Note!

Before using this information and the product it supports, be sure to read the general information under "Notices" on page 31.
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About this document

This document describes how to use an application programming interface (API) to create, delete, and modify DTCN profiles.

Who might use this document

This document is intended for programmers that are developing applications that need access to the DTCN profiles stored on a z/OS® system. Programmers must be familiar with using APIs that use the HTTP protocol and the Representational State Transfer (REST) access method. Programmers must also be familiar with DTCN profiles.

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How this document is organized

This document is divided into areas of similar information for easy retrieval of appropriate information. The following list describes how the information is grouped:

• Chapter 1 describes, in general terms, the two parts of the API: the resources it identifies and the actions you can do on those resources.
• Chapter 2 describes, in more detail, the actions that you can do on resources, and the codes used by the z/OS system to indicate whether the actions were completed successfully.
• Chapter 3 describes the security measures you must consider when you access
DTCN profiles, how to identify which version of the API you are using, and
how compatibility is determined between different versions of the API.
• Chapter 4 describes the changes you have to make to the z/OS system where
the DTCN profiles are stored so that the API can access them.
• Chapter 5 describes the meaning of the XML tags you use to create the XML
documents that contain the information required to do each action.
• Appendix A displays a sample HTTP request body and a sample HTTP response
body.
• Appendix B describes the resources that are available to help you solve any
problems you might encounter with Debug Tool.
• Appendix C describes the features and tools available to people with physical
disabilities that help them use Debug Tool and Debug Tool documents.

The last several topics list notices, bibliography, and glossary of terms.

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information. If you have comments about this document or any other Debug Tool
documentation, contact us in one of these ways:
• Use the Online Readers’ Comment Form at www.ibm.com/software/awdtools/
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  the document, the version of Debug Tool, and, if applicable, the specific location
  (for example, page number) of the text that you are commenting on.
• Send your comments by email to comments@us.ibm.com. Be sure to include the
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  if applicable, the specific location of the text you are commenting on (for
  example, a page number or table number).

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obligation to you.
Summary of changes

This section lists the key changes made to Debug Tool for z/OS that affect this publication and the locations in this publication describing these changes.

Changes introduced with the PTF for APAR PM44285

Changes for this release of the product include:

- Support for Delay Debug has been introduced. The following changes, if applicable, are marked with revision bars and include the following new options to EQAOPTS:
  - DLAYDBG
  - DLAYDBGDSN
  - DLAYDBGTRC

  Note that this support applies only to non-CICS environments.

- The EQAOPTS DYNEDEBUG command has been added to allow you to specify an initial default for the SET DYNEDEBUG command.

- The %CHAR Debug Tool built-in function has been added to allow the user to caused the result of an expression to be displayed in EBCDIC format.

- The NONLESP option has been added to EQANMDBG and this allows you to direct Debug Tool to use a different storage subpool for its storage, in cases where the program being debugged does a FREEMAIN of subpool 1 (where Debug Tool places its data by default).

- A new parameter, COMPOPTS, is now supported by the Load Module Analyzer. COMPOPTS causes the compiler options that are known at runtime to be listed for each CSECT in the load module.

- Secure communication has been implemented between the z/OS host and a workstation remote debugger over the TCP/IP network.

- A new consolidated user exit EQAD3CXT replaces EQADBCXT, EQADDCXT, and EQADICXT.

  EQAD3CXT can be linked into the user application, CEEBINIT, or CEEPIPI.

  Note, that the existing user exit routines are still supported for upward compatibility and to help your transition to the consolidated user exit.

Changes introduced with the PTF for APAR PM27734

Support for non-Language Environment COBOL has been enhanced. The following changes, if applicable, are marked with revision bars:

- The phrase "non-Language Environment COBOL" has been changed to "LangX COBOL" and the support has been extended.

- LangX COBOL now includes any of the following supported through the use of an EQALANGX file:
  - Programs compiled using the IBM OS/VS COBOL compiler (previously included in non-Language Environment COBOL).
  - Programs compiled using the VS COBOL II compiler with the NOTEST compiler option (previously included in non-Langauge Environment COBOL only when link-edited with a non-Language Environment library).
- Programs compiled using the Enterprise COBOL compiler with the NOTEST compiler option.

**Changes introduced to the -01 edition of the *Debug Tool Customization Guide***

In Debug Tool V11, the Terminal Interface Manager was enhanced to remove the need for a site to set up a separate TN3270E port or to customize a set of terminal LUs. This simplified installation is now documented in “Enabling debugging in full-screen mode using the Terminal Interface Manager” of the *Debug Tool Customization Guide*. For information on customizing a system to support “full-screen mode using a dedicated terminal without Terminal Interface Manager” (specified via the MFI% option in the TEST runtime options string), refer to the *Debug Tool Customization Guide* “Appendix B. Enabling debugging in full-screen mode using a dedicated terminal”. Also, refer to the *Debug Tool Customization Guide* “Appendix B. Enabling debugging in full-screen mode using a dedicated terminal” for information on how the Terminal Interface Manager (specified via the VTAM% option in the TEST runtime options string) was installed in the previous versions of Debug Tool.

**Changes introduced with Debug Tool V11**

The following changes, if applicable, are marked with revision bars:

- An additional method for specifying EQAOPTS options has been added. You can now supply EQAOPTS options at run time by specifying a data set containing EQAOPTS options. Information about the EQAOPTS options has been reorganized and renamed. EQAOPTS options are now called EQAOPTS commands. Information about the EQAOPTS commands is located in the following topics:
  - In the *Debug Tool Customization Guide*, information previously found in “Defining EQAOPTS options: checklist and instructions” has been moved to . This topic is also included in *Debug Tool Reference and Messages*.
  - A new option, EQAOPTS, has been added to the QUERY command; see “QUERY command” in the *Debug Tool Reference and Messages*.
  - The panels for DTCN have been updated to include a field where you can specify the data set name of the EQAOPTS file; see “Creating and storing a DTCN profile” in the *Debug Tool User’s Guide*.
  - A description of the EQAOPTS file has been added to “Data sets used by Debug Tool” in the *Debug Tool User’s Guide*.
  - A new XML tag (<EQAOPTSFILE>) has been added to the topic “Definition of XML tags,” on page 11.

- In the *Debug Tool Customization Guide* all information about customizations required for remote debug mode have been consolidated into one topic called “Adding support for remote debug users”.
  Most of the information in topic “Customizing your z/OS system to give the API access to DTCN profiles” of the *Debug Tool API User’s Guide and Reference* has been moved into this new topic and renamed to “Adding support for the DTCN Profiles view and APIs”.

- In the *Debug Tool User’s Guide* some information that was previously in the appendix “Notes on debugging in remote debug mode” has been moved to the online help for the compiled language debugger component of Rational Developer for System z and the IBM Debug Tool plug-in for Eclipse. Information that was previously in the appendix “Running a sample plug-in that uses the
API” of the Debug Tool API User’s Guide and Reference has been moved to the topic “Installing the DTCN Profiles view to the remote debugger”.
Chapter 1. Introduction to the API resources and actions

Debug Tool provides an API that communicates with the DTCN profile manager so that you can create, retrieve, update, or delete profiles in the DTCN profile repository. This API uses the HTTP protocol and provides a RESTful (Representational State Transfer) access method. The API describes (abstracts) resources and actions you can do on the resources.

