



**z/XDC<sup>®</sup>**  
**RELEASE GUIDE**

**z/XDC<sup>®</sup> Release z1.9**  
**for z/OS**

David B. Cole

# **z/XDC<sup>®</sup> z1.9 RELEASE GUIDE**

## **PREFACE**

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## **(Preface)**

Our snail mail address is:

Address: **Cole Software, LLC**  
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Our home page provides the following services:

- General information about z/XDC.
- E-mail links to both Marketing, Technical Support, and Customer Services.
- FTP links for uploading diagnostic information and other files to Technical Support.
- FTP links for downloading current maintenance for z/XDC.
- Links permitting existing customers to download a full set of z/XDC's documentation.
- Online product delivery.
- 24x7 self-service for temporary, short-term, license activation codes for use in D.R. tests and other emergencies.

## **TRADEMARKS**

**TFS<sup>™</sup>**, **XDC-TFS<sup>™</sup>**, **CDF<sup>™</sup>**, **XDC-CDF<sup>™</sup>**, and **FASM<sup>™</sup>** are trademarks of Cole Software, LLC. **Extended Debugging Controller<sup>®</sup>**, **XDC<sup>®</sup>**, **XDC-SE<sup>®</sup>**, and **z/XDC<sup>®</sup>** are registered trademarks of Cole Software, LLC. Other brand and product names referenced in this document are trademarks or registered trademarks of their various holders. Use of their names herein is for identification purposes only.

## **ADDITIONAL MANUALS**

z/XDC customers may make as many copies of this manual as they feel is necessary for the legitimate use of z/XDC within their organization. Existing customers may download from our web site ([www.colesoft.com](http://www.colesoft.com)) printable copies of all of z/XDC's manuals. Each manual is available in PDF format.

In addition, all manuals (except the Installation Guide) can be printed directly from within z/XDC itself. To print your own set of manuals, start an z/XDC debugging session (example: XDCCALL IEFBR14), then issue the following commands:

```
PRINT HELP USERGUIDE;SET PRINT CLOSE
PRINT HELP COMMANDS;SET PRINT CLOSE
PRINT HELP MESSAGES;SET PRINT CLOSE
PRINT HELP WHATSNEW Z19;SET PRINT CLOSE
```

Alternatively, you also can print these manuals by issuing z/XDC's **READ** command to run the MANUALS member of z/XDC's script library. Example: **READ DBCOLE<sup>1</sup>.XDCZ19.XDCCMDS(MANUALS)**.

You also may print a **Quick Reference** for z/XDC by issuing z/XDC's **READ** command to run the QUICKREF member of z/XDC's script library. Example: **READ DBCOLE.XDCZ19.XDCCMDS(QUICKREF)**.

For more information about using the PRINT HELP and related commands, see **HELP HELP PRINTING**.

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<sup>1</sup>The library's high level qualifier may be different at your data center. Please ask your Systems Programmer.

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## INTRODUCTION

Cole Software has pursued the goal of making z/XDC's online documentation as comprehensive as possible. Towards that end, we have devoted considerable effort to greatly expanding the amount of information online and to improving the accessibility of that information and the navigability of the Online Help database as a whole.

This manual is nothing more than a printout of a section of the Online Help database. It is provided for those people (like myself) who steadfastly prefer looking at paper instead of glass. (It's hard to write margin notes on glass.)

The information in the Online Help database has been segmented into five printed documents:

- **z/XDC<sup>®</sup> User Guide**  
Contains comprehensive tutorials about the many features and capabilities of z/XDC.
- **z/XDC<sup>®</sup> Commands**  
Contains the detailed syntax, usage descriptions, and examples of all of z/XDC's commands.
- **z/XDC<sup>®</sup> Messages**  
Contains descriptions of all of the messages that can be issued by z/XDC and all of its various components.
- **z/XDC<sup>®</sup> z1.9 Release Guide**  
Contains a history of all changes and upgrades made in the current release of z/XDC.
- **z/XDC<sup>®</sup> Quick Reference**  
Contains brief lists of z/XDC commands, built-in equates, and other information.

