

Interactive System Productivity Facility (ISPF)



**TSO/ISPF client gateway
(z/OS Version 1 Release 9.0)
With APAR OA38035 applied**

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TSO/ISPF client gateway

ISPF provides an interface or gateway for client applications to connect to the z/OS host and run TSO and ISPF commands. This section describes how the gateway works, how to install and customize the interface, and how client applications can use the interface.

Gateway description

The gateway runs within z/OS UNIX and is invoked upon a request for a TSO or ISPF command from the client application. To run a requested command, the gateway establishes a TSO address space and, if the request is for an ISPF command, data sets are allocated and an ISPF session is also initialized. After completion of the command, the results are returned to the client.

If requested by the client, the gateway maintains the state of the TSO/ISPF session for any subsequent client function requests for the user. Otherwise, the interface terminates the TSO/ISPF session. The advantages of maintaining a user's TSO/ISPF session on z/OS are in bypassing the overhead of having to establish a new session for every TSO or ISPF command request and in adding an inherent ability to maintain state data between calls from the client.

The gateway does not provide the data transport between the client and z/OS host. The gateway is designed to interface with an authenticated connection between the client and z/OS host such as the HTTP protocol (web-based services), direct TCP/IP socket connections, or any other means through which data and commands can be exchanged between the client and z/OS host.

Note: ISPF commands invoked by means of the gateway run in an ISPF batch environment.

Installing and customizing the gateway

This section describes installing and customizing the gateway.

Installation considerations

Consider these points before you configure your system:

- A RACF OMVS segment (or equivalent) that specifies a valid non-zero uid, home directory, and shell command must be defined for each user of the interface.
- Set MAXPROCUSER in BPXPRMxx parmlib member to a minimum of 50. This can be checked and set dynamically (until the next IPL) with the following commands (as described in *z/OS MVS System Commands*, SA22-7627):

```
DISPLAY OMVS,0  
SETOMVS MAXPROCUSER=50.
```

Setting a value that is too low can cause the interface to fail.

- Table 1 on page 2 describes the load modules that comprise the gateway:

Table 1. Load modules comprising the gateway

| Name | Library | Description |
|---------|--------------|---|
| ISPZINT | ISP.SISPLPA | Gateway initialization - manages spawned TSO sessions, routes command requests to these sessions. |
| ISPZTSO | SYS1.LINKLIB | TSO initialization - attaches a TSO session to run a command. ISPZTSO must run APF-authorized. |
| ISPZCNT | ISP.SISPLOAD | ISPF initialization - allocates data sets and starts an ISPF session. |
| ISPZCMD | ISP.SISPLOAD | ISPF command interface - invokes an ISPF command and, if required, keeps the ISPF session active. |
| ISPZTMO | ISP.SISPLOAD | Reusable session time-out processor. |

These load modules must be available to run under the server used to communicate between the client and z/OS host.

A PROGRAM class profile that identifies ISPZINT as being a controlled program should be defined using the command:

```

RDEFINE PROGRAM ISPZINT ADDMEM('ISP.SISPLPA'//NOPADCHK) UACC(READ)
    
```

(Refer to your security server's documentation for details.) Failure to define ISPZINT as being controlled might result in messages, such as CSV042I or ICH422I, being issued.

- Table 2 describes the gateway files installed into the z/OS UNIX file system:

Table 2. Gateway files installed into the z/OS UNIX file system

| Name | Description |
|----------------------------|--|
| /usr/lpp/ispf/bin/ISPZINT | A stub file with the sticky bit set on to enable invocation of the gateway initialization load module ISPZINT. |
| /usr/lpp/ispf/bin/ISPZTSO | A stub file with the sticky bit set on to enable invocation of the TSO initialization load module ISPZTSO. |
| /usr/lpp/ispf/bin/ISPZXENV | A REXX routine called by the gateway XML API routine, ISPZXML, to set up environment variables. |
| /usr/lpp/ispf/bin/ISPZXML | A REXX routine that is the XML API for the gateway. |

Installing the gateway

To install the gateway, customize and run the JCL in the member ISPZINS1 in the ISPF samples data set ISP.SISPSAMP. Customize the JCL according to the instructions in the member.

This job performs these tasks:

- Creates CONFIG and WORKAREA directories in the z/OS UNIX file system at the directory you specify.
- Copies the sample ISPF configuration table from member ISPZISPC in the samples data set ISP.SISPSAMP to file ISPF.conf in the CONFIG directory. This file requires customization.

The recommended base directory for the configuration files is /etc/ispf. The part of the directory up to ISPF must exist before running this job.

You must have read and write access to the WORKAREA directory /var/ispf/WORKAREA. The WORKAREA is used for the transfer of files and for temporary session files. Temporary directories of the format /var/ispf/WORKAREA/userid/* are created during use of the interface.

The interface removes any temporary files it creates in the WORKAREA directory. However, temporary output is sometimes left over, for example, if there is a communication error while processing. For this reason, it is recommended that you clear out the WORKAREA directory from time to time. To do this, use these commands in OMVS:

```
cd /var/ispf/WORKAREA
rm -r *
```

Where /var/ispf/WORKAREA depends on where you create the WORKAREA directory.

Customizing the gateway

You must customize the ISPF configuration file ISPF.conf to host site requirements for ISPF data set allocation. This file is stored, by default, in directory /etc/ispf. The provided sample ISPF.conf has instructions to complete customization so your user site can:

- Include the minimum ISPF data set allocations for the gateway to operate. This means allocating the minimum ISPF data sets required to initialize an ISPF session. In the sample provided, these are specified as the isp.sisp* data sets. You might need to change these for your site-specified data set names.
- Add additional DDNAME file allocations or concatenate additional ISPF data sets.
- Launch a customer-defined allocation executable (exec) to provide further data set allocation by user ID. A sample exec is provided in member ISPZISP2 in the ISPF samples data set ISP.SISPSAMP.

The allocations for each of the ISPF DDs must be specified on a single line with each data set separated by a comma. The maximum length of the string defining the data sets for a DD is 255 characters. If the data sets you want to define for a DD exceed this length, use the customer defined allocation exec to allocate the DD. Comment lines can be added by beginning the line with an asterisk (*). Here is a sample ISPF.conf:

```
* REQUIRED:
* Below is the minimum requirements for ISPF allocation.
* Change the default ISPF data set names below to match your
* host site.
* Add additional dsn concatenations on same line and separate
* by comma.
* Order of data sets listed is search order in concatenation.
*
sysproc=ISP.SISPCLIB
sysexec=SYS1.LOCAL.EXEC,ISP.SISPEXEC
isplib=ISP.SISPMENU
isptlib=ISP.SISPTENU
ispplib=ISP.SISPPENU
ispslib=ISP.SISPSLIB
ispllib=ISP.SISPLOAD,SYS1.LOCAL.LOAD
```

The ISPF_timeout option in the ISPF configuration file can be used to specify a time out value for reusable ("stateful") ISPF sessions. The time out value specifies the number of seconds a user's ISPF session can remain idle between service call requests. If the idle time exceeds the time out value, the session is terminated and

the next service request for the user results in a new ISPF session being established. The default reusable ISPF session time out value is 900 seconds (15 minutes).

