and 25-TB increments. Customers may purchase any combination of these licenses to provide for adequate license-to-use terms for desired software title. All capacity figures should be rounded up to the next TB. HP Sales and pre-sales TCs should work with the customer to determine Continuous Access XP/XP Extension and Business Copy XP utilization requirements and use these figures to order the appropriate license capacity.

The product structure for XP256, XP512, and XP48 capacity-licensed software titles has two elements:

- **Media:** Zero-cost product that delivers Manuals, software enablement tools, and CD-ROMs (where applicable). Options specify the array platform on which the software is to be licensed. This product enables and activates the software title and provides any required host-based software. For all Capacity-licensed Software Titles, Option #001 provides media for the XP256, Option #002 provide media for the XP512, and Option #003 provides media for the XP48.
- **Licenses:** Products that deliver LTU certificates in 1-, 5-, 10-, and 25-TB increments. These product numbers are common to all XP array platforms. These products authorize the use of the software for the appropriate capacity of their array (raw or used depending on the SW title).

Actual purchase of capacity-based software falls into two categories:

- **New Array purchase:** Software licenses are being purchased along with a new XP Family array.
- **License Capacity upgrade:** A customer is adding raw storage capacity to their system or expanding the use of certain software titles, requiring that they expand the license capacity by purchasing LTU upgrades.

Customers making a new array purchases must order both Media and License products to provide full capability to use a given capacity-based software title. Customers purchase a combination of license products to arrive at the totaled desired license capacity.

**Example:** Customer purchases a 12-TB XP512 and wants Cache LUN XP. To provide for 12-TB total license capacity for the software, the customer would order the following:

Product Number	Quantity	Description
B9345A option 002	1	XP512 media kit—provides customer with documentation, etc
B9348A	1	10-TB increment—gets customer up to 10 TB
B9346A	2	1-TB increment—gets customer up to 12 TB

For customers requiring a software LTU upgrade on an existing software license, only license products (in the combination of increments required) must be purchased. It is presumed that the customer has already obtained media deliverables through their initial software license purchase. For License Capacity upgrades, the customer determines the existing array capacity (raw or used as appropriate), the existing License Capacity for those software products, the additional raw storage or used capacity that will be added, to calculate the amount of additional license capacity required.

Because successive license increments are cheaper on a per TB basis, it is often the case that the next higher license increment is nominally less expensive than another license combination that would otherwise be ordered to achieve the desired total license capacity:

**Example:** Customer purchases an 18-TB XP512 and wants Cache LUN XP. To provide for 18-TB license capacity for the software, the customer would order the following:

Product Number	Quantity	Description
B9345A option 002	1	XP512 media kit—provides customer with documentation, etc
B9349A	1	25-TB increment—gets customer up to 25 TB

In this case, they would not order the combination of 1-, 5-, and 10-TB license increments to arrive at 18 TB total license capacity since 1×25-TB license is less expensive.

Because of this, sales personnel must ensure that the customer is ordering a combination of license increments that yields the lowest nominal price. The following table summarizes the lowest cost combination of license increments for a given license capacity requirement. Note that for a given license capacity requirement the lowest cost combination is the same for any given software title. In other words, the relationship between license increment prices is the same across all capacity-licensed software titles and therefore yields the same lowest-cost combination of licenses.

Table 4.7.4.1

License Capacity (Raw TB)	Lowest Price Combination of LTU Increments			
	1 TB	5 TB	10 TB	25 TB
1	1			
2	2			
3	3			
4		1		
5		1		
6	1	1		
7			1	
8			1	
9			1	
10			1	
11	1		1	
12	2		1	
13				1
14				1
15				1
16				1
17				1
18				1
19				1
20				1
21				1
22				1
23				1
24				1
25				1
26	1			1
27	2			1
28	3			1
29		1		1
30		1		1
31	1	1		1
32			1	1
33			1	1
34			1	1
35			1	1
36	1		1	1
37	2		1	1
38	3		1	1
39				2
40				2

It is also important that sales personnel work with the customer to understand the long-term storage capacity growth requirements when purchasing capacity-licensed software titles. If a customer is expecting to aggressively increase the disk storage capacity over time or is expecting to increase their utilization of used capacity-licensed titles, then it may make sense to initially purchase a larger increment license (beyond the reasons described above). Though the customer would initially have 'excess' license capacity, they may enjoy lower long-term software licensing costs since they have taken advantage of lower per TB costs of the larger increment licenses upfront. In general, sales personnel should work together with the customer to minimize total long-term cost for software licenses.

