



IBM Advanced Technical Support – Washington Systems Center

SMP/E Streamlines Service Acquisition

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Trademarks

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z/OS Service Acquisition: Internet Delivery

z/OS Service Acquisition with Internet Delivery

- To acquire service and deliver via internet using ShopzSeries today requires the following steps:
 1. User runs an SMP/E job to create an inventory file (aka PTF bitmap).
 2. User logs onto ShopzSeries and initiates a service order transaction that will use the inventory file.
 3. User uploads the inventory file to the IBM ShopzSeries server.

IBM manufactures the requested PTF package.

4. User receives an email indicating the service package is ready.
 5. User logs onto ShopzSeries to get the service package download information (copies the custom RECEIVE FROMNETWORK job).
 6. User runs the custom SMP/E job to download over the internet and process the service package.
- **Many individual user tasks, and lacks opportunity for automation!**

Today ShopzSeries is the standard application for ordering PTF service for the z/OS platform with an option for internet delivery. To acquire PTF service using ShopzSeries today requires you to perform the following steps:

1. You may run an SMP/E job to create an inventory file for your currently installed z/OS platform software (aka PTF bitmap file).
2. You must log onto ShopzSeries (<https://www14.software.ibm.com/webapp/ShopzSeries/ShopzSeries.jsp>) and initiate a service order transaction that may use the afore mentioned inventory file.
3. Using ShopzSeries you may upload the inventory file to the IBM server. IBM then manufactures a service package containing the PTFs you requested. The package is customized to your unique z/OS environment by using the uploaded inventory file.
4. When the service package is ready, you receive an email indicating it is ready for download.
5. You must log onto ShopzSeries to obtain the service package download information. At best this is a copy of the custom SMP/E RECEIVE FROMNETWORK job available on the download page of ShopzSeries.
6. You then must run the custom SMP/E RECEIVE FROMNETWORK job on your z/OS system in order to download the service package over the internet and process the PTFs contained in the package.

To summarize, there are many individual tasks you must perform, with several opportunities for error. In addition, the process is a series of manual steps with little opportunity for automation of these steps.

SMP/E Can Help!

- To **simplify** and **automate** ordering and delivery of z/OS service, the tasks can be consolidated by SMP/E:
 - ▶ One SMP/E step to do the following:
 - create an inventory file
 - upload inventory file
 - submit a service order transaction and wait for a package to be manufactured
 - download the resultant package over the internet
 - process the downloaded service package
 - ▶ Provides "on demand" service ordering and delivery
 - ▶ Provides a self service "subscription" capability
 - Use a job scheduler and SMP/E to order and load service automatically.
- Planned availability in SMP/E V3.4 and z/OS R7 in September 2005

SMP/E can help by consolidating the tasks. That is, in one step SMP/E can perform all of the manual tasks:

- Create an inventory file.
- Upload the inventory file.
- Submit a service order transaction and wait for the service package to be manufactured.
- Download the service package over the internet to your z/OS system.
- Process the PTFs contained in the downloaded service package.

This single SMP/E step provides you with a PTF service ordering and delivery capability that you can use as needed for unique PTF requests. In addition, using a job scheduler, it also allows you to automate service ordering and delivery on whatever frequency you desire, thus providing a self-service subscription capability.

Requirements for such a Solution

- Remote server with access to IBM's service repository
- User identity to allow server access
- Order content selection options:
 - ▶ Corrective
 - PTFs by name? PTFs for specific APARs?
 - ▶ Preventive
 - Recommended PTFs? Critical fixes? All PTFs?
 - ▶ Holddata?
- Order content scope
 - ▶ Software inventory to define the scope for selecting PTFs

To make such an SMP/E step work, there are several things that must be in place and several pieces of information SMP/E must need.

First is access to IBM's service repository. That is, from your local z/OS system SMP/E must be able to access a remote server that is connected to IBM's PTF service repository. In addition, to use this remote server, you must provide a user identity so the server can determine if you have access to the service repository.

To submit a PTF service order transaction, you must indicate what PTFs you want. Is this a corrective service order where you specify one or more PTFs by name, or by specifying the APARs for which you desire fixing PTFs? Is this a preventive service order where you want all recommended PTFs? Or do you simply want all of the latest HOLDDATA?

Finally is the scope of the PTF service order. This is defined by the software inventory file. The software inventory file is used to determine what PTFs are applicable to your z/OS platform environment and to determine what PTFs you already have. This allows the service package to be customized for your order.

