BMC is announcing a new feature and additional enhancements to the BMC Subsystem Optimizer for zEnterprise (Subzero) product.

Overview of the new feature

Subzero now lets you redirect IMS DL/I calls issued by batch jobs running in a Subzero environment on one LPAR. You can redirect the calls to an IBM IMS subsystem that resides on a remote LPAR within the same sysplex. This new feature supplements the support added via PTFs in December 2015 for batch jobs issuing SQL calls to remote DB2 subsystems.

With the new feature, Subzero can:

- Support batch jobs that issue both IMS DL/I calls to IMS subsystems and SQL calls to DB2 subsystems
- Reduce latency for very large data requests by directing the IMS batch job steps to run on the same remote LPAR where the IBM IMS subsystem resides
- Redirect DL/I calls from IMS BMP and DLI Batch (DBB and DLI) jobs.

**Note**

DBB and DLI jobs connect to a remote IMS control region using the same Database Resource Adapter (DRA) interface that is used by CICS and ODBA subsystems. Consequently, your DLI and DBB batch jobs use the IMS DBCTL or DB/DC logging and locking facilities. AR/CTL for IMS provides both checkpoint/restart support and GSAM support that the DRA interface does not provide.

This feature requires a license for the BMC Subsystem Optimizer for IMS, and requires specific functionality provided by the APPLICATION RESTART CONTROL for IMS (AR/CTL) and MainView Batch Optimizer–Advanced products.
Restrictions

The product does not support the following implementations for this feature:

- Remote access to the I/O or to the alternate I/O program communication blocks (PCB)
  Subzero cannot redirect the application program to access the IMS I/O PCB or Alternate I/O PCB on a remote IMS system. Also, Subzero cannot redirect access to the IMS message queues (no transaction-oriented BMP support) or to the IMS command interface.

- Remote access to generalized sequential access method (GSAM) databases
  
  Note
  AR/CTL for IMS can provide support for Application Sequential Access Method (ASAM) database access, which you can implement to replace GSAM database access. For more information, contact BMC Customer Support.

- Scheduling a PSB that contains a PCB with a processing option (PROCOPT) of L (LOAD) or LS (LOAD SEQUENTIAL)
  The PSB is the third parameter of the BMP/DLI/DBB execution parameter.

Note

BMC Subsystem Optimizer for IMS Restriction: The BMC APPLICATION RESTART CONTROL for IMS product and the MainView Batch Optimizer product that are shipped with the BMC Subsystem Optimizer for IMS (Subzero for IMS) License may only be used to manage, update and access IMS data as part of a Subzero for IMS implementation, unless Customer has separately licensed the BMC APPLICATION RESTART CONTROL for IMS product and the MainView Batch Optimizer product. Customer may not use the functionality of such Products for any other purpose.

Other miscellaneous enhancements

In addition to the new feature, this release also incorporates additional fixes and general improvements, along with these enhancements:

- Setting up of DB2 batch redirection has been simplified.
  — You no longer have to copy and rename the DB2 and Subzero load modules.
  — You no longer have to insert the library containing the DB2 and Subzero load modules into the JCL.
You can now configure Subzero to run remote batch steps and redirect batch requests to a remote LPAR for the same job. You configure this capability in APPLICATION RESTART CONTROL for IMS.

The Subzero messaging infrastructure has been enhanced.

This enhancement also incorporates a few additional fixes and general improvements.

**Obtaining the enhancement**

Use the following procedure to obtain the enhancement. In this procedure, you will apply PTFs for the Subzero, APPLICATION RESTART CONTROL (AR/CTL), and MainView Batch Optimizer–Advanced products.

1. If you do not already have AR/CTL (version 4.1.00 or later) and MainView Batch Optimizer–Advanced (version 2.7.00 or later) installed, complete this step:
   a. Obtain the license keys for AR/CTL and MainView Batch Optimizer–Advanced.
   b. Install AR/CTL and MainView Batch Optimizer–Advanced.

2. Apply the following PTFs:

<table>
<thead>
<tr>
<th>Product</th>
<th>PTF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subzero</td>
<td>Bundle 5 (BPJ1478)</td>
</tr>
<tr>
<td>AR/CTL</td>
<td>BQQ2040</td>
</tr>
<tr>
<td>MainView Batch Optimizer–Advanced</td>
<td>BPB1448</td>
</tr>
</tbody>
</table>

BMC recommends using BMC Internet Service Retrieval (ISR) to obtain PTFs. For information about ISR, see the maintenance information in the *Installation System Reference Manual*.

