

### Overview

The HP StorageWorks XP Disk Array family offers a complete portfolio of software applications designed to help you confidently manage your mission-critical IT. HP StorageWorks XP Disk Array Software Products help you mitigate risks by providing constant data availability, reduce costs by providing efficient data management, and accelerate business growth with swift availability.

The software offerings can be grouped into several major categories as follows:

- **Device and Configuration Management**
- **Performance Management**
- **High Availability and Replication**
- **Business Continuity Solutions**
- **Mainframe-connect Tools**

For additional information regarding HP StorageWorks XP Disk Array products, refer to the following:

- Trial licenses are available for most XP Disk Array software. Please contact your HP Sales Representative for details.
  - Please refer to the HP XP24000/XP20000 Disk Array Hardware Products QuickSpecs for information on XP24000/XP20000 array hardware.
  - Please refer to the HP XP12000/XP10000 Disk Array Hardware Products QuickSpecs for information on XP12000/XP10000 array hardware.
  - For more information on Software for the XP Disk Arrays, please refer to the HP9000 Configuration and Ordering Guide. The "HP9000, Integrity (Itanium based), and carrier-grade servers Configuration and Ordering Guide" is a comprehensive document which explains configuration and ordering information for servers and XP disk arrays.
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### What's New

- HP StorageWorks XP Virtualization Adapter for VMware Site Recovery Manager is now available.

### Device and Configuration Management

## HP StorageWorks XP Command View Advanced Edition Software

### Overview

HP StorageWorks XP Command View Advanced Edition software provides centralized, web-based management for XP disk arrays. It reduces total cost of ownership by enabling collaboration among team members and by increasing the efficiency of storage administrators. It can be used together with the Remote Web Console software shipped free with every HP XP Disk Array.

In an environment with many HP XP Disk Arrays, with complex replication, or with a need to migrate data among tiers of storage, HP XP Command View AE provides the device management capability you need. It allows you to manage multiple HP XP Disk Arrays from a central location. It provides the ability to install optional plug-in applications for enhanced functionality like visualizing complicated replication environments or non-disruptively migrating data between tiers of storage. HP XP Command View AE includes a Command Line Interface (CLI) to automate disk array configuration and management and includes an SMI-S provider to interface with SRM software.

If you just need the CLI and SMI-S capabilities of XP Command View AE, you can use the HP XP Command View AE CLI SMI-S Licenses for XP12000/XP10000/XP1024/XP128/XP512/XP48. For the XP24000/XP20000 the CLI and SMI-S capabilities are conveniently included in HP StorageWorks XP Array Manager.

**NOTE:** In a mainframe-only environment customers may choose not to purchase XP Array Manager. In that environment, if the customer wants XP Command View AE, please order the T1780A Command View AE media kit when ordering the T5281AA-AL products.

As of March 2006, a special reduced cost version of XP Command View Advanced Edition has been provided exclusively for External Storage attached to the XP12000.

**NOTE:** XP Command View Advanced Edition for the XP24000/XP20000 automatically supports External Storage, so the XP24000/XP20000 does not require special any XP Command View Advanced Edition licenses to cover externally attached capacity.

### Models

#### HP XP Command View Advanced Edition (XP24000)

HP XP Command View AE Base License	T5281AA
HP XP Command View AE 1TB 0-6TB LTU	T5281AB
HP XP Command View AE 1TB 7-15TB LTU	T5281AC
HP XP Command View AE 1TB 16-31TB LTU	T5281AD
HP XP Command View AE 1TB 32-63TB LTU	T5281AE
HP XP Command View AE 1TB 64-127TB LTU	T5281AF
HP XP Command View AE 1TB 128-255TB LTU	T5281AG
HP XP Command View AE 1TB 256-511TB LTU	T5281AH
HP XP Command View AE 1TB Over 511TB LTU	T5281AJ

#### HP XP Command View Advanced Edition (XP20000)

HP XP20000 Command View AE LTU (frame unlimited license)	T5281AL
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#### CV XP Advanced Edition (XP12000/XP1024/XP128/XP512/XP48)

HP StorageWorks CV XP Advanced Edition Media kit	T1780A
HP StorageWorks CV XP Advanced Edition 1TB LTU (0-1TB)	T1781AA
HP StorageWorks CV XP Advanced Edition 1TB LTU (2-6TB)	T1781AB
HP StorageWorks CV XP Advanced Edition 1TB LTU (7-15TB)	T1781AC
HP StorageWorks CV XP Advanced Edition 1TB LTU (16-31TB)	T1781AD
HP StorageWorks CV XP Advanced Edition 1TB LTU (Over 31TB)	T1781AE

#### CV XP Advanced Edition (XP10000 only)

HP StorageWorks CV XP Advanced Edition Media kit	T1780A
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### Device and Configuration Management

HP StorageWorks CV XP Advanced Edition Frame Unlimited license <b>CV XP Advanced Edition for External Storage (XP12000 only)</b> <b>NOTE: Command View AE licenses to cover the internal raw capacity of the XP12000 must be installed first.</b>	T1781AJ
HP StorageWorks CV XP AE 1TB LTU (0-1TB) for External Storage	T1781AK
HP StorageWorks CV XP AE 1TB LTU (Greater than 1TB) for Ext Storage	T1781AL
<b>HP XP Command View Advanced Edition CLI/SMI-S (XP12000/XP10000/ XP1024/XP128/XP512/XP48)</b>	
HP XP Command View AE CLI SMI-S License (frame unlimited license) <b>CV XP AE MIGRATION UPGRADE LTU's</b> (valid only for customers who accepted and installed the CV XP to CV XP AE Migration Upgrade Offer before August 1, 2006, and are now adding extra disk and CV XP AE LTU capacity)	T1781AM
HP StorageWorks CV XP AE Upgrade LTU 1 TB (2-6TB)	T1781ABU
HP StorageWorks CV XP AE Upgrade LTU 1 TB (7-15TB)	T1781ACU
HP StorageWorks CV XP AE Upgrade LTU 1 TB (16-31TB)	T1781ADU
HP StorageWorks CV XP AE Upgrade LTU 1 TB (Over 31TB)	T1781AEU

#### Product Highlights

- Wizard-based dialog modules for ease of use.
- Provides for seamless integration into higher level infrastructure management utilities such as Storage Essentials.
- Centralized, multi-array health and status management for XP24000, XP20000, XP12000, XP10000, XP1024, XP128, XP512, and XP48 arrays
- Flexible Administrative Security configuration
- Supports Graphical User Interface (GUI), and Command Line Interface (CLI)
- Integration with enterprise framework applications such as OpenView, Tivoli, and BMC
- Easy access from GUI to Remote Web Console by selecting physical view
- See Service & Support section

#### Support

#### Prerequisites

- XP Command View Advanced Edition Management Station (provided separately by customer). Please contact your HP Sales Representative for the latest details.
  - Windows Server 2003, Windows XP Professional with Service Pack 2, or Windows Vista (x86)
  - 1 GHz CPU minimum, 2 GHz CPU or faster is recommended
  - 1 GB RAM minimum, 2 GB or greater is recommended
  - 4 GB free disk drive space minimum, 5 GB or greater is recommended
  - At least one Ethernet LAN card connected to network

#### Licensing

- For XP24000: License-to-use is based on the total installed raw capacity of the XP array being managed.
- For XP20000: Licensed per frame for unlimited capacity.
- For XP12000: License-to-use is based on the total installed raw capacity of the XP array being managed, plus the installed capacity of XP External Storage (for which there are special XP CV AE licenses).
- For XP10000: Licensed per frame for unlimited capacity.
- For XP1024/XP128: License-to-use is based on the total installed raw capacity of the XP array being managed.
- As extra disk capacity is added to the array, additional licensing for XP CV AE must also be purchased to cover the new disk capacity. The exceptions are XP CV AE for the XP20000 and XP10000, which have frame unlimited licenses.

### Device and Configuration Management

## Applications integrated with HP StorageWorks XP Command View AE

### HP StorageWorks XP Tiered Storage Manager Software XP Command View AE Plug-in

#### Overview

HP StorageWorks XP Tiered Storage Manager is a plug-in application for XP CV AE that transparently migrates XP data (including internal and externally connected) among storage tiers, seamlessly and without down time. It lets you take advantage of various storage tiers to better manage system cost and performance. XP Tiered Storage Manager includes the data migration functionality of XP Auto LUN.

When integrated with HP StorageWorks XP Performance Advisor, Tiered Storage Manager reports Array Group Busy Rates, allowing you to consider performance implications before migrating data.

#### Models

##### XP24000/XP20000 Disk Arrays

HP XP Tiered Storage Mgr Base License	T5285AA
HP XP Tiered Storage Mgr 1TB 0-6TB LTU	T5285AB
HP XP Tiered Storage Mgr 1TB 7-15TB LTU	T5285AC
HP XP Tiered Storage Mgr 1TB 16-31TB LTU	T5285AD
HP XP Tiered Storage Mgr 1TB 32-63TB LTU	T5285AE
HP XP Tiered Storage Mgr 1TB 64-127TB LTU	T5285AF
HP XP Tiered Storage Mgr 1TB 128-255TB LTU	T5285AG
HP XP Tiered Storage Mgr 1TB 256-511TB LTU	T5285AH
HP XP Tiered Storage Mgr 1TB Over 511TB LTU	T5285AJ
HP XP Tiered Storage Manager for External Storage 1TB 0-6TB LTU	T5282AB
HP XP Tiered Storage Manager for External Storage 1TB 7-15TB LTU	T5282AC
HP XP Tiered Storage Manager for External Storage 1TB 16-31TB LTU	T5282AD
HP XP Tiered Storage Manager for External Storage 1TB 32-63TB LTU	T5282AE
HP XP Tiered Storage Manager for External Storage 1TB 64-127TB LTU	T5282AF
HP XP Tiered Storage Manager for External Storage 1TB 128-255TB LTU	T5282AG
HP XP Tiered Storage Manager for External Storage 1TB 256-511TB LTU	T5282AH
HP XP Tiered Storage Manager for External Storage 1TB Over 511TB LTU	T5282AJ

##### XP12000/XP10000/XP1024/XP128 Disk Arrays

XP Tiered Stg. Mgr. 1 TB LTU	T1785AA
XP Tiered Stg. Mgr. 1 TB LTU (2-6 TB)	T1785AB
XP Tiered Stg. Mgr. 1 TB LTU (7-15 TB)	T1785AC
XP Tiered Stg. Mgr. 1 TB LTU (16-31 TB)	T1785AD
XP Tiered Stg. Mgr. 1 TB LTU (32-63 TB)	T1785AE

#### Product Highlights

- Transparent migration - no need to disrupt or quiesce applications
- Non-disruptive to users
- Migrates data for both Internal or External Storage (MSA/EVA/XP)
- Provide persistent volume classifications (Migration Groups)
- Provide easily customizable available storage pools (Storage Tiers)
- No limit to the number of Storage Tiers - Volumes can reside within multiple tiers
- Easy search operations for building Migration Groups and Storage Tiers
- Easy realignment to accommodate changes
- Migrations are batched together but are manually released
- Lower cost licenses for external storage (for the XP24000/XP20000)
- Reports Array Group Busy Rates, when integrated with HP StorageWorks XP Performance Advisor (Requires Performance Advisor v3.4 or v3.5 and HP StorageWorks XP Command View AE v5.9,

### Device and Configuration Management

v6.0, or v6.1. Performance Advisor v3.5 and XP Command View AE v6.1 provide the best combination of features and performance.)

#### Support

See Services/Support section

#### Prerequisites

- **Software**
  - HP StorageWorks XP Command View Advanced Edition Software

#### Licensing

- For XP24000/XP20000: License-to-use is based on the total installed raw capacity of the XP array being managed plus the installed usable LUN capacity configured as external storage. There are special low cost licenses (T5282AB-AJ) for external storage.
- For XP12000/XP10000/XP1024/XP128: License-to-use is based on the total installed raw capacity of the XP array being managed, plus the installed usable LUN capacity configured as external storage.

## HP StorageWorks XP Replication Manager Software

### Overview

HP StorageWorks XP Replication Manager Software enables you to create, manage, and maintain HP StorageWorks XP Disk Array replication pairs. It provides centralized management of replication applications, decreases storage administration complexity, increases productivity, and improves service levels by providing a single enterprise view of the replication environment. It allows you to view replication status graphically in real time, improving your efficiency.

In addition to replication status, HP XP Replication Manager Software also provides early warning of impending problems. It eliminates tedious data entry that can cause outages and simplifies difficult replication tasks. And it reduces costs and training expenses associated with replication management.

**NOTE:** Unlike HP StorageWorks XP Replication Monitor Software, which this product replaces, XP Replication Manager is not a plug-in for HP StorageWorks XP Command View AE, and does not require the full XP Command View AE installation as a prerequisite. It only requires the CLI/SMI-S portion of XP Command View AE.

- Single visual point of management for all replication tasks
- Create, manage, and monitor Open Systems replication pairs, and monitor Mainframe replication pairs
- Makes managing replication easier for the Storage Administrator
- Manages and monitors local as well as remote replication pairs
- Reports pair status
- Displays the pair configurations relative to servers and subsystems
- Remote management of replication pairs
- Set up and control multi-site DR environments

### Models

#### XP24000/XP20000 Disk Arrays

HP XP Replication Manager Base License	T5284BA
HP XP Replication Manager 1TB 0-6TB LTU	T5284BB
HP XP Replication Manager 1TB 7-15TB LTU	T5284BC
HP XP Replication Manager 1TB 16-31TB LTU	T5284BD
HP XP Replication Manager 1TB 32-63TB LTU	T5284BE
HP XP Replication Manager 1TB 64-127TB LTU	T5284BF
HP XP Replication Manager 1TB 128-255TB LTU	T5284BG
HP XP Replication Manager 1TB 256-511TB LTU	T5284BH
HP XP Replication Manager 1TB Over 511TB LTU	T5284BJ

#### XP12000/XP10000/XP1024/XP128 Disk Arrays

HP XP Replication Manager 1TB 0-1TB LTU	T1784BA
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### Device and Configuration Management

HP XP Replication Manager 1TB 2-6TB LTU	T1784BB
HP XP Replication Manager 1TB 7-15TB LTU	T1784BC
HP XP Replication Manager 1TB 16-31TB LTU	T1784BD
HP XP Replication Manager 1TB 32-63TB LTU	T1784BE

#### Product Highlights

- Replication Manager supports business continuity by simplifying replication management and monitoring
- Displays replication status, configuration and correlation of pair volumes
- Provides early warnings for any potential problems
- Eliminates tedious manual data entry

#### Support

See Services/Support section

#### Prerequisites

- **Hardware**
  - HP StorageWorks XP Command View Advanced Edition Management Station - see HP StorageWorks XP Command View Advanced Edition Software section for details.
- **Software**
  - Requires the CLI/SMI-S portion of Command View AE. The full Command View AE implementation is not required. The CLI/SMI-S functionality can be obtained from any of the following:
    - For XP24000 and XP20000: HP StorageWorks XP Array Manager Software
    - For XP12000, XP10000, XP1024, and XP128: HP StorageWorks XP Command View AE CLI SMI-S License (T1781AM)
    - HP StorageWorks XP Command View Advanced Edition

#### Licensing

Based on total replicated capacity under management. This means the sum total of all Business Copy and Continuous Access P-Vols and S-Vols, plus Snapshot P-Vols and Pool-Vols under management per XP array.

## HP StorageWorks XP Provisioning Manager Software XP Command View AE Plug-in

#### Overview

#### Product Description

HP StorageWorks XP Provisioning Manager is a plug-in application for XP CV AE, that makes it easier for you to provision new disk array storage for use by attached host servers.

#### Storage Pool Management

- Defines storage pools using LUNs from heterogeneous storage subsystems
- Maps the storage pool to the logical management scheme for the storage administrator

#### Host Volume Management

- Provides a simple interface for volume (file system and device file) management
- Provides centralized volume information views for distributed hosts

### Device and Configuration Management

<b>Models</b>	<p><b>XP24000/XP20000 Disk Arrays</b></p> <p>HP XP Provisioning Manager Base License T5283AA</p> <p>HP XP Provisioning Manager 1TB 0-6TB LTU T5283AB</p> <p>HP XP Provisioning Manager 1TB 7-15TB LTU T5283AC</p> <p>HP XP Provisioning Manager 1TB 16-31TB LTU T5283AD</p> <p>HP XP Provisioning Manager 1TB 32-63TB LTU T5283AE</p> <p>HP XP Provisioning Manager 1TB 64-127TB LTU T5283AF</p> <p>HP XP Provisioning Manager 1TB 128-255TB LTU T5283AG</p> <p>HP XP Provisioning Manager 1TB 256-511TB LTU T5283AH</p> <p>HP XP Provisioning Manager 1TB Over 511TB LTU T5283AJ</p> <p><b>XP12000/XP10000/XP1024/XP128 Disk Arrays</b></p> <p>XP Provisioning Mgr. 1TB LTU T1783AA</p> <p>XP Provisioning Mgr. 1TB LTU (2-6 TB) T1783AB</p> <p>XP Provisioning Mgr. 1TB LTU (7-15 TB) T1783AC</p> <p>XP Provisioning Mgr. 1TB LTU (16-31 TB) T1783AD</p> <p>XP Provisioning Mgr. 1TB LTU (32-63 TB) T1783AE</p>
<b>Product Highlights</b>	<p>Some of the key functions that HP StorageWorks XP Provisioning Manager provides include:</p> <ul style="list-style-type: none"> <li>● Creation of logical storage pools</li> <li>● Filtering of storage selections</li> <li>● Creation/expansion of file systems using the appropriate volume manager</li> <li>● Add File System</li> <li>● Expand File System</li> <li>● Delete File System</li> <li>● Add Device File</li> <li>● Delete Device File</li> </ul>
<b>Support</b>	See Services/Support section
<b>Prerequisites</b>	<ul style="list-style-type: none"> <li>● <b>Software</b> <ul style="list-style-type: none"> <li>○ HP StorageWorks XP Command View Advanced Edition</li> </ul> </li> </ul>
<b>Licensing</b>	<ul style="list-style-type: none"> <li>● For XP24000/XP20000: License-to-use is based on the total installed raw capacity of the XP array being managed.</li> <li>● For XP12000/XP10000/XP1024/XP128: License-to-use is based on the total installed raw capacity of the XP array being managed, plus the installed usable LUN capacity configured as External Storage.</li> </ul>

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## HP StorageWorks Remote Web Console

<b>Overview</b>	<p>Remote Web Console is shipped free of charge with the array firmware on the SVP. It is accessible by customers and provides basic single XP array management. It can be easily accessed by the XP CV AE GUI. If Remote Web Console is used as the only array device manager, it is accessed via a remote IP URL to the SVP. (See user manual for more details). Note that Remote Web Console lacks a Command Line Interface (CLI) and does not include any SMI-S providers.</p> <p><b>NOTE:</b> Although Remote Web Console does not include a CLI or SMI-S provider, HP StorageWorks XP Array Manager Software includes the Command View AE CLI and SMI-S provider.</p>
<b>Models</b>	No product or license is required to be ordered, it comes free with the XP firmware on the SVP.
<b>Licensing</b>	No license key required, product is pre-enabled and comes free with every XP disk array.