Solution Attributes

- The solution operates as a client/server application:
 - ▶ SMP/E is the **client** that runs on a user's local z/OS system
 - ▶ The *IBM Automated Delivery Server* is the remote IBM **server**

- The SMP/E RECEIVE command will be extended:
 - ▶ Order selection options:
 - Corrective service:
 - PTFs specified by name
 - PTFs to resolve APARs specified by name
 - Preventive service:
 - Critical PTFs identified as HIPER or PE fixes
 - Recommended PTFs identified with an RSU sourceid and Critical PTFs
 - All All available PTFs
 - Holddata No PTFs, only 2-years of Enhanced HOLDDATA
 - ▶ Inventory file (Bitmap) is generated automatically
 - ▶ The request and inventory are sent to the remote IBM server

The SMP/E solution operates as a client/server application, where SMP/E is the client that runs on your local z/OS system, and the *IBM Automated Delivery Server* is the remote IBM server that can access IBM's service repository. More specifically, the SMP/E RECEIVE command will be extended to support this solution. The RECEIVE command will be extended to provide PTF order selection criteria:

- Corrective service
 - PTFs specified by name
 - PTFs to resolved specified APARs
- Preventive service
 - PTFs to resolve HIPER problems or PTFs in Error (PE)
 - Recommended PTFs. That is, PTFs identified with an RSUnnnn sourceid, and PTFs to resolve HIPERs and PEs.
 - All PTFs.
- You can also simply order HOLDDATA with no PTFs.

The RECEIVE command will automatically create the software inventory file (PTF Bitmap) and upload the inventory file to the IBM server.

Solution Attributes...

- Content of manufactured package:
 - ▶ PTF content is customized based on the selection options and inventory file
 - ▶ All available requisite PTFs are always included
 - ▶ 2-years of Enhanced HOLDDATA is always included
 - ▶ GIMZIP package format
- Package is downloaded directly to the z/OS host using FTP
 - ▶ Uses existing RECEIVE FROMNETWORK capability under the covers
 - ▶ No store-and-forward or physical media options

The *IBM Automated Delivery Server* will oversee the manufacturing of a PTF service package to satisfy your request. Using the software inventory file to define the scope of the order, the package will contain the PTFs that satisfy your selection criteria, as well as any requisite PTFs you do not already have. In addition, 2-years of Enhanced HOLDDATA is included with all PTF orders. Of course you can order just the HOLDDATA without any PTFs as well.

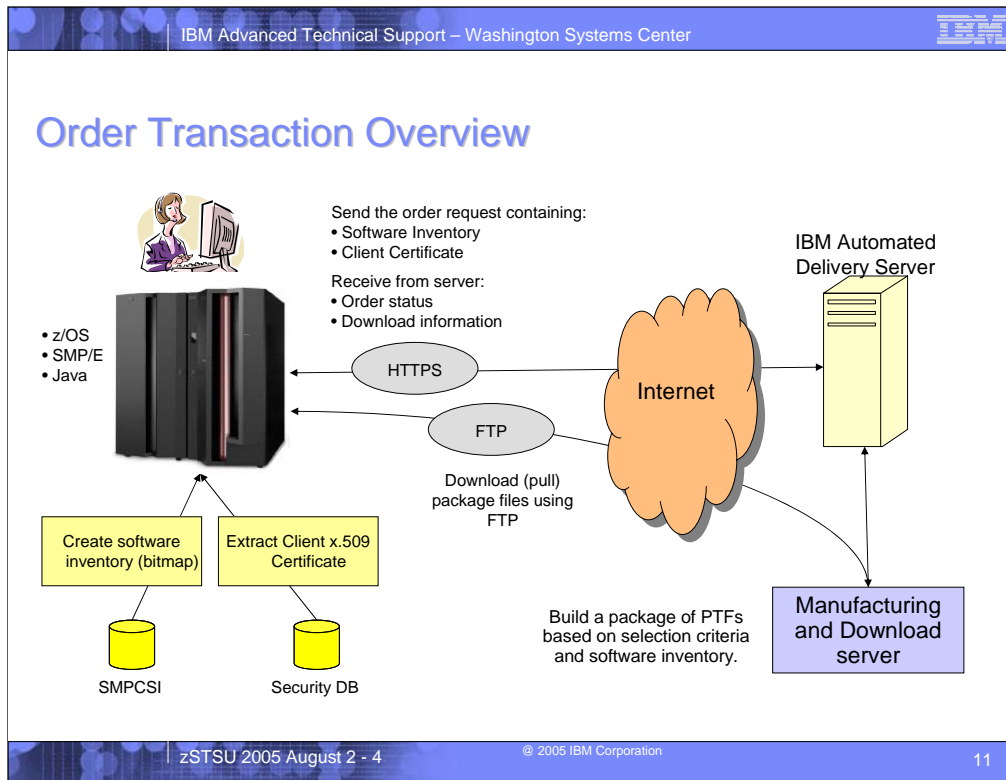
The package will be constructed using the GIMZIP packaging service and will be downloaded directly to your z/OS system using FTP (this makes use of the existing infrastructure SMP/E uses for the RECEIVE FROMNETWORK command).

