



# **Program Directory for IBM HTTP Server V7.0**

Version 7 Release 0 Modification 0

Program Number 5655-N02

Document Date: September 26, 2008

GI11-4298-00

**Note!**

Before using this information and the product it supports, be sure to read the general information under Appendix A, "Notices" on page 24.

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## 1.0 Introduction

This Program Directory is intended for the system programmer responsible for program installation and maintenance. It contains information concerning the material and procedures associated with the installation of IBM HTTP Server V7.0.

The Program Directory contains the following sections:

- 2.0, “Program Materials” on page 4 identifies the basic materials and documentation for IBM HTTP Server V7.0.
- 3.0, “Program Support” on page 6 describes the IBM support available for IBM HTTP Server V7.0.
- 4.0, “Program and Service Level Information” on page 8 lists the APARs (program level) and PTFs (service level) incorporated into IBM HTTP Server V7.0.
- 5.0, “Installation Requirements and Considerations” on page 9 identifies the resources and considerations required for installing and using IBM HTTP Server V7.0.
- 6.0, “Installation Instructions” on page 19 provides detailed installation instructions for IBM HTTP Server V7.0.
- 7.1, “Activating IBM HTTP Server V7.0” on page 23 describes how to prepare for the activation of IBM HTTP Server V7.0 and provides links to complete activation documentation.

Before installing IBM HTTP Server V7.0, read the *CBPDO Memo To Users* and the *CBPDO Memo To Users Extension* that were supplied with this program in softcopy form as well as this Program Directory and then keep them for future reference. Section 3.2, “Preventive Service Planning” on page 6 tells you how to find any updates to the information and procedures in this Program Directory.

IBM HTTP Server V7.0 is supplied in a Custom-Built Product Delivery Offering (CBPDO, 5751-CS3). The Program Directory, which you are reading, is provided in softcopy form on the CBPDO tape provided with your order. All service and HOLDDATA for IBM HTTP Server V7.0 are included on the CBPDO tape.

Do not use this Program Directory if you are installing IBM HTTP Server V7.0 with a SystemPac or ServerPac. When using one of these offerings, use the jobs and documentation that is supplied with the offering. This documentation may point you to specific sections of the Program Directory as required.

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### 1.1 IBM HTTP Server V7.0 Description

IBM HTTP Server is based on the open source Apache Web server ([httpd.apache.org](http://httpd.apache.org)), The Apache Web server can be built with many different capabilities and configuration options. IBM HTTP Server includes a set of features from the available options. For information about Apache Web server features supported in IBM HTTP Server, see the information center topics about Apache modules (containing directives), programs, Apache Portable Runtime (APR) and APR-util libraries, and Multi-processing module (MPM) and addressing modes.

### Key features added with IBM HTTP Server

- If using IBM HTTP Server V7.0 with WebSphere Application Server Version 7, you can use the administrative console to manage IBM HTTP Server.
- InstallShield for multiple platforms enables consistent installation of the IBM HTTP Server on different platforms (except the z/OS platform).
- Fast Response Cache Accelerator (FRCA) is available for AIX 5.x and certain Windows operating systems. It significantly improves HTTP Server performance when serving static content such as HTML files or image files.
- Dynamic content generation with FastCGI.

### Functionality provided in IBM HTTP Server

- The LDAP authentication support from Apache is provided. The mod\_ibm\_ldap module is also supported.
- If you are using the mod\_ibm\_ldap module for your LDAP configuration, consider migrating your mod\_ibm\_ldap directives to use the mod\_ldap module. The mod\_ibm\_ldap module is provided with this release of IBM HTTP Server for compatibility with previous releases, however, you must migrate existing configurations to use the mod\_authnz\_ldap and mod\_ldap modules to ensure future support for your LDAP configuration.
- The Global Security Toolkit (GSKit) is included in the IBM HTTP Server installation. GSKit is not installed or upgraded for the entire system.
  - The GSKit libraries are installed locally in the <ihsinst>/gsk7 directory.
  - The GSKit wrappers for certificate management tools, such as ikeyman and gsk7cmd, are installed in the <ihsinst>/bin/ directory.
  - GSKit maintenance for IBM HTTP Server must be installed by the IBM HTTP Server service process, and not system-wide GSKit updates.
- The new AddServerHeader directive controls whether or not a server response header is added for requests not proxied to another server. For more information about this directive, see the AddServerHeader directive Web page.

<http://publib.boulder.ibm.com/htpserv/manual70/mod/core.html#addserverheader>
- The ihsdiag diagnostic plug-in modules are bundled with the product installation in the <ihsinst>/modules/debug directory. Previously, they were obtained from the ihsdiag distribution.
- The mod\_backtrace diagnostic module is now supported.

IBM HTTP Server is powered by Apache and supports 64-bit architecture and IPv6.

