APPENDIX

SAS System Options for IMS-DL/I Databases

Introduction

The SAS/ACCESS interface to IMS-DL/I uses a group of SAS system options to specify the type of IMS-DL/I region through which IMS-DL/I calls are executed and to provide the IMS-DL/I region execution parameters. For example, either the IMSREGTP= option or its alias, DLIRGNTP=, specifies the type of DL/I region to be invoked. Appropriate defaults are assigned for the system options when the SAS/ACCESS interface is installed at a site.

The next section provides more information about how to use the SAS system options for IMS-DL/I. In later sections, the options are divided into two sections according to their operating system. Each reference section includes a quick reference table for the options, followed by a longer description of each option.

Specifying System Options

The system options described in this appendix fall into two categories:

- Invocation options are processed when the SAS System is initialized. They can be specified in the following ways:
  - in the default OPTIONS table
  - in a system or user configuration file
  - in the OPTIONS parameter of the host command that you use to invoke SAS at your site.

- Session options can be specified when the SAS System is invoked, in the configuration file, or in an OPTIONS statement.

Table A1.1 on page 242 indicates whether each option is an invocation option or a session option.
Restrictable Options

The DBA or SAS Software Representative at your installation may choose to restrict
an invocation option to a particular value for security or data integrity reasons. Session
options cannot be restricted; you can override them anytime during a SAS session by
using an OPTIONS statement. If you try to override a restricted invocation option, you
get an error message.

You can use two methods to determine which invocation options are restricted at
your installation:

- Ask the SAS Software Representative or DBA who installed the SAS/ACCESS
  interface to IMS-DL/I at your site.
- Invoke SAS with the VERBOSE option. In the list of options that appears, the
  restricted invocation options (if any) follow the VERBOSE option.

  Note: From a TSO session under OS/390, the list of options may be displayed
  only briefly on your terminal before the SAS session comes up. In this case, you
  will need to exit SAS in order to see the list of options.

Displaying the Current Values of the Options

To check your installation’s current settings for the SAS system options for IMS-DL/
I, check the settings for the options (except for DLIREAD and BMPREAD) by executing
PROC OPTIONS with the IMS option:

```
proc options ims;
    run;
```

To see the values of DLIREAD and BMPREAD, use PROC OPTIONS without the
IMS option. The OPTIONS procedure is documented in the SAS Procedures Guide.

Overriding Option Defaults

Most option defaults are probably correct for your applications, and you may never
need to override the default settings. In fact, many of the options might specify
information that is unfamiliar to a DL/I applications programmer. However, if you
decide that one or more of the defaults is not appropriate for your IMS-DL/I application,
you can override the default value(s) as follows:

- You can override the default value of an unrestricted invocation option in any of
  the following ways:
    - specify the option when you invoke the SAS System
    - in the system configuration file (if one is used)
    - in the user configuration file (if one is specified)
    - in the Default Options (DFLTOPTS) table
    - use the OPTIONS parameter at invocation of the CLIST (TSO)
    - use the OPTIONS parameter in the cataloged procedure (batch only).

  Note: You cannot override the default value of any invocation option, whether
  restricted or unrestricted, during a SAS session. For example, your installation
  might specify that the invocation option DLIREAD= is unrestricted, and set the
  option
value of that option at $x$ so that programs using a batch region can issue only get calls by default. Because DLIREAD=$x$ is not restricted, you can specify

```
DLIREAD
=
N;
```

at invocation time to override the default value of $x$. However, you cannot override the value of DLIREAD=$x$ during a SAS session.

- You can override the default value of a session option by specifying the option in any of the following ways:
  - in an OPTIONS statement
  - in the system configuration file (if one is used)
  - in the user configuration file (if one is specified)
  - in the Default Options (DFLTOPTS) table
  - use the OPTIONS parameter at invocation of the CLIST (TSO)
  - use the OPTIONS parameter in the cataloged procedure (batch only)

For more information about overriding SAS system options, see the SAS companion for your operating system.

**Most Frequently Altered Options**

If you need to override any options, it will probably be the following:

```
IMSREGTP=
```

specifies the type of DL/I region that is used to execute DL/I calls. It is altered whenever you want to execute calls through a DL/I region that is not the installation default. Under Version 5, this option was called DLIRGNTP=$x$.

If you use a batch DLI or DBB region, you are not likely to alter any other system option. If you use an online access region (BMP), you might need to change one or more of these options:

```
IMSBPIN=IMSBPOUT=
```

identify message queues for access in advanced DL/I programming when running a BMP region. This option is valid only for IMS-DL/I DATA step interface. Under Version 5, these options were called BMPIN=$x$ and BMPOUT=$x$.

```
IMSID=
```

identifies the IMS subsystem that contains the databases that you want to access. You might need to use this option with a BMP, DLI, or DBB region in order to specify a test or production system.