IBM Automated Delivery Server

- Common interface into IBM service repositories for all software platforms, z/OS being only one
- Client applications, such as SMP/E, use the interface for automated service delivery
- Users must register to obtain access to the IBM server.
 - ▶ One time registration
 - ▶ New option in ShopzSeries to perform registration
 - ▶ Registration process dynamically generates an x.509 client certificate
 - Generated in PKCS#12 format
 - Uniquely identifies the user (customer number, country code, ShopzSeries identity, etc.)
 - ▶ User downloads the certificate to z/OS and stores it in a security product database (e.g. RACF)
- SMP/E will read the certificate from the security product database and pass it to the server as needed

The *IBM Automated Delivery Server* is the remote IBM server that manages access to IBM's service repository. It is intended to be the common interface into IBM's service repositories for all software platforms, z/OS being only one. Client applications, such as SMP/E, can use the interface to automate the service acquisition process.

To access the server, users must register and obtain a user identity. This will be accomplished with a new option in ShopzSeries (and described in more detail later). In short, an x.509 client certificate will be generated for you and will contain unique identifying information such as IBM customer number, county identifier, ShopzSeries identify, etc. This client certificate must be stored on z/OS in a security product data base like z/OS Security Server RACF. SMP/E will read the certificate from the security product data base and use it to gain access to the *IBM Automated Delivery Server*.



The flow for a typical SMP/E order transaction is as follows:

1. Build a software inventory.
2. Extract the named client certificate from the specified keyring.
3. Submit the order request to the server.
 - Client/server communication uses HTTP 1.0 protocol with SSL.
4. The server accepts the order request.
5. SMP/E creates an ORDER entry in the global zone to describe the order.
6. SMP/E polls the server periodically for status of the order.
7. When order is fulfilled the server responds with package download information.
 - FTP server, uid, pw, package SHA-1 hash.
8. SMP/E uses existing FROMNETWORK infrastructure to automatically download (pull) the package into the SMPPTS using FTP.
9. The contents of the package are expanded and received into the global zone and SMPPTS.



RECEIVE Command Extensions and Usage

RECEIVE ORDER Example – New Order

```
//jobname JOB ...
//RECEIVE EXEC PGM=GIMSMP
//SMPCSI DD DSN=SMPE.GLOBAL.CSI,DISP=SHR
//SMPNTS DD PATH='/u/smpe/smpnts/',PATHDISP=KEEP
//SMPCTL DD *
SET BOUNDARY(GLOBAL).
RECEIVE ORDER( /* Submit an order for service */
               CONTENT( CRITICAL ) /* Get HIPER and PE fixes */
               ORDERSERVER(ORDRSVR)
               ).
/*
//ORDRSVR DD *
<ORDERSERVER
  url="https://www.boulder.ibm.com/support/electronic/gateway"
  keyring="myKeyRing"
  certificate="SMPE Client Certificate">
</ORDERSERVER>
/*
```

The SMP/E RECEIVE command has been extended to support the process of ordering and delivery of PTF packages. Specifically the ORDER operand of the RECEIVE command is used to indicate an order for PTFs or HOLDDATA is to be processed. This is a simple example of an SMP/E job step to order critical server (HIPER and PE fixes).

RECEIVE ORDER Command – Basic Syntax

▪ New Order:

```
RECEIVE ORDER(  
    CONTENT(  
        PTFS(sysmodid list) |  
        APARS(sysmodid list) |  
        CRITICAL |  
        RECOMMENDED |  
        ALL |  
        HOLDDATA  
    )  
    FORTGTZONES(zone list)  
    ORDERSERVER(ddname)  
    WAIT(minutes | NOLIMIT)  
    CLIENT(ddname)  
    TRANSFERONLY  
).
```

CONTENT

Indicates the desired PTF and/or HOLDDATA content for the order.

ALL

all available PTFs that are applicable to the specified target zones.

APARS

Specifies one or more APARs for which resolving PTFs are desired.

CRITICAL

All available PTFs that resolve HIPER or PE problems.

HOLDDATA

Only HOLDDATA is ordered.

PTFS

Specifies one or more PTFs that are to be ordered.

RECOMMENDED

All available PTFs identified with an RSU sourceid, or resolve HIPER or PE problems. PTFs through the most current RSU level will be included.

FORTGTZONES

Defines the scope for the order – which target zones are used for the software inventory. The default is to use all target zones.

WAIT

How long SMP/E should wait for the order to be ready for download. You can specify 0 – 1440 minutes, or NOLIMIT. The default is 120 minutes.

TRANSFERONLY

RECEIVE processing should stop after the package files have been downloaded into the SMPNTS directory.

ORDERSERVER Data Set

- The ORDERSERVER data set contains information necessary for RECEIVE ORDER command processing:
 - Location of the server
 - Unique identifying information for the user (certificate)
- Specified by ddname on the ORDERSERVER operand

```
<ORDERSERVER
  url="server url"
  keyring="keyring name"
  certificate="certificate label" >
</ORDERSERVER>
```

The ORDERSERVER data set contains the information necessary for RECEIVE ORDER command processing to identify the *IBM Automated Delivery Server* as well as the client certificate to be used for this request. The certificate was obtained from ShopzSeries during the registration process and uniquely identifies you to the server.