There are a couple of important structural differences between the Online Help and these manuals:

- When the Help panels are displayed online, a large number of "hyperlinks" are available for easily pursuing subjects related to the current information. These hyperlinks do not exist in the printed manuals.
- The printed manuals contain comprehensive indexes to help you quickly find the specific information that you may be looking for. These indexes do not exist online.
- The PDF copies of the printed manuals can be searched using typical PC-style searching commands.
- "Release Guides" for older versions and releases of z/XDC are available online via the "HELP WHATSNEW" command.

### A Roadmap

The structure of this manual follows the structure of the Online Help database. A consequence of this is that the sequence of information in this book, over all, is decidedly non-sequential. For those of you who prefer to read a manual from beginning to end, please accept my apologies. However, please let me make some suggestions.

If you are an experienced z/XDC user, then start with the **z/XDC<sup>®</sup> z1.9 Release Guide**. This will tell you what's new in this release of z/XDC. Online, the Release Guide can be reached by typing HELP WHATSNEW. You can then use hyperlinks to pursue the specific information that is of interest to you.

For new users, turn to the **z/XDC<sup>®</sup> User Guide**, and examine its Table of Contents carefully. You will see that there are about two dozen major topics arranged alphabetically: Addressing, Attentions, Breakpoints, ..., Virtmem, XDCCALL. Information within topics is presented more or less sequentially. The following **User Guide** topics are of particular interest:

- Perhaps the first topic that should be read is named "**DEBUGGING**". This and its subtopics give comprehensive information about whether and to what extent you may have to modify your program in order to use z/XDC.
- Another topic that should be read early on is named "**XDCCALL**". XDCCALL is a utility program that can be used to start a debugging session for your program.
- If you plan to debug programs that run as batch jobs or system tasks, then read the "**CDF**" topic. "Cross Domain Facility" is the component of z/XDC that permits user terminals to connect to debugging sessions for background jobs.

For z/XDC command information, turn to the **z/XDC<sup>®</sup> Commands** manual. Start with the basic commands. The DISPLAY, FORMAT, and LIST commands display storage and important program related structures. The AT and TRAP commands set breakpoints. You can use the TRACE command to step execution through your program slowly. The ZAP command allows you

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## **(Introduction)**

to change storage and registers.

If you wish to play with z/XDC's terminal and user interfaces, read the "**FULLSCREEN**" section of the **User Guide**. Also, try the **PROFILE** command for displaying and changing a very large number of session parameters.

Generally, the best approach is to plan your reading using the Table of Contents. And of course, if you can't find the information that you are looking for, call us. There's no charge, and we will be glad to help! Our number is 800-XDC-5150 (USA: 928-771-2003). If the information that you want is in the book, we will explain what you want to know and tell you where to find complete information. If it is not, then we will add it for our next release.

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## **Online Help Panels**

### **Help Whatsnew**

XDC's Change History: For detailed information, type S at the left, then press ENTER. The information presented will be the most useful to experienced XDC users who want a concise summary of what has changed and a road map of where to look for more specific information.

```
z/XDC    z1.9 - (10/07) Major changes:
          - Support for using REXX to write user-written z/XDC
            commands.
          - Decimal floating point and binary floating point
            display support.
          - z/OS R1.9 support.

z/XDC    z1.8 - (10/06) Major changes:
          - Support for debugging SRB mode programs
          - Support for executing z/XDC as an FRR

z/XDC    z1.7 - (02/06) Beta release for z1.8
z/XDC    z1.6 - (11/04) Major changes:
          - Support for HL-ASM R1.5's ADATA
          - Support for z/OS R1.6's ALRF
          - Protected-storage protection support

z/XDC    z1.3 - (05/04) Autocloning, complete program object support, etc.
z/XDC    z1.2 - (10/03) Z/Architecture support (64-bit addressing, etc.)
XDC/SE   S2.0 - (12/00) Incremental changes implemented via maintenance.
XDC/SE   S2.0 - (08/00) New release: Source Level Debugging Support!
XDC/SE   S1.0 - (11/98) New version! PDS/E support! XMS Support! Etc.
XDC      X3.3 - (10/97) Incremental fixes and additions
XDC      X3.2 - (12/96) Incremental fixes and additions
XDC      X3.1 - (04/95) Beta-test release of X3.2
XDC      X3.0 - (06/94) MVS/ESA support
```