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### Device and Configuration Management

#### HP StorageWorks XP Array Manager Software XP24000, XP20000 only

##### Overview

HP StorageWorks XP Array Manager Software provides web-based volume management, resource allocation, access control, and data security for your XP disk array. Configure and manage data volumes for most effective use of your XP disk array. Partition array resources to isolate applications, reserve cache memory for your most frequently accessed data, and control host port usage so that your most critical applications have the port bandwidth they need. Configure, manage, and secure all host access to the XP disk array so that you have efficient access to your data. Create read-only volumes for archiving and data retention, and securely delete your data when necessary.

**NOTE:** HP StorageWorks XP Array Manager Software is a required product for all XP24000/XP20000 Disk Array implementations, except for Mainframe-only environments.

##### Models

##### XP24000 Disk Arrays

HP XP Array Manager Base License	T5214AA
HP XP Array Manager 1TB 0-6TB LTU	T5214AB
HP XP Array Manager 1TB 7-15TB LTU	T5214AC
HP XP Array Manager 1TB 16-31TB LTU	T5214AD
HP XP Array Manager 1TB 32-63TB LTU	T5214AE
HP XP Array Manager 1TB 64-127TB LTU	T5214AF
HP XP Array Manager 1TB 128-255TB LTU	T5214AG
HP XP Array Manager 1TB 256-511TB LTU	T5214AH
HP XP Array Manager 1TB Over 511TB LTU	T5214AJ

##### XP20000 Disk Arrays

HP XP20000 Array Manager LTU (frame unlimited license)	T5214AL
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##### Product Highlights

HP StorageWorks XP Array Manager provides several important capabilities. The following table lists the functions included in XP Array Manager.

Function Name	Supported Systems	Description
LUN Manager	Open Systems	Add paths, delete paths, set host mode, set/reset command device, configure ports, create LUNs and assign them to ports, configure port security, prevent IOSCAN by unauthorized servers from finding secure LUNs, and check every I/O for proper security.
Open Volume Manager	Open Systems	Create expanded volumes that are larger than standard volumes (also called LU Size Expansion or LUSE), and create custom size volumes that are smaller than standard volumes (also called Custom Volume Size or CVS).
Virtual LVI for Mainframe	Mainframe	Create custom size mainframe volumes that are smaller than standard volumes. Also called Custom Volume Size or CVS.
Volume Security for Mainframe	Mainframe	Volume security for mainframe attached XP Disk Arrays that protects volumes from access by unauthorized hosts. Also called LDEV Security for Mainframe, and known as Hitachi SANtinel for Mainframe in previous XP disk array generations.
Volume Security Port Security Option	Mainframe	Specify disk array ports through which hosts can access volumes. Also known as Hitachi SANtinel-Port Security Option in previous XP disk array generations.
Data Retention Utility	Open Systems	Volume access control, enabling archiving and data retention. Protect key data sets from being updated, copied, accessed, or queried. Known as LUN Security XP Extension in previous XP disk array generations.



### Device and Configuration Management

Volume Retention Manager for Mainframe	Mainframe	Volume access control, enabling archiving and data retention. Assign access permissions (read/write, read only, and protect) to mainframe volumes. Known as Hitachi LDEV Guard for Mainframe in previous XP disk array generations.
Cache Residency Manager	Open Systems	Improve performance by reserving areas of Cache Memory for frequently accessed data. Known as Cache LUN in previous XP disk array generations.
Cache Residency Manager for Mainframe	Mainframe	Improve performance by reserving areas of Cache Memory for frequently accessed data. Known as Hitachi Flash Access for Mainframe and Cache LUN for Mainframe in previous XP disk array generations.
Hitachi Cache Manager Utility for Mainframe	Mainframe	Enhancement to management of cache residency. Provides host management software for mainframes that allows both volumes and datasets to be locked into cache.
Performance Control	Open Systems	Allocate disk array port I/Os and transfer rate so that your most important applications have the performance they need. Also known as Server Priority Manager.
Performance Monitor	Both	Monitor usage, workload, and performance of disk drives, volumes, processors, and host interfaces in the XP Disk Array. View the information in graphical formats. Bundled with HP StorageWorks Performance Control XP and with HP StorageWorks XP Auto LUN in previous XP disk array generations.
Volume Shredder	Both	Securely delete data with repetitive overwrites to minimize the likelihood that it could be recovered. Overwrite up to eight times with random or user selected patterns. Known as Data Shredder in previous XP disk array generations.
RAID Manager	Open Systems	Host based command line interface that controls XP Continuous Access, XP Business Copy, Database Validator (Data Integrity Check) and Data Retention Utility (LUN Security XP Extension).
Disk/Cache Partition	Both	Divide your HP StorageWorks XP Disk Array into up to 32 independent reconfigurable "sub arrays," each having its own host ports, disk parity groups, cache, and Partition Storage Administrator. Isolate critical applications from other applications and prevent unauthorized storage administrators from affecting your critical volumes.
Database Validator	Open Systems	Reduce the risk of unplanned downtime with an added level of data protection in Oracle database environments. Database Validator works in conjunction with Oracle HARD-enabled databases to maintain integrity in the data IO path. It prevents data corruption between the database and the XP disk array and protects existing Oracle data on the XP disk array. Known as Data Integrity Check in previous XP disk array generations.
XP Command View AE CLI/SMI-S	Both	Automate array configuration and management tasks using the Command Line Interface (CLI) and scripts. Interface with SRM software platforms using the SMI-S provider. Requires the XP Command View AE Management Station. See licensing section below for information regarding installing the CLI/SMI-S license.
XPIInfo (after December 15, 2008)	Open Systems	Understand the mapping between device files on the server and their associated storage ports and LDEVs in the XP disk array by using the XPIInfo command line utility.

### Device and Configuration Management

In summary, HP StorageWorks XP Array Manager Software provides the following capabilities:

- Add or delete I/O paths
- Configure fibre channel ports
- Create expanded LUNs
- Create custom size volumes (Mainframe and Open Systems)
- Establish volume host access permissions (Mainframe and Open Systems)
- Partition disk parity groups, cache, and host ports
- Control port bandwidth available to hosts
- Create read-only volumes for archiving and data retention (Mainframe and Open Systems)
- Reserve cache memory for frequently accessed data (Mainframe and Open Systems)
- Securely delete data (Mainframe and Open Systems)
- Automate array configuration and management tasks using the bundled in XP CV AE CLI
- Interface with SRM software platforms using the bundled in XP CV AE SMI-S provider

### Support Licensing

See Service & Support section

- See Capacity-Licensed XP Software section
- For the XP24000, license-to-use is based on the total installed raw capacity of the array  
(NOTE: The licensed capacity must cover all installed raw capacity, whether the capacity is composed of Open Systems volumes or Mainframe volumes or a combination of both. Also note that you do not need to purchase XP Array Manager licenses to cover External Storage capacity. XP Array Manager includes coverage for unlimited External Storage capacity.)
- For the XP20000, license-to-use is per frame, covering any amount of installed capacity.
- The HP XP Command View AE CLI SMI-S License entitles you to use the SMI-S provider and the core command line interface (CLI) of HP StorageWorks XP Command View Advanced Edition Software. The core CLI has all the capabilities of the full CLI except the logical group commands. For more information about CLI features, see the HP StorageWorks XP Command View Advanced Edition software Device Manager CLI user guide. To install the HP XP Command View AE CLI SMI-S License, first obtain a license key using the registration number from the HP XP Command View AE CLI SMI-S License Entitlement Certificate. Next install HP StorageWorks XP Command View AE using the Server Installation CD from the CD kit. Then install the CLI SMI-S license key (previously obtained) using the License button in the HP StorageWorks XP Command View AE web client login window. For installation instructions, see the HP StorageWorks XP Command View Advanced Edition software server installation and configuration guide for Device Manager and Provisioning Manager. To use all the features of HP StorageWorks XP Command View Advanced Edition Software, purchase and install the HP XP Command View AE license.

### Device and Configuration Management

#### HP StorageWorks LUN Configuration and Security Manager XP XP12000, XP10000, XP1024, XP128 only

##### Overview

HP StorageWorks LUN Configuration and Security Manager XP provides Web-based storage capacity provisioning and host access security configuration for XP disk arrays. With it, you can add and delete paths, create custom-sized volumes, and configure foolproof LUN security that provides controlled, secure access to data stored on your XP disk array—preventing unauthorized servers from accessing your data. It also configures arrays to meet changing storage requirements and enables users to share a single Fibre Channel array among multiple servers.

As of March 2006, the T1714Bx versions of LUN Configuration and Security Manager for XP12000 and XP10000 include, at no extra charge, Hitachi SAnTinel - Port Security Option, Hitachi LDEV Guard for Mainframe, LUN Security XP Extension, Cache LUN XP, Hitachi FlashAccess for Mainframe, Data Integrity Check, and Hitachi Cache Manager Utility for Mainframe. These licenses are in addition to the licenses already included in LUN Configuration and Security Manager XP (Open Volume Manager, LUN Manager, VLVI for Mainframe, and SAnTinel for Mainframe).

**NOTE:** HP StorageWorks LUN Configuration and Security Manager XP is a required product for all XP12000/XP10000/XP1024/XP128 Disk Array implementations, except for Mainframe-only environments.

**NOTE:** This product is licensed on a raw capacity basis for all XP arrays except for the XP10000. For the XP10000 ONLY, this product is licensed on a frame unlimited basis.

<b>Model XP12000 Disk Arrays</b>	HP LUN Config/Sec Mgr 1TB LTU (0-1TB)	T1714BA
	HP LUN Config/Sec Mgr 1TB LTU (2-6TB)	T1714BB
	HP LUN Config/Sec Mgr 1TB LTU (7-15TB)	T1714BC
	HP LUN Config/Sec Mgr 1TB LTU (16-31TB)	T1714BD
	HP LUN Config/Sec Mgr 1TB LTU (Over 31TB)	T1714BE
<b>Model XP10000 Disk Arrays only</b>	HP LUN Config/Sec Mgr (frame unlimited LTU)	T1714BJ
<b>Models XP128/1024 Disk Arrays</b>	HP LUN Config/Sec Mgr 1TB (0-1TB)	T1614AA
	HP LUN Config/Sec Mgr 1TB (2-6TB)	T1614AB
	HP LUN Config/Sec Mgr 1TB (7-15TB)	T1614AC
	HP LUN Config/Sec Mgr 1TB (16-36TB)	T1614AD

##### Product Highlights

- Add or delete I/O paths
- Configure fibre channel ports
- Create expanded LUNs
- Create custom size volumes
- Establish LUN Host Access permissions

##### Support

- See Service & Support section

##### Licensing

- See Capacity-Licensed XP Software section
- For the XP12000, license-to-use is based on the total installed raw capacity of the array, plus the installed capacity of XP External Storage. However, it is only necessary to purchase licenses of LUN Configuration and Security Manager to cover the installed raw capacity of the array, because the LUN Configuration and Security Manager XP licenses required to cover external storage capacity are included with XP External Storage.

#### HP StorageWorks XP Thin Provisioning Software XP24000, XP20000 only



### Device and Configuration Management

#### Overview

HP StorageWorks XP Thin Provisioning Software allows you to supply disk storage capacity to your applications from a pool of virtualized storage. By enabling you to allocate your anticipated future storage capacity needs from virtual disk storage, HP XP Thin Provisioning Software reduces the amount of physical disk capacity initially required. As utilization of physical disk space increases over time, you can purchase more disk capacity as it is needed, and install it without affecting your applications. By removing the guessing from capacity planning, HP XP Thin Provisioning reduces the cost of volume management.

#### Models

##### XP24000 Disk Arrays

HP XP Thin Provisioning 10TB Base	T5227AA
HP XP Thin Provisioning 15TB Block LTU	T5227AB
HP XP Thin Provisioning 25TB Block LTU	T5227AC
HP XP Thin Provisioning 50TB Block LTU	T5227AD
HP XP Thin Provisioning 60TB to Unlimited LTU	T5227AE

##### XP20000 Disk Arrays

HP XP20000 Thin Provisioning 10TB Base	T5228AA
HP XP20000 Thin Provisioning 15TB Block LTU	T5228AB
HP XP20000 Thin Provisioning 25TB Block LTU	T5228AC
HP XP20000 Thin Provisioning 50TB Block LTU	T5228AD
HP XP20000 Thin Provisioning 60TB to Unlimited LTU	T5228AE

#### Product Highlights

- Reduce costs
  - Reduce initial acquisition costs
  - Improve disk capacity utilization
  - Reduce storage purchases over the life of the storage system by eliminating stranded storage (storage that is allocated but unused)
  - Reduce Total Cost of Ownership by deferring storage purchases
- Reduce management cost
  - Simplify storage provisioning - reduce time and resources required to perform storage provisioning by only allocating storage once
  - Eliminate application service interruptions - perform volume expansion and deletion without host downtime
  - Deploy applications faster - planning and sizing storage for applications is easier
- Reduce environmental impact
  - Reduce power consumption, cooling requirements and carbon footprint by delaying purchases of disk drives
  - Conserve floor space with better disk utilization

#### Support

See Service & Support section

#### Licensing

- License to use is based on the total capacity of the thin provisioning pool.
- Capacity is provided in blocks.
  - New software purchase (XP24000 example): Purchase the base product, T5227AA, for the first 10TB and then select from the "block" products to supply the rest of the desired capacity. Example: 20TB is required. Purchase T5227AA for the first 10TB and then purchase T5227AB to provide 15TB more. The array is now configured for up to 25TB.
  - License capacity upgrade purchase (XP 24000 example): Determine how much capacity is to be added. Select the "block" product that supplies the proper capacity. Example: your XP24000 has 25TB of Thin Provisioning already installed, and 35TB more is needed. Purchase the 50TB block (T5227AD) since it is less expensive than purchasing the 15TB block plus the 25TB block.
- Frame unlimited licensing may be purchased when installed license capacity is greater than or equal to 60TB.
  - New software purchase (XP24000 example): Purchase the base product, T5227AA, for the

### Device and Configuration Management

first 10TB and purchase the 50TB block, T5227AD, to bring the purchased capacity up to 60TB. Then purchase the "60TB to Unlimited LTU" product, T5227AE, to provide the frame unlimited capacity.

- Upgrade purchase (XP24000 example): First determine how much XP Thin Provisioning capacity is installed. Then purchase the least expensive combination of 15TB, 25TB, and 50TB block products to add to the existing licenses so that the total sum of licensed capacity is greater than or equal to 60TB. Then select the "60TB to Unlimited LTU" product, T5227AE, to provide the frame unlimited capacity.

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## HP StorageWorks LUN Security XP Extension (also known as Data Retention Utility) XP24000, XP20000, XP12000, XP10000 only

### Overview

HP StorageWorks LUN Security XP Extension provides a web-based highly secure method of LDEV access control, allowing a storage administrator to protect critical data for archiving or data retention purposes. It can help a storage administrator manage business critical or sensitive data.

As of March 2006, LUN Security XP Extension is included with the T1714Bx version of LUN Configuration and Security Manager for XP12000/XP10000.

**NOTE:** Purchase and deployment of this product does not by itself ensure that regulatory/legal requirements for data retention will be met and compliance is not implicitly or explicitly guaranteed.

### Models

#### XP24000/XP20000 Disk Arrays

Included with HP StorageWorks XP Array Manager. See section for more information.

#### XP12000/XP10000 Disk Arrays

Included with HP StorageWorks LUN Configuration and Security Manager XP - see section for more information.

### Product Highlights

- Create read-only volumes
- Protect data from being replicated
- Allow data to be read only by authorized applications
- Protect datasets from write and read access
- Protect datasets from query/IO scan/file system inquiry operations
- Allow data to be locked down for a specific retention time period
- Host Agent integration using XP RAID Manager

### Support

See Service & Support section

### Prerequisites

- **Software**
  - XP RAID Manager version 1.15.xx (required for host agent integration)

### Licensing

See Capacity-Licensed XP Software section

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## HP StorageWorks XP External Storage Software XP24000, XP20000, XP12000, XP10000 only

### Overview

HP StorageWorks XP External Storage allows you to host XP24000/XP20000/XP12000/XP10000 Disk Array LUNs on select external storage subsystems. XP External Storage allows you to tier storage capabilities and provision an XP disk array solution to optimize return on IT investment - letting you focus high-performance/high availability native XP24000/XP20000/XP12000/XP10000 Disk Array capacity against your most mission-critical data while hosting less critical data on cost optimized external storage subsystems. Data stored on external devices connected behind an XP disk array appear to a server to be stored inside the XP disk array.

XP External Storage provides significant consolidation scalability - up to 247 Petabytes (PB) of external

### Device and Configuration Management

storage can be configured behind a single XP24000, 96 Petabytes behind an XP20000, 32 Petabytes behind an XP12000, and 16 Petabytes behind an XP10000. Coupled with the significant cost advantages that external storage systems can provide, you can confidently scale your XP24000/XP20000/XP12000/XP10000 disk array solution to simplify configuration complexity and reduce ongoing management cost. XP External Storage is compatible with a wide range of XP disk array software tools, including XP Business Copy for local replication, XP Continuous Access for remote replication, and XP Auto LUN for performance optimization.

Since March 2006, LUN Configuration and Security Manager licenses have been included with XP12000/XP10000 XP External Storage to make ordering and configuring easier. The XP12000 and XP10000 share XP External Storage product numbers, except for the first tier. Because the XP10000 has frame-based licensing for LUN Configuration and Security Manager, the External Storage XP 0-1 TB LTU for the XP10000 is a special, lower cost license.

As of June 2006, all XP12000/XP10000 XP External Storage licenses include a license for a four cache-partition version of XP Disk/Cache Partition. This license allows the customer to implement up to four cache partitions with XP External Storage. Please note: each implemented partition requires a minimum of 4 Gigabytes of physical disk array cache memory to be configured. This cache requirement is in addition to other cache that may be required to run the internal disk related applications. Customers who purchased XP External Storage before June 2006 may acquire the four partition license at no charge. Customers who want more than four cache partitions or who would like to implement disk partitions are still invited to purchase the appropriate standard XP Disk/Cache Partition license.

Because XP24000/XP20000 Array Manager has much more functionality than XP12000/XP10000 LUN Configuration and Security Manager, XP24000/XP20000 External Storage licenses differ from XP12000/XP10000 External Storage licenses in two ways. First, the XP24000/XP20000 External Storage licenses, in contrast to the XP12000/XP10000, do not include partitioning licenses because partitioning is included in XP Array Manager. Second, XP24000/XP20000 External Storage licenses do not need to include Array Manager licenses because Array Manager includes coverage for unlimited External Storage capacity.