The information in the ORDERSERVER data set is described using the <ORDERSERVER> tags and attributes. The **url** attribute identifies the url for the server. The **certificate** attribute identifies the certificate you want to use, by specifying the certificate label, and the **keyring** attribute identifies the keyring that the certificate is connected to. A keyring is a named collection of certificates associated with a specific userid.

CLIENT Data Set

- The CLIENT data set describes local z/OS client information and options for existing RECEIVE FROMNETWORK and new RECEIVE ORDER processing
 - FTP options: Debug mode, number of transfer retries, firewall navigation
 - HTTP options: HTTP proxy and SOCKS proxy servers
 - Java options: Classpath for SMP/E java application classes and debug options
- Specified by ddname on the CLIENT operand

```

<CLIENT debug="YES|NO" retry="n"
  classpath="path"
  javadebugoptions="options" >

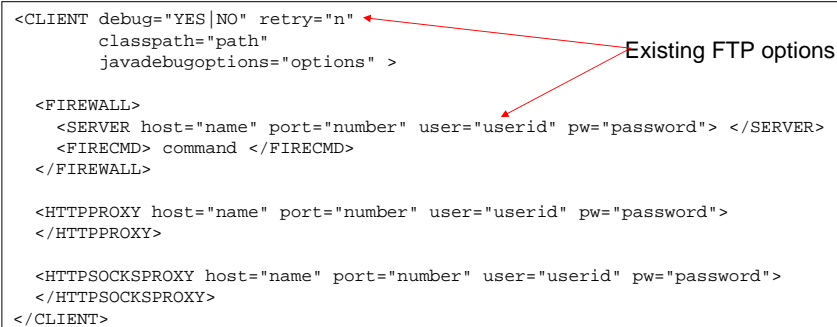
<FIREWALL>
  <SERVER host="name" port="number" user="userid" pw="password"> </SERVER>
  <FIRECMD> command </FIRECMD>
</FIREWALL>

<HTTPPROXY host="name" port="number" user="userid" pw="password">
</HTTPPROXY>

<HTTPSOCKSPROXY host="name" port="number" user="userid" pw="password">
</HTTPSOCKSPROXY>
</CLIENT>

```

Existing FTP options



The CLIENT data set contains information to describe the local z/OS system environment, as well as some processing options for the new RECEIVE ORDER command, as well as the existing RECEIVE FROMNETWORK command. The information in the CLIENT data set is described using the <CLIENT> tag and attributes.

There are three types of information specified in the CLIENT data set:

1. Options that affect FTP operations. These are existing options used for both RECEIVE ORDER and RECEIVE FROMNETWORK that indicate how many "get" retries should be performed if a file is not transferred correctly, should debug and trace output be generated, and how to navigate a local firewall.
2. Options that affect HTTP operations. These are new options used during HTTPS communications with the remote server to describe local HTTP or SOCKS proxy servers.
3. Options that affect Java interactions for RECEIVE ORDER command processing. The **classpath** attribute indicates the directory where the SMP/E Java application classes reside. SMP/E supplies a set of application classes that are installed into the /usr/lpp/smp/classes directory, and this attribute is used to identify that directory. The **javadebugoptions** attribute indicates if trace and debug output should be generated.

ORDER Entry - Downloaded Orders

- SMP/E creates ORDER entries in the global zone to describe orders
- After the package for an ORDER has been downloaded:
 - Its status is set to DOWNLOADED
 - Its contents can be expanded and received
- Sample global zone ORDER entry:

```
ORD00036  CONTENT      = CRITICAL
          STATUS      = DOWNLOADED
          DATE/TIME ORDER = 05.281  10:01:53
          DATE/TIME DOWNL = 05.281  10:15:44
          USERID       = JOHNDOE
          ORDERID      = H234567893
          PKGID        = ORD00036-8October2005-10:14:37
          ZONES        = ZOS17T
```

Status is
DOWNLOADED

Directory in the SMPNTS
where the package resides

The RECEIVE ORDER command will create entries in the Global zone to describe an order placed with the IBM server. Among other things, ORDER entries indicate:

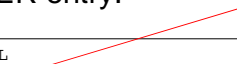
- The requested content for the order
- The order's status
- When the order was submitted and when its package was downloaded
- What z/OS userid submitted the job which created the ORDER entry
- The server's identifier for the order
- Where (what directory) the package for the order is stored in
- The zones used when creating the software inventory for this order.