Resource description

The resources are a DTCN profile and a DTCN profile repository. The following list describes how Debug Tool abstracts a DTCN profile and a DTCN profile repository as a Uniform Resource Identifier (URI):

**DTCN profile**

http://ip/dtcn/profileID

**DTCN profile repository**

http://ip/dtcn

The following table describes each symbol in the URI:

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ip</td>
<td>The IP address and port number of the CICS® HTTP server.</td>
</tr>
<tr>
<td>dtn</td>
<td>Name of the profile collection, which must be dtn.</td>
</tr>
<tr>
<td>profileID</td>
<td>A key which identifies a specific profile. This is the TSO user ID of the owner of the DTCN profile.</td>
</tr>
</tbody>
</table>

You can use a query string to provide additional information, the client version, and a profile record number to the DTCN profile manager. You specify a query string by adding a delimiter (the question mark, ?) after the resource name. The following table describes the symbols you can use in the query string:

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>clientversion=nmm</td>
<td>A four digit decimal number that identifies the version of the API that you are using in your application. To learn how to identify version numbers and determine compatibility, see “Compatibility of different versions” on page 7.</td>
</tr>
<tr>
<td>s=number</td>
<td>A decimal number that identifies a profile in the profile repository. The DTCN profile manager numbers profile records in the repository in sequence beginning with 1.</td>
</tr>
</tbody>
</table>

The following examples describe how you might write an URI with a query string:

http://yourhost.yourcompany.com:30000/dtcn/userjoe?clientversion=0102

Identifies a DTCN profile stored in the host yourhost and owned by user userjoe.
http://anotherhost.yourcompany.com:30000/dtcn?clientversion=0102&s=1
Use this URI with the GET method to retrieve up to the first 10 profiles
starting with profile record 1 in the DTCN profile repository on the host
anotherhost.

Action descriptions

The following table describes the actions you can do on a resource:

Table 3. HTTP methods and their corresponding actions

<table>
<thead>
<tr>
<th>HTTP method</th>
<th>Corresponding action</th>
</tr>
</thead>
<tbody>
<tr>
<td>GET</td>
<td>READ (retrieve a specific profile)</td>
</tr>
<tr>
<td>GET</td>
<td>LIST (retrieve a collection of profiles)</td>
</tr>
<tr>
<td>POST</td>
<td>UPDATE</td>
</tr>
<tr>
<td>PUT</td>
<td>CREATE</td>
</tr>
<tr>
<td>DELETE</td>
<td>DELETE</td>
</tr>
</tbody>
</table>

For each action, you provide any data needed to do an action in the HTTP request
body. The host returns any data in the HTTP response body and the response
status code and reason phrase in the HTTP response header. The HTTP request
and response bodies are XML documents. To learn about the tags in the XML
document, see Chapter 5, “Definition of XML tags,” on page 11. You can see an
example of an XML document in Appendix A, “Examples: HTTP request body and
HTTP response body,” on page 19. To learn more about the specific information
you must provide for each action, and the information you receive from the host
after it completes an action, see Chapter 2, “HTTP methods, response status codes,
and reason phrases,” on page 3.
Chapter 2. HTTP methods, response status codes, and reason phrases

This topic describes the HTTP methods (the actions you can do on a resource), response status codes, and reason phrases. The response status codes and reason phrases are stored in the HTTP response body and HTTP request body.

HTTP methods

The following list describes the HTTP methods you can use on an URI.

GET method (READ)
Retrieve a specific DTCN profile from the DTCN profile repository. You must provide the repository name, the profile ID, and the client version in the URI. The HTTP request body must not contain any data. In the HTTP response body, the DTCN profile manager returns an XML document that contains control information (for example, a message and the server version) and the contents of the specified profile.

GET method (LIST)
Retrieve a list of the DTCN profiles from the DTCN profile repository, up to ten at a time. In the URI, you must provide the repository name, a number that identifies a profile in the profile repository, and the client version. The HTTP request body must not contain any data. In the HTTP response body, the DTCN profile manager returns an XML document that contains control information (for example, a message and the server version) and a set of ten or fewer profiles.

The DTCN profile manager can return up to 10 profiles, starting with the number you specified in the s=number symbol of the query string.

You can retrieve the entire repository by repeating the GET request. In the first request, specify “1” as the number in the s=number symbol. Repeat the request, each time adding the number of profiles returned from the previous request, until the DTCN profile manager returns no more profiles.

POST method (UPDATE)
Modify a specific profile with the information in the HTTP request body. In the URI, you must provide the profile ID and the client version. In the HTTP request body, you must provide all the profile information in a well-formed XML document. In the HTTP response body, the DTCN profile manager returns an XML document that contains control information (for example, a message and the server version).

PUT method (CREATE)
Create a new profile with the information in the HTTP request body. In the URI, you must provide the profile ID and the client version. In the HTTP request body, you must provide all the profile information in a well-formed XML document. In the HTTP response body, the DTCN profile manager returns an XML document that contains control information (for example, a message and the server version).

DELETE method (DELETE)
Delete the specified profile. In the URI, you must provide the profile ID and the client version. The HTTP request body must be empty. In the HTTP
response body, the DTCN profile manager returns an XML document that contains control information (for example, a message and the server version).

### HTTP response status codes and reason phrases

The following table shows the status codes and reason phrases the DTCN profile manager might send to your application:

<table>
<thead>
<tr>
<th>Status code</th>
<th>Reason phrase</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>200 OK</td>
<td></td>
<td>The DTCN profile manager completed the method (action) successfully.</td>
</tr>
<tr>
<td>200</td>
<td>Profile_ALREADY_EXISTS_WITH_IDENTICAL_RESOURCES</td>
<td>A PUT request was sent specifying resources that are already used by another profile in the DTCN profile repository. The DTCN profile manager did not create a new profile.</td>
</tr>
<tr>
<td>200</td>
<td>Profile_ALREADY_EXISTS_WITH_SAME_OWNER</td>
<td>A PUT request was sent specifying a profile ID that is already used by another profile in the DTCN profile repository. The DTCN profile manager did not create a new profile.</td>
</tr>
<tr>
<td>201</td>
<td>Profile_CREATED_OK</td>
<td>The DTCN profile manager successfully created a new profile.</td>
</tr>
<tr>
<td>400</td>
<td>Unsupported_CLIENT_VERSION</td>
<td>A client version that is 2 or more levels higher or lower than the server version was specified.</td>
</tr>
<tr>
<td>400</td>
<td>Invalid_CLIENT_VERSION</td>
<td>The syntax of the clientversion symbol is incorrect. For the correct syntax, see &quot;Compatibility of different versions&quot; on page 7.</td>
</tr>
<tr>
<td>400</td>
<td>Invalid_PROFILE_RECORD_NUMBER</td>
<td>Starting profile record number is incorrect.</td>
</tr>
<tr>
<td>400</td>
<td>No_RESOURCE_SPECIFIED</td>
<td>No resources were specified in the HTTP request body.</td>
</tr>
<tr>
<td>400</td>
<td>Site_RULES_REQUIRE_TERMINAL_ID_SPECIFIED</td>
<td>The HTTP request body does not specify a terminal ID. The DTCN profile manager requires that you specify a terminal ID.¹</td>
</tr>
<tr>
<td>400</td>
<td>Site_RULES_REQUIRE_TRANSACTION_ID_SPECIFIED</td>
<td>The HTTP request body does not specify a transaction ID. The DTCN profile manager requires that you specify a transaction ID.¹</td>
</tr>
<tr>
<td>400</td>
<td>Site_RULES_REQUIRE_AT_LEAST_ONE_LOAD_MOD_NAME_SPECIFIED</td>
<td>The HTTP request body does not specify the name of a load module. The DTCN profile manager requires that you specify the name of at least one load module.¹</td>
</tr>
<tr>
<td>400</td>
<td>Site_RULES_REQUIRE_AT_LEAST_ONE_PROGRAM_NAME_SPECIFIED</td>
<td>The HTTP request body does not specify the name of a compile unit. The DTCN profile manager requires that you specify the name of at least one compile unit.¹</td>
</tr>
</tbody>
</table>
Table 4. Explanation of reason phrases (continued)