### **Help Whatsnew Z19**

z/XDC z1.9 includes all maintenance fixes to z1.8 and the following additional changes. For detailed information, you can select the following topics directly, or you can use HELP \*NEXT to proceed sequentially. Use HELP \*FORWARD to skip.

```
BFP - Support for displaying Binary Floating Point registers and data
has been added.

BRANCHES - Support has been added to z/XDC for building, maintaining and
displaying a user program's Branch History Table.

COMMANDS - Several z/XDC commands have been either added, deleted or
changed.

DDNAMES - Support for some new ddnames has been added.

DFP - Support has been added for displaying Decimal Floating Point
registers, data and machine instructions.

ONLINEHELP - New topics in the Online Help.

PROFILES - Several changes have been made relating to z/XDC's support of
session profiles.
```

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## **(Help Whatsnew Z19)**

- REFRPROT** - z/OS R1.9 has a new configuration setting, named REFRPROT, that affects how the System loads **refreshable** modules into storage. z/XDC z1.9 has new commands and a ddname that allow you to display global and local REFRPROT settings and to manipulate local settings.
- REXX** - Support has been added to z/XDC permitting user commands to be written in REXX.
- SCRIPTS** - A new commands script (HOOK) has been added. Another (QUICKGO) has been deleted.
- ZOSR19** - z/OS R1.9 has several APIs that have changed in ways that are incompatible with older releases of z/OS. Several updates have had to be made in z/XDC in response to those changes.
- MISCELLANEOUS** - This is a list of minor changes.
- INCOMPATIBILITIES** - Changes in this release of z/XDC that are incompatible with prior releases.

## **Help Whatsnew Z19 BFp**

The following changes have been made in support of Decimal Floating Point (DFP) and Binary Floating Point (BFP):

- Recognition has been added for the new decimal floating point machine instructions.
- Support has been added to the following z/XDC commands for displaying floating point data in all three formats: hexadecimal, decimal and binary. The commands are:
  - LIST FLOAT**
  - LIST FRn**
- New names have been created for referencing individual floating point registers via the **LIST** command. These names affect how the register's floating point data is interpreted and displayed. The names are:
  - **LIST HFRn**: Displays hexadecimal floating point format data.
  - **LIST DFRn**: Displays decimal floating point format data.
  - **LIST BFRn**: displays binary floating point format data.
  - **LIST FRn**: Displays all three floating point formats.

## **Help Whatsnew Z19 BRanches**

Support has been added to z/XDC for building, maintaining and displaying a Branch History Table for the user's program. Every time z/XDC receives control, it checks to see whether or not the user program's current retry level instruction is a branch type instruction (including SVC instructions and PC instructions). If so, then an entry is added to a **Branch History Table** to record this event. The **LIST BRANCHES** instruction then displays information from that table. For more information, see HELP COMMANDS LIST BRANCHES.

## **Help Whatsnew Z19 Commands**

The following commands are either new to z/XDC z1.9, changed in z/XDC z1.9 or deleted from z1.9.

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## **(Help Whatsnew Z19 Commands)**

### **LIST BFRn**

This is a new command that displays the specified floating point register in **binary** floating point formats. For more information, see HELP COMMANDS LIST FREGS INDIVIDUAL.

### **LIST BRANCHES**

This is a new command that displays the user program's recent branch history. For more information, see HELP COMMANDS LIST BRANCHES.

### **LIST DFRn**

This is a new command that displays the specified floating point register in **decimal** floating point formats. For more information, see HELP COMMANDS LIST FREGS INDIVIDUAL.

### **LIST ENQ**

This command displays information about currently existing ENQs and ENQ contention (if any). For more information, see HELP COMMANDS LIST ENQ.

### **LIST EREGS**

#### **LIST REGS**

This command now displays an extra message when it detects that any high half (RHn or ERHn) of any register contains non-zero data. See HELP COMMANDS LIST GENERALREGISTERS REGISTERSET for more information.