### Models

#### XP24000 Disk Arrays

HP XP External Storage Base License	T5206AA
HP XP External Storage 1TB 0-6TB LTU	T5206AB
HP XP External Storage 1TB 7-15TB LTU	T5206AC
HP XP External Storage 1TB 16-31TB LTU	T5206AD
HP XP External Storage 1TB 32-63TB LTU	T5206AE
HP XP External Storage 1TB 64-127TB LTU	T5206AF
HP XP External Storage 1TB 128-255TB LTU	T5206AG
HP XP External Storage 1TB 256-511TB LTU	T5206AH
HP XP External Storage 1TB Over 511TB LTU	T5206AJ

#### XP20000 Disk Arrays

HP XP20000 External Storage Software LTU	T5206AL
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#### XP12000/XP10000 Disk Arrays

HP External Storage XP10000 1TB 0-1TB LTU	T1706BH
HP External Storage XP12000 1TB 0-1TB LTU	T1706BA
HP External Storage XP 1TB 2-6TB LTU	T1706BB
HP External Storage XP 1TB 7-15TB LTU	T1706BC
HP External Storage XP 1TB 16-31TB LTU	T1706BD
HP External Storage XP 1TB 32-127TB LTU	T1706BE

- Petabytes of external storage capacity

### Product Highlights



### Device and Configuration Management

- Interoperability with XP Business Copy, XP Continuous Access, XP Auto LUN, Cache LUN, XP Disk/Cache Partition, XP Performance Advisor, and LUN Security XP Extension
- External Storage health/status information (via Remote Web Console or XP CV AE)
- Support for HP MSA 1000/1500 disk systems, EVA Disk Arrays, and XP Disk Arrays
- Support for HDS, EMC, and IBM disk arrays for data migration or permanent attach (requires a local support agreement). Please contact your HP Sales Representative for the latest details.

#### Support

See Service & Support section

#### Prerequisites

- **Software**
  - For the XP12000/XP10000: LUN Configuration & Security Manager XP (required for configuration of external storage LUNs)- included with the T1706Bx version of XP External Storage)
  - XP Business Copy, XP Continuous Access, XP Performance Advisor, XP Disk/Cache Partition, XP Auto LUN, LUN Security XP Extension (optional, to perform product-specific functions against External Storage-hosted volumes)  
**NOTE:** LUN Security XP Extension is included with the T1706Bx version of XP External Storage, and is included with XP Array Manager for the XP24000/XP20000.
  - For the XP12000: if XP Command View AE is installed, sufficient license capacity of XP Command View AE must be purchased to cover the usable capacity of the external storage. Special cost-effective XP Command View AE licenses (T1781AK and T1781AL) are available for use with XP External Storage

#### Licensing

- For XP24000, XP12000, and XP10000: Sufficient license capacity must be purchased to cover the usable configured LUN capacity of all externally connected arrays. See Capacity-Licensed XP Software section for more details.
- For XP20000: Licensed per frame for unlimited capacity.

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## HP StorageWorks XP Disk/Cache Partition XP24000, XP20000, XP12000, XP10000, SVS200 only

#### Overview

HP StorageWorks XP Disk/Cache Partition software enables an XP24000/XP20000/XP12000 /XP10000 array to be subdivided into smaller segments, each consisting of dedicated cache and disk. This software can reduce costs by taking a large XP24000/XP20000/XP12000/XP10000 and carving it up into smaller chunks suitable for departmental usage, while retaining superb performance and unexcelled high availability.

#### Models

##### XP24000/XP20000 Disk Arrays

Included with HP StorageWorks XP Array Manager - see section for more information.

##### XP12000/XP10000 Disk Arrays

HP XP Disk/Cache Partition 1 TB (0-1TB) LTU	T1722AA
HP XP Disk/Cache Partition 1 TB (2-6TB) LTU	T1722AB
HP XP Disk/Cache Partition 1TB (7-15TB) LTU	T1722AC
HP XP Disk/Cache Partition 1TB (16-31TB) LTU	T1722AD
HP XP Disk/Cache Partition 1TB (32-63TB) LTU	T1722AE

#### Product Highlights

- Up to 32 disk partitions and 32 cache partitions can be created in the XP24000 and XP12000. Up to 16 partitions in the XP20000 and XP10000.
- Resources can be moved from partitions as needs change
- Partition administrators have access only to their assigned partitions

#### Support

See Service & Support section

#### Prerequisites

- **Software**
  - LUN Configuration & Security Manager XP (required for configuration of XP12000/XP10000)

### Device and Configuration Management

**Licensing** Licensed on the total raw capacity of the XP12000/XP10000 array PLUS the configured usable capacity of any configured external storage LUN's. (See capacity licensed software section).

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### HP StorageWorks XP Data Shredder (also known as Volume Shredder)

**Overview** HP StorageWorks XP Data Shredder is a software product designed for the enterprise storage market and is supported on the XP24000/XP20000/XP12000/XP10000/XP1024/XP128 disk arrays. It helps IT staff by securely deleting data on the XP arrays via successive overwrites to minimize the likelihood that the deleted data could be restored. This may help to promote peace of mind and improved data security for high security environments that use the XP. It will be most useful for sensitive financial data or high security data in a variety of industries.

**Models** **XP24000/XP20000 Disk Arrays**  
Included with HP StorageWorks XP Array Manager - see section for more information.

**XP12000/XP10000 Disk Arrays**

HP XP Data Shredder LTU for XP12000/XP10000 T1721A

**XP1024/XP128 Disk Arrays**

HP XP Data Shredder LTU for XP1024/XP128 T1621A

**Product Highlights**

- Overwrites data volumes up to 8 times
- User selectable overwrite patterns
- Ease of use
- Verification that overwrites have been completed
- Percentage of completion display
- Abort feature to stop the process

**Support** See Service & Support section

**Prerequisites**

- **Software**
  - LUN Configuration & Security Manager XP (required for configuration of XP arrays)

**Licensing** License-to-use for unlimited storage capacity on one XP Disk Array



### Performance Management Software

## HP StorageWorks XP Performance Advisor Software All XP Disk Arrays and SVS200

### Overview

HP StorageWorks XP Performance Advisor Software is a web-based application for collecting, monitoring and displaying the performance of your XP disk array. With XP Performance Advisor, you choose the time and duration of performance data collection-so you can pinpoint activities that significantly impact your disk array and tune the array accordingly. You can easily monitor storage performance and display usage statistics for your storage system at any level, from a complete system overview down to individual components. You can also filter hosts, arrays and array components, so you're only seeing the hosts and arrays you want to see. You can also generate, schedule and view detailed performance reports which will allow you to identify any performance bottlenecks in your XP array.

Performance Advisor v3.4 and v3.5 integrate with HP StorageWorks XP Tiered Storage Manager, providing Array Group performance data. This allows Tiered Storage Manager to monitor access patterns so that you can consider performance implications before migrating data.

### Models

HP Perf Advisor XP Media Kit	T1789A
HP Perf Advisor XP 1TB 0-1TB LTU	T1790AA
HP Perf Advisor XP 1TB 2-6TB LTU	T1790AB
HP Perf Advisor XP 1TB 7-15TB LTU	T1790AC
HP Perf Advisor XP 1TB 16-31TB LTU	T1790AD
HP Perf Advisor XP 1TB 32-63TB LTU	T1790AE

### Product Highlights

- Real time data gathering and analysis
- System view of all array resources
- Detailed performance report generation and scheduling
- Flexible event notification and large 64 GB historical repository
- Multi-OS support
- Multiple management stations support
- XP External Storage performance monitoring
- Integrates with HP StorageWorks XP Tiered Storage Manager (Requires Performance Advisor v3.4 or v3.5 and HP StorageWorks XP Command View AE v5.9, v6.0, or v6.1. Performance Advisor v3.5 and XP Command View AE v6.1 provide the best combination of features and performance.)

### Support

See Service & Support section

### Prerequisites

- **Management Station** for standalone deployment (provided separately by customer)
  - Management Server on its own management station
  - Windows Server 2003 Standard, Enterprise Edition R2 (SP1, SP2)/32-bit; Windows Server 2003 Standard, Enterprise Edition (SP1, SP2)/32-bit; Windows XP Professional SP2; Windows Vista/32-bit
  - 3-GHz CPU, 4-GHz CPU (recommended for large configurations > 2GB database)
  - 2 GB RAM (minimum), 4 GB RAM (recommended for large configurations > 2GB database)
  - 10 GB free disk drive space (minimum), 100GB free disk drive space (for maximum history detail)
  - NTFS
  - DVD drive or CD-ROM drive (DVD is preferred)
  - VGA monitor with 256 colors or better
  - At least one LAN Card
- **Host Agent:** refer to the HP StorageWorks XP Performance Advisor Installation Guide
- **Command Device:** For best performance, it is recommended that a CHA (CHIP) microprocessor and a Fibre Channel port be dedicated for a Command Device
- **Minimum Array Firmware** - refer to the release notes associated with the particular version of

### Performance Management Software

- Performance Advisor
- Licensing**
- License-to-use is based on the total installed raw capacity of the XP array being managed. External storage LUNs do not need to be considered.
    - As extra internal disk capacity is added to the array, additional licensing for StorageWorks XP Performance Advisor must also be purchased to cover the new disk capacity.
  - See Capacity-Licensed XP Software section for more details.

### HP StorageWorks XP Performance Control

**Overview** HP StorageWorks XP Performance Control is a web-based performance allocation tool for XP disk arrays. It lets you align IT priorities with storage performance resources and allows these resources to be intelligently allocated to hosts. It lets you prioritize critical systems by making sure that they have all the XP disk array performances they need to meet business objectives. You can also ensure that business processes (like backups and data warehouse loads) get the array bandwidth they need to complete within targeted time windows. XP Performance Control enables sophisticated service provider solutions based on performance level quality-of-service. Because it ensures that array resources are best used, it improves ROI of your XP disk array solution.

**Models**

**XP24000/XP20000 Disk Arrays**  
Included with HP StorageWorks XP Array Manager - see section for more information.

**XP12000/XP10000 Disk Arrays**  
HP Performance Control XP LTU T1705A

**XP1024/XP128 Disk Arrays**  
HP Performance Control XP LTU T1605A

- Product Highlights**
- Set Upper Limit function to cap performance on non-priority hosts
  - Set Threshold Value function to relax policies when priority host performance consumption is low
  - Set WWN and Port level settings
  - Determine IOPS or MB/s settings for random or sequential I/O-oriented processing workloads
  - Define Host Bus Adapter names to allow intuitive naming of hosts
  - Define Host Bus Adapter group names to allow intuitive naming of hosts

**Support** See Service & Support section

**Licensing** License-to-use for unlimited storage capacity on one XP Disk Array

### HP StorageWorks XP Auto LUN Software

**Overview** HP StorageWorks XP Auto LUN Software provides web-based automatic monitoring and load balancing for all your XP disk arrays. Now you can make the most of your arrays by moving high-priority tasks to underutilized volumes, replicating volumes for backup and recovery, and viewing the health of your arrays. You set performance goals, you set the limits, and XP Auto LUN does the rest. It proposes a migration plan and even estimates how much your storage performance will improve when it's done. XP Auto LUN lets you evaluate disk array usage and determine whether resources are overloaded or out of balance. Use its easy-to-follow menus to define when data is collected and arrays are monitored. It makes spotting trends simple, using up to 90 days of stored historical data to create up-to-the-minute reports. You can even export data to third-party analysis tools like Microsoft Excel. If resources are overloaded, XP Auto LUN will create a plan to move volumes, then stands by for your approval to make changes.

**Models**

**XP24000/XP20000 Disk Arrays**

HP XP Auto LUN Base License	T5215AA
HP XP Auto LUN 1TB 0-6TB LTU	T5215AB
HP XP Auto LUN 1TB 7-15TB LTU	T5215AC
HP XP Auto LUN 1TB 16-31TB LTU	T5215AD

### Performance Management Software

HP XP Auto LUN 1TB 32-63TB LTU	T5215AE
HP XP Auto LUN 1TB 64-127TB LTU	T5215AF
HP XP Auto LUN 1TB 128-255TB LTU	T5215AG
HP XP Auto LUN 1TB 256-511TB LTU	T5215AH
HP XP Auto LUN 1TB Over 511TB LTU	T5215AJ
<b>XP12000/XP10000 Disk Arrays</b>	
HP Auto LUN XP 1TB LTU (0-1TB)	T1715AA
HP Auto LUN XP 1TB LTU (2-6TB)	T1715AB
HP Auto LUN XP 1TB LTU (7-15TB)	T1715AC
HP Auto LUN XP 1TB LTU (16-31TB)	T1715AD
HP Auto LUN XP 1TB LTU (32-63TB)	T1715AE
<b>XP1024/XP128 Disk Arrays</b>	
HP Auto LUN XP 1TB LTU (0-1TB)	T1615AA
HP Auto LUN XP 1TB LTU (2-6TB)	T1615AB
HP Auto LUN XP 1TB LTU (7-15TB)	T1615AC
HP Auto LUN XP 1TB LTU (16-36TB)	T1615AD

#### Product Highlights

- Identifies data volumes stressed by high I/O workloads
- Moves high priority data to underutilized array volumes
- Creates a volume migration plan
- Migrates data across different disks or RAID levels
- Includes Performance Monitor License
  - For XP24000/XP20000: Performance Monitor is included in XP Array Manager instead of in XP Auto LUN

#### Support

See Service & Support section

#### Licensing

See Capacity-Licensed XP Software section

## HP StorageWorks XP Cache LUN (also known as Cache Residency)

#### Overview

HP StorageWorks XP Cache LUN lets you reserve areas of memory cache on your HP StorageWorks XP disk arrays to store frequently accessed information. It improves file access times and enables faster data transfers. Assigning information to on-board cache speeds up access to your data because cache-resident data is available at host data transfer speeds for both read and write operations. XP Cache LUN redirects I/O requests from the XP disk drives to data locked in the array's cache. It's transparent, it's simple to implement, and the performance gains it delivers are immediate.

As of March 2006, XP Cache LUN is included with the T1714Bx version of LUN Configuration and Security Manager for XP12000/XP10000.

#### Models

##### XP24000/XP20000 Disk Arrays

Included with HP StorageWorks XP Array Manager - see section for more information.

##### XP12000/XP10000 Disk Arrays

Included with HP StorageWorks LUN Configuration and Security Manager XP – see section for more information.

##### XP1024/XP128 Disk Arrays

HP Cache LUN XP 1TB LTU (0-1TB)	T1616AA
HP Cache LUN XP 1TB LTU (2-6TB)	T1616AB
HP Cache LUN XP 1TB LTU (7-15TB)	T1616AC
HP Cache LUN XP 1TB LTU (16-36TB)	T1616AD

### *Performance Management Software*

**Product Highlights**

- XP Disk Array Firmware based
- Lock data in cache memory
- Flexible user configuration
- Scalable

**Support**

See Service & Support section

**Licensing**

See Capacity-Licensed XP Software section

### High Availability and Data Replication Software

## HP StorageWorks XP Business Copy Software

### Overview

HP StorageWorks XP Business Copy makes nearly instantaneous copies of data from XP arrays for development, testing or backup, without ever interrupting your online production. XP Business Copy creates and maintains RAID-protected copy volumes without interrupting access to the source volumes. Because it makes asynchronous copy volume updates, copies stay up to date with minimal I/O response time degradations for your primary applications. These copy volumes can at any time be "split" from their corresponding source volume and accessed by other applications. So, while copy volumes are being utilized, primary applications can continue to access and update their source volumes as needed, without taking a performance hit. By creating multiple online copies of critical business data without disrupting your business, XP Business Copy lets you get the most from your data.

Snapshot XP (XP24000/XP20000/XP12000/XP10000/SVS200 only) is a feature of Business Copy that also replicates data volumes. But it is slightly different in that it makes space-efficient secondary copies that might only be a fraction of the size of the primary copy. Only data that is about to be overwritten in the primary volume is written to the secondary volume. This is called Copy-on-Write. As a result, if the volume capacity required for Snapshot XP can be smaller, then the cost of replication can be lowered. Snapshot is recommended for application environments where the I/O to the secondary volume is not write-centric or intensive (reads or writes).

These secondary copies are also known as "virtual volumes", or V-VOL. All V-VOLs reside in a snapshot pool, or POOL-VOL, which is sized based on the number of V-VOLs and the IO ratio of the primary volumes associated with these V-VOLs.

For the XP12000, Snapshot requires the installation of the optional Shared Memory Platform Board (AE032A/AU).

### Models

#### XP24000/XP20000 Disk Arrays

HP XP Business Copy Base License	T5213AA
HP XP Business Copy 1TB 0-6TB LTU	T5213AB
HP XP Business Copy 1TB 7-15TB LTU	T5213AC
HP XP Business Copy 1TB 16-31TB LTU	T5213AD
HP XP Business Copy 1TB 32-63TB LTU	T5213AE
HP XP Business Copy 1TB 64-127TB LTU	T5213AF
HP XP Business Copy 1TB 128-255TB LTU	T5213AG
HP XP Business Copy 1TB 256-511TB LTU	T5213AH
HP XP Business Copy 1TB Over 511TB LTU	T5213AJ

#### XP12000/XP10000 Disk Arrays and SVS200

HP Business Copy XP 1TB LTU (0-1TB)	T1713AA
HP Business Copy XP 1TB LTU (2-6TB)	T1713AB
HP Business Copy XP 1TB LTU (7-15TB)	T1713AC
HP Business Copy XP 1TB LTU (16-31TB)	T1713AD
HP Business Copy XP 1TB LTU (32-63TB)	T1713AE

#### XP1024/XP128 Disk Arrays

HP Business Copy XP 1TB LTU (0-1TB)	T1613AA
HP Business Copy XP 1TB LTU (2-6TB)	T1613AB
HP Business Copy XP 1TB LTU (7-15TB)	T1613AC
HP Business Copy XP 1TB LTU (16-36TB)	T1613AD

### Product Highlights

- Real time local data mirroring
- Enables a wide range of data protection and recovery solutions

### High Availability and Data Replication Software

- Instant access to copied volumes
- Create up to nine concurrent copies using full-capacity replicas, up to sixty-four concurrent copies using Snapshot partial-capacity replicas
- Host Agent integration using XP RAID Manager
- XP24000/XP20000/XP12000/XP10000/XP1024/XP128 versions include licenses for Hitachi ShadowImage for Mainframe, providing local replication for mainframe volume types

#### Support

See Service & Support section

#### Prerequisites

- Software
  - XP RAID Manager (required for host agent integration)
  - XP24000/XP20000 includes XP RAID Manager in XP Array Manager

#### Licensing

See Capacity-Licensed XP Software section. Licensing is based on the sum of all P-VOLs, S-VOLs (full copies) and POOL-VOL (Snapshot copies)

## HP StorageWorks XP Continuous Access Software

### Overview

The HP StorageWorks XP Continuous Access family of high availability data and disaster recovery tools enable real-time data mirroring between XP disk arrays. They provide continuous availability for all your important data and protect you from catastrophic failures. XP Continuous Access products deliver host-independent, array-based remote recovery for a wide range of open systems environments. XP Continuous Access provides high-performance remote mirroring in high-workload environments. Using shared mirroring and host-connect interfaces, you'll better utilize your array resources. And with seamless integration into a full spectrum of remote mirroring-based solutions, XP Continuous Access can be deployed for activities ranging from data migration to high-availability server clustering.