You can configure Lightweight Directory Access Protocol (LDAP) to authenticate and protect files on IBM HTTP Server.

You can authenticate to the IBM HTTP Server using HTTP basic authentication or client certificates with the System Authorization Facility (SAF) security product.

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## 1.2 IBM HTTP Server V7.0 FMIDs

IBM HTTP Server V7.0 consists of the following FMID:

- HHAP700 - IBM HTTP Server V7.0

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## 2.0 Program Materials

An IBM program is identified by a program number. The program number for IBM HTTP Server V7.0 is 5655-N02.

Basic Machine-Readable Materials are materials that are supplied under the base license and feature numbers and are required to use the product.

The program announcement material describes the features supported by IBM HTTP Server V7.0. Ask your IBM representative for this information if you have not already received a copy.

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### 2.1 Basic Machine-Readable Material

The distribution medium for this program is magnetic tape or downloadable files. It is installed using SMP/E, and is in SMP/E RELFILE format. See 6.1, "Installing IBM HTTP Server V7.0" on page 19 for more information about how to install the program.

Information about the physical tape for the Basic Machine-Readable Materials for IBM HTTP Server V7.0 can be found in the *CBPDO Memo To Users Extension*.

This version of IBM HTTP Server is identified with FMID (HHAP700). The install process for HHAP700 creates the product file system. This offering has install steps to create its own install structure under the directory created in this file system.

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## 2.2 Program Publications

The following sections identify the basic publications for IBM HTTP Server V7.0. Please note the main documentation distribution medium for IBM HTTP Server V7.0 is the Information Center, which can be accessed via the product documentation page at <http://www-306.ibm.com/software/webservers/httpservers/library/>

In addition to the Information Center, IBM HTTP Server V7.0 product documentation is available in PDF format at the same URL.

### 2.2.1 Basic Program Publications

Figure 1 identifies the basic unlicensed program publications for IBM HTTP Server V7.0.



<i>Figure 1. Basic Material: Unlicensed Publications</i>	
<b>Publication Title</b>	<b>Form Number</b>
Program Directory for IBM HTTP Server V7.0	GI11-4298-00
License Information IBM HTTP Server V7.0	GA32-0595-00
Carefully read the IBM HTTP Server V7.0 IBM International Program License Agreement #GA32-0595-00, a copy of which will be provided to you with the order (Hardcopy or Electronic format); the License Agreement may contain terms that supersede the licensed terms included with this program component.	

Basic unlicensed or licensed publications are available for download at the IBM HTTP Server V7.0 Library page:

<http://www-306.ibm.com/software/webservers/htpservers/library/>

## 2.3 Publications Useful During Installation

The publications listed in Figure 2 may be useful during the installation of IBM HTTP Server V7.0. To order copies, contact your IBM representative or visit the IBM Publications Center on the World Wide Web at <http://www.ibm.com/shop/publications/order>.

You can also access these publications online at:

<http://www.ibm.com/servers/eserver/zseries/zos/bkserv/>

At this URL, click on "Publication titles, filenames, form numbers" Then enter the form number of the publication.

<i>Figure 2. Publications Useful During Installation</i>	
<b>Publication Title</b>	<b>Form Number</b>
<i>IBM SMP/E for z/OS Commands</i>	SA22-7771
<i>IBM SMP/E for z/OS Messages, Codes, and Diagnosis</i>	GA22-7770
<i>IBM SMP/E for z/OS Reference</i>	SA22-7772
<i>IBM SMP/E for z/OS User's Guide</i>	SA22-7773
<i>IBM Software Delivery Standard Packaging Rules for z/OS-Based Products</i>	SC23-3695
<i>z/OS MVS JCL Reference</i>	SA22-7597
<i>z/OS System Codes</i>	SA22-7626

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## 3.0 Program Support

This section describes the IBM support available for IBM HTTP Server V7.0.

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### 3.1 Program Services

Contact your IBM representative for specific information about available program services. Also, you can review the available support at the following website:

<http://www-306.ibm.com/software/webservers/htpservers/support/>

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### 3.2 Preventive Service Planning

Before installing IBM HTTP Server V7.0, it is VERY IMPORTANT that you review the current Preventive Service Planning (PSP) information. The PSP buckets maintain current lists (which have been identified since the package was created) of any recommended or required service for this package's installation. This includes software PSP information that contains HIPER, special attention and/or required PTFs against the base release.

While there can be overlap between SW, HW and functional PSP buckets, reviewing all that apply to this package will ensure that you identify any known service required for your installation of this package. If you obtained IBM HTTP Server V7.0 as part of a CBPDO, there is HOLDDATA and PSP information included on the CBPDO.