You can also obtain PTFs from eFix PTF Distribution Services (eFix). You can access eFix directly at [http://efix.bmc.com](http://efix.bmc.com) or from the support site. For information about eFix, see the online Help.

3. Follow the instructions in the remainder of this notice to prepare the batch feature for use.
Note
If you have questions, contact Customer Support at 1 800 537 1813 (United States or Canada) or call your local support center.

Setting up the batch job feature

To use the batch enhancement, you need to:

■ Prepare the AR/CTL and MainView Batch Optimizer–Advanced products

■ Configure Subzero by using the DB2 Product Configuration (LGC) common component to work with the new feature

The following table summarizes the setup tasks, which you can complete in the order shown.

Note
Before proceeding, ensure that you have installed products and applied PTFs as explained in “Obtaining the enhancement” on page 3.

Table 1: Summary of setup tasks

<table>
<thead>
<tr>
<th>In this product or component</th>
<th>Complete these tasks</th>
<th>Using these instructions</th>
</tr>
</thead>
</table>
| MainView Batch Optimizer    | Create a new job policy in the control data set, add the DIRECT action to the policy’s global options, and activate the policy. | “Adding the DIRECT command to a job policy definition” on page 5  
“Activating a job policy in Job Optimizer” on page 6 |
|                             | Add the DIRECT JTL statement for each job that you want to execute on a remote subsystem. | “Adding the DIRECT JTL statement” on page 7 |
|                             | Edit the MainView Batch Optimizer Subsystem commands member to activate the Subzero for IMS interface at startup. | “Activating the Subzero interface” on page 7 |
| Subzero                     | Adding the Database Resource Adapter (DRA) Startup Parameter Table | “Including the DFSPZP module for IMS Batch Support” on page 8 |
| LGC                         | Configure the redirection information for the IMS client and target subsystems. | “Setting Subzero configuration options in LGC” on page 8  
“Overview of Subzero configuration options in the LGC” on page 10 |
Setting up MainView Batch Optimizer

This topic explains how to set up MainView Batch Optimizer to support the Subzero for IMS batch job feature.

Adding the DIRECT command to a job policy definition

Use the following procedure to add the DIRECT command to the policy definition for each job that you want to redirect in the control data set.

**Note**
The default job policy member is JOBPOL00.

**To add the DIRECT command to a job policy definition**

1. Access the MainView Batch Optimizer user interface.
   
   To do so, you can use the REXX EXEC member BSSBISPF in data set BMC.BSS.INSTALL.

2. At the product logo panel, press **Enter**.

3. On the Objects List panel, type **E** (Edit) in the action entry field to the left of the job policy that you want to edit, and press **Enter**.

   The Job Optimization Policy panel displays the selected policy's information and selection criteria.

4. In the **Selection Criterion** list, type **E** (Edit) next to <New>, and press **Enter**.
5 In the Job Policy Definition panel, enter **DIRECT** in the **Action** field.

**Figure 1: Example Job Policy Definition panel**

<table>
<thead>
<tr>
<th>Job Policy Definition</th>
<th>Command ===</th>
<th>Job policy name          : JOBPOLxx</th>
</tr>
</thead>
<tbody>
<tr>
<td>Selection comment     : SUBZERO DIRECT________</td>
<td></td>
<td></td>
</tr>
<tr>
<td>New definition will be inserted at top of list.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Selection Criterion</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Type</td>
<td>Cond</td>
<td>Value</td>
</tr>
<tr>
<td>. JOBNAME_ + EQ + JSUBZERO</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>General Options</th>
<th>Value</th>
<th>Valid settings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Action</td>
<td>DIRECT_</td>
<td>Split Analyze Bypass Direct</td>
</tr>
<tr>
<td>Pipe wait percent</td>
<td>__</td>
<td>0-99</td>
</tr>
<tr>
<td>Maximum concurrent steps</td>
<td>___</td>
<td>1-255</td>
</tr>
<tr>
<td>Split conditional steps</td>
<td>_</td>
<td>Y=Yes N=No</td>
</tr>
<tr>
<td>Transport mechanism</td>
<td>____</td>
<td>SRP JOP AUTO</td>
</tr>
<tr>
<td>Split tape steps</td>
<td>_</td>
<td>Y=Yes N=No</td>
</tr>
<tr>
<td>SMFrecord type</td>
<td>___</td>
<td>0, 128-255</td>
</tr>
</tbody>
</table>

6 Press **F3** and select option **1** to save your changes and exit.

For more information, see the topic about accessing the user interface in the *MainView Batch Optimizer Job Optimizer Reference Manual*.

**Activating a job policy in Job Optimizer**

The job policy becomes active when you start the MainView Batch Optimizer Subsystem on the images in the BatchPlex.