### **LIST FEATURES**

New features reported by this command are:

- **DFP**: The Decimal Floating Point Feature
- **DFPHP**: The High Performance Decimal Floating Point Feature
- **MIXCPSWD**: Mixed Case Passwords Support
- **REFRPROT**: The Refreshable Load Modules Protection Feature

New operands are now supported that permit you to display only those features that are either new since the introduction of z/Architecture and z/OS or are older (or both).

The LIST FEATURES command now defaults to displaying only z/Architecture and z/OS related features. Display of older features has to be explicitly requested.

### **LIST FRn**

This command has been changed to display the specified floating point register in **all three** floating point formats: decimal, hexadecimal and binary. For more information, see HELP COMMANDS LIST FREGS INDIVIDUAL.

### **LIST HFRn**

This is a new command that displays the specified floating point register in **hexadecimal** floating point formats. For more information, see HELP COMMANDS LIST FREGS INDIVIDUAL.

### **LIST MAINTENANCE**

#### **LIST XDC**

The z/XDC license expiration date has been added to the report produced by this command. (I had a customer who wanted a way to write a batch program that would query for z/XDC's expiration date and then do whatever with that information. Well, the easiest, but still generally useful thing for me to do was to simply add the expiration date to the LIST XDC report. He was when willing to write a UCI exit that could scrape and use that information.)

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## **(Help Whatsnew Z19 Commands)**

### **LIST PROFILE** (deleted)

This command has been deleted. Its function has been replaced and enhanced by a new command, **LIST PROFILES**. (See below)

### **LIST PROFILES**

This is a new command that can be used to display information about any or all session profiles created by any clone of any version and release of XDC. It also can be used to show information about the currently active profile. For more information, see **HELP COMMANDS LIST PROFILES**.

### **LIST REFRPROT**

This is a new command that allows you to display the current REFRPROT settings, both the system-wide setting and the local settings, for any task in any accessible address space. See **HELP COMMANDS LIST REFRPROT** for details.

### **LIST REGS**

#### **LIST EREGS**

This command now displays an extra message when it detects that any high half (RHn or ERHn) of any register contains non-zero data. See **HELP COMMANDS LIST GENERALREGISTERS REGISTERSET** for more information.

### **LIST REXX**

#### **REXX LISTREXX**

These two commands are identical. They both display information about the current state of the XDC/REXX interface. See **HELP COMMANDS LIST REXX** for details.

### **LIST SSCT**

This is a new command that displays information about the system's currently defined subsystems. It runs the subsystem queue (SSCTs) and reports what it finds. For more information, see **HELP COMMANDS LIST SSCT**.

### **LIST SUBPOOLS**

The output of this command has been improved in several ways:

- An "Amount Used" column has been added to all displays.
- The display of an area's starting and ending addresses have been improved to make them more readable.
- For the **LIST SUBPOOLS LOCAL** command, Information has been added to each private area's report, detailing:
  - **(REGION)** The user's region within the private area.
  - **(GMAIN LMT)** The portion of the user region that is available for GETMAIN'ing storage. (May be less than the region area when high-end private storage expands too far into low-end storage.)
  - **(LO-END USE)** The amount of low-end private storage that is in use.
  - **(HI-END USE)** The amount of high-end private storage that is in use.
  - **(GAP)** The size of the gap between allocated low-end and high-end storage.

For more information, see **HELP COMMANDS LIST SUBPOOLS**.

### **LIST XDC**

#### **LIST MAINTENANCE**

The z/XDC license expiration date has been added to the report produced by this command. (I had a customer who wanted a way to write a batch program that would query for z/XDC's expiration date and then do whatever with that information. Well, the easiest, but still generally useful thing for me to do was to simply add the expiration date to the LIST XDC report. He was when willing to write a UCI exit that could scrape and use that information.)

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## **(Help Whatsnew Z19 Commands)**

### **REXX**

This is a new command that allows the user to run user written subcommands written in REXX. See HELP COMMANDS REXX for details.