Here is an example of setting a time out value of 300 seconds (5 minutes):

```
ISPF_timeout = 300
```

Note: If you have the PDSMAN product installed, it must be disabled for use with the gateway by including the record in the ISPF.conf file:

```
ezyoff=nullfile
```

Customizing the HTTP server

If you plan to use the HTTP server to invoke the gateway, these changes must be made to the HTTP environment and configuration files:

- The HTTP environment file, `httpd.env`, must be updated to include directives that identify the workarea and configuration directories for the gateway. The `CGI_ISPWORK` directive is used to define the path for the `WORKAREA` directory used by the gateway. The `CGI_ISPCONF` directive is used to define the path for the `CONFIG` directory where the ISPF configuration file `ISPF.conf` is stored. Shown here are examples of the `CGI_ISPWORK` and `CGI_ISPCONF` directives specifying the default paths for the `WORKAREA` and `CONFIG` directories:

```
CGI_ISPWORK=/var/ispf
CGI_ISPCONF=/etc/ispf
```

- These `pass` and `exec` directives must be added into the HTTP configuration file `httpd.conf`:

```
Pass          /ISPZIVP.html /usr/lpp/ispf/bin/ISPZIVP.html
Exec          /ISPZINT      /usr/lpp/ispf/bin/ISPZINT
Exec          /ISPZXML     /usr/lpp/ispf/bin/ISPZXML
Exec          /ISPZIVP.cgi /usr/lpp/ispf/bin/ISPZIVP.cgi
```

Note: The path specified for these directives must be the path of the directory where the gateway was installed.

If the gateway modules (see Table 1 on page 2) are not in the `LINKLIST`, then update the HTTP server `STEPLIB` DD to include the load library data sets containing these modules.

Note: To use the gateway, the client is required to supply a valid z/OS user ID and password.

For additional information about configuring IBM HTTP Web servers, review these IBM manuals:

- *HTTP Server Planning, Installing and Using*, (SC31-8690)
- *OS/390 e-business Infrastructure: IBM HTTP Server V5.1 for OS/390*, (SG24-5603-00)

Verifying the HTTP server customization

This Installation Verification Process (IVP) applies if you have configured the HTTP server to invoke the gateway. The HTTP server must be running and the IVP `pass/exec` directives configured in the `httpd.conf` file for successful verification processing.

From a browser, type the location URL address:

```
http://hostname:portnumber/ISPZIVP.html
```


where:


hostname

Is the TCP/IP host name the HTTP server is running on.

port number

Is the port used in the job and the httpd.conf file (default port 80).

If the HTTP server is running, you are prompted for a valid TSO user ID and password for the system the Web server is started on:



Connect to pthisd1.au.ibm.com

System_Logon

User name:

Password:

Remember my password

OK Cancel

After you have entered your TSO user ID and password, the browser initially displays the HTTP welcome screen:



Figure 1. HTTP welcome screen

If you fail to connect, then check that:

- The HTTP server has successfully initialized.
- The z/OS UNIX System Services file system mount point containing the TSO/ISPF Client Gateway installation is mounted.
- The hostname:port are correct (try pinging the Hostname).
- There are no firewall restrictions.
- The PASS directive in the httpd.conf file is set correctly:

```
Pass          /ISPZIVP.html /usr/lpp/ispf/bin/ISPZIVP.html
```

After you receive the welcome screen, continue with the IVP, which checks and validates your installation and customization process, by taking these steps:

1. Enter the command `tso lista` in the ISPF command field.
2. Select the **Run installation verification** checkbox.
3. Click on the **Submit** push-button.

The sample screen shown in Figure 2 on page 7 and Figure 3 on page 8 give an example of the expected validation responses:

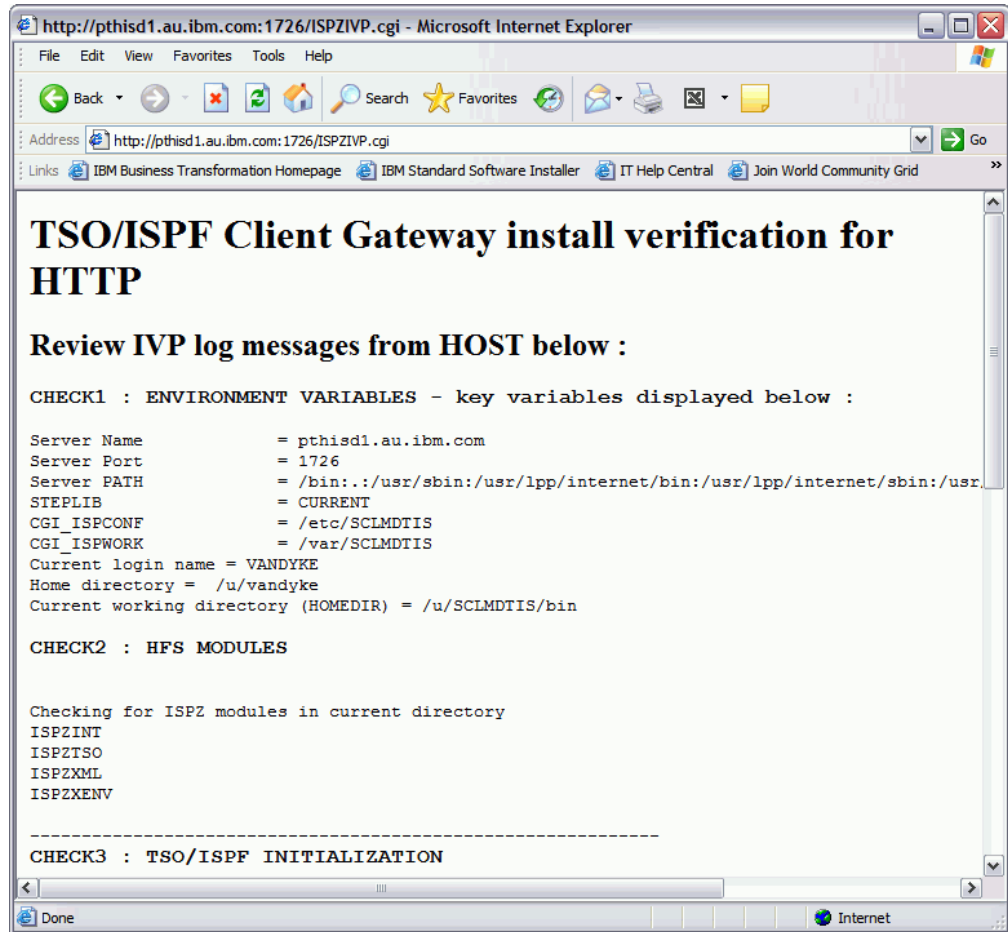


Figure 2. Example of expected validation response

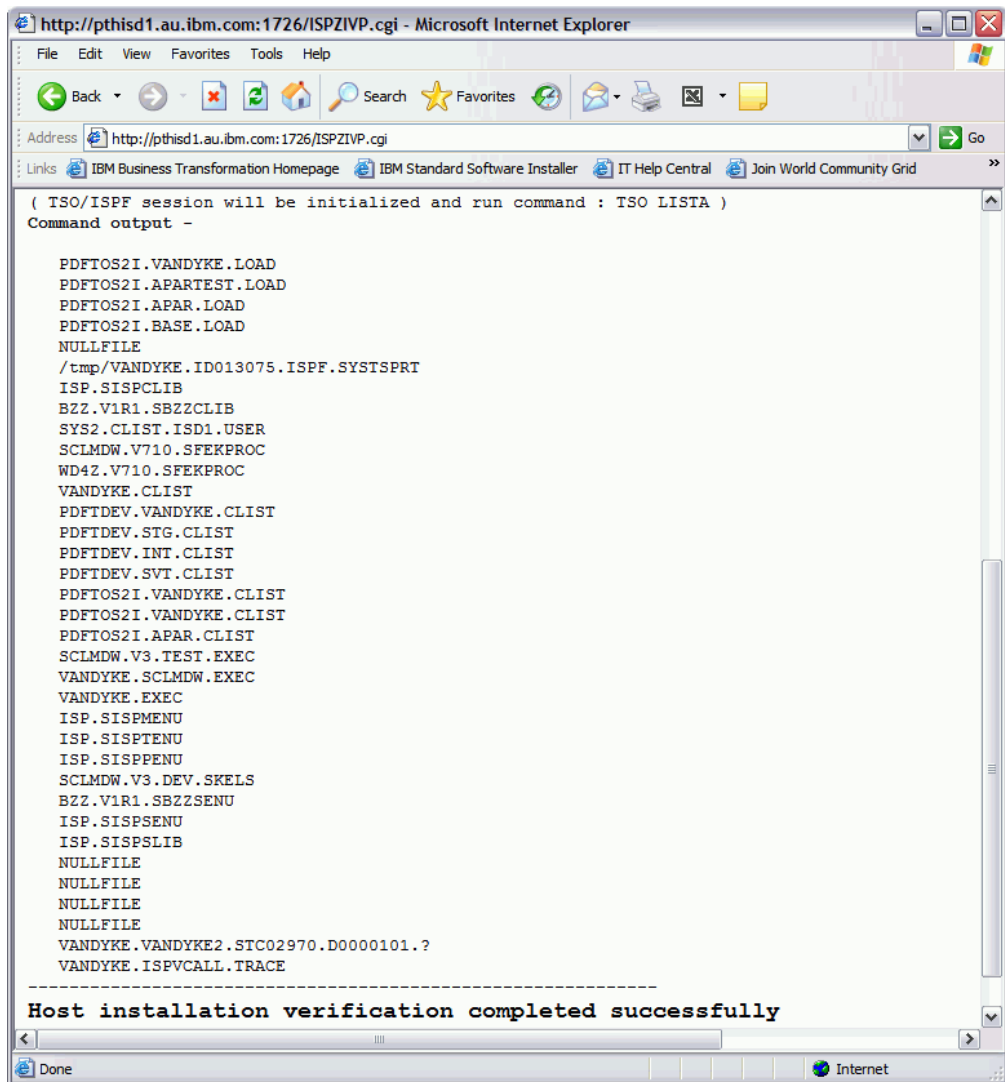


Figure 3. Example of expected validation response (contd.)

Customizing Remote Systems Explorer

If you plan to use IBM Rational Developer for System z's Remote Systems Explorer (RSE) to invoke the gateway, the RSE environment file must be customized. The environment file for your RSE connection is `rsed.envvars` which, by default, is in `/etc/rdz`.

These environment variables used by the gateway should already have been defined in `rsed.envvars` during base RSE customization:

```

_CMDSERV_BASE_HOME
_CMDSERV_CONF_HOME
_CMDSERV_WORK_HOME
  
```

These following changes are required to the `rsed.envvars` file:

- If the gateway modules (see Table 1 on page 2) are not in the `LINKLIST`, then update the `STEPLIB` environment variable value to include the load library data sets containing these modules.

For additional information about installing and configuring RSE, review these IBM documents:

- *Program Directory for IBM Rational Developer for System z (GI11-8298-00)*
- *IBM Rational Developer for System z Host Configuration Guide (SC31-6930-02)*

Configuration for other environments

If you plan to invoke the gateway by means other than through the HTTP server of RSE (for example, from the OMVS shell), configuration is required to ensure values are set for environment variables used by the gateway. This requires the environment set-up routine, `ISPZXENV`, to be modified to set values for the environment variables shown in Table 3.

Table 3. Environment variables to be set by the environment set-up routine, `ISPZXENV`

| Environment variable | Description |
|----------------------|--|
| STEPLIB | Specifies the STEPLIB data sets from where MVS load modules are run. This environment variable must be set to the names of the load library data sets containing the gateway modules (see Table 1 on page 2) if these modules are not in the LINKLIST. |
| CGI_ISPCONF | Specifies the CONFIG directory path where the configuration files are stored. |
| CGI_ISPWORK | Specifies the WORKAREA directory path that is used for temporary files. |

A sample of this REXX routine is provided in member `ISPZXENV` in the ISPF samples data set `ISP.SISPSAMP`. These lines in `ISPZXENV` may require modification:

```
STEPLIB = 'ISP.SISPLPA:ISP.SISLOAD'
```

The `STEPLIB` variable should specify the data sets containing the load modules for the TSO/ISPF client gateway (see Table 1 on page 2). If these load modules reside in the LINKLIST, then the `STEPLIB` variable should be set to a null value (that is, "").

```
CGI_ISPCONF = '/etc/ispf'
```

The `CGI_ISPCONF` variable specifies the HOME directory path where the configuration files reside for the gateway. For more information on the CONFIG directory, see “Installing the gateway” on page 2.

```
CGI_ISPWORK = '/var/ispf'
```

The `CGI_ISPWORK` variable specifies the pathname of the directory where work files for the gateway are stored. For more information on the work directory, see “Installing the gateway” on page 2.

Replace the version of `ISPZXENV` in `usr/lpp/ispf/bin` with your modified version of `ISPZXENV`.

Using the gateway

This section describes how to provide TSO/ISPF service and command requests to the gateway and the format of the output returned by the gateway.

Passing requests to the gateway

TSO/ISPF service and command requests are passed to the gateway in XML format. The XML schema shown here, which is supplied in member ISPZXSDI in the ISPF samples data set ISP.SISPSAMP, describes the format and can be used to validate the XML for a service request:

```
<?xml version="1.0" encoding="ISO-8859-1" ?>
<xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema">

  <xs:element name="ISPF-INPUT">
    <xs:complexType>
      <xs:all>

        <xs:element name="SERVICE-REQUEST">
          <xs:complexType>
            <xs:all>

              <xs:element name="service">
                <xs:simpleType>
                  <xs:restriction base="xs:string">
                    <!-- Specifies native TSO or ISPF service call -->
                    <xs:enumeration value="ISPF"/>
                    <xs:enumeration value="TSO"/>
                  </xs:restriction>
                </xs:simpleType>
              </xs:element>

              <xs:element name="session" minOccurs="0">
                <xs:simpleType>
                  <xs:restriction base="xs:string">
                    <!-- Default NONE : Session terminates after service call -->
                    <xs:enumeration value="NONE"/>
                    <!-- Reusable ISPF session stays active between calls -->
                    <xs:enumeration value="REUSE"/>
                  </xs:restriction>
                </xs:simpleType>
              </xs:element>

              <!-- Use existing ISPF profile in call -->
              <xs:element name="ispprof" type="xs:string" minOccurs="0"/>

              <!-- Free form TSO/ISPF command -->
              <xs:element name="command" type="xs:string"/>

            </xs:all>
          </xs:complexType>
        </xs:element>

      </xs:all>
    </xs:complexType>
  </xs:element>

</xs:schema>
```

This is an example of the XML to request a TSO LISTCAT command:

```
<?xml version="1.0"?>
<ISPF-INPUT>
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:noNamespaceSchemaLocation="ispf.xsd"
  <SERVICE-REQUEST>
    <service>TSO</service>
    <session>NONE</session>
    <command>LISTC ENT('SYS1.LINKLIB')</command>
  </SERVICE-REQUEST>
</ISPF-INPUT>
```

This is an example of the XML to request to run REXX program DINFO in a "reusable" ISPF session which remains active to run subsequent commands for this user:

```
<?xml version="1.0"?>
<ISPF-INPUT>
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:noNamespaceSchemaLocation="ispf.xsd">
<SERVICE-REQUEST>
<service>ISPF/service>
<session>REUSE</session>
<command>TSO DINFO sys1.linklib</command>
<ispprof>USER.ISPPROF</ispprof>
</SERVICE-REQUEST>
</ISPF-INPUT>
```