XP Continuous Access and XP Continuous Access Synchronous, the base products, provide replication using a synchronous link between XP disk arrays. XP Continuous Access Extension, XP Continuous Access Asynchronous and XP Continuous Access Journal (XP24000/XP20000/XP12000/XP10000 only) provide replication using an asynchronous link between XP disk arrays. XP Continuous Access can be used to copy data between XP disk arrays of the same generation and between XP disk arrays of different generations. For up to date information on XP Continuous Access compatibility between XP disk array generations, please contact your HP representative.

**NOTE:** XP Continuous Access Asynchronous differs from XP Continuous Access Extension. XP Continuous Access Extension requires the purchase of XP Continuous Access as a prerequisite, whereas XP Continuous Access Asynchronous eliminates the prerequisite by including XP Continuous Access Synchronous licenses. Similarly, the new XP Continuous Access Journal differs from the pre-March 2006 version of XP Continuous Access Journal. The old version of XP Continuous Access Journal included licenses for XP Continuous Access Extension but required the purchase of XP Continuous Access as a prerequisite, whereas the new XP Continuous Access Journal eliminates the prerequisite by including XP Continuous Access Asynchronous and XP Continuous Access Synchronous licenses.

### Models

#### XP24000/XP20000 Disk Arrays

HP XP Continuous Access Synchronous Base License	T5211AA
HP XP Continuous Access Synchronous 1TB 0-6TB LTU	T5211AB
HP XP Continuous Access Synchronous 1TB 7-15TB LTU	T5211AC
HP XP Continuous Access Synchronous 1TB 16-31TB LTU	T5211AD
HP XP Continuous Access Synchronous 1TB 32-63TB LTU	T5211AE
HP XP Continuous Access Synchronous 1TB 64-127TB LTU	T5211AF
HP XP Continuous Access Synchronous 1TB 128-255TB LTU	T5211AG
HP XP Continuous Access Synchronous 1TB 256-511TB LTU	T5211AH
HP XP Continuous Access Synchronous 1TB Over 511TB LTU	T5211AJ

### High Availability and Data Replication Software

HP XP Continuous Access Asynchronous Base License	T5277AA
HP XP Continuous Access Asynchronous 1TB 0-6TB LTU	T5277AB
HP XP Continuous Access Asynchronous 1TB 7-15TB LTU	T5277AC
HP XP Continuous Access Asynchronous 1TB 16-31TB LTU	T5277AD
HP XP Continuous Access Asynchronous 1TB 32-63TB LTU	T5277AE
HP XP Continuous Access Asynchronous 1TB 64-127TB LTU	T5277AF
HP XP Continuous Access Asynchronous 1TB 128-255TB LTU	T5277AG
HP XP Continuous Access Asynchronous 1TB 256-511TB LTU	T5277AH
HP XP Continuous Access Asynchronous 1TB Over 511TB LTU	T5277AJ
HP XP Continuous Access Journal Base License	T5278AA
HP XP Continuous Access Journal 1TB 0-6TB LTU	T5278AB
HP XP Continuous Access Journal 1TB 7-15TB LTU	T5278AC
HP XP Continuous Access Journal 1TB 16-31TB LTU	T5278AD
HP XP Continuous Access Journal 1TB 32-63TB LTU	T5278AE
HP XP Continuous Access Journal 1TB 64-127TB LTU	T5278AF
HP XP Continuous Access Journal 1TB 128-255TB LTU	T5278AG
HP XP Continuous Access Journal 1TB 256-511TB LTU	T5278AH
HP XP Continuous Access Journal 1TB Over 511TB LTU	T5278AJ

#### **XP24000/XP20000 Disk Array Continuous Access Conversion LTU's**

(Used to convert from XP Continuous Access Sync to XP Continuous Access Async or to XP Continuous Access Journal, or to convert from XP Continuous Access Async to XP Continuous Access Journal.)

See Capacity-Licensed XP Software section for usage details.

HP XP Continuous Access Conversion Base License	T5223AA
HP XP Continuous Access Conversion 1TB 0-6TB LTU	T5223AB
HP XP Continuous Access Conversion 1TB 7-15TB LTU	T5223AC
HP XP Continuous Access Conversion 1TB 16-31TB LTU	T5223AD
HP XP Continuous Access Conversion 1TB 32-63TB LTU	T5223AE
HP XP Continuous Access Conversion 1TB 64-127TB LTU	T5223AF
HP XP Continuous Access Conversion 1TB 128-255TB LTU	T5223AG
HP XP Continuous Access Conversion 1TB 256-511TB LTU	T5223AH
HP XP Continuous Access Conversion 1TB Over 511TB LTU	T5223AJ

#### **XP12000/XP10000 Disk Arrays and SVS200**

HP Continuous Access XP Synchronous 1TB LTU (0-1TB)	T1711AA
HP Continuous Access XP Synchronous 1TB LTU (2-6TB)	T1711AB
HP Continuous Access XP Synchronous 1TB LTU (7-15TB)	T1711AC
HP Continuous Access XP Synchronous 1TB LTU (16-31TB)	T1711AD
HP Continuous Access XP Synchronous 1TB LTU (32-63TB)	T1711AE
HP Continuous Access XP Asynchronous 1TB LTU (0-1TB)	T1777AA
HP Continuous Access XP Asynchronous 1TB LTU (2-6TB)	T1777AB
HP Continuous Access XP Asynchronous 1TB LTU (7-15TB)	T1777AC
HP Continuous Access XP Asynchronous 1TB LTU (16-31TB)	T1777AD
HP Continuous Access XP Asynchronous 1TB LTU (32-63TB)	T1777AE

#### **XP12000/XP10000 Disk Arrays**

HP Continuous Access XP Journal 1TB LTU (0-1TB)	T1778AA
HP Continuous Access XP Journal 1TB LTU (2-6TB)	T1778AB
HP Continuous Access XP Journal 1TB LTU (7-15TB)	T1778AC
HP Continuous Access XP Journal 1TB LTU (16-31TB)	T1778AD

### High Availability and Data Replication Software

HP Continuous Access XP Journal 1TB LTU (32-63TB) T1778AE

#### **XP12000/XP10000 Disk Arrays Continuous Access Conversion LTU's**

(Used to convert from XP Continuous Access Sync to XP Continuous Access Async or to XP Continuous Access Journal, or to convert from XP Continuous Access Async to XP Continuous Access Journal. Note: T1723Ax prior to March 2006 was HP Continuous Access XP Journal. In the new restructured Continuous Access product offering, T1723Ax is ideally suited to be the conversion product. Therefore it has simply been renamed to designate its new purpose.) See Capacity-Licensed XP Software section for usage details.

HP Cont Access XP Conv 1TB 0-1TB LTU T1723AA

HP Cont Access XP Conv 1TB 2-6TB LTU T1723AB

HP Cont Access XP Conv 1TB 7-15TB LTU T1723AC

HP Cont Access XP Conv 1TB 16-31TB LTU T1723AD

HP Cont Access XP Conv 1TB 32-63TB LTU T1723AE

#### **XP1024/XP128 Disk Arrays**

HP Continuous Access XP 1TB LTU (0-1TB) T1611AA

HP Continuous Access XP 1TB LTU (2-6TB) T1611AB

HP Continuous Access XP 1TB LTU (7-15TB) T1611AC

HP Continuous Access XP 1TB LTU (16-36TB) T1611AD

HP Continuous Access XP Extension 1TB LTU (0-1TB) T1612AA

HP Continuous Access XP Extension 1TB LTU (2-6TB) T1612AB

HP Continuous Access XP Extension 1TB LTU (7-15TB) T1612AC

HP Continuous Access XP Extension 1TB LTU (16-36TB) T1612AD

### Product Highlights

- Remote data mirroring between XP disk arrays
- Enables a wide range of remote mirroring solutions
- XP Continuous Access and XP Continuous Access Synchronous: Synchronous copy mode
- XP Continuous Access Extension and XP Continuous Access Asynchronous: Asynchronous copy mode using cache-based side files
- XP Continuous Access Journal: Asynchronous copy mode using disk-based Journal file
- Fast failover/failback for seamless, reliable mirroring recovery
- Host Agent integration using XP RAID Manager
- XP24000/XP20000/XP12000/XP10000/XP1024/XP128 XP Continuous Access / XP Continuous Access Sync include licenses for Hitachi TrueCopy for Mainframe, providing synchronous remote replication for mainframe volume types
- XP24000/XP20000/XP12000/XP10000 XP Continuous Access Async includes licenses for Hitachi True Copy for Mainframe and Hitachi TrueCopy Async for Mainframe, providing asynchronous remote replication for mainframe volume types
- XP1024/XP128 XP Continuous Access Extension includes licenses for Hitachi TrueCopy Async for Mainframe, providing asynchronous remote replication for mainframe volume types
- XP24000/XP20000/XP12000/XP10000 XP Continuous Access Journal includes licenses for Hitachi TrueCopy for Mainframe, Hitachi TrueCopy Async for Mainframe, and Hitachi Universal Replicator for Mainframe, providing asynchronous journal-based remote replication for mainframe volume types

### Support

See Service & Support section

### Prerequisites

- XP1024/XP128 Software
  - Continuous Access XP Extension requires that Continuous Access XP be installed first.

### Licensing

See Capacity-Licensed XP Software section



### High Availability and Data Replication Software

## HP StorageWorks Flex Copy XP XP12000, XP10000, XP1024, XP128 only

### Overview

HP StorageWorks Flex Copy XP enables flexible, bi-directional, server-independent data transfer between an HP XP disk array and another HP disk array. XP1024/XP128 support transfers to and from HP Modular Smart Array (MSA) 1000/1500 storage systems. XP12000/XP10000 support transfers to and from HP MSA storage systems, HP EVA disk arrays, and HP XP disk arrays. Data can be transferred locally within a single data center or over metropolitan-distances in a distributed storage network without consuming server or LAN performance resources. This powerful capability allows for more efficient, cost effective leverage of business-critical data in a wide range of storage solutions, resulting in better return-on-investment in storage infrastructures and enhanced IT effectiveness. These storage solutions include nearline/array-based storage backup, data distribution/concentration, and hierarchical storage management.

### Models

#### XP12000/XP10000 Disk Arrays

HP Flex Copy XP 1TB LTU (0-1TB)	T1725AA
HP Flex Copy XP 1TB LTU (2-6TB)	T1725AB
HP Flex Copy XP 1TB LTU (7-15TB)	T1725AC
HP Flex Copy XP 1TB LTU (16-31TB)	T1725AD
HP Flex Copy XP 1TB LTU (32-63TB)	T1725AE

#### XP1024/XP128 Disk Arrays

HP Flex Copy XP 1TB LTU (0-1TB)	T1625AA
HP Flex Copy XP 1TB LTU (2-6TB)	T1625AB
HP Flex Copy XP 1TB LTU (7-15TB)	T1625AC
HP Flex Copy XP 1TB LTU (16-36TB)	T1625AD

### Product Highlights

- XP to external array and external array to XP SAN-based, server independent, point-in-time copy
- Host Agent integration using XP RAID Manager

### Support

See Service & Support section

### Prerequisites

- **Software**
  - XP1024/XP128: XP RAID Manager version 01.13.00 or later (required for host agent integration)
- **XP12000/XP10000 Array Firmware**
  - 50.06.14 or later
- **XP1024/XP128 Array Firmware**
  - 21.09.08 or later

### Licensing

See Capacity-Licensed XP Software section

### High Availability and Data Replication Software

#### HP StorageWorks XP RAID Manager

<b>Overview</b>	HP StorageWorks XP RAID Manager provides OS-specific, host based software initiated from a server via a command line interface that allows full user control of HP StorageWorks XP Continuous Access and HP StorageWorks XP Business Copy from the host server. XP 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. XP RAID Manager also provides host agent/command support for HP StorageWorks LUN Security XP Extension-based solutions (see LUN Security XP Extension for more information).	
<b>Models</b>	<b>XP24000/XP20000 Disk Arrays</b>	N/A
	Included with XP Array Manager	
	<b>XP12000/XP10000/XP1024/XP128 Disk Arrays</b>	
	HP XP RAID Manager	T1610A
<b>Product Highlights</b>	<ul style="list-style-type: none"> <li>● Host-resident integration of XP Software</li> </ul>	
<b>Support</b>	<ul style="list-style-type: none"> <li>● See Service &amp; Support section</li> </ul>	
<b>Licensing</b>	<ul style="list-style-type: none"> <li>● NA: product provided at no charge</li> </ul>	

#### HP StorageWorks Secure Path (for HP-UX, Windows)

<b>Overview</b>	See HP StorageWorks Secure Path QuickSpecs for detailed information on this offering: <a href="http://h18006.www1.hp.com/products/sanworks/secure-path/specifications.html">http://h18006.www1.hp.com/products/sanworks/secure-path/specifications.html</a>
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#### HP StorageWorks XP Auto Path for IBM AIX

#### Hitachi Dynamic Link Mgr for Sun Solaris

#### Hitachi HDLM for Windows

#### Hitachi HDLM for Linux

<b>Overview</b>	HP StorageWorks XP Auto Path for IBM AIX, Hitachi Dynamic Link Mgr for Sun Solaris, Hitachi HDLM for Windows and Hitachi HDLM for Linux are server-based software tools that provide I/O path failover and load balancing for your disk arrays. They offer load balancing to improve performance, while the software's automatic error detection features provide a fault-tolerant infrastructure to avert data stoppages or catastrophic halts. It automatically routes I/Os to an alternate path, and administrators see and manage all I/O activity via an easy-to-use graphical interface - while users see only reliable system performance.	
<b>Models</b>	HP XP Auto Path SW for IBM AIX Media Kit	T5208A
	HP XP Auto Path for IBM AIX 1 Server LTU	T5209A
	HP XP Auto Path for AIX Unlim Server LTU	T5210A
	Hitachi HDLM for Solaris Media Kit	HIT5205A
	Hitachi HDLM for Solaris 1 Server LTU	HIT5206A
	Hitachi HDLM Solaris Unlim Server LTU	HIT5207A
	Hitachi HDLM for Windows, Media Kit	HIT5201A
	Hitachi HDLM for Windows, 1 Server LTU	HIT5202A
	Hitachi HDLM for Linux, Media Kit	HIT5203A
	Hitachi HDLM for Linux, 1 Server LTU	HIT5204A

### High Availability and Data Replication Software

#### Product Highlights

- Supports wide range of operating systems – Supports path failover and load balancing for IBM AIX, Microsoft Windows, SUN Solaris, and Linux operating systems
- Offers fault-tolerant path management – manual or automatic failover and failback, automated path health checks, multiple active paths allowing bandwidth control at the HBA port level , dynamic LUN addition and deletion without a server reboot, easy installation and operation through auto-discovery function

#### Support

See Service & Support section

#### Licensing

- For 1 Server LTU: License-to-use on a single server/XP Disk Array pair. Example: if you have two XP Disk Arrays and ten servers, all using Auto Path, you would need 20 of the 1 Server LTUs.
- For Unlim Server LTU: License-to-use with unlimited servers connected to a single XP Disk Array. Example: if you have two XP Disk Arrays and ten servers, all using Auto Path, you would need two of the Unlim Server LTUs.
- If a server has multiple partitions, a copy of HDLM is required for every partition that will be using HDLM. For example, if you have a server with 2 partitions and both partitions require HDLM, then you would need two of the 1 Server LTUs or one Unlim Server LTU.

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## HP StorageWorks XP Data Integrity Check (also known as Database Validator)

#### Overview

Data Integrity Check provides the XP disk array with an added level of data protection when deployed in Oracle database environments. Implementing Oracle's Hardware Assisted Resilient Data (HARD) framework, it detects and corrects potential data corruption introduced in the data I/O path and helps customers avoid unplanned downtime. It can be deployed in HP UX/LVM and Sun Solaris/VxVM environments. It is also supported in MC/ServiceGuard for HP UX environments.

When implemented in a complete Oracle HARD/XP disk array solution, Data Integrity Check works in conjunction with Oracle HARD enabled databases to ensure that possible data corruptions emanating from the connectivity path between the server and the XP disk array are detected and rejected before they are committed to storage. If an invalid/corrupt I/O is detected, Data Integrity Check rejects the I/O and reports the rejection to server and requests I/O retransmission. At the same time, a SIM event message is passed to c track for remote notification.

Data Integrity Check works in combination with other XP disk array hardware and software to provide a complete Oracle HARD implementation.

#### Models

##### XP24000/XP20000 Disk Arrays

Included with HP StorageWorks XP Array Manager, with the name Database Validator.

##### XP12000/XP10000 Disk Arrays

Included with HP StorageWorks LUN Configuration and Security Manager XP - see section for more information.

##### XP1024/XP128 Disk Arrays

HP Data Integrity Check LTU

T11618A

#### Product Highlights

- Added level of data protection for Oracle environments
- Implements Oracle's Hardware Assisted Resilient Data (HARD) framework
- Corrects any random data corruption introduced into the I/O path
- Protect existing Oracle data files from being overwritten by data from other applications

#### Support

See Service & Support section

#### Prerequisites

- **Software**
  - XP1024/XP128: XP RAID Manager version 01.04.02 or later (required for host agent integration)
  - XP12000/XP10000: XP RAID Manager version 01.16.05 or later.
- **XP1024/XP128 Array Firmware**
  - 21.01.04 or later

### *High Availability and Data Replication Software*

- XP24000/XP20000 Array Firmware
  - 60.03.05 or later

#### Licensing

License-to-use for unlimited storage capacity on one XP Disk Array

### Business Continuity Solutions

## HP Metrocluster with XP Continuous Access

### Overview

HP Metrocluster with XP Continuous Access seamlessly integrates XP disk array remote replication capabilities with HP Serviceguard on HP-UX. It provides automatic and bi-directional failover/failback of business critical data and applications between data centers. HP Metrocluster with XP Continuous Access supports XP disk arrays in a Two Data Center configuration.

When combined with the HP Continentalclusters product, HP Metrocluster with XP Continuous Access can also be used to replicate data and to perform application recovery across three data centers using the following XP disk arrays: XP24000, XP20000, XP12000, and XP10000.

For more information, please refer to: <http://www.hp.com/go/dt>.

### Models

HP Metrocluster with Continuous Access XP

B8109BA

### Product Highlights

- Extends protection provided by a Serviceguard cluster to cover disasters that affect the whole data center.
- Functions as an automatic failover/failback disaster recovery solution for HP Serviceguard on HP-UX.
- When combined with the HP Continentalclusters product, provides the ability to replicate data across three data centers (with XP24000, XP20000, XP12000 and XP10000 disk arrays) resulting in minimal Recovery Point Objective (RPO) / Recovery Time Objective (RTO). This configuration provides protection against widespread disasters that may affect an entire region.