### **REXX ENDREXX**

This is an optional command for taking down a XDC/REXX interface. It closes the environment in which user written REXX execs run. For more information, See HELP COMMANDS REXX.

### **REXX LISTREXX**

#### **LIST REXX**

These two commands are identical. They both display information about the current state of the XDC/REXX interface. See HELP COMMANDS LIST REXX for details.

### **REXX STARTREXX**

This is an optional command for setting up the XDC/REXX interface. It creates the environment in which user written REXX execs will run. For more information, See HELP COMMANDS REXX.

### **SET PROFILE**

This is a new command that can be used to set characteristics of the currently active profile. In particular, this command can be used to assign a description of your choosing to the currently active profile. For more information, see HELP COMMANDS SET PROFILE.

### **SET REFRPROT**

This is a new command that allows you to change the REFRPROT override for any task in any accessible address space. See HELP COMMANDS SET REFRPROT for details.

### **ZAP**

When zapping address data (i.e. not string data), the ZAP command now has a way to specify a 32-bit wide value (in addition the already supported 24-bit, 31-bit and 64-bit wide values).

In addition, the width of address data (24 bits, 31 bits, 32 bits or 64 bits) can now be forced by including the WIDTH(...) built-in function in the address expression that defines the address data. See HELP COMMANDS ZAP for details.

## **Help Whatsnew Z19 DDnames**

Support for the following ddnames has been either added or changed. Select the hyperlinks for more detailed information. For complete information about all ddnames related to z/XDC, see HELP DDNAMES.

**xxxREFR8:** When running in systems where the REFRPROT facility is installed and active, this DUMMY ddname provides a signal that causes XDCCALL to cause refreshable programs to be loaded into user key storage (instead of key-0 storage) for problem state-and-key debugging. See HELP DEBUGGING REFRESHABLE for more information.

**xxxREXX:** This points to a library of REXX execs to be used as user written z/XDC commands.

#### **xxxTSPRT**

**SYSTSPRT:** These ddnames are used by z/XDC's REXX interface (the REXX command) to receive output of REXX's **SAY** and **TRACE** instructions.

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## Help Whatsnew Z19 DFp

The following changes have been made in support of Decimal Floating Point (DFP) and Binary Floating Point (BFP):

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- Support has been added to the following z/XDC commands for displaying floating point data in all three formats: hexadecimal, decimal and binary. The commands are:
  - LIST FLOAT**
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- New names have been created for referencing individual floating point registers via the **LIST** command. These names affect how the register's floating point data is interpreted and displayed. The names are:
  - **LIST HFRn**: Displays hexadecimal floating point format data.
  - **LIST DFRn**: Displays decimal floating point format data.
  - **LIST BFRn**: displays binary floating point format data.
  - **LIST FRn**: Displays all three floating point formats.

## Help Whatsnew Z19 Onlinehelp

As with any new release, the Online Help has been extensively updated to document the changes. But in addition, the following topics have either been added or extensively revised, so particular mention is appropriate.

### **HELP CDF CONNECTION**

This is a new topic that discusses the management of a terminal connection to a batch job debugging session (via CDF). The topic includes discussions of the **ATTENTION key** and the **DISCONNECT;GO** command sequence.

### **HELP COMMANDS LIST SUBPOOLS REPORTS**

This is a new topic that discusses in detail the several and varied reports that can be produced by the **LIST SUBPOOLS** command. Did you know ...

- That the **LIST SUBPOOLS addressexpression** command can be used to identify the subpool or free area that contains a questionable address?
- That the **LIST SUBPOOLS LOCAL** command can be used to definitively diagnose storage shortages that can arise when LSQA grows so large as to encroach into the user region?

### **HELP DEBUGGING REENTRANT**

This is a old topic that has been revised a bit and moved from HELP BREAKPOINTS area (what was I thinking!) over to the HELP DEBUGGING area.

### **HELP DEBUGGING REFRESHABLE**

This is a new topic discussing the issues (and solutions) raised by z/OS R1.9's new REFRPROT facility.

## Help Whatsnew Z19 Profiles

The following changes have been made regarding z/XDC's support of session profiles.