---

**SAS System Options for IMS-DL/I**

Since Version 6, the first three letters of all SAS system options for IMS-DL/I are IMS. If the option applies only to certain region types, the next two letters indicate the region type: DL for DLI or DBB and BP for BMP. Some options such as IMSSPIE apply to more than one region type. These options do not include one of the region-type codes.

Most of the SAS system options for IMS-DL/I parallel the functions of DL/I parameters. For example, the option IMSSPAGN=$x$ specifies a value for the AGN parameter, which is used in BMP regions. If you need more information about IMS-DL/I parameters, refer to your IBM documentation.
Note: For the DATA step interface, the SLI region type—and hence, the SLICWTO, SLIREAD, and CICSID options—are no longer supported. Sites that use CICS as opposed to IMS/DC can gain access to CICS dedicated databases by using the IMS-ESA or CICS-ESA DBCTL feature. This feature enables an application like SAS software to access the databases through a BMP region.

**Quick Reference for Options**

Table A1.1 on page 242 summarizes SAS System options for IMS-DL/I.

<table>
<thead>
<tr>
<th>V6 Option</th>
<th>V5 Alias</th>
<th>Default</th>
<th>Invocation</th>
<th>Session</th>
<th>Restrict</th>
<th>Engine</th>
<th>DATA Step</th>
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</tr>
</tbody>
</table>
SAS System Options for IMS-DL/I Databases

## Detailed Reference for Options

The following sections describe the SAS System options for IMS-DL/I.

### Dictionary

#### BMPREAD=

specifies whether a SAS IMS-DL/I program accessing databases is restricted to get calls within a BMP region.

- **V6 Alias:** None
- **Syntax:** BMPREAD=N|Y
- **Default:** BMPREAD=N specifies that programs are not restricted to get calls, and update calls can be issued within a BMP region.
- **Valid as part of:** SAS invocation
- **Interface(s):** DATA step
- **Restrictable:** Y
- **Details:** BMPREAD=Y causes the SAS System to return a status code of SE and to set _ERROR_=1 when a DL/I update call is issued.

#### DLIREAD=

specifies whether a SAS/ACCESS to IMS-DL/I program accessing databases is restricted to get calls within a DLI region.

- **V6 Alias:** None
- **Syntax:** DLIREAD=N|Y
- **Default:** DLIREAD=N specifies that programs are not restricted to get calls, and update calls can be issued within a DLI region.
Valid as part of: SAS invocation
Interface(s): DATA step
Restrictable: Y
Details: DLIREAD=Y causes the SAS System to return a status code of SE and to set _ERROR_ =1 when a DL/I update call is issued.

**IMSBPAGN=**

specifies a value for the AGN (Application Group Name) parameter.

V5 Alias: BMPAGN=
Syntax: IMSBPAGN=value or BMPAGN=value
Default: IMSBPAGN=* specifies that the AGN parameter is null in the attach parameter list.
Valid as part of: SAS invocation or in the OPTIONS statement
Interface(s): Engine, DATA step
Restrictable: N
Details: The AGN parameter can be used to limit BMP region execution to particular PSBs.

**IMSBPCPU=**

specifies a value for the CPUTIME parameter. A non-zero value specifies a maximum number of minutes allowed for execution of the BMP region.

V5 Alias: BMPCPUTM=
Syntax: IMSBPCPU=value or BMPCPUTM=value
Default: IMSBPCPU=0 specifies that no task timing is to be done for the BMP region (also the default IMS-DL/I action).
Valid as part of: SAS invocation or in the OPTIONS statement
Interface(s): Engine, DATA step
Restrictable: N

**IMSBPDCA=**

specifies a value for the DIRCA parameter.

V5 Alias: BMPIN=
Syntax: IMSBPIN=value or BMPIN=value
IMSBPIN=  

assigns a value for the IN parameter, which specifies the TRancode of the message queue that is accessed.

V5 Alias: BMPNBA=
Syntax: IMSBPNBA=value or BMPNBA=value
Default: IMSBPNBA=0
Valid as part of: SAS invocation or in the OPTIONS statement
Interface(s): DATA step
Restrictable: N
Details: The NBA parameter specifies the number of Fast Path database buffers made available in the Common Service Area. Valid values range from 0 to 999. Unless Fast Path databases are used, this value should be 0.

IMSBPNBA=  

specifies a value for the NBA parameter.

V5 Alias: BMPOBA=
Syntax: IMSBPOBA=value or BMPOBA=value
Default: IMSBPOBA=0
Valid as part of: SAS invocation or in the OPTIONS statement
Interface(s): DATA step
Restrictable: N
Details: The OBA parameter specifies the number of additional page-fixed Fast Path database buffers made available if the normal allotment is used. Valid values range from 0 to 999. Unless Fast Path databases are used, this value should be 0.

IMSBPOBA=  

specifies a value for the OBA parameter.
V5 Alias: BMPOBA=
Syntax: IMSBPOBA=value or BMPOBA=value
Default: IMSBPOBA=0
Valid as part of: SAS invocation or in the OPTIONS statement
Interface(s): DATA step
Restrictable: N
Details: The OBA parameter specifies the number of additional page-fixed Fast Path database buffers made available if the normal allotment is used. Valid values range from 0 to 999. Unless Fast Path databases are used, this value should be 0.