<table>
<thead>
<tr>
<th>Status code</th>
<th>Reason phrase</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>400</td>
<td>Site_Rules_Require_User_ID_Specified</td>
<td>The HTTP request body does not specify a user ID. The DTCN profile manager requires that you specify an user ID.¹</td>
</tr>
<tr>
<td>400</td>
<td>Site_Rules_Require_NetName_Specified</td>
<td>The HTTP request body does not specify a netname. The DTCN profile manager requires that you specify a netname.¹</td>
</tr>
<tr>
<td>400</td>
<td>Site_Rules_Require_Client_IP_Specified</td>
<td>The HTTP request body does not specify the IP address of the client. The DTCN profile manager requires that you specify the IP address of the client.¹</td>
</tr>
<tr>
<td>400</td>
<td>Invalid_Session_Address</td>
<td>For a PUT or POST request, the HTTP request body is missing the &lt;sessaddr&gt; tag or a value in the &lt;sessaddr&gt; tag, which is required if you specify TCP in the &lt;sessiontype&gt; tag.</td>
</tr>
<tr>
<td>400</td>
<td>Invalid_Session_Type</td>
<td>The HTTP request body specifies a value for the &lt;sesstype&gt; tag that is invalid. MFI or TCP are the only valid values for the &lt;sesstype&gt; tag.</td>
</tr>
<tr>
<td>400</td>
<td>Invalid_Session_Port</td>
<td>The HTTP request body specifies a value for the &lt;sessport&gt; tag that is not numeric or specifies a port number when the session type is MFI. A port number is used only when the session type is TCP.</td>
</tr>
<tr>
<td>400</td>
<td>Invalid_UrmDeb_Flag</td>
<td>The HTTP request body specifies a value for &lt;urmdebug&gt; tag that is invalid. Y or N are the only valid values for the &lt;urmdebug&gt; tag.</td>
</tr>
<tr>
<td>400</td>
<td>Invalid_Activation_Flag</td>
<td>The HTTP request body specifies a value for &lt;activation&gt; tag that is invalid. A or I are the only valid values for the &lt;activation&gt; tag.</td>
</tr>
<tr>
<td>400</td>
<td>Invalid_Trigger</td>
<td>The HTTP request body specifies a value for the &lt;trigger&gt; tag that is invalid. TEST or NOTEST are the only valid values for the &lt;trigger&gt; tag.</td>
</tr>
<tr>
<td>400</td>
<td>Invalid_Test_Level</td>
<td>The HTTP request body specifies a value for the &lt;level&gt; tag that is invalid. The only valid values for the &lt;level&gt; tag are ALL, ERROR, or NONE.</td>
</tr>
<tr>
<td>400</td>
<td>Error_Parsing_XML_Doc</td>
<td>z/OS XML parser failed to parse the HTTP request.</td>
</tr>
<tr>
<td>400</td>
<td>Bad Request</td>
<td>The URI is invalid.²</td>
</tr>
<tr>
<td>401</td>
<td>No_Write_Access_For_Unauthorized_User</td>
<td>The user ID specified in the &lt;userid&gt; tag is not authorized (through RACF®) to update or delete another user’s profile.</td>
</tr>
</tbody>
</table>
### Table 4. Explanation of reason phrases (continued)

<table>
<thead>
<tr>
<th>Status code</th>
<th>Reason phrase</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>401</td>
<td>CICS_Default_Userid_Not_Allowed</td>
<td>The CICS default user ID can not be used to access profiles.</td>
</tr>
<tr>
<td>401</td>
<td>Create_Not_Allowed_By_Non_Owner</td>
<td>Only the owner of a profile can create a profile with the same user ID.</td>
</tr>
<tr>
<td>404</td>
<td>Profile_Not_Found</td>
<td>For the GET, POST, or DELETE request, the DTCN profile manager did not find a profile with the specified profile (user) ID.</td>
</tr>
<tr>
<td>500</td>
<td>CICS_Error</td>
<td>There was an error in the CICS region.</td>
</tr>
<tr>
<td>500</td>
<td>Dtcn_Manager_Received_Invalid_Function</td>
<td>The DTCN profile manager had internal error.</td>
</tr>
<tr>
<td>500</td>
<td>Unknown_Return_Code_Error</td>
<td>The DTCN profile manager had internal error.</td>
</tr>
</tbody>
</table>

**Notes:**

1. When Debug Tool was installed, it was customized so that when a user created a DTCN profile, Debug Tool verifies that the user specifies a specific resource or resources. If you receive this message, it means that your site requires that you specify the indicated resource when you create a DTCN profile.

2. A DFHWB0723 message appears in the CICS region job output that shows a response code of 8 and one of the following reason codes:

   - 5 Profile collection name is missing
   - 6 Profile collection name is invalid
   - 7 Profile ID is missing
   - 8 Profile ID is too long
   - 9 Profile ID is invalid
   - 10 Query string is missing
   - 11 Client version is invalid
   - 12 Query string is invalid
   - 13 Starting profile record is invalid

The following example shows how the message appears in the CICS region job output:

```plaintext
DFHWB0723 04/29/2009 19:30:10 S07CICP8 CWXN The CICS Web analyzer program returned an error response. Program name: EQADCAN0.
```
Chapter 3. Authentication, access control, and version compatibility

You must authenticate any user that wants to create, delete, or modify DTCN profiles. The DTCN profile manager then determines if the user has the correct access to create, delete, or modify DTCN profiles. The DTCN profile manager also determines if the version of the API running in your application is compatible with the version of the API running on the z/OS system.