This shows the REXX program DINFO:

```
/* REXX */
parse upper arg dsn .
address "ISPEXEC" "dsinfo dataset('dsn')"
if rc = 0 then do
  say 'Volume          = ' zdsvol
  say 'Primary allocation = ' strip(zds1ex) zdsspc
  say 'Secondary allocation = ' strip(zds2ex) zds2spc
end
else do
  say 'DSINFO rc = ' rc
  say 'ZERRMSG = ' zerrmsg
end
exit rc
```

The Java program shown here, which is supplied in member ISPZXJAV in the ISPF samples data set ISP.SISPSAMP, shows an example of invoking the interface through a HTTP server and passing XML to request running the TSO PROFILE command:

```
package com.ibm.ispfcall;

import java.io.*;
import java.net.*;
import java.util.*;

public class XmlIspf {

  public static void main(String[] args) {

    try {

      BufferedReader in = new BufferedReader(new FileReader("C:\\logon.txt"));
      String logon = in.readLine();
      in.close();

      Date d = new Date() ;
      System.out.println("START Transfer DATE/TIME is : " + d.toString() );

      // URL details for CGI POST
      URL url = new URL("http", "SITE.COM", 1234, "/ISPZXML");
      HttpURLConnection con = (HttpURLConnection) url.openConnection();

      con.setUseCaches(false);
      con.setDoInput(true);
      con.setDoOutput(true);
      con.setRequestMethod("POST");
      con.setRequestProperty( "Authorization", "Basic "
        + Base64Encoder.encode( logon ));
    }
  }
}
```

```

System.out.println("At url.openConnection.. ");

// POST CGI routines
doPut(url, con, "POST", "");
doGet(url, con);

Date c = new Date() ;
System.out.println("TOTAL Completion DATE/TIME is : " + c.toString() );

}
catch (IOException exception)
{
System.out.println("Error: " + exception);
}
}

public static void doPut(URL url, HttpURLConnection con, String ISPPFUNC,
String fileIn) throws IOException
{
if (ISPPFUNC.equals("POST"))
{
PrintWriter out = new PrintWriter(con.getOutputStream());
// Below is a sample inline XML input for an ISPF service request
// This could alternatively be read from an external file
out.println( "<?xml version='1.0'?'>" );
out.println( "<ISPF-INPUT>" );
out.println( "xmlns:xsi='http://www.w3.org/2001/XMLSchema-instance'" );
out.println( "xsi:noNamespaceSchemaLocation='ispf.xsd'" );
out.println( "<SERVICE-REQUEST>" );
out.println( "<service>ISPF</service>" );
out.println( "<session>NONE</session>" );
out.println( "<command>TSO PROFILE</command>" );
out.println( "<ispprof>USERID.ISPPROF</ispprof>" );
out.println( "</SERVICE-REQUEST>" );
out.println( "</ISPF-INPUT>" );
out.flush();
out.close();
}
}

public static void doGet(URL url, HttpURLConnection con) throws IOException
{
BufferedReader in;
try
{
System.out.println("About to accept response from Server");
in = new BufferedReader(new InputStreamReader(con.getInputStream()));
System.out.println("Response from Server received");
}
catch (FileNotFoundException exception)
{
InputStream err = ((HttpURLConnection)con).getErrorStream();
if (err == null) throw exception ;
in = new BufferedReader(new InputStreamReader(err));
}

String line;
while ((line = in.readLine()) != null)
System.out.println(line);

in.close();
}
}

```

Note: System symbols &SYSUID and &SYSPREF can be used as the high-level qualifier for the ISPF profile data set name specified with the <ispprof> tag.

Receiving output from the gateway

The output from a service request is returned by the gateway to the client in XML format. The XML schema shown here, which is supplied in member ISPZXSDO in the ISPF samples data set ISP.SISPSAMP, describes the format and can be used to process the XML returned for a service request:

```
<?xml version="1.0" encoding="ISO-8859-1" ?>
<xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema">

  <xs:element name="ISPF-OUTPUT">
    <xs:complexType>
      <xs:all>

        <xs:element name="SERVICE-REQUEST"/>

        <xs:element name="SERVICE-RESPONSE">
          <xs:complexType>
            <xs:all>
              <xs:element name="ISPF-COMMAND"/>
              <xs:element name="RETURN-CODE"/>
              <xs:element name="ISPF"/>
            </xs:all>
          </xs:complexType>
        </xs:element>

        <xs:element name="OPERATIONS-LOG"/>

      </xs:all>
    </xs:complexType>
  </xs:element>

</xs:schema>
```

The following shows the XML returned for the TSO LISTCAT command above:

```
<?xml version="1.0"?>
<ISPF-OUTPUT>
  <SERVICE-REQUEST>
    <service>TSO</service>
    <session>NONE</session>
    <command>LISTC ENT('SYS1.LINKLIB')</command>
  </SERVICE-REQUEST>
  <SERVICE-RESPONSE>
    <ISPF-COMMAND>

      </ISPF-COMMAND>
      <![CDATA[
        NONVSAM ----- SYS1.LINKLIB
          IN-CAT --- CATALOG.MASTER.SYSPLEXD
        READY
        END
      ]]>
    </TSO>
  </SERVICE-RESPONSE>
  <OPERATIONS-LOG>
    <![CDATA[
      Content-type: text/plain

      Entering ISPZINT (Service initialization)
      About to read from fileno(stdin) = 0
      Data read from STDIN is TSO LISTC ENT('SYS1.LINKLIB')
      EPOCH secs = 1202109526
      Local Date & time: Mon Feb  4 02:18:46 2008
      Hour: 2 Min: 18 Sec 46
      Function ID timestamp = ID008326
      Environment variables:
```

```

0 QUERY_STRING=
1 CONTENT_TYPE=application/x-www-form-urlencoded
2 PATH=/bin:./usr/sbin:/usr/lpp/internet/bin:/usr/lpp/internet/sbin:
  /usr/lpp/products/java142/J1.4/bin/
3 AUTH_TYPE=Basic
4 DOCUMENT_URI=/ISPZXML
5 SHELL=/bin/sh
6 HTTPS=OFF
7 HTTP_ACCEPT=text/html, image/gif, image/jpeg, *, q=.2, */*; q=.2
8 HTTP_USER_AGENT=Java1.3.1
9 SERVER_PORT=1726
10 RULE_FILE=//DD:CONF
11 GATEWAY_INTERFACE=CGI/1.1
12 PATH_INFO=
13 CONTENT_LENGTH=274
14 _CEE_RUNOPTS=ENVAR("_CEE_ENVFILE=//DD:ENV")
15 _BPX_SPAWN_SCRIPT=YES
16 REFERER_URL=
17 _./ISPZINT
18 CLASSPATH=./usr/lpp/internet/server_root/CAServlet
19 STEPLIB=CURRENT
20 REQUEST_METHOD=POST
21 REMOTE_ADDR=9.190.236.239
22 LANG=C
23 LIBPATH=/bin:/usr/lpp/internet/bin:/usr/lpp/internet/sbin
24 REMOTE_USER=USERNME
25 SERVER_ADDR=192.168.123.11
26 FSCP=IBM-1047
27 PATH_TRANSLATED=
28 HTTP_CONNECTION=keep-alive
29 SERVER_TOKEN=1
30 HTTP_HOST=PTHISD1.AU.IBM.COM
31 _BPX_SHAREAS=YES
32 CGI_ISPCONF=/etc/ispf
33 SERVER_SOFTWARE=IBM HTTP Server/V5R3M0
34 REPORTBITS=77
35 DOCUMENT_ROOT=usr/lpp/ispf/bin
36 NETCP=ISO8859-1
37 CGI_ISPWORK=/var/ispf
38 COUNTERDIR=NULL
39 LC_ALL=en_US.IBM-1047
40 CGI_DTCONF=/etc/ispf
41 _BPX_USERID=USERNME
42 SERVER_PROTOCOL=HTTP/1.1
43 JAVA_HOME=/usr/lpp/products/java142/J1.4/
44 HTTPS_KEYSIZE=
45 TZ=EST5EDT
46 _CEE_ENVFILE=//DD:ENV
47 _BPX_BATCH_SPAWN=SPAWN
48 SCRIPT_NAME=/ISPZXML
49 NLSPATH=/usr/lib/nls/msg/%L/%N:/usr/lpp/internet/%L/%N:
  /usr/lib/nls/msg/En_US.IBM-1047/%N
50 CGI_DTWORK=/var/ispf
51 DOCUMENT_NAME=usr/lpp/ispf/bin/ISPZXML
52 SERVER_NAME=PTHISD1.AU.IBM.COM
Number of environment variables is 53
Protocol = HTTP
FSCP = IBM-1047
NETCP = ISO8859-1
CGI_ISPCONF = /etc/ispf
CGI_ISPWORK = /var/ispf
CGI_TRANTABLE =
Server PATH = /bin:./usr/sbin:/usr/lpp/internet/bin:
  /usr/lpp/internet/sbin:/usr/lpp/products/java142/J1.4/bin/
About to spawn task for ISPZTSO
Parameters passed to ISPZTSO - LISTC ENT('SYS1.LINKLIB')
Return code from ISPZTSO is 0