ORDER Entry - Pending Orders

- If the order is not fulfilled in the specified (or default) wait time:
 - ▶ RECEIVE processing ends
 - ▶ Such an order remains in a **pending** state
 - ▶ A subsequent RECEIVE ORDER PENDING command will continue processing for this order
- Sample Global zone ORDER entry:

```
ORD00036  CONTENT          = CRITICAL
          STATUS          = PENDING
          DATE/TIME ORDER = 05.281 10:01:53
          USERID          = JOHNDOE
          ORDERID         = H234567893
          ZONES           = ZOS17T
          ORDER SERVER    = <ORDERSERVER
                        url="https://www.boulder.ibm.com/support/electronic/gateway"
                        keyring="myKeyRing"
                        certificate="SMPE Client Certificate">
                        </ORDERSERVER>
```

Status is
PENDING



Once an order has been submitted to the IBM server, the RECEIVE ORDER command will wait for the server to manufacture a package to satisfy the request. If the package is not ready for download within the time allowed (specified by the user or the default of 120 minutes), then SMP/E will stop processing. The order is described by an ORDER entry in the global zone and remains in a "pending" state. The package for such an order can be retrieved later by SMP/E using the RECEIVE ORDER PENDING command.

RECEIVE ORDER Command – Basic Syntax

- Pending Order:

```
RECEIVE ORDER(  
    PENDING(ordername)  
    WAIT(minutes | NOLIMIT)  
    CLIENT(ddname)  
    TRANSFERONLY  
).
```

PENDING

Specifies the name of an existing ORDER entry whose package has not yet been downloaded.

WAIT

How long SMP/E should wait for the order to be ready for download. You can specify 0 – 1440 minutes, or NOLIMIT. The default is 120 minutes.

TRANSFERONLY

RECEIVE processing should stop after the package files have been downloaded into the SMPPTS directory.

RECEIVE ORDER Example – Pending Order

```
//jobname JOB ...
//RECEIVE EXEC PGM=GIMSMP
//SMPCSI DD DSN=SMPE.GLOBAL.CSI,DISP=SHR
//SMPNTS DD PATH='/u/smpe/smpnts/',PATHDISP=KEEP
//SMPCTL DD *
SET BOUNDARY(GLOBAL).
RECEIVE ORDER(
    PENDING(ORD00036) /* Get existing (pending) order */
).
/*
```

- If not downloaded by a RECEIVE PENDING operation, pending orders eventually expire and are purged from the download server
- New orders can be submitted even if one or more pending orders exist

This is an example of the RECEIVE ORDER PENDING command. It is used to download the package for an order whose processing was not completed. If an order is not downloaded to z/OS by a RECEIVE ORDER PENDING operation, eventually the package for the order will expire and be deleted from the download server. In this case a new order can be submitted and a new package will be created.

RECEIVE FROMNTS Command

- If an ORDER was processed with the TRANSFERONLY operand (files only downloaded, PTFs not processed):
 - ▶ Its package resides in a directory like:

```
/u/smpe/smpnts/ORD00036-8October2005-10:14:37
```

- ▶ Package contents can be received using RECEIVE FROMNTS:

```
RECEIVE FROMNTS (  
    packageid |  
    ORDER (ordername)  
).
```

If the package for an ORDER has been downloaded but the PTFs and HOLDDATA contained in the package have not been processed, you can use the RECEIVE FROMNTS command variation to process the package contents. The RECEIVE FROMNTS command exists, but it has been extended to allow you to supply the entry name for an ORDER entry as a way to identify the package you want to process.

Global Zone ORDER Entry Cleanup

- Each successful RECEIVE ORDER command will create a new ORDER entry in the global zone
 - SMP/E generates a unique entry name of the form ORDnnnnn.
- You can manually delete entries using UCLIN, or
- ORDER entries may be ***purged automatically***:
 - New ORDER RETENTION subentry for the OPTIONS entry.
 - Default value is 180 days
 - RECEIVE ORDER command compares each existing ORDER entry to the active ORDER RETENTION value
 - Entries are deleted if older than the ORDER RETENTION value.

Every new order submitted by the RECEIVE ORDER command causes a new ORDER entry in the global zone to be created. SMP/E generates a unique name for each ORDER entry of the form ORDnnnnn. Depending on how often you use the RECEIVE ORDER command, over time you may have many ORDER entries in your global zone.

You can manually delete ORDER entries from the global zone using the UCLIN command of course. However, ORDER entries may also be purged automatically from the global zone. An ORDER RETENTION value determines how long ORDER entries should be retained in the global zone. The value is defined by a new subentry in the OPTIONS entry. During RECEIVE ORDER command processing, SMP/E will examine each and every existing ORDER entry in the global zone and compare it to the active ORDER RETENTION value. If the order is too old, it will be deleted from the global zone. The ORDER RETENTION value may be 0 – 9999 days, and the default is 180 days. An ORDER RETENTION value of 0 days means the ORDER entry will be deleted immediately after the package for the order has been downloaded.