How to authenticate a user

Authenticating a user involves the following tasks:
1. You must obtain the user's CICS user ID and password.
2. Encrypt their user ID and password with a base64 encoding scheme and place it in the header area of the HTTP request. For additional protection during transmission, you might want to use the HTTPS protocol with SSL encryption.
3. Transmit your HTTP request. The CICS HTTP server authenticates the user ID and password by using the RACF facility or other equivalent security facility.

How DTCN profile manager determines access to DTCN profiles

After the CICS HTTP server authenticates a user, it determines whether the user is authorized to do the HTTP request.

An authenticated user can read any profile (GET, where corresponding action is READ) or obtain a list of profiles in the repository (GET, where corresponding action is LIST). However, only the profile owner can create (PUT), update (POST), or delete (DELETE) his profile. You can give a user the ability to update or delete a profile owned by any user by adding that user's ID to the EQADTOOL.DTCNCHNGEANY resource profile of the FACILITY class, as described in the topic "Defining who can create, modify, or delete DTCN profiles" in the Debug Tool Customization Guide.

Compatibility of different versions

When Debug Tool releases an update to the API, it assigns each release a version number. The following table describes the version numbers:

<table>
<thead>
<tr>
<th>Debug Tool for z/OS version number</th>
<th>Corresponding API version number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Version 10</td>
<td>0102</td>
</tr>
</tbody>
</table>

When you write your application, you identify the version of the API that you are using with the clientversion symbol in the URI. When the DTCN profile manager responds, it sends you the version of the API that it is using with the <serverversion> XML tag in the HTTP response body.

The following table describes how the DTCN profile manager and your application respond when the version numbers differ:
Table 6. How the DTCN profile manager and your application respond to differences in version numbers

<table>
<thead>
<tr>
<th>Version difference</th>
<th>What the DTCN profile manager does</th>
<th>What your application does</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>&lt;clientversion&gt; = &lt;serverversion&gt;</code></td>
<td>The DTCN profile manager processes the request and responds with results from the request.</td>
<td>Your application accepts the DTCN profile manager’s response and continues running.</td>
</tr>
<tr>
<td><code>&lt;clientversion&gt; &gt; &lt;serverversion&gt;</code></td>
<td>If <code>&lt;clientversion&gt;</code> is more than two levels higher than the <code>&lt;serverversion&gt;</code>, the DTCN profile manager responds with the HTTP response status code of 400, and the reason phrase “Unsupported_Client_Version”. Otherwise, the DTCN profile manager processes the request and sends an HTTP response body that uses the XML tags for the version of the API that the DTCN profile manager is using.</td>
<td>If your application can use the information provided at the <code>&lt;serverversion&gt;</code> and <code>&lt;profileversion&gt;</code> level, continue running. Otherwise, display a message that says the DTCN profile manager is running a version of the API that is too old.</td>
</tr>
<tr>
<td><code>&lt;clientversion&gt; &lt; &lt;serverversion&gt;</code></td>
<td>If the <code>&lt;clientversion&gt;</code> is more than two levels lower than the <code>&lt;serverversion&gt;</code>, the DTCN profile manager responds with the HTTP response status code of 400 and the reason phrase “Unsupported_Client_Version”. Otherwise, the DTCN profile manager processes the request and sends an HTTP response body that uses the XML tags for the version of the API that your application is using.</td>
<td>If the DTCN profile manager responds with a <code>&lt;profileversion&gt;</code> level that your application can use, continue running. Otherwise, display a message that says the DTCN profile manager is running a version of the API that is too recent.</td>
</tr>
</tbody>
</table>
Chapter 4. Customizing your z/OS system to give the API access to DTCN profiles

Before you begin using the API, you must do the following tasks:

- Verify that the application you are developing provides the proper authentication and security measures, as described in Chapter 3, “Authentication, access control, and version compatibility,” on page 7.

- Enable TCP/IP communication between your application and the z/OS system, as described in the topic “Defining the CICS TCPIPSERVICE resource” in the Debug Tool Customization Guide.

- If you want users other than the profile owners to modify or delete DTCN profiles, see the topic “Defining who can create, modify, or delete DTCN profiles” in the Debug Tool Customization Guide.
Chapter 5. Definition of XML tags

This topic describes the XML tags used to create the XML document that contains the data required in HTTP request and response bodies.

<ACTIVATION>
A flag to activate or deactivate the profile or indicate the status of a profile.

<table>
<thead>
<tr>
<th>Maximum length</th>
<th>1 byte</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid values</td>
<td>A, I</td>
</tr>
<tr>
<td>Usage</td>
<td>Optional</td>
</tr>
<tr>
<td>Default</td>
<td>I</td>
</tr>
</tbody>
</table>

<CICSREGIONNAME>
The name of a CICS region that end user wants to access.

<table>
<thead>
<tr>
<th>Maximum length</th>
<th>8 bytes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sample value</td>
<td>507CICPH</td>
</tr>
<tr>
<td>Usage</td>
<td>Output only</td>
</tr>
<tr>
<td>Default</td>
<td>Not applicable</td>
</tr>
</tbody>
</table>

<CLIENTIP>
The IP name or address that starts the CICS application that the end user wants to debug.

<table>
<thead>
<tr>
<th>Maximum length</th>
<th>60 bytes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sample value</td>
<td>9.30.60.1.1</td>
</tr>
<tr>
<td>Usage</td>
<td>Optional</td>
</tr>
<tr>
<td>Default</td>
<td>Null</td>
</tr>
</tbody>
</table>

<CLIENTVERSION>
The version of the API you are using in your application. For a description of the version numbers, see “Compatibility of different versions” on page 7.

<table>
<thead>
<tr>
<th>Maximum length</th>
<th>4 bytes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sample value</td>
<td>0102</td>
</tr>
<tr>
<td>Usage</td>
<td>Output only</td>
</tr>
<tr>
<td>Default</td>
<td>Not applicable</td>
</tr>
</tbody>
</table>

<COMMANDFILE>
The name of a file that contains a set of Debug Tool commands to control the debug session.

<table>
<thead>
<tr>
<th>Maximum length</th>
<th>80 bytes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sample value</td>
<td>ELIN.TEST.COMMANDS</td>
</tr>
<tr>
<td>Usage</td>
<td>Optional</td>
</tr>
<tr>
<td>Default</td>
<td>*</td>
</tr>
</tbody>
</table>
<COMMAREA_DATA>
A data pattern, in character string or hexadecimal format, compared against a
commarea passed to the program the end user wants to debug when that
program is invoked. If the data pattern in the commarea and other specified
resources match, that program is debugged.

<table>
<thead>
<tr>
<th>Maximum length</th>
<th>60 bytes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sample value</td>
<td>X'C1C2C3'</td>
</tr>
<tr>
<td>Usage</td>
<td>Optional</td>
</tr>
<tr>
<td>Default</td>
<td>Null</td>
</tr>
</tbody>
</table>

<COMMAREA_OFFSET>
A numeric, in character string or hexadecimal format, that represents an offset
data in a commarea passed to the program the end user wants to debug
when that program is invoked.