### Support

Please contact your HP representative for details

### Prerequisites

#### Software

- HP-UX 11i v1 or higher. The 3 Data Center capability is available only on HP-UX 11i v2 or higher.
- HP Serviceguard
- XP Continuous Access (XP Continuous Access Sync, XP Continuous Access Async, or XP Continuous Access Journal)
- XP RAID Manager

### Licensing

One license needed for every clustered environment

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## HP Continentalclusters

### Overview

HP Continentalclusters software provides the highest levels of disaster tolerance by eliminating the cluster itself as a single point of failure. It uses data replication technologies to provide application recovery across multiple widely-separated HP-UX Serviceguard clusters.

The Continentalclusters product provides the ability to monitor a Serviceguard cluster and recover mission critical applications to a remote Serviceguard cluster, should the monitored cluster become unavailable or if there is a disaster at the cluster site. Continentalclusters allows for a semi-automatic push button type of recovery. When a cluster failure or a site disaster is detected, Continentalclusters generates a notification. An operator, upon receipt of a notification, can start the recovery of applications at a recovery cluster using a single Continentalclusters command that automates the recovery procedure. Continentalclusters supports mutual recovery across two clusters. In a mutual recovery pair, each cluster is configured to recover the mission critical applications running in the other cluster.

Applications can be configured in Continentalclusters for disaster tolerance using HP StorageWorks XP disk arrays and HP StorageWorks XP Continuous Access data replication technology.

For more information, please refer to: <http://www.hp.com/go/dt>.

### Models

HP Continentalclusters

T2346BA



### Business Continuity Solutions

<b>Product Highlights</b>	<ul style="list-style-type: none"><li>• Continentalclusters supports recovery of single instance applications like Oracle over LVM, VxVM and CVM/CFS 4.1.</li><li>• Continentalclusters supports recovery of multi-instance applications like Oracle RAC over SLVM and CVM/CFS 4.1.</li></ul>
<b>Support</b>	Please contact your HP representative for details
<b>Prerequisites</b>	<b>Software</b> <ul style="list-style-type: none"><li>• HP-UX 11i v1 or higher (For more information, please refer to: <a href="http://docs.hp.com">http://docs.hp.com</a>)</li><li>• HP Serviceguard (11.17 or higher for CFS/CVM 4.1 support)</li><li>• HP Metrocluster with XP Continuous Access</li></ul>
<b>Licensing</b>	<ul style="list-style-type: none"><li>• One license of Continentalclusters covers two pairs of clusters (Primary and Recovery). Use Option 888 (designed for use with HP Metrocluster with XP Continuous Access).</li><li>• Each license of Continentalclusters requires one license of B8109BA HP Metrocluster with XP Continuous Access.</li></ul>

## HP StorageWorks XP Cluster Extension Software

**NOTE:** All versions support XP24000/XP20000/XP12000/XP10000/XP1024/128 disk arrays.

<b>Overview</b>	<p>HP StorageWorks XP Cluster Extension Software offers disaster tolerance against application downtime from fault, failure, or site disaster by extending clusters between data centers. It resurrects your critical applications at a remote site within minutes after an event. HP StorageWorks XP Cluster Extension works seamlessly with your open-system clustering software, HP StorageWorks XP Continuous Access and your XP storage system to automate fail-over and fail-back between sites. Using XP Continuous Access remote mirroring allows Cluster Extension to verify the status of the storage as well as the status of the server cluster; thus, the correct failover and failback decisions are made which minimize downtime, and accelerates recovery - without human intervention.</p>
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Any amount of system downtime can mean lost productivity, lost revenue, lost customers, and lost opportunities. Shield your valuable information against the threat of downtime - whether planned or unplanned - with HP Cluster Extension. Cluster Extension maintains the availability of corporate operations even in the face of adverse events, making your business resilient, regardless of external or internal events. HP provides proven strategies, services, and technologies to reduce your exposure and vulnerability.

For additional information, please visit [hp.com](http://www.hp.com/products1/storage/products/disk_arrays/xpstorageworks/cluster/index.html) at the following URL:  
[http://www.hp.com/products1/storage/products/disk\\_arrays/xpstorageworks/cluster/index.html](http://www.hp.com/products1/storage/products/disk_arrays/xpstorageworks/cluster/index.html)

**NOTE:** Similar functionality exists for HP-UX servers with HP Metrocluster software.

<b>Models</b>	HP StorageWorks XP Cluster Extension for Windows	T1656A
	HP StorageWorks XP Cluster Extension for Linux	T1657A
	HP StorageWorks XP Cluster Extension for Solaris	T1658A
	HP StorageWorks XP Cluster Extension for AIX	T1659A
<b>Product Highlights</b>	<ul style="list-style-type: none"><li>• Automatic failover/failback recovery solution for Serviceguard for Linux, Microsoft Cluster Service (MSCS) for Windows, IBM's HACMP cluster software for AIX, and Veritas Cluster Server (VCX) for Solaris</li><li>• Seamless integration of remote mirroring with server clusters</li><li>• Fully scripted turnkey solution for disaster recovery on Linux, Microsoft, AIX and Solaris</li></ul>	
<b>Support</b>	See Service & Support section	

### Business Continuity Solutions

<b>Prerequisites</b>	<ul style="list-style-type: none"><li>● <b>Software</b><ul style="list-style-type: none"><li>○ XP Continuous Access/XP Continuous Access Synchronous (required for synchronous copy mode-integrated solution)</li><li>○ XP Continuous Access Extension/XP Continuous Access Asynchronous or XP Continuous Access Journal (required for asynchronous copy mode-integrated solution)</li><li>○ XP RAID Manager (required for host agent integration)</li></ul></li></ul>
<b>Licensing</b>	License-to-use on a per server basis. One License required for each server running XP Cluster Extension Software.

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## HP StorageWorks XP Virtualization Adapter

**NOTE:** supports XP24000/XP20000/XP12000/XP10000 disk arrays.

**Overview** HP StorageWorks XP Virtualization Adapter (XP Virtualization Adapter) provides an interface between VMware Site Recovery Manager (SRM) and HP StorageWorks XP Disk Arrays. The interface enables SRM to provide automatic access to remote data copies when virtual machines become unavailable locally.

For additional information, please visit [hp.com](http://www.hp.com) at the following URL:

<http://www.hp.com/go/storage/vmware>

**Product Highlights** HP StorageWorks XP Virtualization Adapter performs the following functions for SRM:

- Discovers disk arrays
- Discovers replicated LUNs
- Fails over storage for testing (test a recovery plan)
- Fails over storage for recovery (execute a recovery plan)

**Prerequisites**

- Servers with VMware Site Recovery Manager
- XP Business Copy installed on both the local and remote XP disk arrays
- XP Continuous Access Synch and/or XP Continuous Access Journal installed on both the local and remote XP disk arrays
- RAID Manager 1.22.06 or later

**Licensing** The XP Virtualization Adapter is provided as a free download. Visit: <http://www.hp.com/go/storage/vmware>.

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## HP Data Protector Software

**Overview** HP Data Protector Software allows you to reduce backup windows and facilitates high-availability of data and systems. Backups are performed on the copy of the production data; with the option to copy it or move it to tape. This solution, totally integrated into Data Protector, is called Zero Downtime Backup and provides continuity of business operations in 24x7 mission-critical environments. Data Protector fully automates this process, and makes it easy to manage replicated data through a simple GUI.

Instant Recovery takes Zero Downtime Backup a step further, meeting the demands of the most complex enterprises for specific recovery time and recovery point objectives, and enables critical data to be recovered within minutes.

For more information about Data Protector Software please visit [hp.com](http://www.hp.com) at the following URL: <http://www.hp.com/go/dataprotector>.

### Mainframe-Connect Tools

**Product Highlights** The following XP mainframe software products a wide range of functionality when an XP disk array is deployed in mainframe-connect environments.

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## HP StorageWorks Resource Manager XP XP1024, XP128

**Overview** HP StorageWorks Resource Manager XP Allows XP disk arrays to be connected to mainframe systems using ESCON and/or FICON connections. It allows the data on the array to be shared among MVS systems and Open Systems servers.

**NOTE:** HP StorageWorks Resource Manager XP is not required as a separate purchase for FICON-based connections (the FICON capabilities of Resource Manager XP are included with the array).

**NOTE:** HP StorageWorks Resource Manager XP is not required as a separate purchase for the XP24000/XP20000/XP12000/XP10000 Disk Arrays.

**Models**

<b>XP1024/XP128 Disk Arrays</b>	
Resource Manager XP LTU	T1617A
<b>XP512/XP48 Disk Arrays</b>	
Resource Manager XP LTU	B9358A-002
<b>XP256 Disk Arrays</b>	
Resource Manager XP LTU	B9358A-001

**Product Highlights**

- Mainframe and open systems data managed and stored on single XP disk array
- Automatic data format and code conversions

**Support** See Service & Support section

**Licensing** License-to-use for unlimited storage capacity on one XP Disk Array

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## HP StorageWorks XP for Data Exchange

**Overview** HP StorageWorks XP for Data Exchange Software allows seamless data exchange between mainframe and open systems hosts. It provides management of data format and code conversions, and allows information sharing across computing platforms.

**Models**

<b>XP24000/XP20000 Disk Arrays</b>	
XP Data Exchange LTU	T1620AD
<b>XP12000/XP10000 Disk Arrays</b>	
Data Exchange XP LTU	T1620AC
<b>XP1024/XP128 Disk Arrays</b>	
Data Exchange XP LTU	T1620AB

**Product Highlights**

- Mainframe and open systems data managed and stored on single XP disk array
- Automatic data format and code conversions
- Supports HP UX, Windows, Linux, Sun Solaris, AIX, and Tru64 Operating Systems

**Support** See Service & Support section

**Licensing** License-to-use on a per server basis (per server connected to one XP Disk Array). One License required for each server running XP for Data Exchange Software.

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### Mainframe-Connect Tools

#### Hitachi Virtual Logical Volume Image (VLVI) Manager for Mainframe

<b>Overview</b>	Hitachi VLVI Manager improves data access performance by reducing logical device contention and host I/O queue times, particularly when several frequently accessed files are located on the same volume. It enables better utilization of the physical storage capacity of the XP, and reduces the amount of administrative effort required to balance I/O workloads. On the XP array, Hitachi VLVI Manager formats one or more of the LDEVs on a selected volume into free space. That free space on the resulting volume can either be used to install one or more variable-sized custom volumes, or left as free space for future use.
<b>Models</b>	<b>XP24000/XP20000 Disk Arrays</b> Included with HP StorageWorks XP Array Manager - see section for more information. <b>XP12000/XP10000/XP1024/XP128 Disk Arrays</b> Included with HP StorageWorks LUN Configuration and Security Manager XP - see section for more information.
<b>Support</b>	See Service & Support section
<b>Licensing</b>	<ul style="list-style-type: none"><li>● XP24000/XP20000: Included with HP StorageWorks XP Array Manager - see section for more information</li><li>● XP12000/XP10000/XP1024/XP128: Included with HP StorageWorks LUN Configuration and Security Manager XP - see section for more information</li></ul>

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#### Hitachi SANtinel for Mainframe (also known as Volume Security)

<b>Overview</b>	Hitachi SANtinel for Mainframe provides secure LDEV access functions for mainframe volume types.
<b>Models</b>	<b>XP24000/XP20000 Disk Arrays</b> Included with HP StorageWorks XP Array Manager - see section for more information. <b>XP12000/XP10000/XP1024/XP128 Disk Arrays</b> Included with HP StorageWorks LUN Configuration and Security Manager XP - see this section for more information
<b>Support</b>	See Service & Support section
<b>Licensing</b>	<ul style="list-style-type: none"><li>● XP24000/XP20000: Included with HP StorageWorks XP Array Manager - see section for more information</li><li>● XP12000/XP10000/XP1024/XP128: Included with HP StorageWorks LUN Configuration and Security Manager XP - see section for more information</li></ul>

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#### Hitachi ShadowImage for Mainframe

<b>Overview</b>	Provides local multi-mirroring for mainframe volume types.
<b>Models</b>	<b>XP24000/XP20000 Disk Arrays</b> Included with HP StorageWorks XP Business Copy - see section for more information. <b>XP12000/XP10000/XP1024/XP128 Disk Arrays</b> Included with HP StorageWorks XP Business Copy - see this section for more information.
<b>Support</b>	See Service & Support section
<b>Licensing</b>	<ul style="list-style-type: none"><li>● XP24000/XP20000: Included with HP StorageWorks XP Business Copy - see section for more information</li><li>● XP12000/XP10000/XP1024/XP128: Included with HP StorageWorks XP Business Copy - see section for more information</li></ul>

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### Mainframe-Connect Tools

#### Hitachi TrueCopy for Mainframe

**Overview**

Provides Synchronous copy mode remote-mirroring for mainframe volume types.

**Models****XP24000/XP20000 Disk Arrays**

Included with HP StorageWorks XP Continuous Access Synchronous, XP Continuous Access Asynchronous, and XP Continuous Access Journal - see section for more information.

**XP12000/XP10000 Disk Arrays**

Included with HP StorageWorks XP Continuous Access Synchronous, XP Continuous Access Asynchronous, and XP Continuous Access Journal.

**XP1024/XP128 Disk Arrays**

Included with HP StorageWorks XP Continuous Access - see section for more information.

**Support**

See Service & Support section

**Licensing**

- XP24000/XP20000: Included with HP StorageWorks XP Continuous Access Synchronous, XP Continuous Access Asynchronous, and XP Continuous Access Journal - see section for more information
  - XP12000/XP10000: Included with HP StorageWorks XP Continuous Access Synchronous, XP Continuous Access Asynchronous, and XP Continuous Access Journal - see section for more information
  - XP1024/XP128: Included with HP StorageWorks XP Continuous Access - see section for more information
- 

#### Hitachi TrueCopy Async for Mainframe

**Overview**

Provides Asynchronous copy mode remote mirroring for mainframe volume types.

**Models****XP24000/XP20000 Disk Arrays**

Included with HP StorageWorks XP Continuous Access Asynchronous and XP Continuous Access Journal.

**XP12000/XP10000 Disk Arrays**

Included with HP StorageWorks XP Continuous Access Asynchronous and XP Continuous Access Journal

**XP1024/XP128 Disk Arrays**

Included with HP StorageWorks XP Continuous Access Extension - see section for more information.

**Support**

See Service & Support section

**Licensing**

- XP24000/XP20000: Included with HP StorageWorks XP Continuous Access Asynchronous and XP Continuous Access Journal - see section for more information
  - XP12000/XP10000: Included with HP StorageWorks XP Continuous Access Asynchronous and XP Continuous Access Journal - see section for more information
  - XP1024/XP128: Included with HP StorageWorks XP Continuous Access Extension - see section for more information
-

### Mainframe-Connect Tools

#### Hitachi Universal Replicator for Mainframe

<b>Overview</b>	Provides asynchronous journal-based remote mirroring for mainframe volume types.
<b>Models</b>	<b>XP24000/XP20000 Disk Arrays</b> Included with HP StorageWorks XP Continuous Access Journal Software. <b>XP12000/XP10000 Disk Arrays</b> Included with HP StorageWorks XP Continuous Access Journal Software .
<b>Support</b>	See Service & Support section
<b>Prerequisites</b>	<ul style="list-style-type: none"><li>● <b>Software</b><ul style="list-style-type: none"><li>○ Business Continuity Manager (Recommended in a z/OS environment. Business Continuity Manager enables the following functions: Remote ShadowImage at-time split with Universal Replicator, maintenance of data consistency across Universal Replicator journal groups, automatic three site disaster recovery fail over, and other automation capabilities.)</li></ul></li></ul>
<b>Licensing</b>	<ul style="list-style-type: none"><li>● XP24000/XP20000: Included with HP StorageWorks XP Continuous Access Journal - see section for more information</li><li>● XP12000/XP10000: Included with HP StorageWorks XP Continuous Access Journal - see section for more information</li></ul>

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#### Hitachi FlashAccess for Mainframe (also known as Cache LUN for Mainframe and Cache Residency for Mainframe)

<b>Overview</b>	Provides LDEV Cache residency for mainframe volume types.
<b>Models</b>	<b>XP24000/XP20000 Disk Arrays</b> Included with HP StorageWorks XP Array Manager - see section for more information. <b>XP12000/XP10000/XP1024/XP128 Disk Arrays</b> Included with HP StorageWorks Cache LUN XP - see section for more information.
<b>Support</b>	See Service & Support section
<b>Licensing</b>	<ul style="list-style-type: none"><li>● XP24000/XP20000: Included with HP StorageWorks XP Array Manager - see section for more information</li><li>● XP12000/XP10000/XP1024/XP128: Included with HP StorageWorks Cache LUN XP - see section for more information</li></ul>

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#### Hitachi SANtinel -- Port Security Option (also known as Volume Security Port Option)

<b>Overview</b>	Allows for secure LDEV access for mainframe volumes.
<b>Models</b>	As of March 2006, SANtinel Port Security Option is included with the T1714Bx version of LUN Configuration and Security Manager for XP12000/XP10000. <b>XP24000/XP20000 Disk Arrays</b> Included with HP StorageWorks XP Array Manager - see section for more information. <b>XP12000/XP10000 Disk Arrays</b> Included with HP StorageWorks LUN Configuration and Security Manager XP - see section for more information. <b>XP1024/XP128 Disk Arrays</b> Hitachi SANtinel Port Security 1TB LTU (0-1TB) HIT1644AA Hitachi SANtinel Port Security 1TB LTU (2-6TB) HIT1644AB Hitachi SANtinel Port Security 1TB LTU (7-15TB) HIT1644AC Hitachi SANtinel Port Security 1TB LTU (16-36TB) HIT1644AD

### Mainframe-Connect Tools

**NOTE:** This title is available on a limited basis. It must be specially ordered using manual processes. See [Ordering Limited Availability Software](#) for more information.

**Support**

See Service & Support section

**Prerequisites**

- **Software**
  - Hitachi SANtinel for Mainframe (required - included with HP StorageWorks XP Array Manager for the XP24000/XP20000, and with HP LUN Security and Configuration XP for the XP12000/XP10000/XP1024/XP128)

**Licensing**

See Capacity-Licensed XP Software section

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### Hitachi LDEV Guard for Mainframe (also known as Volume Retention)

**Overview**

Hitachi LDEV Guard for mainframe provides a web-based highly secure method of LDEV access control, allowing a storage administrator to protect critical data for archiving or data retention purposes. It can help a storage administrator manage business critical or sensitive data.

As of March 2006, LDEV Guard is included with the T1714Bx version of LUN Configuration and Security Manager for XP12000/XP10000.

**NOTE:** Purchase and deployment of this product does not by itself ensure that regulatory/legal requirements for data retention will be met and compliance is not implicitly or explicitly guaranteed

**Models**

**XP24000/XP20000 Disk Arrays**

Included with HP StorageWorks XP Array Manager - see section for more information.

**XP12000/XP10000 Disk Arrays**

Included with HP StorageWorks LUN Configuration and Security Manager XP - see section for more information.

**XP1024/XP128 Disk Arrays**

Hitachi LDEV Guard 1TB LTU (0-1TB)	HIT1641AA
Hitachi LDEV Guard 1TB LTU (2-6TB)	HIT1641AB
Hitachi LDEV Guard 1TB LTU (7-15TB)	HIT1641AC
Hitachi LDEV Guard 1TB LTU (16-36TB)	HIT1641AD

**NOTE:** This title is available on a limited basis. It must be specially ordered using manual processes. See [Ordering Limited Availability Software](#) for more information.