If the CBPDO for IBM HTTP Server V7.0 is more than two weeks old when you install it, you should retrieve and read the current Preventive Service Planning "bucket" (PSP bucket) before installing the product or applying service. Current PSP buckets for IBM HTTP Server V7.0 can be obtained by:

- Calling the support center to order them.
- Using SoftwareXcel to download them.
- Pointing your web browser to

<http://www-306.ibm.com/software/webservers/htpservers/support/doc.html>

PSP Buckets are identified by UPGRADEs, which specify product levels, and SUBSETs, which specify the FMIDs for a product level. The UPGRADE and SUBSET values for IBM HTTP Server V7.0 are:

<i>Figure 3. PSP Upgrade and Subset ID</i>		
<b>UPGRADE</b>	<b>SUBSET</b>	<b>Description</b>
WASAS700	HHAP700	IBM HTTP Server V7.0

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### 3.3 Statement of Support Procedures

Report any difficulties you have using this program to your IBM Support Center. For technical support assistance visit

<http://www.ibm.com/support>

and perform a search on the symptoms you are experiencing with this program.

Be sure to collect symptom information about the error condition. You can go here:

<http://www.ibm.com/support/docview.wss?rs=404&uid=swg27009131>

to read about what symptom information to collect for IBM HTTP Server V7.0. Then you can contact your IBM software support center at 1-800-IBM-SERV (800-426-7378), selecting option #2 for software assistance to resolve your problem. If an APAR is required, the Support Center will provide the address (or FTP site) to which any needed documentation can be sent.

Figure 4 identifies the component IDs (COMPID) for IBM HTTP Server V7.0.

<i>Figure 4. Component IDs</i>			
<b>FMID</b>	<b>COMPID</b>	<b>Component Name</b>	<b>RETAIN Release</b>
HHAP700	5655I3510	IBM HTTP Server V7.0	700

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## 4.0 Program and Service Level Information

This section identifies the program and any relevant service levels of IBM HTTP Server V7.0. The program level refers to the APAR fixes incorporated into the program. The service level refers to the PTFs incorporated into the program.

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### 4.1 Service Level Information

No PTFs against this release of IBM HTTP Server V7.0 have been incorporated into the product tape.

Over time it is HIGHLY recommended that you frequently check the IBM HTTP Server V7.0 PSP bucket for HIPER and SPECIAL Attention PTFs against all FMID(s) which should be installed.

Figure 5 shows the relevant service level information that applies to IBM HTTP Server V7.0.

<i>Figure 5. Service Level Information</i>			
<b>FMID</b>	<b>Component ID</b>	<b>APAR</b>	<b>PTF</b>
HHAP700	5655I3510	PK61482	UK36124
		PK62966	
		PK54968	UK33499
		PK57949	
		PK58074	
		PK52702	UK30625
		PK47868	UK27264
		PK40567	UK25662
		PK43211	
		PK37205	UK23119
		PK37207	
		PK34887	UK20760

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## 5.0 Installation Requirements and Considerations

The following sections identify the system requirements for installing and activating IBM HTTP Server V7.0. The following terminology is used:

- *Driving system*: the system used to install the program.
- *Target system*: the system on which the program is installed.

In many cases, the same system can be used as both a driving system and a target system. However, you may want to set up a clone of your system to use as a target system by making a separate IPL-able copy of the running system. The clone should include copies of all system libraries that SMP/E updates, copies of the SMP/E CSI data sets that describe the system libraries, and your PARMLIB and PROCLIB.

Some cases where two systems should be used include the following:

- When installing a new level of a product that is already installed, the new product will delete the old one. By installing onto a separate target system, you can test the new product while still keeping the old one in production.
- When installing a product that shares libraries or load modules with other products, the installation can disrupt the other products. Installing onto a test system or clone will allow you to assess these impacts without disrupting your production system.

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### 5.1 Driving System Requirements

This section describes the environment of the driving system required to install IBM HTTP Server V7.0.

#### 5.1.1 Machine Requirements

The driving system can run in any hardware environment that supports the required software.

## 5.1.2 Programming Requirements

Figure 6. Driving System Software Requirements

Program Number	Product Name and Minimum VRM/Service Level
5694-A01	<p>z/OS V1.7 with PTFs to satisfy APARs (UA19027, UA20075, UA20094, UA21373, UA21556, UA22890,UA23082, UA23129, UA23197, UA28149, UA29651, UA34282,UA39535, UA31615, UA41075, UA41251, UA41936) or later</p> <p>z/OS V1.8 with PTFs to satisfy APARs (UA28150, UA28305, UA29009, UA29652, UA34283, UA39406,UA39536, UA39616, UA41076, UA41252, UA41937) or later</p> <p>z/OS V1.9 with PTFs to satisfy APARs (UA39407, UA39537, UA39617, UA41077, UA41253, UA41938) or later</p> <p>z/OS V1.10 with PTFs to satisfy APARS (UA41254) or later</p> <p>z/OS Unix System Services and the hierachical file system (HFS) or zSeries File System (zFS)</p>
5655-G44	IBM SMP/E for z/OS V3.3 with PTFs to satisfy APARs IO00462 and IR54653, or later

IBM HTTP Server V7.0 installs in the z/OS Z038 SREL.