**Table 4.7.4.2** summarizes the licensing structure for XP256, XP512, XP48 capacity-licensed software products that are based on raw disk capacity levels.

**Table 4.7.4.2 XP256, XP512, XP48 Raw-Capacity Software Licensing**

Software Title	Product Number	Deliverables/License Terms
Secure Manager XP	Media: B9351A #001 (XP256) B9351A #002 (XP512, XP48)  Licenses: 1-TB - B9352A 5-TB - B9353A 10-TB - B9354A 25-TB - B9355A	Media/License on one XP disk array based on total array raw disk capacity
LUN Configuration Manager XP	Media: B9335A #001 (XP256) B9335A #002 (XP512, XP48)  Licenses: 1-TB - B9336A 5-TB - B9337A 10-TB - B9338A 25-TB - B9339A	Media/License on one XP array based on total array raw disk capacity
Cache LUN XP	Media: B9345A #001 (XP256) B9345A #002 (XP512, XP48)  Licenses: 1-TB - B9346A 5-TB - B9347A 10-TB - B9348A 25-TB - B9349A	Media/License on one XP array based on total array raw disk capacity
Auto LUN XP	Media: B9340A #001 (XP256) B9340A #002 (XP512, XP48)  Licenses: 1-TB - B9341A 5-TB - B9342A 10-TB - B9343A 25-TB - B9344A	Media/License on one XP array based on total array raw disk capacity

**Table 4.7.4.3** summarizes the licensing structure for XP capacity-licensed software products that are based on used capacity levels. For Continuous Access XP and XP Extension, ‘used’ capacity is defined as the total capacity of all volumes that are either Continuous Access XP or XP Extension P-Vols (CA source volumes on a primary XP Array) or S-Vols (CA copy volumes on a secondary XP Array). This amount represents the true usable capacity of these volumes corresponding with the configured LDEV sizes (i.e. it excludes RAID mirroring overhead).

**Table 4.7.4.3 XP256, XP512, XP48 Used-Capacity Software Licensing**

Software Title	Product Number	Deliverables/License Terms
Continuous Access XP	Media: B9320A #001 (XP256) B9320A #002 (XP512, XP48)  Licenses: 1-TB - B9321A 5-TB - B9322A 10-TB - B9322A 25-TB - B9323A	Media/License on one XP disk array based on total capacity of the volumes that are Continuous Access XP P-Vols or S-Vols. Includes RAID Manager XP
Continuous Access XP Extension	Media: B9325A #001 (XP256) B9325A #002 (XP512, XP48)  Licenses: 1-TB - B9326A 5-TB - B9327A 10-TB - B9328A 25-TB - B9329A	Media/License on one XP disk array based on total capacity of the volumes that are Continuous Access XP Extension P-Vols or S-Vols
Business Copy XP	Media: B9330A #001 (XP256) B9330A #002 (XP512, XP48)  Licenses: 1-TB - B9331A 5-TB - B9332A 10-TB - B9333A 25-TB - B9334A	Media/License on one XP disk array based on total capacity of the volumes that are Business Copy XP P-Vols or S-Vols. Includes RAID Manager XP
RAID Manager XP		Included with Continuous Access XP and Business Copy XP

### XP1024, XP128 Capacity-licensed Product Structure

For the XP1024/XP128, licenses are ordered in 1-TB increments only, with different 1-TB license types corresponding to each of the capacity ‘tier’ product numbers of the software product structure:

Product Number	Description
T16xxAA	1-TB increment, up to 1 TB
T16xxAB	1-TB increment, 2 TB to 6 TB
T16xxAC	1-TB increment, 7 TB to 15 TB
T16xxAD	1-TB increment, 16 TB to 36 TB

Customers purchase these licenses under a fixed schedule depending on the license capacity required. All raw capacity figures should be rounded up to the nearest TB (depending on the total license capacity required).