Your site’s initial job policy was created during the MainView Batch Optimizer customization process. The name of the job policy is defined within the BatchPlex definition. For a new job policy, you must activate the policy on each IBM MVS image in the BatchPlex.

**Note**

If you created a new policy, or edited an existing policy to include the new **DIRECT** keyword, you cannot activate the policy on a previous maintenance level of MainView Batch Optimizer.

**To activate a job policy**

1 Enter the following command:

```
mbos BSL POLICY ACTIVATE policyName
```

*mbos* is the subsystem ID of the MainView Batch Optimizer Subsystem that is active on the MVS image.
**policyName** is the name of an existing job policy definition in the control data set. Omitting **policyName** reactivates the currently active job policy.

## Adding the DIRECT JTL statement

Use the following procedure to add the DIRECT job transformation language (JTL) statement.

1. Add the following JTL statement immediately after a job in the MainView Batch Optimizer JCL:

   ```*/BSLCNTL DIRECT```

   For more information about JTL statements, see the *MainView Batch Optimizer Job Optimizer Reference Manual*.

## Activating the Subzero interface

Use the following procedure to activate the Subzero interface in MainView Batch Optimizer each time that MainView Batch Optimizer starts.

### To activate the Subzero interface at startup

1. In the Subsystem commands member BCSCMDxx for MainView Batch Optimizer, add the following command:

   ```mbos BSL SUBZERO ENABLE [IGNORE|WARN|FAIL]```

   Optionally, you can include the IGNORE, WARN, or FAIL keyword if you want to specify how MainView Batch Optimizer should react if a step fails to split:

   - IGNORE (the default) allows the step to execute without issuing an informational message or user abend.
   - WARN issues a warning message indicating that the target system is unavailable.
   - FAIL issues an informational message explaining why the step failed to split.

### Note

You can also use the following keywords with the Subzero command:

- DISABLE disables interfacing with Subzero.
- STATUS shows whether interfacing with Subzero is enabled or disabled.
Setting up LGC and preparing the STEPLIB

This topic explains how to set options in the DB2 Product Configuration (LGC) component to support the Subzero for IMS batch job feature and prepare the Subzero server and IMS batch STEPLIB.

Including the DFSPZP module for IMS Batch Support

Subzero IMS Batch support requires a Database Resource Adapter (DRA) Startup Parameter Table, this module must have a member name of DFSPZPSZ.

1 Modify the following DFSPZPSZ sample as appropriate for your environment.

```
DFSPRP DSECT=NO,
FUNCLV=3,       Function level  3
DDNAME=BRDRESL, DDNAME FOR DRA RESLIB
DSNAME=BMCBRD.IMS.SDFSRESL,
DBCTLID=BRD,    DBCTL IDENTIFIER
USERID=BRDUSR,  USER IDENTIFIER
MINTHRD=1,     MINIMUM NUMBER OF THREADS
MAXTHRD=1,     MAXIMUM NUMBER OF THREADS
TIMER=2,       IDENTIFY TIMER VALUE DEFAULT
FPBUF=0,       NUMBER OF FP BUFFERS PER THREAD
FPBOF=0,       NUMBER OF FP OVERFLOW BUFFERS
SOD=A,         SNAP DATASET OUTPUT CLASS
AGN=,          AGN, no longer supported
TIMEOUT=60,    DRATERM TIMEOUT VALUE
IDRETRY=5,     Identify Retry count
PCBLOC=31,     Local PCB storage option
CNBA=0,        Total FP NBA buffers this Conn
OPENTHRD=DISABLE, OTT option
GENSNAP=NO,    Generate SNAP dumps YES or NO
IMSPLEX=,      IMSPLEX ODBA to use for ODBM
ODBMNAME=      ODBM Name this ODBA to use
```

2 Ensure that DFSPZPSZ is APF authorized.

3 Link DFSPZPSZ to IMS RESLIB.

Setting Subzero configuration options in LGC

Use the following procedure to specify how Subzero should redirect subsystem access requests from a client to a target.

Additional guidelines are as follows:

- LGC creates XML-based option sets to contain your Subzero configuration values. For a description of each option that you can set, see “Overview of Subzero configuration options in the LGC” on page 10.

- You can change Subzero configuration values while Subzero is active. The new values do not become effective until you reload the configuration in Step 7 on page 10.
The DB2 Component Services (DBC) must be running on the LPAR that you designate as a new client or target LPAR. If the IBM CICS product started before DBC on a new client LPAR, you must restart CICS.