**Support**

See Service & Support section

**Prerequisites**

- **Software**
  - Hitachi SANtinel for Mainframe (required - included with HP StorageWorks XP Array Manager for the XP24000/XP20000, and with HP LUN Security and Configuration XP for the XP12000/XP10000/XP1024/XP128)

**Licensing**

See Capacity-Licensed XP Software section

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### Mainframe-Connect Tools

#### HP StorageWorks XP for Compatible Parallel Access Volumes (PAV)

<b>Overview</b>	Enables high performance concurrent access of mainframe volumes by permitting a mainframe host system to issue multiple I/O requests in parallel to individual logical devices within the XP disk array.	
<b>Models</b>	<b>XP24000/XP20000 Arrays</b>	
	HP XP Compatible PAV Base License	T5237AA
	HP XP Compatible PAV 1TB 0-6TB LTU	T5237AB
	HP XP Compatible PAV 1TB 7-15TB LTU	T5237AC
	HP XP Compatible PAV 1TB 16-31TB LTU	T5237AD
	HP XP Compatible PAV 1TB 32-63TB LTU	T5237AE
	HP XP Compatible PAV 1TB 64-127TB LTU	T5237AF
	HP XP Compatible PAV 1TB 128-255TB LTU	T5237AG
	HP XP Compatible PAV 1TB 256-511TB LTU	T5237AH
	HP XP Compatible PAV 1TB Over 511TB LTU	T5237AJ
	<b>XP12000/XP10000 Disk Arrays</b>	
	Hitachi PAV 1TB LTU (0-1TB)	HITA737AA
	Hitachi PAV 1TB LTU (2-6TB)	HITA737AB
	Hitachi PAV 1TB LTU (7-15TB)	HITA737AC
	Hitachi PAV 1TB LTU (16-31TB)	HITA737AD
	Hitachi PAV 1TB LTU (32-63TB)	HITA737AE
	<b>XP1024/XP128 Disk Arrays</b>	
	Hitachi PAV 1TB LTU (0-1TB)	HIT1637AA
	Hitachi PAV 1TB LTU (2-6TB)	HIT1637AB
	Hitachi PAV 1TB LTU (7-15TB)	HIT1637AC
	Hitachi PAV 1TB LTU (16-36TB)	HIT1637AD
<b>Support</b>	See Service & Support section	
<b>Licensing</b>	<ul style="list-style-type: none"> <li>● For XP24000/XP20000: Licensing based on total usable mainframe volume capacity.</li> <li>● For XP12000/XP10000/XP1024/XP128: Licensing based on mainframe-configured raw disk capacity of the array, plus usable mainframe-configured capacity of external storage.</li> <li>● See Capacity-Licensed XP Software section</li> </ul>	

#### HP StorageWorks XP for Compatible Hyper PAV Software

<b>Overview</b>	Greatly reduces the number of PAV aliases needed per logical subsystem while maintaining response times. PAV aliases are only bound to PAV bases for the duration of a single I/O operation, thus reducing the number of aliases needed.	
<b>Models</b>	<b>XP24000/XP20000 Disk Arrays</b>	
	HP XP Compatible Hyper PAV LTU	T5236A
	<b>XP12000/XP10000 Disk Arrays</b>	
	HP XP Compatible Hyper PAV LTU	T1736A
<b>Support</b>	See Service & Support section	
<b>Prerequisites</b>	<ul style="list-style-type: none"> <li>● Software <ul style="list-style-type: none"> <li>○ HP StorageWorks XP for Compatible Parallel Access Volumes (required)</li> </ul> </li> </ul>	
<b>Licensing</b>	Licensed on a per array basis	

### Mainframe-Connect Tools

#### Hitachi Logical Volume Divider for Mainframe (also known as Dataset Replication for Mainframe)

Overview	Operates together with Hitachi ShadowImage for Mainframe. Logical Volume Divider rewrites the OS management information and dataset names and creates a user catalog for ShadowImage target volumes after a split operation.
Models	<b>XP24000/XP20000 Disk Arrays</b> Included with HP StorageWorks XP for Business Continuity Manager - see section for more information.
Support	See Service & Support section
Prerequisites	<ul style="list-style-type: none"><li>● <b>Software</b><ul style="list-style-type: none"><li>○ Hitachi ShadowImage for Mainframe (required - included with HP XP Business Copy for the XP24000/XP20000/XP12000/XP10000/XP1024/XP128)</li></ul></li></ul>
Licensing	Licensed on a per array basis

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#### Hitachi Cache Manager Utility for Mainframe

Overview	Expands cache residency for Mainframe datasets.  As of March 2006, Cache Manager Utility is included with the T1714Bx version of LUN Configuration and Security Manager for XP12000/XP10000.
Models	<b>XP24000/XP20000 Disk Arrays</b> Included with HP StorageWorks XP Array Manager - see section for more information. <b>XP12000/XP10000 Disk Arrays</b> Included with LUN Configuration and Security Manager - see section for more information. <b>XP1024/XP128 Disk Arrays</b> Hitachi Cache Manager Utility LTU <span style="float: right;">HIT1642A</span> <b>NOTE:</b> This title is available on a limited basis. It must be specially ordered using manual processes. See <a href="#">Ordering Limited Availability Software</a> for more information.
Support	See Service & Support section
Prerequisites	<ul style="list-style-type: none"><li>● <b>Software</b><ul style="list-style-type: none"><li>○ Hitachi Flash Access for Mainframe (required - included with HP StorageWorks XP Array Manager for the XP24000/XP20000, and with HP Cache LUN XP for the XP12000/XP10000/XP1024/XP128)</li></ul></li></ul>
Licensing	Licensed on a per array basis

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### Mainframe-Connect Tools

#### HP StorageWorks XP for Compatible Extended Remote Copy (XRC)

<b>Overview</b>	Provides asynchronous remote copies using IBM's System Data Mover on the mainframe host with IBM's XRC (Extended Remote Copy). Required for IBM GDPS/XRC implementations.	
<b>Models</b>	<b>XP24000/XP20000 Disk Arrays</b>	
	HP XP Compatible XRC Base License	T5238AA
	HP XP Compatible XRC 1TB 0-6TB LTU	T5238AB
	HP XP Compatible XRC 1TB 7-15TB LTU	T5238AC
	HP XP Compatible XRC 1TB 16-31TB LTU	T5238AD
	HP XP Compatible XRC 1TB 32-63TB LTU	T5238AE
	HP XP Compatible XRC 1TB 64-127TB LTU	T5238AF
	HP XP Compatible XRC 1TB 128-255TB LTU	T5238AG
	HP XP Compatible XRC 1TB 256-511TB LTU	T5238AH
	HP XP Compatible XRC 1TB Over 511TB LTU	T5238AJ
	<b>XP12000/XP10000 Disk Arrays</b>	
	Hitachi Extended Remote Copy 1TB LTU (0-1TB)	HITA738AA
	Hitachi Extended Remote Copy 1TB LTU (2-6TB)	HITA738AB
	Hitachi Extended Remote Copy 1TB LTU (7-15TB)	HITA738AC
	Hitachi Extended Remote Copy 1TB LTU (16-31TB)	HITA738AD
	Hitachi Extended Remote Copy 1TB LTU (32-63TB)	HITA738AE
	<b>XP1024/XP128 Disk Arrays</b>	
	Hitachi Extended Remote Copy 1TB LTU (0-1TB)	HIT1638AA
	Hitachi Extended Remote Copy 1TB LTU (2-6TB)	HIT1638AB
	Hitachi Extended Remote Copy 1TB LTU (7-15TB)	HIT1638AC
	Hitachi Extended Remote Copy 1TB LTU (16-36TB)	HIT1638AD
<b>Support</b>	See Service & Support section	
<b>Licensing</b>	<ul style="list-style-type: none"> <li>● Licensing on one XP disk array based on total capacity of XRC P-VOLs. Also add the total capacity of the XRC S-VOLs on the array if reverse copy will be used for recovery operations.</li> <li>● See Capacity-Licensed XP Software section</li> </ul>	

#### HP StorageWorks XP for FlashCopy Mirroring

<b>Overview</b>	Provides snapshot capability for local copy of mainframe volumes	
<b>Models</b>	<b>XP24000/XP20000 Disk Arrays</b>	
	HP XP FlashCopy Mirroring Base License	T5240AA
	HP XP FlashCopy Mirroring 1TB 0-6TB LTU	T5240AB
	HP XP FlashCopy Mirroring 1TB 7-15TB LTU	T5240AC
	HP XP FlashCopy Mirroring 1TB 16-31TB LTU	T5240AD
	HP XP FlashCopy Mirroring 1TB 32-63TB LTU	T5240AE
	HP XP FlashCopy Mirroring 1TB 64-127TB LTU	T5240AF
	HP XP FlashCopy Mirroring 1TB 128-255TB LTU	T5240AG
	HP XP FlashCopy Mirroring 1TB 256-511TB LTU	T5240AH
	HP XP FlashCopy Mirroring 1TB Over 511TB LTU	T5240AJ
	<b>XP12000/XP10000 Disk Arrays</b>	
	Hitachi FlashCopy Mirroring 1TB LTU (0-1TB)	HITA740AA
	Hitachi FlashCopy Mirroring 1TB LTU (2-6TB)	HITA740AB
	Hitachi FlashCopy Mirroring 1TB LTU (7-15TB)	HITA740AC

### Mainframe-Connect Tools

Hitachi FlashCopy Mirroring 1TB LTU (16-31TB)	HITA740AD
Hitachi FlashCopy Mirroring 1TB LTU (32-63TB)	HITA740AE
<b>XP1024/XP128 Disk Arrays</b>	
Hitachi FlashCopy Mirroring 1TB LTU (0-1TB)	HIT1640AA
Hitachi FlashCopy Mirroring 1TB LTU (2-6TB)	HIT1640AB
Hitachi FlashCopy Mirroring 1TB LTU (7-15TB)	HIT1640AC
Hitachi FlashCopy Mirroring 1TB LTU (16-36TB)	HIT1640AD
See Service & Support section	

#### Support

#### Prerequisites

- **Software**
  - For XP24000/XP20000, Hitachi ShadowImage for Mainframe is not a prerequisite for FlashCopy
  - Hitachi ShadowImage for Mainframe (required – included with HP XP Business Copy for the XP12000/XP10000/XP1024/XP128)

#### Licensing

See Capacity-Licensed XP Software section

## HP StorageWorks XP for Business Continuity Manager

#### Overview

HP StorageWorks XP for Business Continuity Manager provides centralized and automated management of Hitachi ShadowImage for Mainframe, Hitachi TrueCopy for Mainframe, Hitachi TrueCopy Async for Mainframe, and Hitachi Universal Replicator for Mainframe.

XP24000/XP20000 Business Continuity Manager includes Business Continuity Manager Extended CT Group functionality, allowing you to maintain data consistency within and across multiple XP disk arrays for Hitachi TrueCopy operations. XP24000/XP20000 Business Continuity Manager also includes Logical Volume Divider (also known as Dataset Replication for Mainframe).

#### Models

#### XP24000/XP20000 Disk Arrays

HP XP Business Continuity Manager Server LTU	T5253A
HP XP Business Continuity Manager Base License	T5254AA
HP XP Business Continuity Manager 1TB 0-6TB LTU	T5254AB
HP XP Business Continuity Manager 1TB 7-15TB LTU	T5254AC
HP XP Business Continuity Manager 1TB 16-31TB LTU	T5254AD
HP XP Business Continuity Manager 1TB 32-63TB LTU	T5254AE
HP XP Business Continuity Manager 1TB 64-127TB LTU	T5254AF
HP XP Business Continuity Manager 1TB 128-255TB LTU	T5254AG
HP XP Business Continuity Manager 1TB 256-511TB LTU	T5254AH
HP XP Business Continuity Manager 1TB Over 511TB LTU	T5254AJ

#### XP12000/XP10000/XP1024/XP128 Disk Arrays

Hitachi Business Continuity Manager Server LTU	HITA753A
Hitachi Business Continuity Manager Base 1TB LTU	HITA754AA
Hitachi Business Continuity Manager 2-6TB 1TB LTU	HITA754AB
Hitachi Business Continuity Manager 7-15TB 1TB LTU	HITA754AC
Hitachi Business Continuity Manager 16-31TB 1TB LTU	HITA754AD
Hitachi Business Continuity Manager 32-63TB 1TB LTU	HITA754AE

#### Support

See Service & Support section



### Mainframe-Connect Tools

- Prerequisites**
- Operating System
    - IBM z/OS (required)

**NOTE:** Business Continuity Manager is only supported in z/OS environments. Other mainframe environments, like IBM z/VM, IBM z/VSE, and non-IBM operating systems are not supported.

- Licensing**
- One T5253A or HITA753A Server LTU for each server connected to an XP disk array controlled by Business Continuity Manager.
  - For XP24000/XP20000: T5254AA/AB/AC/AD/AE/AF/AG/AH/AJ licensed on one XP disk array, based on total capacity of the P-VOLs associated with Hitachi ShadowImage, Hitachi TrueCopy, Hitachi TrueCopy Async, and Hitachi Universal Replicator. S-VOLs are not included in the total. For multiple arrays managed under the same Business Continuity Manager, sum all of the ShadowImage, TrueCopy, TrueCopy Async, and Hitachi Universal Replicator P-VOLs for all of the arrays and purchase the licenses based on the overall total (unlike other XP disk array software licenses which are licensed per array). See Capacity-Licensed XP Software section.
  - For XP12000/XP10000/XP1024/XP128: HITA754AA/AB/AC/AD/AE licensed on one XP disk array, based on total capacity of the P-VOLs associated with Hitachi ShadowImage, Hitachi TrueCopy, Hitachi TrueCopy Async, and Hitachi Universal Replicator. S-VOLs are not included in the total. For multiple arrays managed under the same Business Continuity Manager, sum all of the ShadowImage, TrueCopy, TrueCopy Async, and Hitachi Universal Replicator P-VOLs for all of the arrays and purchase the licenses based on the overall total (unlike other XP disk array software licenses which are licensed per array). No additional licenses required beyond 63TB. See Capacity-Licensed XP Software section.

### Hitachi Business Continuity Manager Extended CT Group

**Overview** Hitachi Business Continuity Manager Extended CT Group allows the user to maintain data consistency within and across multiple XP disk arrays for Hitachi TrueCopy synchronous remote replication operations.

**Models** **XP24000/XP20000 Disk Arrays**  
Included in HP StorageWorks XP for Business Continuity Manager – see section for more information.

#### XP12000/XP10000/XP1024/XP128 Disk Arrays

Hitachi Business Continuity Mgr Ext CT Group 1TB LTU	HITA755AA
Hitachi Business Continuity Mgr Ext CT Group 2-6TB 1TB LTU	HITA755AB
Hitachi Business Continuity Mgr Ext CT Group 7-15TB 1TB LTU	HITA755AC
Hitachi Business Continuity Mgr Ext CT Group 16-31TB 1TB LTU	HITA755AD
Hitachi Business Continuity Mgr Ext CT Group 32-63TB 1TB LTU	HITA755AE

**Support** See Service & Support section

- Prerequisites**
- **Software**
    - HP StorageWorks XP for Business Continuity Manager (required)
    - Hitachi TrueCopy for Mainframe (required – included with HP XP Continuous Access Sync, Async, and Journal for the XP24000/XP20000/XP12000/XP10000 and HP XP Continuous Access for the XP1024/XP128)

**Licensing** HITA755AA/AB/AC/AD/AE licensed on one XP disk array, based on total capacity of the P-VOLs associated with Hitachi TrueCopy. For multiple arrays managed under the same Business Continuity Manager, sum all of the TrueCopy P-VOLs for all of the arrays and purchase the licenses based on the overall total (unlike other XP disk array software licenses which are licensed per array). No additional licenses required beyond 63TB. See Capacity-Licensed XP Software section.

### Mainframe-Connect Tools

## HP StorageWorks XP for Bus Cont Mgr Universal Replicator 4x4 Ext CT

### Overview

HP StorageWorks XP for Bus Cont Mgr Universal Replicator 4x4 Ext CT allows the user to maintain data consistency within and across multiple (up to four) XP disk arrays for Hitachi Universal Replicator operations.

### Models

#### XP24000/XP20000 Disk Arrays

HP XP Bus Cont Mgr UR 4x4 Extended CT Group Base License	T5256AA
HP XP Bus Cont Mgr UR 4x4 Extended CT Group 1TB 0-6TB LTU	T5256AB
HP XP Bus Cont Mgr UR 4x4 Extended CT Group 1TB 7-15TB LTU	T5256AC
HP XP Bus Cont Mgr UR 4x4 Extended CT Group 1TB 16-31TB LTU	T5256AD
HP XP Bus Cont Mgr UR 4x4 Extended CT Group 1TB 32-63TB LTU	T5256AE
HP XP Bus Cont Mgr UR 4x4 Extended CT Group 1TB 64-127TB LTU	T5256AF
HP XP Bus Cont Mgr UR 4x4 Extended CT Group 1TB 128-255TB LTU	T5256AG
HP XP Bus Cont Mgr UR 4x4 Extended CT Group 1TB 256-511TB LTU	T5256AH
HP XP Bus Cont Mgr UR 4x4 Extended CT Group 1TB Over 511TB LTU	T5256AJ

#### XP12000/XP10000 Disk Arrays

Hitachi Bus Cont Mgr UR 4x4 Extended CT Group 1TB 0-1TB LTU	HITA756AA
Hitachi Bus Cont Mgr UR 4x4 Extended CT Group 1TB 2-6TB LTU	HITA756AB
Hitachi Bus Cont Mgr UR 4x4 Extended CT Group 1TB 7-15TB LTU	HITA756AC
Hitachi Bus Cont Mgr UR 4x4 Extended CT Group 1TB 16-31TB 1TB LTU	HITA756AD
Hitachi Bus Cont Mgr UR 4x4 Extended CT Group 1TB 32-63TB 1TB LTU	HITA756AE

### Support

See Service & Support section

### Prerequisites

- Software
  - HP StorageWorks XP for Business Continuity Manager (required)
  - Hitachi Universal Replicator for Mainframe (required – included with XP HP Continuous Access Journal)

### Licensing

- For XP24000/XP20000: T5256AA/AB/AC/AD/AE/AF/AG/AH/AJ licensed on one XP disk array, based on total capacity of the P-VOLs associated with Hitachi Universal Replicator. For multiple arrays managed under the same Business Continuity Manager, sum all of the Universal Replicator P-VOLs for all of the arrays and purchase the licenses based on the overall total (unlike other XP disk array software licenses which are licensed per array). See Capacity-Licensed XP Software section
- For XP12000/XP10000: HITA756AA/AB/AC/AD/AE licensed on one XP disk array, based on total capacity of the P-VOLs associated with Hitachi Universal Replicator. For multiple arrays managed under the same Business Continuity Manager, sum all of the Universal Replicator P-VOLs for all of the arrays and purchase the licenses based on the overall total (unlike other XP disk array software licenses which are licensed per array). No additional licenses required beyond 63TB. See Capacity-Licensed XP Software section.