Actual purchase of capacity-based software falls into two categories:

- New Array purchase: Software licenses are being purchased along with a new XP Family array.
- License Capacity upgrade: A customer is adding raw storage capacity to their system or expanding the use of certain software titles, requiring that they expand the license capacity by purchasing LTU upgrades.

For new arrays purchase, you begin with the first 1-TB increment/tier (T16xxAA) for each software title and order up and through successive tiers to get to the total desired license capacity.

**Example:** Customer purchases an 18-TB XP1024 and wants Cache LUN XP. To provide for 18 TB total license capacity for the software, the customer would order the following:

Product Number	Quantity	Description
T1616AA	1	1-TB increment—gets customer up to 1 TB
T1616AB	5	1-TB increment—gets customer up to 6 TB
T1616AC	9	1-TB increment—gets customer up to 15 TB
T1616AD	3	1-TB increment—gets customer up to 18 TB

Note that there is only one correct combination of licenses that would be ordered to provide the required 18-TB total license capacity—no mix and match as with the 1-, 5-, 10-, 25-TB structure.

For license capacity upgrades (when a customer expands the raw capacity of the array or expands the used capacity of used-licensed titles), the customer just purchases additional license product to provide the desired total license capacity starting with the existing license capacity and ‘picking up’ in the structure starting from that point. In these cases, the customer determines the existing array capacity (raw or used as appropriate), the existing License Capacity for those software products, the additional raw storage or used capacity that will be added, and calculates the amount of additional license capacity required.

**Example:** Customer has an 11.5-TB raw capacity system with existing 12-TB installed license capacity of Cache LUN XP. They then buy 4-TB raw upgrade disk (bringing the total raw storage capacity of the array up to 15.5 TB). In this case, the customer requires at least 3.5 TB (15.5 TB-12 TB) additional license capacity of Cache LUN XP in order to ‘cover’ the new total raw capacity of the array. Rounding 3.5 TB up to the nearest TB, they customer needs to purchase 4-TB license capacity for a total of 16 TB:

Product Number	Quantity	Description
T1616AC	3	1-TB increment—gets customer up to 15 TB
T1616AD	1	1-TB increment—gets customer up to 16 TB

For all XP1024 and XP128 capacity-licensed software titles, once the customer purchases a total of 31 TB of license capacity, they are not required to purchase any more license capacity. In other words, a total purchase of 36 TB of license capacity constitutes a ‘frame-unlimited’ license with subsequent disk or software usage increases that would otherwise require commensurate license capacity upgrades not requiring additional software purchases.

There are no standalone ‘media’ products for XP1024, XP128 capacity-licensed software titles. The 1-TB License products deliver all required materials.

Because there are no higher increment licenses for XP1024, XP128 capacity-licensed software titles (i.e. no 5-, 10-, or 25-TB license capacity points), there are no cost/quantity or short term/long term cost tradeoffs that must be considered when purchasing licenses.

**Table 4.7.4.4** summarizes the licensing structure for XP1024 and XP128 capacity-licensed software products that are based on raw disk capacity levels.