<table>
<thead>
<tr>
<th>Maximum length</th>
<th>8 bytes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sample value</td>
<td>X'AC'</td>
</tr>
<tr>
<td>Usage</td>
<td>Optional</td>
</tr>
<tr>
<td>Default</td>
<td>Null</td>
</tr>
</tbody>
</table>

<CONTAINER_DATA>
A data pattern, in character string or hexadecimal format, compared to a
container within the current channel passed to the program the end user wants to debug when that program is invoked. If the data pattern in the container and other specified resources match, that program is debugged.

<table>
<thead>
<tr>
<th>Maximum length</th>
<th>60 bytes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sample value</td>
<td>X'C1C2C3'</td>
</tr>
<tr>
<td>Usage</td>
<td>Optional</td>
</tr>
<tr>
<td>Default</td>
<td>Null</td>
</tr>
</tbody>
</table>

<CONTAINER_NAME>
Name of the container within the current channel passed to the program the end user wants to debug when that program is invoked.

<table>
<thead>
<tr>
<th>Maximum length</th>
<th>16 bytes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sample value</td>
<td>INPUTCNT</td>
</tr>
<tr>
<td>Usage</td>
<td>Optional</td>
</tr>
<tr>
<td>Default</td>
<td>Null</td>
</tr>
</tbody>
</table>

<CONTAINER_OFFSET>
A numeric, in character string or hexadecimal format, that represents an offset
data in the named container within the current channel passed to the program the end user wants to debug when that program is invoked.

<table>
<thead>
<tr>
<th>Maximum length</th>
<th>8 bytes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sample value</td>
<td>X'T2C'</td>
</tr>
<tr>
<td>Usage</td>
<td>Optional</td>
</tr>
<tr>
<td>Default</td>
<td>Null</td>
</tr>
</tbody>
</table>
**<EQAOPTSFILE>**
Name of a file containing a set of EQAOPTS commands to set the initial environment for the debug session.

<table>
<thead>
<tr>
<th>Maximum length</th>
<th>54 bytes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sample value</td>
<td>USER1.EQAOPTS.DATA</td>
</tr>
<tr>
<td>Usage</td>
<td>Optional</td>
</tr>
<tr>
<td>Default</td>
<td>(blank)</td>
</tr>
</tbody>
</table>

**<LEVEL>**
Conditions required for Debug Tool to gain control.

<table>
<thead>
<tr>
<th>Maximum length</th>
<th>8 bytes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid values</td>
<td>ALL, ERROR, NONE</td>
</tr>
<tr>
<td>Usage</td>
<td>Optional</td>
</tr>
<tr>
<td>Default</td>
<td>ALL</td>
</tr>
</tbody>
</table>

**<LOADNAME>**
The name of the load module that the user wants to debug, which is part of a program specification. Use this tag with the <PGMNAME> tag to identify a specific compile unit.

<table>
<thead>
<tr>
<th>Maximum length</th>
<th>8 bytes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sample value</td>
<td>APP1LMD1</td>
</tr>
<tr>
<td>Usage</td>
<td>Optional</td>
</tr>
<tr>
<td>Default</td>
<td>Null</td>
</tr>
</tbody>
</table>

**<MESSAGE>**
An informational or error message returned by the server.

<table>
<thead>
<tr>
<th>Maximum length</th>
<th>60 bytes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sample value</td>
<td>Invalid_Client_Version</td>
</tr>
<tr>
<td>Usage</td>
<td>Output only</td>
</tr>
<tr>
<td>Default</td>
<td>Not applicable</td>
</tr>
</tbody>
</table>

**<NETNAME>**
The name of a logical unit in the VTAM® network.

<table>
<thead>
<tr>
<th>Maximum length</th>
<th>8 bytes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sample value</td>
<td>CICSNET1</td>
</tr>
<tr>
<td>Usage</td>
<td>Optional</td>
</tr>
<tr>
<td>Default</td>
<td>Null</td>
</tr>
</tbody>
</table>

**<OTHEROPTS>**
Additional Language Environment® run time options needed to run the application that the end user wants to debug.

<table>
<thead>
<tr>
<th>Maximum length</th>
<th>80 bytes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sample value</td>
<td>STORAGE(00,00,00)</td>
</tr>
</tbody>
</table>
<PGMNAME>
   The name of the compile unit the user wants to debug, which is part of a program specification. Use with the <LOADNAME> tag to identify a specific compile unit.

<table>
<thead>
<tr>
<th>Usage</th>
<th>Optional</th>
</tr>
</thead>
<tbody>
<tr>
<td>Default</td>
<td>Null</td>
</tr>
</tbody>
</table>

| Maximum length | 8 bytes |
| Sample value   | APP1PGM1 |
| Usage          | Optional |
| Default        | Null     |

<PREFERENCEFILE>
   Name of a file containing a set of Debug Tool commands to control the debug session.

| Maximum length | 80 bytes |
| Sample value   | ELIN.TEST.PREFFILE |
| Usage          | Optional |
| Default        | *        |

PROFILE
   Tag that encapsulates all information.

PROFILECOUNT
   Number of profiles to send to your application. The maximum value number of profiles that can be sent to your application is 10.

| Maximum length | 2 bytes |
| Sample value   | 5       |
| Usage          | Output only |
| Default        | Not applicable |

PROFILEID
   ID for a profile whose data is in the HTTP response body.

| Maximum length | 8 bytes |
| Sample value   | ELIN    |
| Usage          | Output only |
| Default        | Not applicable |

PROFILERECORD
   Tag that encapsulates all the tags needed for a profile.

PROFILEVERSION
   Version and release of the profile.

| Maximum length | 4 bytes |
| Sample value   | 0102    |
<PROGRAM>
Tag that encapsulates a pair of <LOADNAME> and <PGMNAME> tags. A profile can have up to eight <PROGRAM> tags.

<PROMPTLEVEL>
A prompt level that indicates whether Debug Tool is invoked at Language Environment initialization. It can also contain commands.

<table>
<thead>
<tr>
<th>Maximum length</th>
<th>80 bytes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sample value</td>
<td>PROMPT</td>
</tr>
<tr>
<td>Usage</td>
<td>Optional</td>
</tr>
<tr>
<td>Default</td>
<td>PROMPT</td>
</tr>
</tbody>
</table>

<SERVERVERSION>
Version of the API that the DTCN profile manager is running. For a description of the version numbers, see “Compatibility of different versions” on page 7.

<table>
<thead>
<tr>
<th>Maximum length</th>
<th>4 bytes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sample value</td>
<td>0102</td>
</tr>
<tr>
<td>Usage</td>
<td>Output only</td>
</tr>
<tr>
<td>Default</td>
<td>Not applicable</td>
</tr>
</tbody>
</table>

<SERVICEID>
ID of the Service Oriented Architecture (SOA) service.

<table>
<thead>
<tr>
<th>Maximum length</th>
<th>8 bytes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sample value</td>
<td>DBGTSRV1</td>
</tr>
<tr>
<td>Usage</td>
<td>Output only</td>
</tr>
<tr>
<td>Default</td>
<td>Not applicable</td>
</tr>
</tbody>
</table>

<SESSADDR>
The terminal ID or IP address of the device running your application.