### **Commands**

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## **(Help Whatsnew Z19 Profiles)**

The old LIST PROFILE command has been replaced by a completely redesigned **LIST PROFILES** command that displays information about saved profiles (as well as about the current profile). See HELP COMMANDS LIST PROFILES for more information.

A new **SET PROFILE** command has been written to allow users to create an arbitrary description that will be displayed by the LIST PROFILES command. See HELP COMMANDS SET PROFILE for more information.

### **Descriptions**

Support has been added allowing users to assign an arbitrary description to the current session profile. The description can be set either by the new SET PROFILE command or by a new input field in the Profile Menuing System. The description will be saved by the PROFILE SAVE command and displayed by the LIST PROFILES command.

### **Performance**

At debugging session startup time, the logic by which z/XDC searches for and finds its initial default profile has been substantially improved. This should result in a significantly shorter start-of-session delay for users that have not yet saved their own custom profile.

## **Help Whatsnew Z19 REFProt**

z/OS R1.9 has a new configuration setting, named REFProt, that affects how the System loads **refreshable** modules into storage. Previously, the REFR attribute had no effect as to whether a module was loaded into user key storage or key-0 storage. (It was the RENT attribute that affected this, not REFR). But starting with z/OS R1.9, if a data center decides to "turn on" the REFProt facility, then load modules and program objects having the REFR attribute will always be loaded into key-0 storage, **regardless** of whether or not it is loaded from an APF authorized library, and **regardless** of whether or not the RENT attribute also is on.

z/OS R1.9 supports both a system-wide REFProt setting and a task-level REFProt override. z/XDC z1.9 has new commands that allow you to display and manipulate REFProt settings:

- **LIST REFProt** allows you to display the current REFProt settings, both the system-wide setting and the local settings for any task in any accessible address space. See HELP COMMANDS LIST REFProt for more information.
- **SET REFProt** allows you to change the REFProt override for any task in any accessible address space. See HELP COMMANDS SET REFProt for more information.

Also, when the xxxCALL utility is used to start a debugging session, an //xxxREFR8 DD DUMMY allocation can be used to cause xxxCALL to disable the REFProt facility for all tasks in the debugging session. See HELP XDCCALL DDNames for more information.

## **Help Whatsnew Z19 REXx**

Support for user written REXX execs has been added to z/XDC. This support permits users to write their own z/XDC commands using the REXX programming language.

To use this support, all you have to do is allocate your library of REXX execs to ddname //xxxREXX. Then run your exec by issuing the command: **REXX membername operands**, where:

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## **(Help Whatsnew Z19 REXx)**

- **REXX** is a new z/XDC command for running REXX subcommands.
- **membername** is the name of the library member that contains the REXX exec that you want to run.
- and **operands** is whatever argument string (if any) that your REXX exec may require.

For more information, see HELP REXX.

(Note, I first attempted to introduce REXX support in z/XDC's prior release, z1.8; however, I was focused on other work at the time; and unfortunately, that initial attempt was not sufficiently robust, and so our support for it had to be withdrawn. The current release of REXX support has substantially redesigned and rewritten. We have a high confidence that it will meet the needs of those customers who want to use it. -Dave Cole)

## **Help Whatsnew Z19 Scripts**

The following changes have been made to the command scripts that are distributed with z/XDC. (Command scripts are executed via the **READ** command.)

### **QUICKGO**

The purpose of this command script was to cause the xxxCALL utility to start running the user's program immediately, without pausing first to display z/XDC's initial panel. this function has been superseded by the **//xxxQUICK DD DUMMY** ddname. In addition, other recent changes to xxxCALL have made it impossible for this command script to work at all. Accordingly, QUICKGO has been deleted from the product. For more information, see HELP XDCCALL DDNAMES.

### **HOOK**

(He's baaaaackkkkkk ...) A few releases ago, an old version of a HOOK script was deleted from the product since its function had been entirely superseded by the then new **HOOK command**. (See HELP COMMANDS HOOK.) Well, it turns out that there still is a need for a **HOOK script** after all.

