

z/OS Version 1 Release 7 Update Workshop Overview and Migration



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International Technical Support Organization

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eNetwork	DFSMS/MVS	IMS	RACF
geoManager	DFSMSdfp	IMS/ESA	RMF
AD/Cycle	DFSMSdss	IP PrintWay	RS/6000
ADSTAR	DFSMShsm	IPDS	S/390
AFP	DFSMSrmm	Language Environment	S/390 Parallel Enterprise Server
APL2	DFSORT	Multiprise	SecureWay
APPN	Enterprise System 3090	MQSeries	StorWatch
BookManger	Enterprise System 4381	MVS/ESA	Sysplex Timer
BookMaster	Enterprise System 9000	Network Station	System/390
C/370	ES/3090	NetSpool	SystemView
CallPath	ES/4381	OfficeVision/MVS	SOM
CICS	ES/9000	Open Class	SOMobjects
CICS/ESA	ESA/390	OpenEdition	SP
CICS/MVS	ESCON	OS/2	VisualAge
CICSPlex	First Failure Support Technology	OS/390	VisualGen
COBOL/370	FLowMark	Parallel Sysplex	VisualLift
DataPropagator	FFST	Print Services Facility	VTAM
DisplayWrite	GDDM	PrintWay	WebSphere
DB2	ImagePlus	ProductPac	3090
DB2 Universal Database	Intelligent Miner	PR/SM	3890/XP
DFSMS/MVS	IBM	QMFr	z/OS
			z/OS.e

Domino (Lotus Development Corporation)
DFS (Transarc Corporation)
Java (Sun Microsystems, Inc.)
Lotus (Lotus Development Corporation)

Tivoli (Tivoli Systems Inc.)
Tivoli Management Framework
(Tivoli Systems Inc.)
Tivoli Manger (Tivoli Systems Inc.)

UNIX (X/Open Company Limited) Windows (Microsoft Corporation) Windows NT (Microsoft Corporation)



z/OS Version 1 Release 7 Agenda



- □ z/OS V1R7 overview
 - > z9-109 software support
- □ zFS V1R7
- LFS migraiton with z/OS UNIX
- □ z/OS UNIX V1R7
- SAPI enhancements
- □ Console restructure phase 1b
- ☐ JES networking with TCP/IP
- ☐ JES2 V1R7
- □ IBM Health Checker
- □ WLM enhancements
- □ ServerPac and SMP/E V3R4
- ☐ Service aids



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Ordering z/OS V1R7



- ☐ Program Number: 5694-A01
 - Ensure you order the optional priced and unpriced features that you were using in previous releases of z/OS
 - > Remember your export controlled features, if you desire.
 - z/OS Security Level 3
 - Communications Server Security Level 3
- ☐ Tivoli NetView and System Automation users take note!
 - z/OS msys for Operations contains parts of these products
 - System Automation for z/OS V2R3 (5645-006) can be ordered with and is compatible with z/OS V1R7 msys for Ops
- Order z/OS V1R7 electronically via ShopzSeries



z/OS V1R7 Install Related Enhancements

- □ Documentation enhancements for z/OS V1R7
 - For z/OS V1R7, the z/OS Migration book (GA22-7499) is expanded to cover all three supported migration paths
 - > The three migration paths are:
 - z/OS V1R6 to z/OS V1R7
 - z/OS V1R5 to z/OS V1R7
 - z/OS V1R4 to z/OS V1R7 (which is the entire book)

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z/OS Version 1 Release 7 Features



- Exploitation of select features for the new IBM System z9 109 (z9-109) with increased scale for large I/O configurations and large single images
- ☐ Simplified z/OS management with integrated IBM Health Checker for z/OS and additional health checks
- Advances in network security and cryptography
- □ Further performance optimization for TCP/IP networking with better interaction with network-based load balancers
- □ Simplified application integration and development with improvements in z/OS UNIX System Services, zSeries File System (zFS), and XL C/C++, and more flexible ways to specify Language Environment options