<table>
<thead>
<tr>
<th>Maximum length</th>
<th>60 bytes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sample value</td>
<td>9.30.60.200</td>
</tr>
<tr>
<td>Usage</td>
<td>Required if the value of the &lt;SESSTYPE&gt; tag is TCP.</td>
</tr>
<tr>
<td>Default</td>
<td>Not applicable</td>
</tr>
</tbody>
</table>

<SESSPORT>
Number of the TCP/IP port of the device running your application.

<table>
<thead>
<tr>
<th>Maximum length</th>
<th>8 bytes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sample value</td>
<td>8005</td>
</tr>
<tr>
<td>Usage</td>
<td>Optional</td>
</tr>
<tr>
<td>Default</td>
<td>8001</td>
</tr>
</tbody>
</table>
### `<SESTYPE>`
The method the end user wants to use to interact with Debug Tool.

<table>
<thead>
<tr>
<th>Maximum length</th>
<th>4 bytes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid values</td>
<td>TCP, MFI</td>
</tr>
<tr>
<td>Usage</td>
<td>Optional</td>
</tr>
<tr>
<td>Default</td>
<td>TCP</td>
</tr>
</tbody>
</table>

### `<STARTPROFILERECORD>`
The number you specified in the $s$ symbol of the URI.

<table>
<thead>
<tr>
<th>Maximum length</th>
<th>4 bytes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sample value</td>
<td>5</td>
</tr>
<tr>
<td>Usage</td>
<td>Output only</td>
</tr>
<tr>
<td>Default</td>
<td>Not applicable</td>
</tr>
</tbody>
</table>

### `<TERMINALID>`
The ID of the CICS terminal running the application that the end user wants to debug.

<table>
<thead>
<tr>
<th>Maximum length</th>
<th>4 bytes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sample value</td>
<td>TRM1</td>
</tr>
<tr>
<td>Usage</td>
<td>Optional</td>
</tr>
<tr>
<td>Default</td>
<td>Null</td>
</tr>
</tbody>
</table>

### `<TRANSACTIONID>`
ID of the CICS transactions that starts the application that the end user wants to debug.

<table>
<thead>
<tr>
<th>Maximum length</th>
<th>4 bytes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sample value</td>
<td>TRN1</td>
</tr>
<tr>
<td>Usage</td>
<td>Optional</td>
</tr>
<tr>
<td>Default</td>
<td>Null</td>
</tr>
</tbody>
</table>

### `<TRIGGER>`
Indicates whether to start Debug Tool when the application that the end user wants to debug is initialized.

<table>
<thead>
<tr>
<th>Maximum length</th>
<th>8 bytes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid values</td>
<td>TEST, NOTEST</td>
</tr>
<tr>
<td>Usage</td>
<td>Optional</td>
</tr>
<tr>
<td>Default</td>
<td>TEST</td>
</tr>
</tbody>
</table>

### `<URMDEB>`
A flag to indicate whether the end user wants to debug URMs during his debugging session.

<table>
<thead>
<tr>
<th>Maximum length</th>
<th>1 byte</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid values</td>
<td>Y, N</td>
</tr>
<tr>
<td>Usage</td>
<td>Optional</td>
</tr>
<tr>
<td>----------</td>
<td>----------</td>
</tr>
<tr>
<td>Default</td>
<td>N</td>
</tr>
</tbody>
</table>

**<USERID>**

The ID of the user that runs the transaction the end user wants to debug.

<table>
<thead>
<tr>
<th>Maximum length</th>
<th>8 bytes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sample value</td>
<td>ELIN1</td>
</tr>
<tr>
<td>Usage</td>
<td>Optional</td>
</tr>
<tr>
<td>Default</td>
<td>Null</td>
</tr>
</tbody>
</table>
Appendix A. Examples: HTTP request body and HTTP response body

The following sample XML document displays the HTTP request body of a PUT (CREATE) or POST (UPDATE) request.

```xml
<?xml version="1.0"?>
<profile>
  <profilerecord>
    <activation>A</activation>
    <program>
      <loadname>APP1LMD1</loadname>
      <pgmname>APP1PGM1</pgmname>
    </program>
    <program>
      <loadname>APP1LMD2</loadname>
      <pgmname>APP1PGM2</pgmname>
    </program>
  </profilerecord>
</profile>
```

The following sample XML document displays the HTTP return body after the DTCN profile manager completes the GET request of the profile created or updated in the previous example.

```xml
<?xml version="1.0"?>
<profile version="0102">
  <profileversion>0102</profileversion>
  <serviceid>DBGTPROF</serviceid>
  <clientversion>0102</clientversion>
  <serverversion>0102</serverversion>
  <profilerecord>
    <profileid>ELIN</profileid>
    <activation>A</activation>
    <program>
      <loadname>APP1LMD1</loadname>
      <pgmname>APP1PGM1</pgmname>
    </program>
    <program>
      <loadname>APP1LMD2</loadname>
      <pgmname>APP1PGM2</pgmname>
    </program>
  </profilerecord>
</profile>
```
<transactionid>TRN1</transactionid>
<terminalid>TRM1</terminalid>
<userid>ELIN1</userid>
<netname>CICSNET1</netname>
<clientip>9.30.60.200</clientip>
<commareaoffset>12</commareaoffset>
<commareadata>ABC</commareadata>
<containername>APP1CONT</containername>
<containeroffset>100</containeroffset>
<containerdata>DEF</containerdata>
<urmdeb>N</urmdeb>
<trigger>TEST</trigger>
<level>ALL</level>
<sessstype>TCP</sessstype>
<sessaddr>9.30.60.100</sessaddr>
<sessport>8005</sessport>
<commandfile>ELIN.TEST.COMMANDS</commandfile>
<preferencefile>ELIN.TEST.PREFFILE</preferencefile>
<promptlevel>PROMPT</promptlevel>
<otheropts>STORAGE(00,00,00)</otheropts>
</profilerecord>
</profile>
Appendix B. Support resources and problem solving information

This section shows you how to quickly locate information to help answer your questions and solve your problems. If you have to call IBM support, this section provides information that you need to provide to the IBM service representative to help diagnose and resolve the problem.


- "Searching knowledge bases"
- "Getting fixes" on page 23
- "Subscribing to support updates" on page 23
- "Contacting IBM Support" on page 24

Searching knowledge bases

You can search the available knowledge bases to determine whether your problem was already encountered and is already documented.

- "Searching the information center"
- "Searching product support documents"

Searching the information center

You can find this publication and documentation for many other products in the IBM System z Enterprise Development Tools & Compilers information center at http://publib.boulder.ibm.com/infocenter/pdthelp/v1r1/index.jsp. Using the information center, you can search product documentation in a variety of ways. You can search across the documentation for multiple products, search across a subset of the product documentation that you specify, or search a specific set of topics that you specify within a document. Search terms can include exact words or phrases, wild cards, and Boolean operators.