## Hitachi Graph Track XP12000, XP10000 only

### Overview

Hitachi Graph Track provides performance monitoring capability for XP12000 and XP10000 disk arrays attached to mainframe systems.

### Models

Hitachi Graph Track LTU	HITA704A
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### Support

- See Service & Support section

### Licensing

- Licensed on a per array basis

### Capacity-licensed XP Software

#### Capacity-licensed XP Software

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

#### Capacity-licensed XP24000/XP20000 Software Product Structure

The XP24000 and XP20000 have two capacity-based licensing structures. Most capacity-based software is licensed using a "band" structure. HP StorageWorks XP Thin Provisioning Software is licensed using a "block" structure.

#### Band-based Capacity-licensed XP24000/XP20000 Software Product Structure

Band-based capacity-licensed XP24000/XP20000 Disk Array Software licenses are ordered in 1TB increments only, with different 1TB license types corresponding to each of the capacity "band" product numbers of the software product structure:

Description	Product Number
Base License	T52xxAA
1TB increment, 0TB to 6TB	T52xxAB
1TB increment, 7TB to 15TB	T52xxAC
1TB increment, 16TB to 31TB	T52xxAD
1TB increment, 32TB to 63TB	T52xxAE
1TB increment, 64TB to 127TB	T52xxAF
1TB increment, 128TB to 255TB	T52xxAG
1TB increment, 256TB to 511TB	T52xxAH
1TB increment, Over 511TB	T52xxAJ

Customers purchase the Base License and then purchase all capacity licenses under a fixed schedule depending on the license capacity required. All capacity figures should be rounded up to the nearest TB. Purchase of capacity-based software falls into two categories:

- **New Software purchase:** Software licenses are being purchased along with a new XP Family array or for a new software purchase for an existing XP array implementation.
- **License Capacity upgrade purchase:** 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 additional LTU products.

**NOTE:** Because of the band pricing structure, if your configuration is near the top of a band, compare the price of the entry point of the next higher band to see if it might provide a lower price. For example, consider 31TB of XP Array Manager. 31TB is at the top of the third band. If you move up to the next band and buy 32TB instead, you will find that the price for 32TB is actually lower than the price for 31TB.

### Capacity-licensed XP Software

**For new software purchase:**

Purchase the Base License and then purchase all capacity licenses from the capacity band that matches the total capacity required.

Example: Customer purchases an 18TB raw capacity XP24000 and wants HP StorageWorks XP Auto LUN. This title is licensed based on the total raw capacity of the array. To provide for 18TB total license capacity for the software, the customer would order the following:

Description	Quantity	Product Number
Base License	1	T5215AA
18 1TB increments from the 16-31TB band	18	T5215AD

**For license capacity upgrades:**

The customer purchases additional license product from the band that matches the sum of the currently installed capacity plus the desired upgrade capacity.

Example: Customer has an 11.5TB raw capacity system with existing 12TB installed license capacity of XP Auto LUN. 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 XP Auto LUN 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:

Description	Quantity	Product Number
4 1TB increments-from the 16-31TB band	4	T1715AD

### Block-based Capacity-licensed XP24000/XP20000 Software Product Structure

HP StorageWorks XP Thin Provisioning Software is licensed in capacity "blocks".

Description	XP24000 Product Number	XP20000 Product Number
10 TB Base License	T5227AA	T5228AA
15TB Block LTU	T5227AB	T5228AB
25TB Block LTU	T5227AC	T5228AC
50TB Block LTU	T5227AD	T5228AD
60TB to Unlimited LTU	T5227AE	T5228AE

Customers purchase the Base License and then purchase additional blocks of capacity as needed. There may be several ways to reach a capacity point and it is important to compare the costs to find the least expensive combination of blocks. Additionally, once the array has licenses for 60 TB or more installed, the customer has the option to order the 60 TB to Unlimited LTU product to acquire a frame unlimited license. Purchase of capacity-based software falls into two categories:

- **New Software purchase:** Software licenses are being purchased along with a new XP Family array or for a new software purchase for an existing XP array implementation.
- **License Capacity upgrade purchase:** 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 additional LTU products.

**For new software purchase:**

Purchase the Base License for the first 10TB and then select from the "block" products to supply the rest of the desired capacity. Only one 10TB Base License can be purchased per disk array frame.

**Example 1:** Customer wants 20 TB of HP StorageWorks XP Thin Provisioning for an XP24000. To provide 20 TB total license capacity for the software, the customer would order the following:

Description	Quantity	Product Number
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### Capacity-licensed XP Software

10TB Base License - brings the installation up to 10TB	1	T5227AA
15-TB Block LTU - brings the installation up to 25TB	1	T5227AB

**Example 2:** Customer wants frame unlimited licensing for HP StorageWorks XP Thin Provisioning for an XP24000. To provide a frame unlimited license capacity for the software, the customer would order the following:

Description	Quantity	Product Number
10TB Base License - brings the installation up to 10TB	1	T5227AA
50-TB Block LTU - brings the installation up to 60TB	1	T5227AD
60-TB to Unlimited LTU - brings the installation up to "unlimited"	1	T5227AE

#### For license capacity upgrades:

The customer just purchases additional license product from the block or blocks that provide the desired upgrade capacity. There may be more than one way to acquire the desired license capacity, so be sure to compare prices and look for the least expensive alternative.

**Example 1:** Customer has 25 TB of HP StorageWorks XP Thin Provisioning already installed and wants 35 TB more for an XP24000. To provide the additional 35 TB total license capacity for the software, the customer would order the following:

Description	Quantity	Product Number
50TB Block LTU - brings the installation up to 75TB	1	T5227AD

**NOTE:** the 50TB block is ordered because it is less expensive than ordering the 15TB block plus the 25TB block.

**Example 2:** Customer has 25 TB of HP StorageWorks XP Thin Provisioning already installed and wants frame unlimited licensing for an XP24000. To provide a frame unlimited license capacity for the software, the customer would order the following:

Description	Quantity	Product Number
50TB Block LTU - brings the installation up to 75TB	1	T5227AD
60-TB to Unlimited LTU - brings the installation up to "unlimited"	1	T5227AE

**NOTE:** Once the sum of installed capacity and new blocks equals or exceeds 60 TB, the customer can order the "60 TB to Unlimited LTU" product. The 50 TB block is ordered because it is less expensive than ordering the 15 TB block plus the 25 TB block.

### Capacity-licensed XP Software

#### Capacity-licensed XP12000/XP10000 Software Product Structure

For capacity-licensed Software for XP12000/XP10000 Disk Arrays licenses are ordered in 1TB increments only, with different 1TB license types corresponding to each of the capacity "tier" product numbers of the software product structure:

Description	Product Number
1TB increment, 0-1TB - base License-to-Use product	HIT/T17xxAA
1TB increment, 2TB to 6TB	HIT/T17xxAB
1TB increment, 7TB to 15TB	HIT/T17xxAC
1TB increment, 16TB to 31TB	HIT/T17xxAD
1TB increment, 32TB to 63TB	HIT/T17xxAE

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). Purchase of capacity-based software falls into two categories:

- **New Software purchase:** Software licenses are being purchased along with a new XP Family array or for a new software purchase for an existing XP array implementation.
- **License Capacity upgrade purchase:** 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 software purchase:

They must purchase the first increment/tier (HIT/T17xxAA) for each software title and order up and through successive tiers to get to the total desired license capacity.

Example: Customer purchases an 18TB raw capacity XP12000 and wants HP StorageWorks XP Auto LUN. This title is licensed based on the total raw capacity of the array. To provide for 18TB total license capacity for the software, the customer would order the following:

Description	Quantity	Product Number
1TB increment-gets customer up to 1TB	1	T1715AA
1TB increment-gets customer up to 6TB	5	T1715AB
1TB increment-gets customer up to 15TB	9	T1715AC
1TB increment-gets customer up to 18TB	3	T1715AD

**NOTE:** There is only one correct combination of licenses that would be ordered to provide the required total license capacity.

#### For license capacity upgrades:

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 11.5TB raw capacity system with existing 12TB installed license capacity of XP Auto LUN. 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 XP Auto LUN 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:

Description	Quantity	Product Number
1TB increment-gets customer up to 15 TB	3	T1715AC
1TB increment-gets customer up to 16 TB	1	T1715AD

### Capacity-licensed XP Software

#### Capacity-licensed XP1024/XP128 Software Product Structure

For capacity-licensed Software for XP1024/XP128 Disk Arrays, licenses are ordered in 1TB increments only, with different 1TB license types corresponding to each of the capacity "tier" product numbers of the software product structure:

Description	Product Number
1TB increment, 0-1TB - base License-to-Use product	HIT/T16xxAA
1TB increment, 2TB to 6TB	HIT/T16xxAB
1TB increment, 7TB to 15TB	HIT/T16xxAC
1TB increment, 16TB to 36TB	HIT/T16xxAD

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). Purchase of capacity-based software falls into two categories:

- New Software purchase: Software licenses are being purchased along with a new XP array or for a new software purchase for an existing XP array implementation.
- License Capacity upgrade purchase: 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 software purchase:

They must purchase the first increment/tier (HIT/T16xxAA) for each software title and order up and through successive tiers to get to the total desired license capacity.

Example: Customer purchases an 18TB raw capacity XP1024 and wants HP StorageWorks Cache LUN XP. This title is licensed based on the total raw capacity of the array. To provide for 18TB total license capacity for the software, the customer would order the following:

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

**NOTE:** There is only one correct combination of licenses that would be ordered to provide the required total license capacity.

#### For license capacity upgrades:

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 11.5TB raw capacity system with existing 12TB 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:

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

### Raw Capacity-licensed Software Titles

For raw capacity-licensed 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).

### Capacity-licensed XP Software

Example: Customer has an XP12000 disk array with 25 x 146 GB and 8 x 73 GB disk array groups. Each array group contains four disk drives. The total physical/raw capacity of this disk array is:  $25^1 \times 4^2 \times 144 \text{ GB} + 8^3 \times 4^4 \times 71.5 \text{ GB} = 16,688 \text{ GB}$  (16.688 TB). Rounded up to the next highest TB: 17 TB of total raw capacity.

<sup>1</sup> 25 x 146 GB array groups

<sup>2</sup> 4 x disk drives per group, 144 GB per drive

<sup>3</sup> 8 x 73 GB array groups

<sup>4</sup> 4 x disk drives per group, 71.5 GB per drive

1000 GB = 1 TB when calculating raw disk capacity

**NOTE:** The 300 GB disk has 288.3 GB raw disk capacity per drive.

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

- HP StorageWorks XP Command View AE
  - For XP24000: there is no need to include the configured usable capacity of External Storage LUNs.
  - For XP20000: this product has a frame unlimited license
  - For XP12000: must also include license capacity for the configured usable capacity of any External Storage LUNs attached to the XP12000. Special licenses are provided to cover the External Storage capacity.
  - For XP10000: this product has a frame unlimited license
- HP StorageWorks XP Tiered Storage Manager
  - For XP24000/XP20000: must also include license capacity for the configured usable capacity of any External Storage LUNs attached to the XP24000/XP20000. Special licenses are provided to cover the External Storage capacity
  - For XP12000/XP10000: must also include license capacity for the configured usable capacity of any External Storage LUNs attached to the XP12000/XP10000.
- HP StorageWorks XP Provisioning Manager
  - For XP24000/XP20000: there is no need to include the configured usable capacity of External Storage LUNs.
  - For XP12000/XP10000: must also include license capacity for the configured usable capacity of any External Storage LUNs attached to the XP12000/XP10000.
- HP StorageWorks XP Array Manager (includes Hitachi VLVI Manager for Mainframe, Hitachi SANtinel for Mainframe, Hitachi SANtinel - Port Security Option, Hitachi LDEV Guard for Mainframe, LUN Security XP Extension, XP Cache LUN, Hitachi FlashAccess for Mainframe, Hitachi Cache Manager Utility for Mainframe, Data Shredder, Performance Monitor, XP RAID Manager, and XP Disk/Cache Partition) **NOTE: For the XP20000 only, this product has a frame unlimited license.**
- HP StorageWorks LUN Configuration and Security Manager XP (includes Hitachi VLVI Manager for Mainframe and Hitachi SANtinel for Mainframe) **NOTE: For the XP10000 only, this product has a frame unlimited license.** For XP12000/XP10000 after March 2006, LUN Configuration and Security Manager XP also includes Hitachi SANtinel - Port Security Option, Hitachi LDEV Guard for Mainframe, LUN Security XP Extension, XP Cache LUN, Hitachi FlashAccess for Mainframe, Data Integrity Check, and Hitachi Cache Manager Utility for Mainframe.
- HP StorageWorks XP Disk/Cache Partition (also must include license capacity for the configured usable capacity of any External Storage LUNs attached to the XP12000/XP10000)
- HP StorageWorks XP Auto LUN
  - For XP24000/XP20000: there is no need to include the configured usable capacity of External Storage LUNs.
  - For XP12000/XP10000: also must include license capacity for the configured usable capacity of any External Storage LUNs attached to the XP12000/XP10000
- HP StorageWorks XP Performance Advisor **NOTE: For all arrays, there is no need to include the configured usable capacity of External Storage LUNs.**
- HP StorageWorks XP Cache LUN (includes Hitachi FlashAccess for Mainframe)
- Hitachi VLVI Manager for mainframe
- Hitachi SANtinel for mainframe
- Hitachi FlashAccess for Mainframe
- HP StorageWorks XP for Compatible Parallel Access Volumes (PAV) for XP12000/XP10000/XP1024/XP128 (licensing based on mainframe-configured raw disk capacity of the array, plus usable mainframe-configured capacity of external storage)
- 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



### Capacity-licensed XP Software

disk array groups in the array excluding spare disks).

**NOTE:** The XP20000 can be configured as an external storage controller with large quantities of externally attached storage and without any internal disks. In this case, the XP20000 has 0TB of raw internal storage (no internal disks). In order to turn on the function of a raw-capacity licensed title, you must install 1TB of the software even though the array has 0TB of internal storage. The following list shows the required purchases in order to enable a software feature on an XP20000 with no internal disks.

- HP StorageWorks XP Command View AE (this is a frame license for the XP20000)
  - One T52181AL XP20000 Command View AE LTU
- HP StorageWorks XP Tiered Storage Manager
  - One T5285AA Tiered Storage Manager Base License
  - Plus enough licensed capacity of T5282Ax Tiered Storage Manager for External Storage to cover the externally attached usable capacity
  - **NOTE:** you do not need to include one T5285AB license because Tiered Storage Manager has the special T5282Ax licenses to cover External Storage.
- HP StorageWorks XP Provisioning Manager
  - One T5283AA Provisioning Manager Base License
  - One T5283AB Provisioning Manager 1TB 0-6TB LTU
- HP StorageWorks XP Array Manager (this is a frame license for the XP20000)
  - One T5214AL XP20000 Array Manager LTU
- HP StorageWorks XP Auto LUN
  - One T5215AA Auto LUN Base License
  - One T5215AB Auto LUN 1TB 0-6TB LTU
- HP StorageWorks XP Performance Advisor
  - One T1789A Performance Advisor Media Kit
  - One T1790AA Performance Advisor 1TB 0-1TB LTU

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### Used Capacity-licensed Software Titles

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

- HP StorageWorks XP Replication Manager
- HP StorageWorks XP External Storage (Capacity must be purchased to cover the usable LUN's configured as external storage)
  - For XP20000: this product has a frame unlimited license
- HP StorageWorks XP Thin Provisioning (licensed on the capacity of the thin provisioning pool)
- HP StorageWorks LUN Security XP Extension
- Hitachi LDEV Guard
- HP StorageWorks XP Continuous Access / XP Continuous Access Synchronous (includes Hitachi TrueCopy for Mainframe)
  - Used capacity = Continuous Access Synch P-Vols and S-Vols plus TrueCopy P-Vols and S-Vols
- HP StorageWorks XP Continuous Access Extension / XP Continuous Access Asynchronous (includes Hitachi TrueCopy Async for Mainframe)
  - Used capacity = Open Systems P-Vols and S-Vols plus Mainframe P-Vols and S-Vols.
- HP StorageWorks XP Continuous Access Journal (includes Hitachi Universal Replicator for Mainframe)
  - Used capacity = Open Systems P-Vols and S-Vols plus Mainframe P-Vols and S-Vols.
  - Only P-Vols and S-Vols are counted when determining license quantity. Capacity used for journal volumes is not counted.
- HP StorageWorks XP Business Copy (includes Snapshot XP feature and Hitachi ShadowImage for Mainframe)
  - Used capacity = Business Copy P-Vols and S-Vols, plus ShadowImage P-Vols and S-Vols, plus Snapshot P-Vols and Pool-Vols.
- HP StorageWorks Flex Copy XP
- Hitachi TrueCopy for Mainframe
- Hitachi TrueCopy Async for Mainframe

### Capacity-licensed XP Software

- Hitachi ShadowImage for Mainframe
- HP StorageWorks XP for Compatible Parallel Access Volumes (PAV) for XP24000/XP20000 (total usable capacity of mainframe volumes)
- HP StorageWorks XP for FlashCopy Mirroring
- HP StorageWorks XP for Compatible Extended Remote Copy (XRC) (total capacity of XRC P-VOLs. Also add the total capacity of XRC S-VOLs if reverse copy will be used for recovery operations.)
- HP StorageWorks XP for Business Continuity Manager (total capacity of the P-VOLs associated with Hitachi ShadowImage, Hitachi TrueCopy, Hitachi TrueCopy Async, and Hitachi Universal Replicator for all XP disk arrays managed under the same Business Continuity Manager)
- Hitachi Business Continuity Manager Extended CT Group (total capacity of the P-VOLs associated with Hitachi TrueCopy for all of the arrays managed under the same Business Continuity Manager)
- HP StorageWorks XP for Bus Cont Mgr Universal Replicator 4x4 Ext CT (total capacity of the P-VOLs associated with Hitachi Universal Replicator for all of the arrays managed under the same Business Continuity Manager)

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

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**For HP StorageWorks XP External Storage:** Used capacity is defined as the total capacity of all logical volumes that are physically hosted on/mapped to an external storage subsystem (e.g. MSA, EVA, legacy XP Disk Arrays). This amount represents the true usable capacity of these volumes corresponding with the configured LDEV sizes (i.e. it excludes RAID mirroring overhead).

**Example:** A customer wishes to deploy an XP12000 Disk Array. The customer wishes to use HP StorageWorks XP External Storage to host a portion of the data on an externally-connected EVA storage system. For their solution, they determine that they will host 140 LUNs of equal LDEV size on the EVA. Each LUN LDEV is roughly 14.5 GB in size. The customer must purchase license capacity to cover all the LUNs being hosted on the EVA. In this case, the total used capacity would be calculated as follows:

- $\text{Used Capacity} = \text{logical capacity of all externally hosted volumes} = 140 \times 14.5 \text{ GB} = 2,030 \text{ GB}$ .  
Dividing by 1024 to convert to TB gives 1.98 TB. Rounded to the next highest TB: 2 TB of External Storage license capacity is required

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**For HP StorageWorks LUN Security XP Extension, Hitachi LDEV Guard:** Used capacity is defined as the amount of logical storage capacity on the array that is managed by the software. Logical storage capacity is defined as the size of the LDEV capacity being managed by the software.