```

```

About to open /var/SCLMDTIS/WORKAREA/USERNME.ID008326.SYSTSPRT
*** XML-NOTE *** Reference tagged SERVICE-RESPONSE
OUT.84
]]>
</OPERATIONS-LOG>
<ISPF-OUTPUT>

```

Shown here is the XML returned from running the DINFO REXX program in a "reusable" ISPF session (see above):

```

<?xml version="1.0"?>
<ISPF-OUTPUT>
  <SERVICE-REQUEST>
<service>ISPF</service>
<session>REUSE</session>
<command>TSO DINFO sys1.linklib</command>
<ispprof>USERNME.TEST.ISPPROF</ispprof>
</SERVICE-REQUEST>
<SERVICE-RESPONSE>
  <ISPF-COMMAND>
    SELECT CMD(DINFO sys1.linklib) NEST
  </ISPF-COMMAND>
  <RETURN-CODE>0</RETURN-CODE>
  <ISPF>
  <![CDATA[
    Volume           = $$SR86
    Primary allocation = 2398 BLOCK
    Secondary allocation = 0 BLOCK
  ]]>
  </ISPF>
</SERVICE-RESPONSE>
<OPERATIONS-LOG>
  <![CDATA[
    Content-type: text/plain

```

```

Entering ISPZINT (Service initialization)
About to read from fileno(stdin) = 0
Data read from STDIN is ISPF TSO DINFO sys1.linklib&SESSION=SPAWN
&ISPPROF=USERNME.TEST.ISPPROF
EPOCH secs = 1202113932
Local Date & time: Mon Feb 4 03:32:12 2008
Hour: 3 Min: 32 Sec 12
Function ID timestamp = ID012732
Environment variables:
0 QUERY_STRING=
1 CONTENT_TYPE=application/x-www-form-urlencoded
2 PATH=/bin:./usr/sbin:/usr/lpp/internet/bin:/usr/lpp/internet/sbin:
  /usr/lpp/products/java142/J1.4/bin/
3 AUTH_TYPE=Basic
4 DOCUMENT_URI=/ISPZXML
5 SHELL=/bin/sh
6 HTTPS=OFF
7 HTTP_ACCEPT=text/html, image/gif, image/jpeg, *; q=.2, */*; q=.2
8 HTTP_USER_AGENT=Java1.3.1
9 SERVER_PORT=1726
10 RULE_FILE=//DD:CONF
11 GATEWAY_INTERFACE=CGI/1.1
12 PATH_INFO=
13 CONTENT_LENGTH=313
14 _CEE_RUNOPTS=ENVAR("_CEE_ENVFILE=//DD:ENV")
15 _BPX_SPAWN_SCRIPT=YES
16 REFERER_URL=
17 _=./ISPZINT
18 CLASSPATH=./usr/lpp/internet/server_root/CAServlet
19 STEPLIB=CURRENT
20 REQUEST_METHOD=POST
21 REMOTE_ADDR=9.190.236.239

```

```

22 LANG=C
23 LIBPATH=/bin:/usr/lpp/internet/bin:/usr/lpp/internet/sbin
24 REMOTE_USER=USERNME
25 SERVER_ADDR=192.168.123.11
26 FSCP=IBM-1047
27 PATH_TRANSLATED=
28 HTTP_CONNECTION=keep-alive
29 SERVER_TOKEN=1
30 HTTP_HOST=PTHISD1.AU.IBM.COM
31 _BPX_SHAREAS=YES
32 CGI_ISPCONF=/etc/ispf
33 SERVER_SOFTWARE=IBM HTTP Server/V5R3M0
34 REPORTBITS=77
35 DOCUMENT_ROOT=/usr/lpp/ispf/bin
36 NETCP=ISO8859-1
37 CGI_ISPWORK=/var/ispf
38 COUNTERDIR=NULL
39 LC_ALL=en_US.IBM-1047
40 CGI_DTCONF=/etc/ispf
41 _BPX_USERID=USERNME
42 SERVER_PROTOCOL=HTTP/1.1
43 JAVA_HOME=/usr/lpp/products/java142/J1.4/
44 HTTPS_KEYSIZE=
45 TZ=EST5EDT
46 _CEE_ENVFILE=//DD:ENV
47 _BPX_BATCH_SPAWN=SPAWN
48 SCRIPT_NAME=/ISPZXML
49 NLSPATH=/usr/lib/nls/msg/%L/%N:/usr/lpp/internet/%L/%N:
/usr/lib/nls/msg/En_US.
IBM-1047/%N
50 CGI_DTWORK=/var/ispf
51 DOCUMENT_NAME=/usr/lpp/ispf/bin/ISPZXML
52 SERVER_NAME=PTHISD1.AU.IBM.COM
Number of environment variables is 53
Protocol = HTTP
FSCP = IBM-1047
NETCP = ISO8859-1
CGI_ISPCONF = /etc/ispf
CGI_ISPWORK = /var/ispf
CGI_TRANTABLE =
Server PATH = /bin./usr/sbin:/usr/lpp/internet/bin:/usr/lpp/internet/sbin:
/usr/lpp/products/java142/J1.4/bin/
ISPF standalone function invoked
&ISPPROF value = USERNME.TEST.ISPPROF
ISPF COMMAND = ISPF TSO DINFO sys1.linklib
ISPF PROFILE = USERNME.TEST.ISPPROF
Re-usable ISPF session = SPAWN
About to spawn task for ISPZTSO
Parameters passed to ISPZTSO - PROFILE
Return code from ISPZTSO is 0
About to process PROFILE data in /var/SCLMDTIS/WORKAREA/USERNME.ID012732.SYSTSPRT
About to malloc() 252 bytes for profdat
*** PROFILE data: 1IKJ56688I CHAR(0) LINE(0) PROMPT INTERCOM
NOPAUSE MSGID MODE
WTPMSG NORECOVER PREFIX(USERNME) PLANGUAGE(ENU) SLANGUAG E(ENU)
VARSTORAGE(LOW)
IKJ56689I
DEFAULT LINE/CHARACTER DELETE CHARACTERS IN EFFECT FOR THIS TERMINAL READY END
Temporary data set prefix set to : USERNME
About to call bpxwdyn to allocate VCMTMP
Allocating data set USERNME.SCLMDT.VCMISPF.ID012732 to the VCMTMP DD
1024 bytes of ISPF TSO DINFO sys1.linklib written to VCMTMP
1024 bytes of /etc/SCLMDTIS;/var/ispf written to VCMTMP
1024 bytes of /bin./usr/sbin:/usr/lpp/internet/bin:/usr/lpp/internet/sbin:
/usr/lpp/products/java142/J1.4/bin/~/NONE written to VCMTMP
Parameter to be passed to ISPZTSO CALL *(ISPZCNT)
'+ISPF ID012732 USERNME NONE NONE