Note: The package associated with an ORDER entry is not affected when the entry is deleted from the global zone.

ORDER Management Dialog

- New SMP/E ISPF dialog process to manage ORDER entries in the global zone
 - ▶ See the status of all orders at a glance
 - ▶ View the details of individual orders
 - ▶ Delete the ORDER entry for selected orders

In an effort to help you understand and manage the ORDER entries in your global zone, SMP/E has created a new leg of its ISPF dialogs dedicated to ORDER entries. Using the ORDER Management Dialog you can see the status of all orders at a glance, view the details of individual orders, and delete the ORDER entry for selected orders.

ORDER Management Dialog

```
----- SMP/E PRIMARY OPTION MENU ----- SMP/E 34.00
====>

0 SETTINGS          - Configure settings for the SMP/E dialogs
1 ADMINISTRATION   - Administer the SMPCSI contents
2 SYSMOD MANAGEMENT - Receive SYSMODs and HOLDDATA
                    and install SYSMODs
3 QUERY            - Display SMPCSI information
4 COMMAND GENERATION - Generate SMP/E commands
5 RECEIVE          - Receive SYSMODs, HOLDDATA and
                    support information
6 MIGRATION ASSISTANT - Generate Planning and Migration Reports
7 ORDER MANAGEMENT - Manage ORDER entries in the global zone

D DESCRIBE         - An overview of the dialogs
T TUTORIAL         - Details on using the dialogs
W WHAT IS NEW      - What is New in SMP/E

Specify the name of the CSI that contains the global zone:
SMPCSI DATA SET  ==> SMPE.GLOBAL.CSI
(Leave blank for a list of SMPCSI data set names.)

Specify YES to have DD statements for SYSOUT and temporary
data sets generated. Specify NO, to use DDDEFS.
Generate DD statements  ==> NO

Licensed Materials - Property of IBM
5694-A01 5655-G44 (C) Copyright IBM Corp. 1982, 2005
```

New
dialog
option



A new option 7 on the SMP/E Primary Option Menu leads to the new ORDER Management Dialog.

ORDER Management Dialog

```

----- ORDER Entries ----- Row 1 to 13 of 13
====>
                                SCROLL ==> PAGE

Commands: FIND -Find a string

Actions:  S -Select, D -Delete

  Entry      Status      Content      Order      Download
  Name       Status      Content      Date and Time  Date and Time
-----
ORD00001   DOWNLOADED  HOLDDATA    05.048 15:30:42 05.048 15:40:58
ORD00002   DOWNLOADED  CRITICAL    05.049 08:23:47 05.049 08:29:03
ORD00003   DOWNLOADED  HOLDDATA    05.052 10:52:18 05.053 13:35:45
ORD00004   DOWNLOADED  PTFS        05.052 11:52:55 05.053 14:22:01
ORD00005   DOWNLOADED  APARS       05.053 14:45:36 05.053 14:50:52
ORD00006   DOWNLOADED  HOLDDATA    05.054 10:28:33 05.054 11:26:50
ORD00007   DOWNLOADED  RSU3501     05.054 10:34:06 05.054 17:56:03
ORD00008   PENDING     CRITICAL    05.056 15:02:16 05.056 15:47:56
ORD00009   PENDING     CRITICAL    05.056 15:47:56 05.059 16:33:45
ORD00010   DOWNLOADED  PTFS        05.059 16:20:04 05.059 16:33:45
ORD00011   PENDING     HOLDDATA    05.063 10:32:38 05.068 17:30:12
ORD00012   PENDING     PTFS        05.068 17:30:12 05.069 13:25:47
ORD00013   DOWNLOADED  PTFS        05.068 17:46:57 05.069 13:25:47
ORD00014   DOWNLOADED  HOLDDATA    05.069 09:21:19 05.069 09:36:22
***** Bottom of data *****

```

Content value for RECOMMENDED order

This is an example of the display for the new ORDER Management Dialog. ORDER entries can be selected for detailed viewing (just like in the Query dialogs), or the entries can be deleted from the global zone. Notice the value of the CONTENT subentry for an order that requested RECOMMENDED PTFS. The value stored in the ORDER entry corresponds to the most recent Recommended Service Update level (RSU sourceid) at the time the order was submitted and fulfilled.

Note: The package associated with an ORDER entry is not affected when the entry is deleted from the global zone.



Dependencies

Dependencies

- Hardware
 - ▶ No special hardware dependencies

- Software
 - ▶ SMP/E uses Java classes for HTTPS communication
 - ▶ SMP/E requires *IBM SDK for z/OS, Java 2 Technology Edition, Version 1.4 (5655-I56)* or its successor

To perform the HTTPS communications with the IBM Automated Delivery Server, SMP/E uses Java classes. Therefore, to use the RECEIVE ORDER command requires IBM SDK for z/OS, Java 2 Technology Edition, Version 1.4 (5655-I56) or its successor be installed and available on the z/OS system where SMP/E is running.