### Notes:

1. Because IBM HTTP Server uses the SDK as part of the SMP/E processing, you must configure the driving system to have SDK 1.4 or higher.  
You can download a free copy of Java SDK 1.4 at  
[www-03.ibm.com/servers/eserver/zseries/software/java/j142pcont.html](http://www-03.ibm.com/servers/eserver/zseries/software/java/j142pcont.html)
2. Unix must be up in full function mode on your driving system so that the utilities are available for the Shell Script support.
3. Before installing IBM HTTP Server V7.0, you must ensure that the target system's HFS or zFS is available (OMVS active and the target file systems mounted) for processing.
4. The following installation jobs should be run under a userid with the authority to mount file systems and modify Unix System Services files. This installation userid must also have read access to the facility class resources BPX.FILEATTR.PROGCTL, BPX.FILEATTR.APF, and BPX.FILEATTR.SHARELIB.
  - For FMID - HHAP700
    - HAPISMKD
    - HAPAPPLY (or other SMP/E APPLY job)

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## 5.2 Target System Requirements

This section describes the environment of the target system required to customize and use IBM HTTP Server V7.0.

### 5.2.1 Machine Requirements

The target system can run in any hardware environment that supports the required software.

### 5.2.2 Programming Requirements

**5.2.2.1 Installation Requisites:** An installation requisite is defined as a product that is required and **must** be present or one that is not required but **should** be present on the system for the successful installation of this product.

A mandatory installation requisite identifies products that are required, without exception, or this product **will not install** on your system; these requisites include products specified as PREs or REQs.

Figure 7. Mandatory Installation Requisites

Program Number	Product Name and Minimum VRM/Service Level
5694-A01	z/OS V1.7 with PTFs to satisfy APARs (UA19027, UA20075, UA20094, UA21373, UA21556, UA22890,UA23082, UA23129, UA23197, UA28149, UA29651, UA34282,UA39535, UA31615, UA41075, UA41251, UA41936) or later  z/OS V1.8 with PTFs to satisfy APARs (UA28150, UA28305, UA29009, UA29652, UA34283, UA39406,UA39536, UA39616, UA41076, UA41252, UA41937) or later  z/OS V1.9 with PTFs to satisfy APARs (UA39407, UA39537, UA39617, UA41077, UA41253, UA41938) or later  z/OS V1.10 with PTFs to satisfy APARS (UA41254) or later  z/OS Unix System Services and the hierachical file system (HFS) or zSeries File System (zFS)

A conditional installation requisite identifies products that are **not** required for successful install but may resolve such things as certain warning messages at installation time. They include products that are specified as IF REQs.

IBM HTTP Server V7.0 has **no** conditional installation requisites.

**5.2.2.2 Operational Requisites:** An operational requisite is one of the following:

- As a product that is required and **must** be present
- Or, a product that is not required but **should** be present on the system in order for this product to operate all or some of its functions.

A mandatory operational requisite identifies products that are required, without exception, or this product **will not operate** its basic function unless the requisite is met. This includes products specified as PREs or REQs.



Figure 8. Mandatory Operational Requisites

Program Number	Product Name and Minimum VRM/Service Level
5694-A01	<p>z/OS V1.7 with PTFs to satisfy APARs (UA19027, UA20075, UA20094, UA21373, UA21556, UA22890,UA23082, UA23129, UA23197, UA28149, UA29651, UA34282,UA39535, UA31615, UA41075, UA41251, UA41936) or later</p> <p>z/OS V1.7 (or later) with PTFs for 64 bit enablement</p> <p>z/OS V1.8 with PTFs to satisfy APARs (UA28150, UA28305, UA29009, UA29652, UA34283, UA39406,UA39536, UA39616, UA41076, UA41252, UA41937) or later</p> <p>z/OS V1.9 with PTFs to satisfy APARs (UA39407, UA39537, UA39617, UA41077, UA41253, UA41938) or later</p> <p>z/OS V1.10 with PTFs to satisfy APARS (UA41254) or later</p> <p>z/OS Unix System Services and the hierachical file system (HFS) or zSeries File System (zFS)</p>

The following z/OS elements, features, and components must be installed, enabled, and configured:

- z/OS Unix System Services and the hierarchical file system (HFS) or the zSeries File System (zFS)
- eNetwork Communications Server (TCP/IP) or equivalent
- Security Server (RACF) or equivalent SAF security management product

A conditional operational requisite identifies products that are **not required** for the basic function but are needed at run time for this product to utilize specific functions. They may include products specified as IF REQs.