For more information about setting values in LGC, see the *BMC Infrastructure Components Administration Guide*.

**To set Subzero configuration values**

1. Execute the LGCISPF CLIST (located in the product SAMP data set).

   The default location for LGCISPF is in `userLibHLQ.UXXSAMP` or `HLQ.BMCSAMP`.

2. From the DB2 Product Configuration Main Menu, select **Manage Product Options**.

3. From the Product Option Sets panel, place your cursor on the plus sign (+) to the left of **BMC Subsystem Optimizer for zEnterprise**, and take one of the following actions:
   - To create a new Subzero option set for this product, enter `I`, and then enter redirection values.
   - To work with an existing Subzero option set, press `Enter`, put your cursor on the plus sign (+) to the left of that option set name, and take one of the following actions:
     - Enter `E` to edit the values in the option set.
     - Enter `C` to create a new option set that contains values copied from this option set.

   **Tip**

   Entering `B` allows you to browse (view) the values in the option set.

4. On the option set panel, select an option group, and take one of the following actions:
   - Enter `I` next to an option name to create an option set, and enter valid values in the editable fields.
   - Enter `C` next to an option name to copy that option set, and type over the displayed values to change them. (This action is not valid for **General Options**.)

5. When ready to save your changes, press `F3` (the END command).
6 If you created a new option in Step 3 on page 9, specify the option's name and description in the Create New Option Set window, and press Enter.

For the name, use the DBC group name that is associated with this configuration.

7 Activate the new or changed option set by entering the following command on the system console:

```
/dbc BRD,CONFIG,RELOAD
```

dbc is the subsystem ID of the DBC address space.

8 If you configured a new client LPAR and CICS started before the DBC on that LPAR, restart CICS.

**Overview of Subzero configuration options in the LGC**

This topic describes the Subzero configuration options that tell Subzero how to redirect subsystem access requests.

---

**Note**

In clientLPAR and targetLPAR fields, you can specify an asterisk (*) wildcard character in the value to make it generic:

- Specify * to match any system ID.
- Specify a character string followed by * to match any system ID that begins with that string. For example, specify SYS* to match SYSA, SYSB, SYS1, and so on.
<table>
<thead>
<tr>
<th>Section</th>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
</table>
| General Options | XCFGROUP       | This option enables you to specify the name of the XCF group that Subzero will use to process redirected requests. Contact your IBM z/OS system administrator to assign a group name for Subzero or help you choose one. No other XCF software running in the sysplex can use this name. 
**Note:** No z/OS system changes are required for Subzero to use this name. |
| (Advanced Option) Name subsystem servers based upon source JOBNAME | *(Optional)* You can name the target subsystem servers based upon the source job name  
Enter a source job name, and then enter a pattern using standard symbols and the following BMC proprietary symbols:  
- &SRC_JOBNAME  
The job name of the application that is requesting a connection  
- &ATT_NAME  
The attach facility name. This depends upon the application, but for IBM CICS use the CICS APPLID  
- &ATT_TYPE  
The attach facility type (either IMS or DB2)  
- &ATT_SSID  
The SSID/GROUP name or IMSID for the connection |
<table>
<thead>
<tr>
<th>Section</th>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
</table>
| DB2 SSIDs/Groups to Redirect    | originalSSID on clientLPAR will redirect to targetSSID on targetLPAR | This option defines how Subzero should redirect requests between specified DB2 subsystems. You can insert or copy as many options of this type as needed.  
This option contains the following fields:  
- At originalSSID, specify the subsystem ID of the original DB2 subsystem to which applications send subsystem access requests. You can specify an individual DB2 subsystem ID or a DB2 group ID.  
- At clientLPAR, specify the system ID of the LPAR that is running the application programs.  
- At targetSSID, specify the subsystem ID of the "real" (destination) DB2 subsystem that will receive and process redirected subsystem access requests. You can specify an individual DB2 subsystem ID or a DB2 group ID.  
- At targetLPAR, specify the system ID of the LPAR that is running the real DB2 subsystem.  
Tip: You can expand this option to display a Notes field, which you can use to enter comments or other reminders. The value is optional and has no default. |
<table>
<thead>
<tr>
<th>Section</th>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
</table>
| IMS Subsystems to Redirect  | originalSSID on clientLPAR will redirect to targetSSID on targetLPAR | This option defines how Subzero should redirect requests between specified IBM IMS control regions. You can insert or copy as many options of this type as needed. This option contains the following fields:  
  - At originalSSID, specify the subsystem ID of the original IMS control region to which applications send subsystem access requests.  
  - At clientLPAR, specify the system ID of the LPAR that is running the application programs.  
  - At targetSSID, specify the subsystem ID of the "real" (destination) IMS control region that will receive and process redirected subsystem access requests.  
  - At targetLPAR, specify the system ID of the LPAR that is running the real IMS subsystem.  
  Tip: You can expand this option to display a Notes field, which you can use to enter comments or other reminders. The value is optional and has no default. |

**Setting up AR/CTL for IMS**

This topic explains how to set up AR/CTL for IMS to support the Subzero for IMS batch job feature.