New Elements and Features



Common Information Model (CIM)	New, exclusive, base element.	z/OS V1R7
IBM Health Checker for z/OS	New component of the BCP element. Prior to V1R7, the health checker function was packaged as a prototype via download. The new Health Checker component has been restructured into a framework and separate component checks.	z/OS V1R7



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z/OS V1R7 Enhancements - Agenda



- □ ServerPac Enhancements for z/OS V1R7
 - > File system Merge Support
 - Set up IBM Health Checker for z/OS
 - Removal of PSP bucket info in ServerPac, contains pointer to webpage URL
- ☐ SMP/E V3R4 Enhancements
 - Service acquisition and Internet delivery
- UNIX System Services
 - Dynamic Service Activation
 - Mounting file systems using SET OMVS= operator command



z/OS V1R7 Enhancements



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z/OS V1R7 Enhancements



- □ Language Environment
 - Providing default run-time options for a system using parmlib
- □ BCP
 - Dynamically changing APPC/MVS configuration using operator command SETAPPC

Coexistence with z/OS V1R7



- □ z/OS V1R7 planned for GA September 30, 2005
- ☐ All future releases are planned for GA in September

	- Cc				
z/OS	z/OS	z/OS	z/OS	z/OS	z/OS
V1R3	V1R4	V1R5	V1R6	V1R7	V1R8

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Service Policy



- □ Release serviceable for three years following GA
- Service on last release of a version might be extended

Release	General Availability	Service Expiration
OS/390 V2R10	29 September 2000	30 September 2004
z/OS V1R1	30 March 2001	31 March 2004
z/OS V1R2	26 October 2001	31 October 2004
z/OS V1R3 and z/OS.e V1R3	29 March 2002	31 March 2005 (announced)
z/OS V1R4 and z/OS.e V1R4	27 September 2002	31 March 2007 (announced) 18 months longer than normal 3-year service period.
z/OS V1R5 and z/OS.e V1R5	26 March 2004	31 March 2007 (planned)
z/OS V1R6 and z/OS.e V1R6	25 September 2004	September 2007 (planned)
z/OS V1R7 and z/OS.e V1R7	30 September 2005	September 2008 (planned)

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DASD Space Requirements - z/OS V1R7

- ☐ If you are migrating to z/OS V1R7 from a very old operating system release, or if you will have a different product set than your previous release, you will see increased need for DASD space
 - > The amount depends on what levels of products you are running

z/OSV1R6	z/OS V1R7

Target	5277	5225
DLIB	7338	7286
HFS	2800	2800

** Sizes in 3390 cylinders



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Supported Architecture Modes



zSeries Servers/z9-109

G5/G6





Multiprise 3000

	•	
OS/390 V2R10	ESA/390	ESA/390 or z/Architecture
z/OS V1R1	ESA/390	z/Architecture
z/OS V1R2 – V1R4	ESA/390	z/Architecture
z/OS V1R2 – V1R4**	ESA/390	ESA/390 or z/Architecture
z/OS V1R5	ESA/390	z/Architecture
z/OS V1R6, z/OS V1R7	not supported	z/Architecture

**Using z/OS Bimodal Migration Accommodation within terms of offering



Coexistence PTFs for Components



- □ BCP Console, Logger, IODF support
- □ **DFSMS** dfp, dss, hsm, OAM, RLS, VSAM support
- <u>Distributed File Service</u> zFS and aggregates support
- ☐ HCD IODF support
- ☐ JES2 for MAS support with lower levels
- □ JES3 for multisystem complex support with lower levels

From z/OS V1R6 Coexistence PTFs for z/OS V1R7

See z/OS Migration, GA22-7499
Contains all supported migration paths to z/OS V1R7

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z/OS Support Summary





	z9-109	z990	z890	z900	z800	G5/G5 Multiprise° 3000	End of Service	Coexists with	Ship Date
1.4	х	x	X	x	х	х	3/07	1.7	9/02
1.5	х	x	X	x	х	x	3/07*	1.8	3/04
1.6	х	x	X	x	X		9/07*	1.8	9/04
1.7	х	x	X	x	X		9/08*	1.9	9/05*
1.8*	х	X	x	x	x		9/09*	1.10	9/06*

z/OS Systems Management Tasks



Operations:

Management console for system health monitoring (Planned for 4Q 2005)

Configuration:

- z/OS Health Checker to help configure with best practices
- New in z/OS V1R7: More checks, integrated in z/OS, and new user interface

Maintenance:

- SMP/E Internet Service Delivery
- Can simplify and automate service acquisition



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z/OS Systems Management Tasks



■ Security:

- RACF based products to help administer security & monitor compliance
- Working with Vanguard Integrity Professionals, Inc.
- IBM Tivoli Administration for RACF lower function alternative

Networking:

- z/OS Network Security Configuration Assistant
- (Planned for Sept. 2005 via Web)

□ z/OS learning center for new users

- New publication: z/OS Basics
- Go to www.ibm.com/zseries/zos, see "Library"

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Statements of Direction for the future





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New Functions Available in 2005



- ☐ IBM intends to provide a new user interface for z/OS management to help the new generation of Information Technology workers by automating, eliminating, and simplifying many z/OS management tasks
 - The first phase of the new user interface (planned to be provided in a separate product) provides real-time health check information executed by the IBM Health Checker for z/OS and configuration status information for z/OS systems and sysplex resources
 - The new interface contains built-in automation and expert advice capabilities that provide detailed contextual information on alerts and corrective actions. This new interface is planned to be available in 4Q2005

Future Support for z/OS V1R7 Features



- z/OS V1R7 currently allows you to scale up in a single logical partition from 1 processor to 32 with good scalability1 and to scale out in a Parallel Sysplex cluster for higher availability
 - ➤ IBM plans to support more than 32 processors in a single logical partition on the z9-109 in the future
- □ IBM plans to announce a version of New Application License Charges (NALC) intended to help improve the price performance of z/OS in certain new workload environments by delivering subcapacity pricing
 - The offering and associated terms are targeted for availability in 2H2006



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Future Support for z/OS V1R7 Features



- □ IBM plans to introduce a new system component called z/OS XML System Services (z/OS XML) in a future release of z/OS
 - This component will be designed to provide an optimized set of services for parsing XML documents
 - It is expected to be of use to IBM, ISV, and customer middleware and applications having high performance or unique environmental XML parsing requirements, such as the ability to run in cross-memory and SRB modes
 - Initial support is planned to provide an assembler language interface; later, IBM plans to add C/C++ high-level language support
- ☐ This is based on internal IBM lab measurements



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IBM System z9 (z9-109) Support by z/OS Releases



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z9-109 Server



- □ The z/OS capabilities that you have on the z9-109 server depend on the level of z/OS that you execute on the z9-109
- More z/OS capabilities exist on the higher z/OS releases than on the lower z/OS releases
 - The lowest support z/OS release for the z9-109 is z/OS V1R4 with the z990 Compatibility feature
- ☐ The z990 Compatibility feature is no longer orderable, and has been replaced with the z990 Exploitation feature
 - The z990 Exploitation feature remains orderable until December 2006
- □ All z/OS V1R4 orders placed after 24 February 2004 automatically included the z990 Exploitation feature



New z/OS Support with z9-109



2094

z9-109

- 60 logical partitions
- ☐ 63.75K subchannels
- Multiple subchannel sets (MSSs)
- MIDAW facility
- □ FICON link incident report
- OSA-Express2 1000BASE-T Ethernet
- □ OSA-Express2 GARP VLAN Registration Protocol
- □ OSA-Express2 OSN support
- ☐ HiperSockets IPv6
- □ Crypto Express2



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z9-109 Support by z/OS Release



- □ z/OS V1R7 plus PTFs
- □ z/OS V1R6 plus PTFs
- □ z/OS V1R5 plus PTFs
- z/OS V1R4 with z990Exploitation Support feature + PTFs
- z/OS V1R4 with z990Compatibility Support feature + PTFs



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Functions on z990 now on z9-109



- □ All functions listed for z/OS V1R4, V1R5 and V1R6 for z990
- ☐ Plus following functions for z9-109
 - > Multiple subchannel sets support
 - Wild branch diagnosis improvement
 - > FICON link incident reporting
 - HiperSockets support of IPv6
 - > VLAN management enhancements
 - XLC C/C++ Enable ARCH(7)/TUNE(7) compiler options