The HOOK command, being based upon a service invoked by an **SVC** instruction, cannot be used within a PC routine, within code running in cross memory mode, within locked code, etc. So I got creative and wrote a **new HOOK script** that will actually work within all those exotic environments! For details, see HELP SCRIPTS HOOK.

## **Help Whatsnew Z19 Zosr19**

z/OS R1.9 has several APIs that have changed in ways that are incompatible with older releases of z/OS. Several updates have had to be made in z/XDC in response to those changes.

- In z/OS R1.9, IBM dropped support for SYSEVENT BRINGIN. But z/XDC used BRINGIN in its internal recovery for s0D5 abends that might occur when accessing private storage in a foreign address space via cross memory techniques while that space is "swapped out" (whatever that means these days). Well, the s0D5 recovery logic has been changed. Now, a do-nothing SRB is scheduled into the target space to cause the space to be "swapped in" so that the cross memory access can be reattempted.
- IBM added support in z/OS R1.9 for loading **refreshable** load modules into key-0 storage. (Previously, they were always loaded into user key storage.) This facility is called **REFRPROT**. Support has been added to z/XDC to help manage this new facility. See HELP WHATSNEW Z19 REFRPROT for more information.

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## **(Help Whatsnew Z19 Zosr19)**

- In ISPF, IBM made changes to certain OCO control blocks that resulted in z/XDC being unable to use its ISPF managed terminal interface. These changes have been identified and corrected for.

Older releases of z/XDC will suffer failures when used in z/OS R1.9 systems. z/OS R1.9 customers will be required to upgrade to z/XDC release z1.9.

## **Help Whatsnew Z19 Miscellaneous**

The following minor changes have been made:

### **Floating Point Register Name Displays**

The names of floating point registers, as displayed by the **FORMAT** and **WHERE** commands, have been changed from **FPRn** to just **FRn**. This makes the displays consistent with the names used by the **LIST FRn** command.

### **Machine Instructions**

Recognition has been added for the following new machine instructions:

- All Decimal floating point instructions
- PFPO: Perform Floating Point Operation

### **Maximum Map Size**

The limit on the maximum size of a map (particularly source image maps) has been increased from 16M to 64M. (Yes, there really was someone who blew through the old limit.)

### **Messages Manual Index**

All messages documented in the **z/XDC Messages** manual are now indexed.

### **RDDD(...) Built-In Function Fixed**

The **RDDD(...)** built-in function is used within an address expression to load and resolve an s-con from storage and redirect the address expression to the location pointer by the s-con. In other words, it's a kind of indirect operator. Unfortunately, when resolving the s-con, z/XDC had not been truncating the width of the resolved address down to the 24-bit, 31-bit or 64-bit width implied by the indirect operation. This would often result in addresses pointing into the 2G-4G area of storage (the **DEADZONE**) due do the **AMODE** flag being on in the scon's base register. Anyway, this problem has finally been fixed.

### **Script Command Emphasis**

Both command files processed by the **READ** command and the associated commands (if any) processed by the breakpointing commands (**AT**, **ATX**, **TRAP** and **TRACE**) are called **SCRIPTS**. As a command script is executed, the commands themselves are echoed to the session log and (SET **READECHO** permitting) to the user's terminal. Now, when such commands are echoed, they are framed in the log by **>>>** and **<<<** for emphasis. This will make reviewing a session log a little bit easier to follow.

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## **(Help Whatsnew Z19 Miscellaneous)**

### **Help Whatsnew Z19 Incompatibilities**

The following changes have been made that are incompatible with prior releases of z/XDC:

#### **SVC and Intercepts are now Required**

Support for running z/XDC **without** its service SVC, HOOK SVC and various system intercepts has been dropped. Starting with this release, we take the view that the presence of z/XDC's System Interface routines is **required**.

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Please note that this index is sorted according to the ASCII collating sequence, not EBCDIC. In particular, this means that digits sort in front of (not behind) alphabets, and that only some special characters sort in front of alphabets. Others sort behind alphabets.

The word processing program that is used here supports only two levels of index entries: main topics and sub-topics. When a sub-topic entry says "**see major topics**", this indicates that you should look for the same index entry among the main topics.

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