```

```

NONE NONE NONE NONE NONE USERNME.TEST.ISPPROF ISPF TSO DINFO sys1.linklib'
Entering Spawn Processing: 03:32:12
PID of this process = 999
RESPfile is /var/ispf/WORKAREA/USERNME/ISPFID.999
Group PID of this process = 50332642
About to issue system command: ps -u USERNME -o pid,pgid,jobname,xasid,comm
>/var/ispf/WORKAREA/USERNME/ISPZINT.pidlog
PID=6 PGID=50332642 JOBNAME=USERNME ASID=7A COMMAND=/bin/ps
PID=50332642 PGID=50332642 JOBNAME=USERNME ASID=90
COMMAND=/usr/lpp/ispf/bin/ISPZXML
PID=67109859 PGID=50332642 JOBNAME=USERNME ASID=8B COMMAND=/bin/sh
PID=16778213 PGID=50332642 JOBNAME=USERNME ASID=8B COMMAND=./ISPZXENV
PID=998 PGID=50332642 JOBNAME=USERNME ASID=80 COMMAND=/bin/sh
PID=999 PGID=50332642 JOBNAME=USERNME ASID=92 COMMAND=./ISPZINT
PID=16778216 PGID=50332642 JOBNAME=USERNME ASID=7A COMMAND=/bin/sh
No active ISPF session found - new TSO/ISPF session started
About to issue system command: rm /var/ispf/WORKAREA/USERNME/ISPFID*
mkdir /var/ispf/WORKAREA/USERNME rc = -1
New SIGfile = /var/ispf/WORKAREA/USERNME/ISPFID.signal
New CMDfile = /var/ispf/WORKAREA/USERNME/ISPFID.cmd
RUN directory = /usr/lpp/ispf/bin/
About to spawn task for ISPZTSO
Parameters passed to ISPZTSO - CALL *(ISPZCNT) '+ISPF ID012732
USERNME NONE NONE
NONE NONE NONE NONE NONE USERNME.TEST.ISPPROF ISPF TSO DINFO sys1.linklib'
Return code from ISPZTSO is 0
Waiting on SIGNAL return 03:32:12
Read signal file: Output = COMPLETE
*** OUTPUT FROM ISPF SESSION ***
Entering ISPZCNT (ISPF Initialization)
Parameters +ISPF ID012732 USERNME NONE NONE NONE NONE NONE NONE NONE USERNME.
TEST.ISPPROF ISPF TSO DINFO SYS1.L
REC: sysproc=isp.sispplib,bzz.v1r1.sbzzc1ib,SYS2.CLIST.ISD1.USER,SCLMDW.V710.
SFEKPROC,WD4Z.V710.SFEKPROC
Allocation successful for SYSPROC
REC: sysexec=sclmdw.v3.test.exec,USERNME.sclmdw.exec,USERNME.exec
Allocation successful for SYSEXEC
REC: isplib=isp.sispmenu
Allocation successful for ISPLIB
REC: isptlib=isp.sisptenu
Allocation successful for ISPTLIB
REC: ispllib=isp.sisppenu
Allocation successful for ISPLLIB
REC: ispslib=sclmdw.v3.dev.skels,bzz.v1r1.sbzzsenu,isp.sispsenu,isp.sispslib
Allocation successful for ISPSLIB
REC: isptrace=nullfile
Allocation successful for ISPTRACE
REC: ISPF_timeout = 300
IEBCOPY of ISPF profile RC = 00
NOTE: Data set allocations took 0.49 elapsed seconds
*** XML-NOTE *** Reference tagged SERVICE-RESPONSE
Current Process List:
      PID      PGID JOBNAME  ASID COMMAND
50331654  50332642 USERNME   7a /bin/sh
      10      50332642 USERNME   7a /bin/ps
50332642  50332642 USERNME   90 /usr/lpp/ispf/bin/ISPZXML
67109859  50332642 USERNME   8b /bin/sh
16778213  50332642 USERNME   8b ./ISPZXENV
      998      50332642 USERNME   80 /bin/sh
      999      50332642 USERNME   92 ./ISPZINT
50332648  50332642 USERNME4  89 ./ISPZTSO
]]>
</OPERATIONS-LOG>
<ISPF-OUTPUT>

```

Return and reason codes from the gateway

The RETURN-CODE tag provides the value of the return code from the TSO or ISPF service. If there is an error in the gateway, a value of 8 or 12 is returned with the RETURN-CODE tag and REASON-CODE tags of this format are also provided to describe the error:

```
<REASON-CODE ID="ISPZ0007">ISPF OR SCLM SERVICE HAS ENDED  
ABNORMALLY</REASON-CODE>
```

Table 4 lists the possible reason codes when there is a return code of 8 from the gateway:

Table 4. Possible reason codes for a return code of 8 from the gateway

| Reason Code | Description |
|-------------|--|
| ISPZ0001 | Error in ALLOCATION/WRITE to <i>dsname</i> . |
| ISPZ0002 | Processing terminates. |
| ISPZ0003 | Following function has failed: MSG: <i>function</i> |
| ISPZ0009 | Error reading the ISPF.conf configuration file. |
| ISPZ0010 | Ensure file exists in directory specified by the environment variable CGI_ISPCONF in the server configuration. |
| ISPZ0012 | Error in ISPF data set allocation: See error message below |
| ISPZ0013 | Error in allocating the following DD and data set names: MSG: DD= <i>ddname</i> MSG: <i>dsname1 dsname2... dsnamen</i> |
| ISPZ0014 | Verify that the ISPF configuration file ISPF.conf on the host is correct. |
| ISPZ0224 | *** Operation Cancelled *** |
| ISPZ0225 | Possible previous request still active. Either cancel host session or retry once processing terminates. |

Table 5 lists the possible reason codes when there is a return code of 12 from the gateway:

Table 5. Possible reason codes for a return code of 12 from the gateway

| Reason Code | Description |
|-------------|--|
| ISPZ0007 | ISPF or SCLM service has ended abnormally. |
| ISPZ0008 | Review log for error details. |

Using the native API

This section documents the native API used by some IBM products to invoke the gateway. It is recommended, however, that applications use the XML structured API to invoke the gateway.

Service request format

Service call requests consist of a parameter string passed by means of STDIN to the interface module ISPZINT. The first word of the service request string identifies if the request is for a TSO or ISPF service:

```
TSO service-request
```

or

```
ISPF service-request
```

A TSO service request results in the TSO service running in a TSO address space without the overhead of establishing an ISPF environment. Shown here are some examples of TSO service requests:

```
TSO time
TSO alloc fi(temp1) da('hlq.filetemp') shr
```

An ISPF service request can be for a TSO or ISPF service. The service runs in an ISPF environment established in a TSO address space. The caller can request the ISPF environment be "reusable" (that is, remain active for running subsequent service requests) by including &SESSION=SPAWN in the parameter string. Also the caller can request an existing ISPF profile be dynamically allocated by including &ISPPROF= my.profile.dataset in the parameter string. Shown here are some examples of ISPF service requests:

```
ISPF tso profile
ISPF select cmd(%myexec)
ISPF tso listalc&SESSION=SPAWN&ISPPROF=HLQ.ISPPROF
ISPF tso ex 'my.dataset(exec1) '&SESSION=SPAWN
```

ISPPROF may contain the strings &SYSUID., &SYSPREF. and &SYSNAME. in any order:

&SYSUID.