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Single System Image



- □ A single system image (z/OS in an LPAR, for example) can control several processors (CPs, zAAPs, ILFs, as appropriate)
 - Maximum number of processors supported by each system image
 - z/OS V1 R7 Up to 32
 - z/OS V1 R6 Up to 32
 - z/OS V1 R4, R5 Up to 16
 - z/VM V5 R1, R2 Up to 24
 - z/TPF V1 R1 Up to 32



z/OS Support for z9-109 - z/OS V1R4



□ z/OS V1R4 - Exploitation support

- > 60 logical partitions Exploitation support + PTFs
- > 63.75K subchannel Exploitation support + PTFs
- Multiple subchannel sets (MSSs) Not supported
- MIDAW facility No Support
- > FICON link incident report No Support
- OSA-Express2 1000BASE-T Ethernet Exploitation + PTFs
- OSA-Express2 GARP VLAN Registration Protocol No Support
- OSA-Express2 OSN support Exploitation + PTFs
- HiperSockets IPv6 No Support
- Crypto Express2 PCI-X adapter support + PTFs



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z/OS Support for z9-109 - z/OS V1R5



□ z/OS V1R5 – exploitation

- > 60 logical partitions PTFs required
- > 63.75K subchannel PTFs
- > Multiple subchannel sets (MSSs) Not supported
- > MIDAW facility No Support
- > FICON link incident report No Support
- OSA-Express2 1000BASE-T Ethernet PTFs
- OSA-Express2 GARP VLAN Registration Protocol No Support
- OSA-Express2 OSN support PTFs
- HiperSockets IPv6 No Support
- Crypto Express2 -
 - PCI-X adapter support + PTFs



z/OS Support for z9-109 - z/OS V1R6



- □ z/OS V1R6 exploitation
 - > 60 logical partitions PTFs required
 - > 63.75K subchannel PTFs
 - Multiple subchannel sets (MSSs) Not supported
 - > MIDAW facility PTFs planned for 4Q/2005
 - > FICON link incident report No Support
 - OSA-Express2 1000BASE-T Ethernet PTFs
 - OSA-Express2 GARP VLAN Registration Protocol No Support
 - OSA-Express2 OSN support PTFs
 - > HiperSockets IPv6 No Support
 - Crypto Express2 -
 - PCI-X adapter support + Web deliverable
 - CPACF (CP assist for cryptography) Web deliverable



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z/OS Support for z9-109 - z/OS V1R7



□ z/OS V1R7

- > 60 logical partitions
- > 63.75K subchannel
- > Multiple subchannel sets (MSSs) PTFs
- > MIDAW facility PTFs
- > FICON link incident report
- OSA-Express2 1000BASE-T Ethernet PTFs
- OSA-Express2 GARP VLAN Registration Protocol
- > OSA-Express2 OSN support PTFs
- > HiperSockets IPv6
- Crypto Express2 -
 - PCI-X adapter support + Web deliverable
 - CPACF (CP assist for cryptography) Web deliverable

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z/OS V1R7 Support



- Multiple subchannel sets
 - zSeries processors have only one set of 63K subchannels
 - For z9-109, two subchannel sets are now available per LCSS, enabling a total of 63.75K subchannels in set-0 and adding 64K-1 subchannels in set-1
 - Multiple subchannel sets provides growth for I/O device configuration
- Operating system exploitation requirements
 - > z/OS 1.7 and later
 - z/OS will only allow Parallel Access Volume Alias (PAV-alias) devices in the second subchannel set
 - Sub Channels for any other devices not allowed in subchannel Set-1



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z/OS V1R7 Support



- ☐ Improved FICON recovery
- Wild branch diagnosis improvement
 - In z/OS V1R7 base
- □ Cryptographic support
 - > Support provided via Web download
- ☐ Improved RMF support for CPU activity and system address space analysis
- □ TCP/IP connectivity enhancements
- OSA CDLC for CCLs
 - Support provided by z/OS V1R4 and later



z/OS Support for z9-109



- □ z/OS 1.7 further exploitation
 - Multiple subchannel sets
 - > z/OS 1.7 is planned to support Server Timer Protocol
 - > FICON link incident reporting
 - Wild branch diagnosis support