To learn more about how to use the search facility provided in the IBM System z Enterprise Development Tools & Compilers information center, you can view the multimedia presentation at http://publib.boulder.ibm.com/infocenter/pdthelp/v1r1/index.jsp?topic=/com.ibm.help.doc/InfoCenterTour800600.htm.

Searching product support documents

If you need to look beyond the information center to answer your question or resolve your problem, you can use one or more of the following approaches:

- Find the content that you need by using the IBM Support Portal at www.ibm.com/software/support or directly at www.ibm.com/support/entry/portal.

The IBM Support Portal is a unified, centralized view of all technical support tools and information for all IBM systems, software, and services. The IBM
Support Portal lets you access the IBM electronic support portfolio from one place. You can tailor the pages to focus on the information and resources that you need for problem prevention and faster problem resolution.

Familiarize yourself with the IBM Support Portal by viewing the demo videos at https://www.ibm.com/blogs/SPNA/entry/the_ibm_support_portal_videos?lang=en_us about this tool. These videos introduce you to the IBM Support Portal, explore troubleshooting and other resources, and demonstrate how you can tailor the page by moving, adding, and deleting portlets.

Access a specific IBM Software Support site:
- Application Performance Analyzer for z/OS Support
- Debug Tool for z/OS Support
- Enterprise COBOL for z/OS Support
- Enterprise PL/I for z/OS Support
- Fault Analyzer for z/OS Support
- File Export for z/OS Support
- File Manager for z/OS Support
- WebSphere® Developer Debugger for System z Support
- WebSphere Studio Asset Analyzer for Multiplatforms Support
- Workload Simulator for z/OS and OS/390® Support

• Search for content by using the IBM masthead search. You can use the IBM masthead search by typing your search string into the Search field at the top of any ibm.com® page.
• Search for content by using any external search engine, such as Google, Yahoo, or Bing. If you use an external search engine, your results are more likely to include information that is outside the ibm.com domain. However, sometimes you can find useful problem-solving information about IBM products in newsgroups, forums, and blogs that are not on ibm.com. Include "IBM" and the name of the product in your search if you are looking for information about an IBM product.
• The IBM Support Assistant (also referred to as ISA) is a free local software serviceability workbench that helps you resolve questions and problems with IBM software products. It provides quick access to support-related information. You can use the IBM Support Assistant to help you in the following ways:
  - Search through IBM and non-IBM knowledge and information sources across multiple IBM products to answer a question or solve a problem.
  - Find additional information through product and support pages, customer news groups and forums, skills and training resources and information about troubleshooting and commonly asked questions.

In addition, you can use the built in Updater facility in IBM Support Assistant to obtain IBM Support Assistant upgrades and new features to add support for additional software products and capabilities as they become available.

For more information, and to download and start using the IBM Support Assistant for IBM System z Enterprise Development Tools & Compilers products, please visit http://www.ibm.com/support/docview.wss?rs=2300&context=SSFMHB&dc=D600&uid=swg21242707&loc=en_US&cs=UTF-8&lang=en

General information about the IBM Support Assistant can be found on the IBM Support Assistant home page at http://www.ibm.com/software/support/isa
Getting fixes

A product fix might be available to resolve your problem. To determine what fixes and other updates are available, select a link from the following list:

- Latest PTFs for Application Performance Analyzer for z/OS
- Latest PTFs for Debug Tool for z/OS
- Latest PTFs for Fault Analyzer for z/OS
- Latest PTFs for File Export for z/OS
- Latest PTFs for File Manager for z/OS
- Latest PTFs for Optim™ Move for DB2®
- Latest PTFs for WebSphere Studio Asset Analyzer for Multiplatforms
- Latest PTFs for Workload Simulator for z/OS and OS/390

When you find a fix that you are interested in, click the name of the fix to read its description and to optionally download the fix.

Subscribe to receive e-mail notifications about fixes and other IBM Support information as described in ‘Subscribing to Support updates.’

Subscribing to support updates

To stay informed of important information about the IBM products that you use, you can subscribe to updates. By subscribing to receive updates, you can receive important technical information and updates for specific Support tools and resources. You can subscribe to updates by using the following:

- RSS feeds and social media subscriptions
- My Notifications

RSS feeds and social media subscriptions

For general information about RSS, including steps for getting started and a list of RSS-enabled IBM web pages, visit the IBM Software Support RSS feeds site at http://www.ibm.com/software/support/rss/other/index.html. For information about the RSS feed for the IBM System z Enterprise Development Tools & Compilers information center, refer to the Subscribe to information center updates topic in the information center at http://publib.boulder.ibm.com/infocenter/pdthelp/v1r1/topic/com.ibm.help.doc/subscribe_info.html.

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To subscribe to Support updates, follow the steps below. Additional information is provided at http://www.ibm.com/support/docview.wss?rs=615&uid=swg21172598

1. Go to the IBM software support site at http://www.ibm.com/software/support
2. Click the My Notifications link in the Notifications portlet on the page that is displayed.

3. If you have already registered for My notifications, sign in and skip to the next step. If you have not registered, click register now. Complete the registration form using your e-mail address as your IBM ID and click Submit.

4. In the My notifications tool, click the Subscribe tab to specify products for which you want to receive e-mail updates.

5. To specify Problem Determination Tools products, click Other software and then select the products for which you want to receive e-mail updates, for example, Debug Tool for z/OS and File Manager for z/OS.

6. To specify a COBOL or PL/I compiler, click Rational® and then select the products for which you want to receive e-mail updates, for example, Enterprise COBOL for z/OS.

7. After selecting all products that are of interest to you, scroll to the bottom of the list and click Continue.

8. Determine how you want to save your subscription. You can use the default subscription name or create your own by entering a new name in the Name field. It is recommended that you create your own unique subscription name using something easily recognized by you. You can create a new folder by entering a folder name in the New field or select an existing folder from the pulldown list. A folder is a container for multiple subscriptions.

9. Specify the types of documents you want and the e-mail notification frequency.

10. Scroll to the bottom of the page and click Submit.

To view your current subscriptions and subscription folders, click My subscriptions.

If you experience problems with the My notifications feature, click the Feedback link in the left navigation panel and follow the instructions provided.

Contacting IBM Support

IBM Support provides assistance with product defects, answering FAQs, and performing rediscovery.

After trying to find your answer or solution by using other self-help options such as technotes, you can contact IBM Support. Before contacting IBM Support, your company must have an active IBM maintenance contract, and you must be authorized to submit problems to IBM. For information about the types of available support, see the information below or refer to the Support portfolio topic in the Software Support Handbook at [http://www14.software.ibm.com/webapp/set2/sas/f/handbook/offerings.html](http://www14.software.ibm.com/webapp/set2/sas/f/handbook/offerings.html).

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  **By phone**
  For the phone number to call in your country, go to the Contacts page of
For customers with Subscription and Support (S & S) contracts, go to the Software Service Request Web site at http://www.ibm.com/support/servicerequest.