**Table 4.7.4.4 XP1024, XP128 Raw-Capacity Software Licensing**

Software Title	Product Number	Deliverables/License Terms
LUN Configuration and Security Manager XP	Media/ Licenses: T1614AA – 1-TB LTU (up to 1 TB) T1614AB – 1-TB LTU (2 to 6 TB) T1614AC – 1-TB LTU (7 to 15 TB) T1614AD – 1-TB LTU (16 to 36 TB)	Media/License on one XP disk array based on total array raw disk capacity. No additional licenses required beyond 36 TB
Auto LUN XP	Media/ Licenses: T1615AA – 1-TB LTU (up to 1 TB) T1615AB – 1-TB LTU (2 to 6 TB) T1615AC – 1-TB LTU (7 to 15 TB) T1615AD – 1-TB LTU (16 to 36 TB)	Media/License on one XP disk array based on total array raw disk capacity. No additional licenses required beyond 36 TB
Cache LUN XP	Media/ Licenses: T1616AA – 1-TB LTU (up to 1 TB) T1616AB – 1-TB LTU (2 to 6 TB) T1616AC – 1-TB LTU (7 to 15 TB) T1616AD – 1-TB LTU (16 to 36 TB)	Media/License on one XP disk array based on total array raw disk capacity. No additional licenses required beyond 36 TB

**Table 4.7.4.5** summarizes the licensing structure for XP capacity-licensed software products that are based on used capacity levels. For Continuous Access XP and XP Extension, ‘used’ capacity is defined as the total capacity of all volumes that are either Continuous Access XP or XP Extension P-Vols (CA source volumes on a primary XP Array) or S-Vols (CA copy volumes on a secondary XP Array). This amount represents the true usable capacity of these volumes corresponding with the configured LDEV sizes (i.e. it excludes RAID mirroring overhead).

**Table 4.7.4.5 XP1024, XP128 Used-Capacity Software Licensing**

Software Title	Product Number	Deliverables/License Terms
RAID Manager XP	Media/ Licenses: T1610A (all supported Operating Systems)	Media/License for unlimited hosts connected to an XP Disk Array
Continuous Access XP	Media/ Licenses: T1611AA – 1-TB LTU (up to 1 TB) T1611AB – 1-TB LTU (2 to 6 TB) T1611AC – 1-TB LTU (7 to 15 TB) T1611AD – 1-TB LTU (16 to 36 TB)	Media/License on one XP disk array based on total capacity of the volumes that are Continuous Access XP P-Vols or S-Vols. No additional licenses required beyond 36 TB
Continuous Access XP Extension	Media/ Licenses: T1612AA – 1-TB LTU (up to 1 TB) T1612AB – 1-TB LTU (2 to 6 TB) T1612AC – 1-TB LTU (7 to 15 TB) T1612AD – 1-TB LTU (16 to 36 TB)	Media/License on one XP disk array based on total capacity of the volumes that are Continuous Access XP Extension P-Vols or S-Vols. No additional licenses required beyond 36 TB
Business Copy XP	Media/ Licenses: T1613AA – 1-TB LTU (up to 1 TB) T1613AB – 1-TB LTU (2 to 6 TB) T1613AC – 1-TB LTU (7 to 15 TB) T1613AD – 1-TB LTU (16 to 36 TB)	Media/License on one XP disk array based on total capacity of the volumes that are Business Copy XP P-Vols or S-Vols. No additional licenses required beyond 36 TB

### XP256 Customers with Old (3-TB increment) License Products

The 1-, 5-, 10-, and 25-TB license structure should be used for ordering licenses for use on XP256, XP512, and XP48 disk arrays. For the XP256, this product structure replaces previous products for capacity-licensed software titles for new and upgrade license purchases. See “Installed Base Upgrades” section below for more information.

#### Installed Base Upgrades)

With regard to capacity-based licenses purchased for the XP256 under the previous product structure (3 TB base + 3 TB upgrades):

- Licenses purchased under the obsolete structure will continue to be valid under the terms of the particular license.
- Where applicable, customers will use the new product structure to order upgrades to their existing licensed capacity.

**Example:** Capacity upgrade of 1.5 TB on an (existing) 2.5-TB XP256 that has a 3-TB Continuous Access XP LTU requires Continuous Access XP LTU upgrade.