Replaced by the userid of the active session.

&SYSPREF.

Replaced by the TSO PREFIX, if that can be determined; otherwise, it has the same value as &SYSUID..

&SYSNAME.

Replaced by the SYSNAME IPL parameter.

For example, for this command (where PREFIX is mypref and SYSUID is myuser):

```
ISPF tso mycmd&SESSION=SPAWN&ISPPROF=HLQ.&SYSPREF..&SYSUID..LLQ
```

the string becomes:

```
ISPF tso mycmd&SESSION=SPAWN&ISPPROF=HLQ.mypref.myuser.LLQ
```

To terminate a "reusable" ISPF session, pass the parameter string shown here to ISPZINT:

```
ISPPFUNC=SHUTDOWN
```

or

```
ISPPFUNC=CANCEL
```

Service response format

Service response data is returned in a tagged format as shown in this section. However this is not valid XML format. Tagged data may be incorporated within system log messages and be stripped out at the client end by means of the encapsulating tags <ISPINFO> </ISPINFO>.

```
System logging data
:
:
<ISPINFO>
ISPF COMMAND : ISPF command issued
RC=X
MSG: xxxxxx
<Specific function request tags>
xxxxxx
xxxxxx
</End of specific function request tags>
</ISPINFO>
```

System logging data

⋮

Service request and response examples

Shown here is the request parameter string and response data returned for an ISPF service request:

Request

```
ISPF TSO PROFILE&SESSION=SPAWN&ISPPROF=&SYSUID..TEST.ISPPROF
```

Response

```
START Transfer DATE/TIME is :Tue Mar 18 12:25:59 WST 2008
At url openConnection
SCLMFunc returned from post is Connect
About to accept response from Server
Response from Server received
Entering ISPZINT (Service initialization)
About to read from fileno(stdin) = 0
Data read from STDIN is ISPF TSO PROFILE&SESSION=SPAWN&ISPPROF=
&SYSUID..TEST.ISPPROF
EPOCH secs = 1205814289
Local Date & time: Tue Mar 18 00:24:49 2008
Hour: 0 Min: 24 Sec 49
Function ID timestamp = ID001489
Environment variables:
0 _CEE_ENVFILE=//DD:ENV
1 # PATH=/bin:./usr/sbin:/usr/lpp/internet/bin:/usr/lpp/internet/sbin:
  /usr/lpp/products/java531-UK14829/J5.0/bin
2 PATH=/bin:./usr/sbin:/usr/lpp/internet/bin:/usr/lpp/internet/sbin:
  /usr/lpp/products/java142/J1.4/bin/
3 SHELL=/bin/sh
4 TZ=EST5EDT
5 LANG=C
6 LC_ALL=en_US.IBM-1047
7 NLSPATH=/usr/lib/nls/msg/%L/%N:/usr/lpp/internet/%L/%N:
  /usr/lib/nls/msg/En_US.
  IBM-1047/%N
8 LIBPATH=/bin:/usr/lpp/internet/bin:/usr/lpp/internet/sbin
9 # JAVA_HOME=/usr/lpp/products/java531-UK14829/J5.0/bin
10 JAVA_HOME=/usr/lpp/products/java142/J1.4/
11 CLASSPATH=./usr/lpp/internet/server_root/CAServlet
12 STEPLIB=CURRENT
13 _BPX_BATCH_SPAWN=SPAWN
14 _BPX_SHAREAS=YES
15 # _BPX_SHAREAS=YES
16 # _BPX_SPAWN_SCRIPT=NO
17 CGI_DTCONF=/etc/SCLMDTIS
18 CGI_DTWORk=/var/SCLMDTIS
19 CGI_ISPCONF=/etc/SCLMDTIS
20 CGI_ISPWORK=/var/SCLMDTIS
21 # CGI_TRANTABLE=DOHERTL.LSTRANS.FILE
22 COUNTERDIR=NULL
23 REPORTBITS=77
24 SERVER_SOFTWARE=IBM HTTP Server/V5R3M0
25 SERVER_NAME=PTTHISD1.AU.IBM.COM
26 SERVER_PORT=1726
27 _BPX_SPAWN_SCRIPT=YES
28 _BPX_USERID=USERNME
29 RULE_FILE=//DD:CONF
30 SERVER_PROTOCOL=HTTP/1.1
31 REQUEST_METHOD=POST
32 GATEWAY_INTERFACE=CGI/1.1
33 PATH_INFO=
34 PATH_TRANSLATED=
35 QUERY_STRING=
36 SERVER_ADDR=192.168.123.11
37 SERVER_TOKEN=1
38 SCRIPT_NAME=/ISPZINT
39 REMOTE_ADDR=192.168.128.253
40 AUTH_TYPE=Basic
41 REMOTE_USER=USERNME
42 CONTENT_TYPE=application/x-www-form-urlencoded
43 CONTENT_LENGTH=61
44 REFERER_URL=
45 DOCUMENT_ROOT=usr/lpp/ispf/bin
```



```

46 DOCUMENT_URI=/ISPZINT
47 DOCUMENT_NAME=usr/lpp/ispf/bin/ISPZINT
48 FSCP=IBM-1047
49 NETCP=ISO8859-1
50 HTTPS_KEYSIZE=
51 HTTPS=OFF
52 HTTP_CONNECTION=keep-alive
53 HTTP_ACCEPT=text/html, image/gif, image/jpeg, *, q=.2, */*; q=.2
54 HTTP_HOST=PTHISD1.AU.IBM.COM
55 HTTP_USER_AGENT=Java/1.5.0
56 HTTP_PRAGMA=no-cache
57 HTTP_CACHE_CONTROL=no-cache
58 _CEE_RUNOPTS=ENVAR("_CEE_ENVFILE=//DD:ENV")
Number of environment variables is 59
Connection Protocol = HTTP
Server Name = PTHISD1.AU.IBM.COM
Server Port = 1726
FSCP = IBM-1047
NETCP = ISO8859-1
CGI_ISPCONF = /etc/SCLMDTIS
CGI_ISPWORK = /var/SCLMDTIS
Server PATH = /bin.:/usr/sbin:/usr/lpp/internet/bin:/usr/lpp/internet/sbin:
/usr/lpp/products/java142/J1.4/bin/
ISPF standalone function invoked
&ISPPROF value = &SYSUID..TEST.ISPPROF
ISPF COMMAND = ISPF TSO PROFILE
ISPF PROFILE = USERNME.TEST.ISPPROF
Re-usable ISPF session = SPAWN
About to spawn task for ISPZTSO
Parameters passed to ISPZTSO - PROFILE
Return code from ISPZTSO is 0
About to process PROFILE data in /var/SCLMDTIS/WORKAREA/USERNME.ID001489.ISPF.SYSTSPRT
About to malloc() 252 bytes for profdat
Temporary data set prefix set to : USERNME
About to call bpxwdyn to allocate VCMTEMP
Allocating data set USERNME.ISPF.VCMISPF.ID001489 to the VCMTEMP DD
1024 bytes of ISPF TSO PROFILE written to VCMTEMP
1024 bytes of /etc/SCLMDTIS;/var/SCLMDTIS written to VCMTEMP
1024 bytes of /bin.:/usr/sbin:/usr/lpp/internet/bin:/usr/lpp/internet/sbin:
/usr/lpp/products/java142/J1.4/bin/~/~ written to VCMTEMP
Parameter to be passed to ISPZTSO CALL *(ISPZCNT) '+ISPF ID001489 USERNME
USERNME.TEST.ISPPROF ISPF TSO PROFILE'
Entering Spawn Processing: 00:24:49
PID of this process = 67109485
RESPfile is /var/SCLMDTIS/WORKAREA/USERNME/ISPFPID.67109485
Group PID of this process = 67109485
No ISPZINT.pidlog detected so no existing ISPF session running
No active ISPF session found - new TSO/ISPF session started
About to issue system command: rm /var/SCLMDTIS/WORKAREA/USERNME/ISPFPID*
mkdir /var/SCLMDTIS/WORKAREA/USERNME rc = -1
New SIGfile = /var/SCLMDTIS/WORKAREA/USERNME/ISPFPID.signal
New CMDfile = /var/SCLMDTIS/WORKAREA/USERNME/ISPFPID.cmd
RUN directory = /usr/lpp/ispf/bin/
About to spawn task for ISPZTSO
Parameters passed to ISPZTSO - CALL *(ISPZCNT) '+ISPF ID001489 USERNME
USERNME.TEST.ISPPROF ISPF TSO PROFILE'
Return code from ISPZTSO is 0
Waiting on SIGNAL return 00:24:49
Read signal file: Output = COMPLETE
*** OUTPUT FROM ISPF SESSION ***
<ISPINFO>
ISPF COMMAND : SELECT CMD(PROFILE) NEST
RC=0
<ISPF>
IKJ56688I CHAR(0) LINE(0) PROMPT INTERCOM NOPAUSE MSGID
MODE WTPMSG NORECOVER PREFIX(USERNME) PLANGUAGE(ENU)
SLANGUAGE(ENU) VARSTORAGE(LOW)
IKJ56689I DEFAULT LINE/CHARACTER DELETE CHARACTERS IN EFFECT FOR
THIS TERMINAL
</ISPF>
</ISPINFO>
Current Process List:
      PID      PGID JOBNAME  ASID COMMAND
      94      67109485 USERNME    8a /bin/ps
    50332025  67109485 USERNME3   98 ./ISPZTSO
    16777835  16777835 USERNME    9b ISRUUDL
    67109485  67109485 USERNME    95 /usr/lpp/ispf/bin/ISPZINT