**Example:** Customer wants to use LUN Security XP Extension to manage a total of 2.5 TB of logical storage capacity. Rounding up to the nearest TB, the customer would order a total of 3 TB license capacity

### Capacity-licensed XP Software

For HP StorageWorks XP Continuous Access Software, Hitachi TrueCopy for Mainframe, Hitachi TrueCopy Async for Mainframe Hitachi Universal Replicator for Mainframe:

Used capacity is defined as the total capacity of all logical volumes that are Remote Mirroring P-Vols (source volumes on a primary XP Array) or S-Vols (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 XP Continuous Access 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 XP Continuous Access P-Vols plus S-Vols. In this case, the total used capacity would be calculated as follows:

- On the Primary array: Used Capacity = P-Vol (source) LUNs =  $70 \times 14.5\text{-GB} = 1,015\text{ GB}$ . Dividing by 1024 to convert to TB gives 0.99 TB. Rounded up to the next highest TB: 1 TB total used capacity
- On the Secondary array: Used Capacity = S-Vol (copy) LUNs =  $70 \times 14.5\text{-GB} = 1,015\text{ GB}$ . Dividing by 1024 to convert to TB gives 0.99 TB. Rounded up to the next highest TB: 1 TB total used capacity

So for the primary and secondary disk arrays, the customer must purchase at least 1 TB worth of license capacity on each array.

For HP StorageWorks XP Business Copy and Hitachi ShadowImage for Mainframe:

Used capacity is defined as the total capacity of all logical volumes that are either Local Copy P-Vols (BC source) or traditional S-Vols (BC copy) or POOL-Vols (where Snapshot data is stored). 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 XP Business Copy for the purpose of online backup and application testing and all of the copy LUNs will be traditional, full-size volumes. 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 an XP Business Copy P-Vol or S-Vol. In this case, the total used capacity would be calculated as follows:

- Used Capacity = P-Vol (source) LUNs + S-Vols (copy) LUNs =  $70 \times 14.5\text{-GB} + 1 \times 30 \times 14.5\text{-GB} + 2 \times 40 \times 14.5\text{-GB} = 1,015\text{ GB} + 1,595\text{ GB} = 2,610\text{ GB}$ . Dividing by 1024 to convert to TB gives 2.55 TB. Rounded to the next highest TB: 3 TB used capacity.

#### For HP StorageWorks XP Business Copy using Snapshot replication (XP24000/XP20000/XP12000/XP10000 only):

Used capacity is defined as the total capacity of all logical volumes that are P-Vols (Snapshot source) plus Pool Volume (where all Copy-on-Write data is stored). This amount represents the true usable capacity of these volumes corresponding with the configured LDEV sizes (i.e., it excludes RAID mirroring overhead).

The Pool Volume size is estimated by understanding:

1. the size of data that will be changed for each P-Vol per generation of Snapshot V-Vol (X)
2. the number of generations of Snapshots that will be created/retained (Y)
3. the number of P-Vols that will have Snapshots taken (Z)

### Capacity-licensed XP Software

The Pool volume size =  $X \times Y \times Z$  (rounded up to the next TB)

**Example:** Based on a customer's total storage need, they have 300 P-Vols, each sized at 100GB (30,000GB, dividing by 1024 to convert to TB gives 29.3 TB, rounded to the next highest TB: 30TB total). The customer wants to keep 7 generations of Snapshot V-Vols. Finally, it has been estimated that 4.7GB of data will be updated between each generation. The customer must purchase license capacity to cover all LUNs being managed as a Snapshot XP P-Vol or V-Vol. In this case, the total used capacity would be calculated as follows:

- Used Capacity = P-Vol (source) LUNs + Pool volume size = 30TB + (4.7GBx7x300 = 9,870GB, dividing by 1024 to convert to TB gives 9.64 TB, rounded to the next highest TB: 10TB) for a total licensing requirement of 40TB

Snapshot requires a V-Vol management area in Shared Memory. The Shared Memory requirement for the V-Vol management area is the sum of the P-Vol information capacity requirement + the Pool Volume information capacity requirement. See the Snapshot Users Guide for complete details regarding configuring Shared Memory for Snapshot. Shared Memory requirements differ between XP Disk Array models.

For the XP24000/XP20000: For the XP24000 with just the basic Shared Memory Adapter (one AE155A) configured, and for the XP20000 with just the basic Shared Memory Adapter (one AE192A) configured, up to 4 TB of pool volume capacity is available. More pool capacity is available for the XP24000 by installing the optional Shared Memory Adapter (second AE155A) and additional Shared Memory. The XP20000 does not support the optional Shared Memory Adapter and is limited to the amount of Pool capacity supported by the basic Shared Memory Adapter.

For the XP12000/XP10000: Snapshot on the XP12000 also requires the optional Shared Memory Platform Board and additional Shared Memory (SM) to store control information about the tracks that have been updated in the P-Vol and are, therefore, referenced by the V-Vol. The XP10000 also requires additional Shared Memory for Snapshot, but since the XP10000 does not support the optional Shared Memory Platform Board, it supports a much smaller Snapshot capacity than the XP12000. The XP10000 can allocate 342MB x 2 in SM. The XP12000 can allocate up to 2048MB x 2 in SM. Calculating the required SM for Snapshot is a function of the capacity of the Primary Volumes (P-Vols) and the Pool Volume. The SM requirement for the P-Vols =  $\text{P-Vol capacity} / 256\text{KB} \times 4\text{B} \times 1.08$ . The SM requirement for the Pool Volume =  $(\text{Pool Volume capacity} / 256\text{KB}) \times 32\text{B}$ . The sum of these two requirements is the total SM requirement. This number must be rounded up to the nearest 512MB increment.

**Example:** Using the same example above, the SM requirement for the P-Vols =  $(30\text{TB} / 256\text{KB}) \times 4 \times 1.08 = 502\text{MB}$ . The SM requirement for the Pool Volume =  $(9,870\text{GB} \times 1024 \times 1024 \div 256\text{KB}) \times 32 \div (1024 \times 1024) = 1234\text{MB}$ . Therefore, the total SM requirement for SM is  $502\text{MB} + 1234\text{MB} = 1736\text{MB}$ . By rounding up, the optional SM boards would have to be configured with 2048MB of cache.

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#### For HP StorageWorks XP Continuous Access Conversion:

HP StorageWorks XP Continuous Access Conversion licenses are used to convert an installed Continuous Access product to another Continuous Access product. The permitted conversions are:  
XP12000/XP10000

- XP Continuous Access Sync to XP Continuous Access Async
- XP Continuous Access Sync to XP Continuous Access Journal
- XP Continuous Access Async to XP Continuous Access Journal

XP24000/XP20000

### Capacity-licensed XP Software

- XP Continuous Access Sync to XP Continuous Access Journal  
**NOTE:** XP24000/XP20000 Continuous Access Journal and XP24000/XP20000 Continuous Access Async have the same price. Since Continuous Access Journal includes licenses for Continuous Access Async, customers who need to upgrade to Continuous Access Async can upgrade to Continuous Access Journal and use the Async licenses included with Continuous Access Journal.

**Example 1:** A customer with an XP24000 has 10TB of Continuous Access Sync installed and no Continuous Access Journal installed. They wish to convert 5TB of the Continuous Access Sync capacity into Continuous Access Journal. They must purchase 5TB of Continuous Access Conversion as follows:

Description	Quantity	Product Number
HP XP Continuous Access Conversion Base License	1	T5223AA
HP XP Continuous Access Conversion 1TB 0-6TB LTU	5	T5223AB

After installing these licenses, the disk array will have 5TB of Continuous Access Journal and 5TB of Continuous Access Sync. 5TB of Continuous Access Sync has been converted to Continuous Access Journal.

**Example 2:** A customer has an XP24000 with 10TB of Continuous Access Sync installed and no Continuous Access Journal installed. They wish to convert all of the 10TB of Continuous Access Sync capacity into Continuous Access Journal and add 6TB more of Continuous Access Journal. They must purchase 10TB of Continuous Access Conversion and 6TB of Continuous Access Journal as follows:

Description	Quantity	Product Number
HP XP Continuous Access Conversion Base License.	1	T5223AA
HP XP Continuous Access Conversion 1TB 7-15TB LTU. Select the band (7-15TB) that matches the sum of the installed capacity of Continuous Access Journal, 0TB, plus this additional capacity. With the installation of these licenses, there are 10TB of Continuous Access Journal installed on the XP24000.	10	T5223AC
HP XP Continuous Access Journal 1TB 16-31TB LTU. Select the band (16-31TB) that matches the sum of the installed capacity of Continuous Access Journal after conversion, 10TB, plus this additional capacity. The final total capacity of Continuous Access Journal is 16TB.	6	T5278AD

After installing these licenses, the disk array will have 16TB of Continuous Access Journal. 10TB of Continuous Access Sync has been converted to Continuous Access Journal, and 6TB of Continuous Access Journal have been added.

**Example 3:** A customer has 10TB of Continuous Access Sync and 5TB of Continuous Access Journal installed. The customer needs to convert 5TB of Continuous Access Sync to Continuous Access Journal. To do that, the customer must purchase 5TB of Continuous Access Conversion to increase the license capacity of XP Continuous Access Journal from 5TB to 10TB.

Description	Quantity	Product Number
HP XP Continuous Access Conversion 1TB 7-15TB. Select the band (7-15TB) that matches the sum of the installed capacity of Continuous Access Journal, 5TB, plus this additional capacity. The final total capacity of Continuous Access Journal is 10TB.	5	T5223AC

### Capacity-licensed XP Software

After installing this license, the disk array will have 5TB of Continuous Access Sync and 10TB of Continuous Access Journal installed. 5TB of Continuous Access Sync have been converted to Continuous Access Journal.

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**For HP StorageWorks Flex Copy XP:** Used capacity is defined as the total capacity of all logical volumes that are copied to or from the external storage subsystem (e.g. MSA1000 storage system). This amount represents the true usable capacity of these volumes corresponding with the configured LDEV sizes (i.e. it excludes RAID mirroring overhead).

Example: A customer wishes to deploy an XP12000 Disk Array. They wish to be able to copy 4.5TB worth of XP12000 logical capacity to an externally-connected MSA1000 storage system. The customer must purchase license capacity to cover the logical capacity being mirrored:

- Used Capacity = logical capacity of externally copied volumes = 4.5T Rounded to the next highest TB: 5 TB of license capacity required

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**For Mainframe Software bundling with Open Systems Software:** The following mainframe local and remote mirroring software titles are bundled with their open systems equivalents when ordered for the XP24000, XP20000, XP12000, XP10000, XP1024, XP128:

- Hitachi TrueCopy for Mainframe (included with HP StorageWorks XP Continuous Access and HP StorageWorks XP Continuous Access Synchronous)
- Hitachi TrueCopy Async for Mainframe (included with HP StorageWorks XP Continuous Access Extension and HP StorageWorks XP Continuous Access Asynchronous)
- Hitachi Universal Replicator for Mainframe (included with HP StorageWorks XP Continuous Access Journal)
- Hitachi ShadowImage for Mainframe (included with HP StorageWorks XP Business Copy)

For these products, customer must purchase license capacity to cover the total open systems and mainframe used capacity.

**Example:** A customer has an XP12000 disk array with mainframe and open systems connect. They want to use HP StorageWorks XP Continuous Access to synchronously mirror 2 TB of open systems volumes and Hitachi TrueCopy for mainframe to mirror 1 TB of mainframe volumes to another XP1200 array. For each array, this customer requires at least 3 TB of license capacity of HP StorageWorks XP Continuous Access (which includes Hitachi TrueCopy for mainframe).

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### Licensing for Software used with HP StorageWorks XP External Storage

When a customer wishes to host XP24000/XP20000/XP12000/XP10000 logical volumes on an external storage system using HP StorageWorks XP External Storage software, the customer must also purchase license capacity of other software products.

### Capacity-licensed XP Software

**Raw Capacity licensed titles:** For XP24000/XP20000:

- HP StorageWorks XP Tiered Storage Manager: Special low cost licenses are provided to cover External Storage capacity
- All other XP24000/XP20000 raw capacity licensed software (Array Manager, Auto LUN, Performance Advisor, Command View AE, and Provisioning Manager): These titles include coverage of unlimited External Storage capacity at no extra cost, and therefore are not affected by the presence or absence of External Storage

For XP12000/XP10000: for the following titles, license capacity must be purchased to cover the total raw capacity of the XP12000/XP10000 plus the usable External Storage LUN's configured.

- HP StorageWorks XP Auto LUN (optional product).
- HP XP Disk/Cache Partition (optional product).
- HP StorageWorks XP Tiered Storage Manager (optional product).
- HP StorageWorks XP Provisioning Manager (optional product).

**Example:** A customer wishes to deploy an XP12000 Disk Array solution that will have 5TB of native XP raw disk capacity along with an External Storage configuration. The customer intends to host 3TB of XP12000 logical capacity on an external EVA storage system. If the customer desires to use XP Auto LUN, the customer must purchase license capacity of HP StorageWorks XP Auto LUN software as follows:

License Capacity requirement = XP12000 raw storage capacity + External storage logical capacity  
= 5TB + 3TB  
= 8TB total license capacity required for software licensing purposes

**Used Capacity licensed titles:** For XP24000/XP20000/XP12000/XP10000:

- HP StorageWorks XP Business Copy (optional product)
- HP StorageWorks XP Continuous Access Synchronous (optional product)
- HP StorageWorks XP Continuous Access Asynchronous (optional product)
- HP StorageWorks XP Continuous Access Journal (optional product)
- HP StorageWorks XP Replication Manager (optional product)
- HP StorageWorks XP Tiered Storage Manager for External Storage (optional product for XP24000/XP20000 only)

For these titles, license capacity must be purchased based on the 'standard' licensing terms for those titles. In other words, the standard licensing terms apply equally whether a given volume is being hosted on native XP24000/XP20000/XP12000/XP10000 capacity or on the external storage device.

**Example:** A customer wishes to deploy an XP12000 Disk Array. In addition to provisioning XP12000 'native' disk capacity to host their main production data, the customer wishes to use HP StorageWorks XP External Storage to host a portion of non-production data on an externally-connected EVA storage system. In the final configuration, the customer wishes to create one local copy/mirror of 2.2TB of XP12000 logical capacity and host that copy on the EVA storage system using XP Business Copy. Per standard XP Business Copy licensing terms, the customer must purchase license capacity to cover all LUNs being managed as a XP Business Copy P-Vol or S-Vol. In this case, the total used capacity would be calculated as follows:

License Capacity requirement = Used Capacity = P-Vol (source) LUNs + S-Vols (copy) LUNs  
= 2.2TB (source, hosted on the XP12000) + 2.2TB (copy, hosted on the EVA)  
= 4.4TB. Rounded to the next highest TB: 5 TB used capacity for XP Business Copy

### *Capacity-licensed XP Software*

### Ordering Limited-availability XP Software

The following XP Software titles are available via a manual ordering/fulfillment model:

- Hitachi SANtinel -- Port Security Option
- Hitachi LDEV Guard
- Hitachi Cache Manager Utility for Mainframe

**NOTE:** These products are not available on the Official HP Corporate Price List. To provide a customer quotation for these titles, please contact your XP regional marketing representative to obtain pricing and ordering information.



### Service and Support, HP Care Pack, and Warranty Information

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**Software Warranty** HP warrants only that the Software media will be free of physical defects for a period of ninety (90) days from delivery.

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**Software Product Services** Product Support gives the customer access to HP's experienced technical support resources as well as access to HP's Information Services database for support on a variety of multi-vendor/multi-platform software products. Product support includes escalations and problem coordination with the appropriate engineering group. HP offers a variety of options to allow you to tailor your product service to meet the needs of your organization. Basic services on products can be uplifted from day one to ensure you receive the service you need when you need it.

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**Available software product services**

- Software Support 24 x 7 is available 24 hours per day, Monday through Sunday, including holidays.
- Installation Service (software installation)
- Tailored support contracts based on personalized statement of work: contact your local support center via: <http://www.hp.com/support/>
- Software Support 8x5 is available 8 hours per day, Monday through Friday, excluding holidays (for Workgroup Editions only).
- Software Enablement is included with each individual software title with the exception of XP Continuous Access, XP Business Copy and XP Cluster Extension. The Data Replication Solution Service can be purchased to implement XP Continuous Access and XP Business Copy

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**Software Product Services Included with the Product** One year of Software Support 24 x 7 HP Care Pack Service (includes software technical support 24 x 7 and software product and documentation updates) is included with the product except for the Workgroup Editions. For the Workgroup Editions, software product support services are purchased separately.

- 1 year 2-hour response for software issues, includes phone-in assistance, License to Use, rights to new versions, documentation and access to the IT Resource Center
  - 2 years onsite response for hardware problems; 4-hour response for critical problems, next calendar day response for all other repairs.
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### Service and Support, HP Care Pack, and Warranty Information

The following services are offered as HP Care Pack Services at the time of product order

- HP Care Pack services are available to upgrade the one year of Software Support 24 x 7 included with the product to 3, 4, or 5 full years.
- Installation services.
- HP Care Pack services are prepaid, are configured using Sales Builder for Windows and must be ordered with the product.

For additional software product services information for North American HP Care Pack services, as well as orderable part numbers, please refer to the URLs listed below:

All storage services: <http://www.hp.com/hps/storage/>

HP Care Pack Priority Services: [http://www.hp.com/hps/carepack/storage/cp\\_networked.html](http://www.hp.com/hps/carepack/storage/cp_networked.html)

Software Support HP Care Pack Services: [http://www.hp.com/hps/carepack/software/cp\\_storage.html](http://www.hp.com/hps/carepack/software/cp_storage.html)

HP's Global Limited Warranty and Technical Support, visit:

[ftp://ftp.compaq.com/pub/products/storageworks/warranty/EN\\_321708-008.pdf](ftp://ftp.compaq.com/pub/products/storageworks/warranty/EN_321708-008.pdf)

Deployment and Per Event Services for HP Storage, visit: <http://www.hp.com/hps/storage/>

If you have specific service questions contact your local HP representative. Contact information for your local area can be found at: <http://www.hp.com/cgi-bin/hpsupport/index.pl>

Maintenance releases, bug fixes and software patches are available at no charge at the following Web site: <http://h18006.www1.hp.com/products/sanworks/secure-path/index.html>

The following contractual software support services are available at the point of product sale or post product purchase

These services are offered via an HP Services sales representative or selected channel partners and include:

- Software Support 24 x 7 is available 24 hours per day, Monday through Sunday, including holidays.
- Installation Service (software installation)
- Tailored support contracts based on personalized statement of work: contact your local support center via: <http://www.hp.com/support/>

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