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Software NOT Supported on z9-109



- □ z/OS.e (all releases)
 - Base z/OS V1R4
 - Does not have the z990 Compatibility <u>or</u> Exploitation Support feature installed
 - All ServerPac orders built after Feb. 24, 2003 automatically included the z990 Exploitation Support feature
 - The z/OS V1R4 z990 Exploitation Support feature is orderable through December 16, 2006 via CBPDO
- □ z/OS V1R1, V1R2 and V1R3
- Any OS/390 release

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z9-109 Migration Considerations



- ☐ Customer migration (including activation) actions vary depending on z/OS release and existing hardware
- □ z9-109 "inherits" migration considerations for z/Architecture and z990/z890
 - z/Architecture (64-bit)
 - > LPAR ID > x'F', CHPID Mapping Tool, sysplex coexistence
 - z9-109 "inherits" migration considerations for z/OS releases
 - z/OS V1R7 HCD
- ☐ Relatively few new migration actions introduced by z9-109
 - Lack of connectivity to G5/G6 in sysplex configurations
 - May see an increase of HSA



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z9-109 Migration Considerations



■ Update CFRM policies

- If a coupling facility image resides on a z990, then the LPAR ID (from the HMC Image Profile) is used in the CFRM policy
- In order to use an LPAR ID > 15 (X'F'), the z990 compatibility (or exploitation) code is required on all systems in the sysplex
- Use the SETXCF START,POLICY,TYPE=CFRM command to make the updated policy active
- Update automation for new and changed messages
 - Several messages and command output are updated for 2 digit LPAR IDs



z9-109 Migration Considerations



Update PARMLIB members

- IPCS support a new ICSF member, CSFIPCSP
- With exploitation, with the IEASYSxx parmlib member, the CMB= parameter is now ignored
- IEAOPTxx ECMB=NO NOT supported in z/OS V1R7 and higher
- With exploitation, the IEASYSxx parmlib member may require an increase (by 1) for the value of MAXCAD
- With exploitation, the SMFPRMxx parmlib member specifying the description of the serial number in the SID parameter is changed when running on a z990



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APARs Provide Compatibility Support



BCP Support for IODF Size Reduction	OA08197(*)
SMF recognizes new processor SU values, based on LSPR information for Measured Usage Reporting Program - IFAURP/IFAUMCCT	OA11730
EREP Support for new z9-109	IO00735 IR53369
HCD Processor Support Module (PIT)	OA07875(*)
IOCP	OA11665
RMF for Enhanced PR/SM Diagnose 204 Output	OA10346
HLASM support for new hardware instructions	PK02660
ICSF (Crypto toleration)	OA09157(*) OA11946
OSA/SF - OSA-Express2 CHPID type OSN	OA11007

(*) Integrated into z/OS V1R7 FMIDs





HCD Support







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HCD and the 2094 z9-109 Processor



- - z/OS V1R4 with the z990 Exploitation Support feature (HCD FMID HCS7708)
 - > z/OS V1R5 (HCD FMID HCS7708)
 - > z/OS V1R6 (HCD FMID HCS7708)
- ☐ To upgrade an IODF to V5 is only in z/OS V1R7 HCD (FMID HCD7720)
 - It is not in HCD APAR OA07875 for z/OS releases V1R4 to V1R6

Coexistence Maintenance



HCD at V5 Level and z/OS V1R7



- □ APAR OA07875 (FMID HCS7708) provides support for HCD users who share IODF data sets between pre-z/OS V1R7 systems and z/OS V1R7 systems
 - An upgrade of the IODF to V5 is only in z/OS V1R7 HCD (FMID HCD7720)
 - It is not in HCD APAR OA07875 for z/OS releases
 V1R4 to V1R6
 - IOS APAR OA08197 is required for IPL when sharing an IODF built with the z/OS V1R7 HCD
 - An IPL will fail without this APAR installed

Coexistence Maintenance

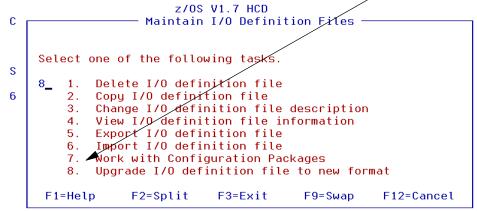


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Upgrade IODF to V5 Level Panel



Upgrade an IODF, which was built under an earlier release



For options 1 to 5, specify the name of the IODF to be used.