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If you are not sure what type of software maintenance contract you need, call 1-800-IBMSERV (1-800-426-7378) in the United States. From other countries, go to the Contacts page of the IBM Software Support Handbook on the Web at http://www14.software.ibm.com/webapp/set2/sas/f/handbook/contacts.html and click the name of your geographic region for phone numbers of people who provide support for your location.

Complete the following steps to contact IBM Support with a problem:

1. “Define the problem and determine the severity of the problem”
2. “Gather diagnostic information” on page 26
3. “Submit the problem to IBM Support” on page 26

To contact IBM Software support, follow these steps:

Define the problem and determine the severity of the problem

Define the problem and determine severity of the problem When describing a problem to IBM, be as specific as possible. Include all relevant background information so that IBM Support can help you solve the problem efficiently.

IBM Support needs you to supply a severity level. Therefore, you need to understand and assess the business impact of the problem that you are reporting. Use the following criteria:

Severity 1
The problem has a critical business impact. You are unable to use the program, resulting in a critical impact on operations. This condition requires an immediate solution.

Severity 2
The problem has a significant business impact. The program is usable, but it is severely limited.

Severity 3
The problem has some business impact. The program is usable, but less significant features (not critical to operations) are unavailable.

Severity 4
The problem has minimal business impact. The problem causes little impact on operations, or a reasonable circumvention to the problem was implemented.

Gather diagnostic information

To save time, if there is a Mustgather document available for the product, refer to the Mustgather document and gather the information specified. Mustgather documents contain specific instructions for submitting your problem to IBM and gathering information needed by the IBM support team to resolve your problem. To determine if there is a Mustgather document for this product, go to the product support page and search on the term Mustgather. At the time of this publication, the following Mustgather documents are available:


If the product does not have a Mustgather document, please provide answers to the following questions:

- What software versions were you running when the problem occurred?
- Do you have logs, traces, and messages that are related to the problem symptoms? IBM Software Support is likely to ask for this information.
- Can you re-create the problem? If so, what steps were performed to re-create the problem?
- Did you make any changes to the system? For example, did you make changes to the hardware, operating system, networking software, and so on.
- Are you currently using a workaround for the problem? If so, be prepared to explain the workaround when you report the problem.

Submit the problem to IBM Support

You can submit your problem to IBM Support in one of three ways:

**Online using the IBM Support Portal**

Click **Service request** on the IBM Software Support site at [http://www.ibm.com/software/support](http://www.ibm.com/software/support). On the right side of the Service request page, expand the Product related links section. Click **Software**...
support (general) and select ServiceLink/IBMLink to open an Electronic Technical Response (ETR). Enter your information into the appropriate problem submission form.

Online using the Service Request tool


By phone


If the problem you submit is for a software defect or for missing or inaccurate documentation, IBM Support creates an Authorized Program Analysis Report (APAR). The APAR describes the problem in detail. Whenever possible, IBM Support provides a workaround that you can implement until the APAR is resolved and a fix is delivered. IBM publishes resolved APARs on the IBM Support website daily, so that other users who experience the same problem can benefit from the same resolution.

After a Problem Management Record (PMR) is open, you can submit diagnostic MustGather data to IBM using one of the following methods:

- If FTP is not possible, e-mail diagnostic data to techsupport@mainz.ibm.com. You must add PMR xxxxx bbb ccc in the subject line of your e-mail. xxxxx is your PMR number, bbb is your branch office, and ccc is your IBM country code. Go to [http://itcenter.mainz.de.ibm.com/ecurep/mail/subject.html](http://itcenter.mainz.de.ibm.com/ecurep/mail/subject.html) for more details.

Always update your PMR to indicate that data has been sent. You can update your PMR online or by phone as described above.
Appendix C. Accessibility

Accessibility features help a user who has a physical disability, such as restricted mobility or limited vision, to use software products successfully. The accessibility features in z/OS provide accessibility for Debug Tool.

The major accessibility features in z/OS enable users to:

- Use assistive technology products such as screen readers and screen magnifier software
- Operate specific or equivalent features by using only the keyboard
- Customize display attributes such as color, contrast, and font size

The IBM System z Enterprise Development Tools & Compilers Information Center, and its related publications, are accessibility-enabled. The accessibility features of the information center are described at http://publib.boulder.ibm.com/infocenter/pdthelp/v1r1/topic/com.ibm.help.doc/accessibility_info.html.

Using assistive technologies

Assistive technology products work with the user interfaces that are found in z/OS. For specific guidance information, consult the documentation for the assistive technology product that you use to access z/OS interfaces.

Keyboard navigation of the user interface

Users can access z/OS user interfaces by using TSO/E or ISPF. Refer to z/OS TSO/E Primer, z/OS TSO/E User’s Guide, and z/OS ISPF User’s Guide Volume 1 for information about accessing TSO/E and ISPF interfaces. These guides describe how to use TSO/E and ISPF, including the use of keyboard shortcuts or function keys (PF keys). Each guide includes the default settings for the PF keys and explains how to modify their functions.

Accessibility of this document

Information in the following formats of this document is accessible to visually impaired individuals who use a screen reader:

- HTML format when viewed from the IBM System z Enterprise Development Tools & Compilers Information Center
- BookManager® format when viewed with IBM BookManager BookServer (except for syntax diagrams)

Syntax diagrams start with the word Format or the word Fragments. Each diagram is preceded by two images. For the first image, the screen reader will say “Read syntax diagram”. The associated link leads to an accessible text diagram. When you return to the document at the second image, the screen reader will say “Skip visual syntax diagram” and has a link to skip around the visible diagram.

For BookManager users only: A screen reader might say the lines, symbols, and words in a diagram, but not in a meaningful way. For example, you might hear “question question dash dash MOVE dash dash plus dash dash”
literal-1 dash dash plus" for part of the MOVE statement. You can enter **Say Next Paragraph** to move quickly through syntax diagrams if your screen reader has that capability.
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This book is intended to help you debug application programs. This publication documents intended Programming Interfaces that allow you to write programs to obtain the services of Debug Tool.

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Bibliography

Debug Tool publications

Using CODE/370 with VS COBOL II and OS PL/I, SC09-1862

Debug Tool for z/OS

You can access Debug Tool publications through the IBM System z Enterprise Development Tools and Compilers information center. You can receive RSS feeds about updates to the information center by following the instructions in the topic "Subscribe to information center updates" which is in the IBM System z Enterprise Development Tools and Compilers information center.

- Debug Tool Reference Summary, GC27-3629
- Debug Tool Customization Guide, GC27-3622
- Program Directory for IBM Debug Tool for z/OS, GH13-1804
- Debug Tool Reference and Messages, GC27-3624
- Debug Tool Coverage Utility User's Guide and Messages, SC27-3632

Related publications

CICS

- Application Programming Guide, SC34-6231
- Application Programming Primer, SC34-0674
- Application Programming Reference, SC34-6232

z/OS

- MVS JCL Reference, SA22-7597
- MVS JCL User’s Guide, SA22-7598
- MVS System Commands, SA22-7627

Softcopy publications

Online publications are distributed on CD-ROMs and can be ordered through your IBM representative. Debug Tool publications are distributed on the following collection kit:

SK3T-4269
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C
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