Figure 9. Conditional Operational Requisites

Program Number	Product Name and Minimum VRM/Service Level	Function
5694-A01	z/OS Version 1.8 PTF UQ28514	DB2 honors CASE expression in a column function

**5.2.2.3 Toleration/Coexistence Requisites:** A toleration/coexistence requisite is defined as a product which must be present on a sharing system. These systems can be other systems in a multisystem environment (not necessarily sysplex), a shared DASD environment (such as test and production), or systems that reuse the same DASD at different time intervals.

IBM HTTP Server V7.0 has **NO** toleration/coexistence requisites.

**5.2.2.4 Incompatibility (Negative) Requisites:** A negative requisite identifies products which *must not* be installed on the same system as this product.

IBM HTTP Server V7.0 has **no** negative requisites.

### 5.2.3 DASD Storage Requirements

IBM HTTP Server V7.0 libraries can reside on all z/OS or z/OS.e supported DASD types.

Figure 10 lists the total space required for each type of library.

Library Type	Total Space Required (3390 Tracks)	Component
Target	20	IBM HTTP Server (HHAP700)
Distribution	620	IBM HTTP Server (HHAP700)
HFS or zFS	600	IBM HTTP Server (HHAP700)

#### Notes:

1. IBM recommends use of system determined block sizes for efficient DASD utilization for all non-RECFM U data sets. For RECFM U data sets, IBM recommends a block size of 32760, which is the most efficient from a performance and DASD utilization perspective.
2. Abbreviations used for the data set type are:
  - U** Unique data set, allocated by this product and used only by this product. To determine the correct storage needed for this data set, this table provides all required information; no other tables (or Program Directories) need to be referenced for the data set size.
  - S** Shared data set, allocated by this product and used by this product and others. To determine the correct storage needed for this data set, the storage size given in this table needs to be added to other tables (perhaps in other Program Directories). If the data set already exists, it must have enough free space to accommodate the storage size given in this table.
  - E** Existing shared data set, used by this product and others. This data set is NOT allocated by this product. To determine the correct storage needed for this data set, the storage size given in this table needs to be added to other tables (perhaps in other program directories). This existing data set must have enough free space to accommodate the storage size given in this table.

If you currently have a previous release of this product installed in these libraries, the installation of this release will delete the old one and reclaim the space used by the old release and any service that had been installed. You can determine whether or not these libraries have enough space by deleting the old release with a dummy function, compressing the libraries, and comparing the space requirements with the free space in the libraries.

For more information on the names and sizes of the required data sets that apply to IBM HTTP Server, please refer to Figure 13 on page 16 and Figure 15 on page 16.

3. Abbreviations used for the HFS or zFS Path type are:

- N** New path, created by this product.
- X** Path created by this product, but may already exist from a previous release.
- P** Previously existing path, created by another product.

4. All target and distribution libraries listed have the following attributes:

- The default name of the data set may be changed.
- The default block size of the data set may be changed.
- The data set may be a PDS or PDSE, unless PDSE is explicitly specified.

5. All target libraries listed have the following attributes:

- The data set may be SMS-managed.
- It is not required for the data set to be SMS-managed.
- It is not required for the data set to reside on the IPL volume.
- The values in the **Member Type**" column are not necessarily the actual SMP/E element types identified in the SMPMCS.

6. Some target libraries must be APF-authorized; some target libraries or library members must be placed in the LPA or LINKLST. See the customization instructions for details.

<i>Figure 11. Storage Requirements for SMP/E Work Data Sets</i>							
<b>Library DDNAME</b>	<b>T Y P E</b>	<b>O R G</b>	<b>R E C F M</b>	<b>L R E C L</b>	<b>No. of 3390 Trks</b>	<b>No. of DIR Blks</b>	
SMPWRK1	E	PDS	FB	80	120	10	
SMPWRK2	E	PDS	FB	80	30	10	
SMPWRK3	E	PDS	FB	80	950	150	
SMPWRK4	E	PDS	FB	80	80	10	
SMPWRK6	E	PDS	FB	80	2000	200	
SYSUT1	E	SEQ	--	--	750	0	
SYSUT2	E	SEQ	--	--	30	0	
SYSUT3	E	SEQ	--	--	30	0	
SYSUT4	E	SEQ	--	--	30	0	

If the table indicates that the SMPLTS data set must be a PDSE, but, your existing SMPLTS is a PDS, you will need to allocate a new PDSE and copy your existing SMPLTS into it and then change the SMPLTS DDDEF entry to indicate the new PDSE data set.

Figure 12. Storage Requirements for SMP/E Data Sets

Library DDNAME	T Y P E	O R G A N I Z A T I O N	R E C O R D S	L E N G T H	No. of 3390 Trks	No. of DIR Blks
SMPLTS	E	PDSE	U	0	6535	-
SMPMTS	E	PDS	FB	80	15	80
SMPPTS	E	PDS	FB	80	2400	80
SMPSCDS	E	PDS	FB	80	15	80
SMPSTS	E	PDS	FB	80	15	80

The following figures describe the target and distribution libraries and HFS or zFS paths required to install IBM HTTP Server V7.0.