Configuration and Setup

Configuration and Setup

- One-time configuration and setup:
 1. Establish access to the Java runtime and SMP/E application classes
 2. Register to use the server (obtain a user certificate)
 3. Setup security product data base (i.e. RACF)
- Documented in the *SMP/E User's Guide (SA22-7773)*, Chapter 4, "*Preparing to Use RECEIVE ORDER Processing*"

Before using the RECEIVE ORDER command there are various configuration and setup tasks that must be performed. The tasks are documented in detail in the SMP/E User's Guide (SA22-7773), chapter 4 "Preparing to use RECEIVE ORDER Processing".

Access to Java and SMP/E Application Classes

▪ Access to the Java Runtime

- ▶ PATH and LIBPATH UNIX variables must specify Java runtime. Set the variables in /etc/profile or \$HOME/.profile. For example:

```
PATH=.: /bin:/user/lpp/java/J1.4/bin
LIBPATH=/lib:/usr/lib:/usr/lpp/java/J1.4/lib:.
```

▪ Access to SMP/E Application Classes

Do either:

- ▶ Set PATH UNIX variable in /etc/profile or \$HOME/.profile. For example:

```
PATH=.: /bin:/user/lpp/java/J1.4/bin:/usr/lpp/smp/classes
```

- ▶ Or use the classpath attribute in the CLIENT data set for RECEIVE ORDER:

```
classpath="/usr/lpp/smp/classes"
```

Useful if SMP/E is not installed on the driving system

```
classpath="/TGTSYS/usr/lpp/smp/classes"
```

For SMP/E to use Java, it must be available in the SMP/E execution environment. To accomplish this the Java runtime directories must be specified in the PATH and LIBPATH UNIX variables. These can be defined in the common /etc/profile or in a user's \$HOME/.profile.

In addition to the Java runtime, the SMP/E application classes must also be available in the SMP/E execution environment. This directory may also be specified in the PATH and LIBPATH UNIX variables, or it may be specified using the **classpath** attribute in the CLIENT data set for RECEIVE ORDER.

Obtaining a User Certificate

1. Sign in to ShopzSeries
<https://www14.software.ibm.com/webapp/ShopzSeries/ShopzSeries.jsp>
2. Click on "create new software orders"
3. Select a Customer number, Operating environment of z/OS (or z/OS.e), and a Package category of "Automated delivery certificates"
4. Enter an encryption pass phrase and continue
 - ▶ A PKCS#12 certificate file will be generated
 - ▶ The file is encrypted using your specified pass phrase
5. Download the generated certificate file to your workstation
6. Upload the certificate file to z/OS.
 - ▶ Must be transferred as binary data
 - ▶ Must be stored in a sequential data set

To access the IBM Automated Delivery Server you must have appropriate access permission. Permission is granted if you have an x.509 certificate generated for this specific purpose. To get a certificate you must use ShopzSeries

(<https://www14.software.ibm.com/webapp/ShopzSeries/ShopzSeries.jsp>).

After you log onto ShopzSeries you must "create a new software order." The you must select a Customer number from your profile, an Operating environment of z/OS or z/OS.e, and a Package category of "Automated delivery certificates." You then supply an encryption pass phrase. This pass phrase is used to encrypt the PKCS#12 certificate file that will contain the generated client certificate and its associated private key.

After you download the generated certificate file to your workstation and upload it to your z/OS system, you can then add the certificate to your z/OS security product data base.

Note: The certificate file must be transferred as binary data and stored on z/OS as a sequential data set.

Security Product (RACF) Setup

1. Ensure you have access to use the RACDCERT command.

2. Create a RACF keyring:

```
RACDCERT ID(userid) ADDRING(KeyRingName)
```

3. Trust the Equifax CA certificate and connect to the keyring:

```
RACDCERT CERTAUTH ALTER( +  
  LABEL('Equifax Secure Certificate Authority')) TRUST  
RACDCERT ID(userid) CONNECT( CERTAUTH +  
  LABEL('Equifax Secure Certificate Authority') +  
  RING(KeyRingName) USAGE(CERTAUTH) )
```

Note: If using z/OS R5 or earlier you must go to the GeoTrust website to get the Equifax CA certificate

4. Add the generated certificate and connect to the keyring:

```
RACDCERT ID(userid) ADD('user.certificate.dataset.name') +  
  WITHLABEL('SMPE Client Certificate') TRUST +  
  PASSWORD('EncryptionPassPhrase')  
RACDCERT ID(userid) CONNECT( LABEL('SMPE Client Certificate') +  
  RING(KeyRingName) )
```

Once the generated certificate file is on your z/OS system in a sequential data set, you can add it to your z/OS security product data base. In this discussion RACF is assumed.