```

```
50332289 67109485 USERNME 8a /bin/sh
RC from doGet then writefile :ok
TOTAL Completion DATE/TIME is :Tue Mar 18 12:26:02 WST 2008
```

Shown here is the request parameter string and response data returned for a TSO service request.

Request

```
TSO LISTALC
```

Response

```
START Transfer DATE/TIME is :Tue Mar 18 12:33:55 WST 2008
At url openConnection
SCLMFunc returned from post is Connect
About to accept response from Server
Response from Server received
Entering ISPZINT (Service initialization)
About to read from fileno(stdin) = 0
Data read from STDIN is TSO LISTALC
EPOCH secs = 1205814765
Local Date & time: Tue Mar 18 00:32:45 2008
Hour: 0 Min: 32 Sec 45
Function ID timestamp = ID001965
Environment variables:
0 _CEE_ENVFILE=//DD:ENV
1 # PATH=/bin:./usr/sbin:/usr/lpp/internet/bin:/usr/lpp/internet/sbin:
  /usr/lpp/products/java531-UK14829/J5.0/bin
2 PATH=/bin:./usr/sbin:/usr/lpp/internet/bin:/usr/lpp/internet/sbin:
  /usr/lpp/products/java142/J1.4/bin/
3 SHELL=/bin/sh
4 TZ=EST5EDT
5 LANG=C
6 LC_ALL=en_US.IBM-1047
7 NLSPATH=/usr/lib/nls/msg/%L/%N:/usr/lpp/internet/%L/%N:
  /usr/lib/nls/msg/En_US.
  IBM-1047/%N
8 LIBPATH=/bin:/usr/lpp/internet/bin:/usr/lpp/internet/sbin
9 # JAVA_HOME=/usr/lpp/products/java531-UK14829/J5.0/bin
10 JAVA_HOME=/usr/lpp/products/java142/J1.4/
11 CLASSPATH=./usr/lpp/internet/server_root/CAServlet
12 STEPLIB=CURRENT
13 _BPX_BATCH_SPAWN=SPAWN
14 _BPX_SHAREAS=YES
15 # _BPX_SHAREAS=YES
16 # _BPX_SPAWN_SCRIPT=NO
17 CGI_DTCONF=/etc/SCLMDTIS
18 CGI_DTWORK=/var/SCLMDTIS
19 CGI_ISPCONF=/etc/SCLMDTIS
20 CGI_ISPWORK=/var/SCLMDTIS
21 # CGI_TRANTABLE=DOHERTL.LSTRANS.FILE
22 COUNTERDIR=NULL
23 REPORTBITS=77
24 SERVER_SOFTWARE=IBM HTTP Server/V5R3M0
25 SERVER_NAME=PTHISD1.AU.IBM.COM
26 SERVER_PORT=1726
27 _BPX_SPAWN_SCRIPT=YES
28 _BPX_USERID=USERNME
29 RULE_FILE=//DD:CONF
30 SERVER_PROTOCOL=HTTP/1.1
31 REQUEST_METHOD=POST
32 GATEWAY_INTERFACE=CGI/1.1
33 PATH_INFO=
34 PATH_TRANSLATED=
35 QUERY_STRING=
36 SERVER_ADDR=192.168.123.11
37 SERVER_TOKEN=1
38 SCRIPT_NAME=/ISPZINT
```

```
39 REMOTE_ADDR=192.168.128.253
40 AUTH_TYPE=Basic
41 REMOTE_USER=USERNME
42 CONTENT_TYPE=application/x-www-form-urlencoded
43 CONTENT_LENGTH=12
44 REFERER_URL=
45 DOCUMENT_ROOT=usr/lpp/ispf/bin
46 DOCUMENT_URI=/ISPZINT
47 DOCUMENT_NAME=usr/lpp/ispf/bin/ISPZINT
48 FSCP=IBM-1047
49 NETCP=ISO8859-1
50 HTTPS_KEYSIZE=
51 HTTPS=OFF
52 HTTP_CONNECTION=keep-alive
53 HTTP_ACCEPT=text/html, image/gif, image/jpeg, *; q=.2, */*; q=.2
54 HTTP_HOST=PTHISD1.AU.IBM.COM
55 HTTP_USER_AGENT=Java/1.5.0
56 HTTP_PRAGMA=no-cache
57 HTTP_CACHE_CONTROL=no-cache
58 _CEE_RUNOPTS=ENVAR("_CEE_ENVFILE=//DD:ENV")
Number of environment variables is 59
Connection Protocol = HTTP
Server Name = PTHISD1.AU.IBM.COM
Server Port = 1726
FSCP = IBM-1047
NETCP = ISO8859-1
CGI_ISPCONF = /etc/SCLMDTIS
CGI_ISPWORK = /var/SCLMDTIS
Server PATH = /bin:./usr/sbin:/usr/lpp/internet/bin:/usr/lpp/internet/sbin:
/usr/lpp/products/java142/J1.4/bin/
About to spawn task for ISPZTS0
Parameters passed to ISPZTS0 - LISTALC
Return code from ISPZTS0 is 0
About to open /var/SCLMDTIS/WORKAREA/USERNME.ID001965.ISPF.SYSTSPRT
<ISPINFO>
<TS0>
PDFTDEV.USERNME.LOAD
PDFTDEV.STG.LOAD
PDFTDEV.INT.LOAD
PDFTDEV.SVT.LOAD
USERNME.SCLMDW.LOAD
SCLMDW.V3TEST.LOAD
SCLMDW.V3BASE.LOAD
/var/SCLMDTIS/WORKAREA/USERNME.ID001965.ISPF.SYSTSPRT
</TS0>
</ISPINFO>
RC from doGet then writefile :ok
TOTAL Completion DATE/TIME is :Tue Mar 18 12:33:56 WST 2008
```




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