Figure 13. Storage Requirements for IBM HTTP Server V7.0 Target Libraries

Library DDNAME	Member Type	Target Volume	T Y P E	O R G A N I Z A T I O N	R E C O R D S	L E N G T H	No. of 3390 Trks	No. of DIR Blks
SHAPEXEC	EXEC	TVOL1	U	PDS	VB	255	10	5
SHAPJCL	Sample	TVOL2	U	PDS	FB	80	10	5

Figure 14. IBM HTTP Server V7.0 HFS or zFS Paths

DDNAME	T Y P E	Path Name
SHAPBIN1	N	/usr/lpp/IHSA/V7R0/IBM

Figure 15. Storage Requirements for IBM HTTP Server V7.0 Distribution Libraries

Library DDNAME	T Y P E	O R G A N I Z A T I O N	R E C O R D S	L E N G T H	No. of 3390 Trks	No. of DIR Blks
AHAPEXEC	U	PDS	VB	255	10	5
AHAPINC	U	PDS	VB	255	120	5
AHAPJCL	U	PDS	FB	80	10	5

IBM HTTP Server V7.0 will require additional space for configuration information and run-time data. The amount of space depends on the application server structure to be used, the applications to be run and the amount of data storage the applications will require.

---

## 5.3 FMIDs Deleted

Installing IBM HTTP Server V7.0 **might** result in the deletion of other FMIDs. To see what FMIDs will be deleted, examine the ++VER statement in the product's SMPMCS.

If you do not wish to delete these FMIDs at this time, you must install IBM HTTP Server V7.0 into separate SMP/E target and distribution zones.

**Note:** These FMIDs will not automatically be deleted from the Global Zone. Consult the SMP/E manuals for instructions on how to do this.

---

## 5.4 Special Considerations

NONE

### 5.4.1 SMP/E Considerations

IBM HTTP Server V7.0 can be installed into any set of existing SMP/E zones for WebSphere Application Server for z/OS V7.0.0 or any other set of SMP/E zones for SREL Z038 (for example, a set of zones for z/OS). This Program Directory assumes that the SMP/E Consolidated Software Inventory (SMPCSI) data set and global, target and distribution zones have already been set up properly.

Installation and maintenance of IBM HTTP Server V7.0 requires the availability of a Java Software Development Kit (SDK) to provide **jar** command used to unpack product files. SMP/E will use SMPJHOME to locate the Java SDK during APPLY and RESTORE processing. You can use either the following SMPJHOME DD statement during APPLY and RESTORE:

```
//SMPJHOME DD PATH='/usr/lpp/java/IBM/J5.0'
```

(NOTE: Use the correct directory for your system)

**OR** create a DDDEF entry in the target zone.

```
SET BOUNDARY (<was target zone>) .  
UCLIN .  
ADD DDDEF (SMPJHOME)  
PATH('/usr/lpp/java/IBM/J5.0/').  
ENDUCL.
```

(NOTE: Use the correct directory for your system)

See the *SMP/E for z/OS Reference* for more information about SMPJHOME.

## 5.4.2 Selecting Driving System Mountpoints

During installation of IBM HTTP Server V7.0 on the driving system, the target HFS or zFS file system must be mounted at the following mountpoint:

```
-PathPrefix-/usr/lpp/IHSA/V7R0
```

where `-PathPrefix-` is an HFS or zFS path prefix such as `/SERVICE` or `/HHAP70`. Use of a path prefix allows maintenance to be applied to IBM HTTP Server data sets without disturbing the production HFS or zFS data sets. For more information on the use of an HFS or zFS path prefix during product maintenance, see the Unix System Services Planning book for your release of z/OS.

Care must be taken that maintenance is applied to the proper HFS or zFS. Be sure to verify that the correct HFS or zFS is mounted at your service mountpoint(s) whenever maintenance is applied.

## 5.4.3 Selecting Target System Mountpoints

During customization and operation of IBM HTTP Server V7.0, the file system must be mounted on the target system. The default mountpoint is:

```
/usr/lpp/IHSA/V7R0
```

## 5.4.4 Removal of IBM HTTP Server Levels

IBM HTTP Server versions prior to IBM HTTP Server V7.0 should be maintained until all applications have been migrated to V7.0.0.

Refer to the IBM HTTP Server Information Center Reference Library for migrating to V7.0.0.

---

## 6.0 Installation Instructions

This chapter describes the installation method and the step-by-step procedures to install and activate the functions of IBM HTTP Server V7.0.

This release of IBM HTTP Server V7.0 is installed using the SMP/E RECEIVE, APPLY, and ACCEPT commands. The SMP/E dialogs may be used to accomplish the SMP/E installation steps.