First you must ensure you have access to use the RACDCERT command. The next step is to create a RACF keyring. Keyrings are named resources used to collect certificates for a particular userid. Then you need to add the generated certificate to the keyring, as well as connect the Equifax Certificate Authority (CA) certificate to your keyring. The Equifax CA certificate is used during SSL processing to authenticate the IBM server.

Note: If you are using z/OS R6 or R7 then the Equifax CA certificate is defined in RACF by default. However, if you are using z/OS R5 or R4 then you must go to the GeoTrust website to obtain the Equifax CA certificate (http://www.geotrust.com/resources/root_certificates/index.htm).



Integrated Cryptographic Services Facility (ICSF) Mitigation

ICSF Mitigation – The Problem

- SMP/E uses the ICSF One-Way Hash Generate callable service to compute SHA-1 hash values.
- Not all user z/OS systems have ICSF enabled:
 - Required hardware not available, or
 - ICSF not configured (non-trivial task, requiring POR)
- Therefore, not all SMP/E functions are usable.
 - RECEIVE ORDER / FROMNETWORK / FROMNTS
 - GIMZIP, GIMUNZIP, GIMGTPKG

- If SMP/E can use an alternative to ICSF, then SMP/E capabilities will be usable by a larger audience

Existing releases of SMP/E use ICSF to compute SHA-1 hash values. This is done during RECEIVE FROMNETWORK command processing, as well as when using the GIMZIP, GIMUNZIP, and GIMGTPKG service routines. For a number of reasons, not all user z/OS systems have ICSF enabled. Therefore, these SMP/E functions are not usable by all users on all z/OS systems.

The desire is to make these functions accessible to a broader set of users. Therefore, an alternate to ICSF for computing SHA-1 hash values must be found.

ICSF Mitigation – The Solution

- If ICSF is not active or configured, SMP/E will now use an alternate method to compute SHA-1 hash values
 - ▶ Java MessageDigest class
 - ▶ SMP/E requires access to Java and SMP/E application classes (just like for RECEIVE ORDER)

- Used for the following functions:
 - ▶ RECEIVE ORDER
 - ▶ RECEIVE FROMNETWORK / FROMNTS
 - ▶ GIMZIP, GIMUNZIP, GIMGTPKG

The Java MessageDigest class provides an alternate method for computing SHA-1 hash values. SMP/E is being extended to use the Java MessageDigest class to compute SHA-1 hash values if SMP/E determines ICSF is not active or configured. This allows the RECEIVE FROMNETWORK command to be used on z/OS systems that can not use ICSF.



Installation, Migration, and Coexistence

Installation

- No unique or new installation considerations, **except:**
- SMP/E supplies ++HFS elements for Java application classes
 - ▶ New for SMP/E V3.4
- New target directory
 - ▶ Ddname: SGIMBIN
 - ▶ /usr/lpp/smp/IBM/
/usr/lpp/smp/classes/com/ibm/smp/
- New distribution library
 - ▶ Ddname: AGIMBIN
 - ▶ GIM.AGIMBIN

New for SMP/E V3.4 are ++HFS elements. That is, SMP/E V3.4 will supply Java application class files that must be installed into a UNIX file system directory. The packaging and installation of these files follows the model typical of other z/OS elements and products.

Migration, and Coexistence

▪ Migration

- ▶ There are no migration considerations.
- ▶ The UPGRADE command is **NOT** required for migration to SMP/E V3.4

▪ Coexistence

- ▶ Coexistence PTFs for prior release levels will be available.
 - UO00114, UO00115, UO00116
- ▶ No incompatible changes are made to SMP/E data sets, but coexistence will ensure prior releases can operate properly when sharing SMPCSI data sets that contain new function data.

There are no migration considerations when coming from a lower release level of SMP/E. Also, there are no unusual coexistence considerations. The usual coexistence PTFs will be available to ensure lower SMP/E releases can operate properly when sharing SMP/E SMPCSI data sets that contain new function data.

Summary

- With RECEIVE ORDER, SMP/E integrates service **ordering**, **delivery**, and **installation** for the z/OS platform.
 - ▶ Can order PTFs, APARs, Critical, Recommended, All or Holddata
 - ▶ Delivery is direct to z/OS using FTP
 - ▶ Uses Java for HTTPS operations
 - ▶ One time configuration and setup steps
 - ▶ Can use a job scheduler to automate service acquisition
- ICSF Mitigation
- Installation, migration, coexistence
- Validation during ESP

Appendix

- *SMP/E User's Guide (SA22-7773)*, Chapter 4, "Preparing to Use RECEIVE ORDER Processing"
- ShopzSeries:
<https://www14.software.ibm.com/webapp/ShopzSeries/ShopzSeries.jsp>
- Enhanced HOLDDATA:
<http://service.software.ibm.com/holddata/390holddata.html>
- GeoTrust Certificate Authority web site:
http://www.geotrust.com/resources/root_certificates/index.htm