**Editing the AR/CTL BCSS started task**

Use the following procedure to edit the AR/CTL BMC Software Consolidated Subsystem (BCSS) started task.

**To edit the started task**

1. Use the $Q03APFJ job to add the AR/CTL version 4.1.00 product load library and Subzero version 2.0.00 product load library to an APF-authorized load library.

   This job is created as part of the AR/CTL Install System (AESIS) application. AESIS creates customized batch jobs that complete the installation and customization process of the AR/CTL products. For more information, see the configuration chapter of the APPLICATION RESTART CONTROL Customization Guide.
2 Add the APF-authorized load library, containing the AR/CTL and Subzero load libraries, to the BCSS STEPLIB DD.

3 Verify that the required passwords are available in the password data set.
   You require AR/CTL for IMS and Subzero for IMS licenses.

4 Issue the following command (where bcssID is the subsystem identifier) to reinitialize the BCSS:

   `bcssID REINIT AES`

5 Check the system log to ensure that the REINIT command completed successfully.
   The BCSS responds with messages indicating that it has initialized the AR/CTL components, and status messages.

**Creating a program registration record**

Use this procedure to set up AR/CTL to participate in application program execution without JCL changes. You will create one or more program registration records in the REGISET.

For more information about this task, see the *APPLICATION RESTART CONTROL Administrator Guide*.

**To create a program registration record**

1 Access the Application Enhancement Series primary menu, and select option 1 (AES records).

2 On the Application Enhancement Series Records panel, select option 7 (IMS Program registration).

3 On the Limit List of Records panel, type or verify asterisks in all fields, and press Enter.

4 On the List Records panel, enter the `ADD` command.

5 On the Add Record panel, type the qualifiers to use in the record key, type the requested information (if applicable), and press Enter to validate the information.
**Note**

To allow a job step that abends on one IMS system to be restartable on a different IMS system, set the IMSID to wildcard characters in the program registration record. Although the IMSID is not in the key of the restart control record, the IMSID is in the key of the program registration record that identifies the application program for AR/CTL participation.

6 Enter the **END** command to save the record and exit from the panel.

**Creating a Subzero for IMS program registration record**

Use the following procedure to create a Subzero for IMS program registration record.

1 Access the Application Enhancement Series primary menu, and select option 1 (AES records).

2 On the Application Enhancement Series Records panel, select option 12 (Subzero IMS program registration).

3 On the Limit List of Records panel, type or verify asterisks in all fields, and press **Enter**.

4 On the List Records panel, enter the **ADD** command.

5 On the Add Record panel, type the qualifiers to use in the record key, type the requested information (if applicable), and press **Enter** to validate the information.

6 Enter the **END** command to save the record and exit from the panel.

**Creating an environment registration record**

To provide access to AR/CTL execution modules and services, you must create one or more environment registration records in the REGISET.

Different records are used for non IMS environments and IMS environments:

- A non IMS environment is any environment where IMS is not active, or where application programs that execute in the environment do not use IMS type calls and structures.

- An IMS environment is any environment where IMS is active, or where IMS is not active but IMS compatible application programs use IMS type calls and structures.
To create an environment registration record

**Note**
For more information about this task, see the APPLICATION RESTART CONTROL Administrator Guide.

1. Access the Application Enhancement Series primary menu, and select option 1 (AES records).
2. On the Application Enhancement Series Records panel, select option 2 (Non IMS Environment registration) or option 6 (IMS Environment registration).
3. On the Limit List of Records panel, type or verify asterisks in all fields, and press Enter.
4. On the List Records panel, enter the ADD command.
5. On the Add Record panel, type the qualifiers to use in the record key, type the requested information (if applicable), and press Enter to validate the information.
6. Enter the END command to save the record and exit from the panel.

**Deactivating Subzero redirection in an AR/CTL step**

Use the following procedure if you want to stop batch job redirection from AR/CTL.

1. Enter the relevant DD statement:
   - To stop DB2 batch job redirection:
     ```
     //AESSZ$2N DD DUMMY
     ```
   - To stop IMS batch job redirection:
     ```
     //AESSZ$IN DD DUMMY
     ```

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