---

### 6.1 Installing IBM HTTP Server V7.0

IBM HTTP Server V7.0 can be installed into any set of existing SMP/E zones for SREL Z038 (for example, a set of zones for z/OS).

#### 6.1.1 Sample Jobs

Sample jobs to allocate the target and distribution libraries, set up HFS or zFS directories, and create DDDEF entries for IBM HTTP Server V7.0 have been provided.

Figure 16 lists the sample jobs for IBM HTTP Server V7.0.

*Figure 16. Sample Installation Jobs - HHAP700*

Job Name	Job Type	Description	RELFILE
HAPRECEV	RECEIVE	Sample job to receive base and maintenance	IBM.HHAP700.F1
HAPALLOC	ALLOCATE	Sample job to add additional target zone definitions for IBM HTTP Server V7.0	IBM.HHAP700.F1
HAPISMKD	MKDIR	Sample job to invoke the supplied HAPMKDIR EXEC to create HFS or zFS paths for IBM HTTP Server V7.0	IBM.HHAP700.F1
HAPDDDEF	DDDEF	Sample job to define SMP/E DDDEFs for IBM HTTP Server V7.0	IBM.HHAP700.F1
HAPAPPLY	APPLY	Sample job to apply base and maintenance	IBM.HHAP700.F1
HAPACCEP	ACCEPT	Sample job to accept base and maintenance	IBM.HHAP700.F1

You can access the sample installation jobs by performing an SMP/E RECEIVE and then copying the jobs from the RELFILEs to a work data set for editing and submission. See Figure 16 to find the appropriate RELFILE data set.

Each sample job contains comments with specific instructions for customization.

You may also choose to copy the jobs from the tape or product files by submitting the job below. Use either the //TAPEIN or the //FILEIN DD statement, depending on your distribution medium, and comment out or delete the other statement. Add a job card and change the lowercase parameters to uppercase values to meet your site's requirements before submitting.

```
//STEP1 EXEC PGM=IEBCOPY
//SYSPRINT DD SYSOUT=*
//TAPEIN DD DSN=IBM.HHAP700.F1,UNIT=tunit,
// VOL=SER=volser,LABEL=(x,SL),
// DISP=(OLD,KEEP)
//FILEIN DD DSN=IBM.HHAP700.F1,UNIT=SYSALLDA,DISP=SHR,
// VOL=SER=filevol
//OUT DD DSNAME=jcl-library-name,
// DISP=(NEW,CATLG,DELETE),
// VOL=SER=dasdvol,UNIT=SYSALLDA,
// SPACE=(TRK,(30,20,5))
//SYSUT3 DD UNIT=SYSALLDA,SPACE=(CYL,(1,1))
//SYSIN DD *
COPY INDD=xxxxIN,OUTDD=OUT
/*
```

In the sample above, update the statements as noted below:

If using TAPEIN:

**tunit** is the unit value matching the product tape.

**volser** is the volume serial matching the product tape.

**x** is the tape file number where the data set name is on the tape.

Refer to the documentation provided by CBPDO to see where IBM.HHAP700.F1 is on the tape.

If using FILEIN

**filevol** is the volume serial of the DASD device where the downloaded files reside.

OUT

**jcl-library-name** is the name of the output data set where the sample jobs will be stored.

**dasdvol** is the volume serial of the DASD device where the output data set will reside.

SYSIN

**xxxxIN** is either TAPEIN or FILEIN depending on your input DD statement.

## 6.1.2 Perform SMP/E RECEIVE

Receive the function SYSMOD and service for the IBM HTTP Server V7.0 by running the RCVPDO job and specifying FMID **HHAP700**. See the *MVS CBPDO Memo to User Extension* included with the CBPDO.

The CBPDO contains all non-integrated PTFs for every IBM HTTP Server FMID. (Cumulative service is included in CBPDO orders, so there is no separate cumulative service tape.) Depending on the options selected when you ordered the CBPDO, your order may contain service for other products in your profile.



### 6.1.3 Define Target and Distribution Libraries

Customize and run the HAPALLOC sample job to define target and distribution libraries for the IBM HTTP Server V7.0.

**Expected Return Codes and Messages:** You will receive a return code of 0 if this job runs correctly.

### 6.1.4 Set Up Product Filesystem Directories

Customize the sample job HAPISMKD to mount the IBM HTTP Server V7.0 basic materials HFS or zFS and create the HFS or zFS target directories needed to install the IBM HTTP Server.

#### Important!

- The HAPISMKD and HAPDDDEF jobs use `-PathPrefix-` to represent a service directory on your driving system. It is assumed that you will be mounting the product filesystem under a service directory that already contains the `/usr` and `/usr/lpp` directories. If you specify a `-PathPrefix-` directory which does not contain `/usr` and `usr/lpp` subdirectories, you must manually create these subdirectories before running the HAPISMKD job. If `-PathPrefix-/usr/lpp` is not a read/write HFS or zFS, you will need to manually create some additional subdirectories as well. See the comments in the HAPISMKD job for further information.
- The HAPISMKD job will mount the product filesystem, create all product directories in it and create the base directory for IBM HTTP Server V7.0.