- Customer is already “covered” for 3 TB with initial (old) LTU purchase
- [total LTU requirement] - [existing LTU] = required incremental LTU  

$$1.5 + 2.5 \quad - \quad 3 \quad = \quad 1.0 \text{ TB}$$
- Customer must purchase at least one B9321A Continuous Access XP 1-TB LTU
- In this example (an existing title license upgrade), a media product is not required

### Other Licensed Software (all XP platforms)

**Table 4.7.4.6** summarizes the licensing structure for other XP software products.

**Table 4.7.4.6**

Software Title	Product Number	Deliverables/License Terms
Performance Advisor XP	Media/Licenses: B9369A (all XP platforms)	Media/License for use on one management station. User can manage multiple XP arrays from a single management console. Can also run Performance Advisor and Command View on the same management station at the same time.
Command View XP	B9357AA New XP256 system (Command View XP and Remote Control XP for XP256)	Media/License on one management console. Can manage multiple XP Disk arrays from single console (up to 16 arrays)
	B9357AB New XP512 or XP48 system (Command View XP and Remote Control XP for XP512/XP48) except as described in B9357AD	
	B9357AC New XP1024 or XP128 (Command View XP only, Remote Control XP not required)	
	B9357AD Remote Control XP only for new XP512/XP48 system (for new XP512 or XP48 added to an existing Command View environment)	
Resource Manager XP	B9358A #001 New XP256 system	Media/License on one XP array (capacity unlimited) connected to MVS systems
	B9358A #002 New XP512/XP48 system	
	T1617A XP1024/XP128	
Data Exchange XP	T1620AA All supported Operating Systems (XP256/XP512/XP48)	Media/License on one server connected to an XP array
	T1620AB All supported Operating Systems (XP1024/XP128)	
Auto Path XP for Windows 2000	Media: B9500A (all XP platforms)	Media/License on 1, 5, or 10 servers
	Licenses: 1 server – B9501A 5 servers – B9502A 10 servers – B9503A	
Auto Path XP for HP-UX	Media: B9510A (all XP platforms)	Media/License on 1, 5, or 10 servers
	Licenses: 1 server – B9511A 5 servers – B9512A 10 servers – B9513A	
Auto Path XP for NT	Media: B9505A (all XP platforms)	Media/License on 1, 5, or 10 servers
	Licenses: 1-server – B9506A 5 servers – B9507A 10-servers – B9508A	



Software Title	Product Number	Deliverables/License Terms
Auto Path XP for AIX	Media: B7949A (all XP platforms)  Licenses: 1 server: B7950A Unlimited servers: B7951A	Media/License on IBM RS6000 AIX servers.
Cluster Extension XP for VCS	Media/Licenses: B9531A (all XP platforms)	Media/License on one Veritas Cluster Server configuration connected to XP disk arrays
Cluster Extension XP for HACMP	Media/Licenses: B9532A (all XP platforms)	Media/License on one HACMP Cluster configuration connected to XP disk arrays
Cluster Extension XP for MSCS	Media/Licenses: B9533A (all XP platforms)	Media/License on one MS Cluster configuration connected to XP disk arrays
Application Policy Manager XP	Media/Licenses: B9540AB (XP512/XP48) B9540AA (XP1024/XP128)	Media/License on one Management Console and one XP Disk array (capacity unlimited).
Fast Recovery Solutions	Media/Licenses: B9550A (all XP platforms)	Media/License to use on one XP Disk Array (capacity unlimited)
OpenView SPI for XP Disk Arrays	Media/Licenses: B9367A (XP256/XP512/XP48)	Media/License on one management console. Can manage multiple XP disk arrays.
HP OpenView SPI for Storage Devices	Media/Licenses: B9168AA (XP1024/XP128)	Media/License on one management console. Can manage multiple XP disk arrays.
Direct Backup Engine XP (capacity unlimited)	Media/Licenses B9560A (XP48/XP256/XP512/) T1640A (XP128/XP1024; not yet available)	Media/License to use on one XP Disk Array.