I/O definition file . . . 'SYS6.IODF27.WORK'

CBDA488I: "IODF xxx must be upgraded for the current HCD version."



Coexistence APARs for IODF



- □ To read from, IPL with, and dynamically activate an IODF at the V5 level, the PTFs for coexistence APARs OA07875 and OA08197 are required on back-level systems
- □ The coexistence PTF for APAR OA07875 does not allow you to <u>update</u> the V5 IODF from back-level systems
 - Once the IODF has been upgraded to V5, the z/OS V1R7 HCD libraries must be used to process updates to it

Coexistence Maintenance



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Functions Withdrawn in z/OS V1R7 and Future Releases





Functions Withdrawn in z/OS V1R7



One-byte console IDs on macro interfaces and operator commands and (TRACK, commands) (from BCP)	Base element – Use console names instead of 1-byte IDs. Use Console ID Tracking facility to identify one-byte IDs usage, supplied as of z/OS V1R4 Console Enhancement feature.	z/OS V1R7
ECMB=NO circumvention in IEAOPTxx (from BCP)	Base element – ECMB must be used, as the bypass will be removed	z/OS V1R7
JES2 "compatibility" R4 mode (from JES2)	Base element – to avoid a cold start, you must \$ACTIVATE to convert the JES2 checkpoint to z2 mode before installing z/OS V1R7	z/OS V1R7
JOBCAT and STEPCAT facilities (from DFSMSdfp)	Base element – any remaining JCL that use JOBCAT and STEPCAT must change	z/OS V1R7
Support for ISAM data sets (from DFSMS)	Base element – ISAM Compatibility interface will still be provided (which allows you to run an ISAM program against a VSAM KSDS data set)	z/OS V1R7
OS/390 R10 level of the C/C++ compilers (from C/C++)	Priced feature - move to the ISO 1998 Standard level of the compilers (introduced in z/OS V1R2)	z/OS V1R7
z/OS Optional Source media feature	Not an element, an z/OS orderable feature	z/OS V1R7



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Functions Withdrawn in Future Releases

zFS multi-file system aggregates	Base element - zFS compatibility mode aggregates	Planned for a
shared across a sysplex (from	(which have a single file system per data set) will	release after
Distributed File Service)	continue to be supported in all environments.	R7
Firewall Technologies (from	Base element - Many Firewall Technologies functions	Planned for a
Integrated Security Services)	have been been stabilized and can be replaced w/ Communications Server functions. Some functions won't have replacements.	release after R7
Some Communications Server	Base element - TCP/IP Configuration profile block	Planned for a
Functions	definitions, PAGTSNMP subagent, EE TGs definition by specifying multiple SAP addrs, and AnyNet	release after R7
Any remaining one-byte console	Base element - Use console names instead of one byte	Planned for a
ID support (from BCP)	console IDs	release after R7
Bind DNS 4.9.3 (from Communications Server)	Base element – implement BIND 9.2.0 as a replacement (available since z/OS R4)	Future release
OROUTED (from Communications Server)	Base element – use OMPROUTE as the dynamic routing daemon	Future release
English and Japanese panels from DFSORT	Priced feature – no replacement offered	Future release
zFS multi-file system aggregates (from Distributed File Service)	Base element - zFS compatibility mode aggregates will still be supported	Future release
Support for VSAM data sets with IMBED, REPLICATE, or KEYRANGE attributes (from DFSMS)	Base element – plan to redefine any affected VSAM data sets. Use tool to assist in identifying affected VSAM data sets	Future release