The customized sample job HAPISMKD must be run under a user ID with a number of system privileges; see 6.1, “Installing IBM HTTP Server V7.0” on page 19 for a summary of privileges that are needed to run HAPISMKD successfully.

**Expected Return Codes and Messages:** You will receive a return code of 0 if this job runs correctly.

Check the job output to verify that all directories have been created.

Verify that the product HFS or zFS is mounted at

`-PathPrefix-/usr/lpp/IHSA/V7R0`

### 6.1.5 Define SMP/E DDDEFs

Customize and run the sample job HAPDDDEF to create SMP/E DDDEFs for target and distribution data sets and directories.

**Expected Return Codes and Messages:** You will receive a return code of 0 if this job runs correctly.

## 6.1.6 Perform SMP/E APPLY

Customize and run the sample job HAPAPPLY to perform an SMP/E APPLY CHECK of the IBM HTTP Server V7.0.

The SMP/E apply job must be run with a user ID having a number of system privileges; see 6.1, "Installing IBM HTTP Server V7.0" on page 19 for a summary of privileges that are needed to run HAPAPPLY successfully.

To receive the full benefit of the SMP/E Causer SYSMOD Summary Report, do *not* bypass any of the following on the APPLY CHECK: PRE, ID, REQ, and IFREQ. This is because the SMP/E root cause analysis identifies the cause only of **ERRORS** and not of **WARNINGS** (bypassed SYSMODs are treated as warnings, not errors, by SMP/E).

**Note:** The GROUPEXTEND operand indicates that SMP/E should APPLY all requisite SYSMODS. The requisite SYSMODS may be part of other products; review the APPLY CHECK output carefully before proceeding.

**Expected Return Codes and Messages:** You will receive a return code of 0 if this job runs correctly (or a return code of 4, if any HOLDS are bypassed).

Once you have resolved any problems indicated by the APPLY CHECK, remove the CHECK operand and run the job again to perform the APPLY.

You will receive a return code of 0 if this job runs correctly (or a return code of 4, if any HOLDS are bypassed).

## 6.1.7 Perform SMP/E ACCEPT

Customize and run the sample job HAPACCEP to perform an SMP/E ACCEPT CHECK of the IBM HTTP Server V7.0.

**Expected Return Codes and Messages:** You will receive a return code of 0 if this job runs correctly.

To receive the full benefit of the SMP/E Causer SYSMOD Summary Report, do *not* bypass any of the following on the ACCEPT CHECK: PRE, ID, REQ, and IFREQ. This is because the SMP/E root cause analysis identifies the cause only of **ERRORS** and not of **WARNINGS** (bypassed SYSMODs are treated as warnings, not errors, by SMP/E).

Once you have resolved any problems indicated by the ACCEPT CHECK, remove the CHECK operand and run the job again to perform the ACCEPT.

**Expected Return Codes and Messages:** You will receive a return code of 0 if this job runs correctly.

---

## 7.0 Activation Instructions

---

### 7.1 Activating IBM HTTP Server V7.0

IBM HTTP Server V7.0 must be configured once SMP/E installation is complete. See the IBM HTTP Server information center for more information:

#### 7.1.1 Mount the Product Filesystem on the Target System

Before proceeding with activation, unmount the IBM HTTP Server product file system on the driving system, and mount them on the target system at the target system mountpoints. See 5.4.3, "Selecting Target System Mountpoints" on page 18, for assistance in selecting the mountpoint. If you have selected the default mountpoint, you can use the following TSO commands on your target system to mount the product filesystem:

```
MOUNT FILESYSTEM('hlq.SIWOHFS') MOUNTPOINT('/usr/lpp/IHSA/V7R0') TYPE(HFS) MODE(READ)
```

#### 7.1.2 Activating IBM HTTP Server V7.0

Activation information is also available in the IBM HTTP Server V7.0 information center located here:

<http://www.ibm.com/software/webservers/htpservers/library/>

#### 7.1.3 Migrating from Previous Releases of IBM HTTP Server

For specific migration information, see IBM HTTP Server information center for IBM HTTP Server which is accessible via the library Web site:

<http://www.ibm.com/software/webservers/htpservers/library/>

Find the selection for the Information Center and select "HTML". Select topic, *Migrating and installing IBM HTTP Server*.

---

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## Reader's Comments

### Program Directory for IBM HTTP Server V7.0, September 26, 2008

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Necessity of all installation tasks	1	2	3	4	5	N
Accuracy of the definition of the installation tasks	1	2	3	4	5	N
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Printed in USA

GI11-4298-00