---

**IMSBPOPT=**

assigns a character value to the OPT parameter.

V5 Alias: BMPOPT=
Syntax: IMSBPOPT=C | N | W or BMPOPT=C | N | W
Default: IMSBPOPT=C specifies that the BMP region is cancelled automatically.
Valid as part of: SAS invocation or in the OPTIONS statement
Interface(s): Engine, DATA step
Restrictable: N
Details: The OPT parameter specifies the action taken if the control region is not active. IMSBPOPT=N specifies that the console operator is asked for a decision. IMSBPOPT=W specifies that the region waits for the control region to be started.

---

**IMSBPOUT=**

specifies a value for the OUT parameter.

V5 Alias: BMPOUT=
Syntax: IMSBPOUT=value or BMPOUT=value
Default: IMSBPOUT=* specifies that the OUT parameter is null in the attach parameter list.
Valid as part of: SAS invocation or in the OPTIONS statement
Interface(s): DATA step
Restrictable: N
Details: The OUT parameter specifies the TRANCODE or LTERM that is the destination of a message insert. Specify this option only if you intend to write to the IMS/ESA message queue with the IO PCB, and the IN parameter is not specified.

---

**IMSBPPAR=**

specifies the value of the PARDLI parameter.
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IMSDEBUG=

V5 Alias:   BMPARDLI=
Syntax: IMSBPPAR=0 | 1 or BMPARDLI=0 | 1
Default: IMSBPPAR=0 specifies that DL/I processing is performed within the BMP region (also the IMS-DL/I default action).
Valid as part of: SAS invocation or in the OPTIONS statement
Interface(s): Engine, DATA step
Restrictable: N
Details: IMSBPPAR=1 specifies that all IMS-DL/I processing for this BMP region is performed in the IMS/ESA control region.

IMSBPSTI=

indicates a value for the STIMER parameter.

V5 Alias:   BMPSTIMR=
Syntax: IMSBPSTI=0 | 1 or BMPSTIMR=0 | 1
Default: IMSBPSTI=0 specifies that the BMP timer is not set (also the IMS default action).
Valid as part of: SAS invocation or in the OPTIONS statement
Interface(s): Engine, DATA step
Restrictable: N
Details: IMSBPSTI=1 specifies that the BMP timer is set.

IMSBPUPD=

specifies whether a SAS/ACCESS for IMS-DL/I program that accesses databases can issue update calls in a BMP region.

V5 Alias:   none
Syntax: IMSBPUPD=Y | N
Default: IMSBPUPD=Y allows update processing of databases within a BMP region.
Valid as part of: SAS invocation
Interface(s): Engine
Restrictable: Y
Details: IMSBPUPD=N causes the SAS System to return an error message that indicates that you are not authorized to update the database if an update call is issued.

IMSDEBUG=

specifies whether the IMS-DL/I call function code, segment search arguments, and status code returned from IMS-DL/I calls issued by the IMS-DL/I engine should be displayed in the SAS log.
V5 Alias: none
Syntax: IMSDEBUG=N | Y | 1 to 9999
Default: IMSDEBUG=N causes no IMS-DL/I calls to be displayed.
Valid as part of: SAS invocation or in the OPTIONS statement.
Interface(s): Engine, DATA step
Restrictable: N
Details: A value of Y causes the first 50 IMS-DL/I calls to be displayed. A value of nnnn (where nnnn is a number between 1 and 9999) causes the first nnnn IMS-DL/I calls to be displayed.

---

**IMSDLBKO=**

determines the value of the BKO parameter when the SAS System invokes an IMS/ESA DLI or DBB region.

V5 Alias: DLIBKO=
Syntax: IMSDLBKO=* | Y | N or DLIBKO=* | Y | N
Default: IMSDLBKO= specifies that the BKO parameter is null in the IMS-DL/I region parameter list, so the default IMS-DL/I action is taken.
Valid as part of: SAS invocation or in the OPTIONS statement.
Interface(s): Engine, DATA step
Restrictable: N
Details: The BKO parameter setting determines whether or not updates in a disk log are backed out automatically if the program abends. When IMSDLBKO=Y and the SAS session abends, all database updates since the last CHKP call are backed out automatically unless the system crashed. (If IMSDLBKO=Y, a DASD log data set must be used.)

---

**IMSDLBUF=**

specifies a value for the BUF parameter.

V5 Alias: DLIBUF=
Syntax: IMSDLBUF=value or DLIBUF=value
Default: IMSDLBUF=16
Valid as part of: SAS invocation or in the OPTIONS statement.
Interface(s): Engine, DATA step
Restrictable: N
Details: The BUF parameter specifies the number of 1K blocks that are available in the ISAM/OSAM buffer pool. Valid values range from 0 to 999. When the DFSVSAMP DD control statements are used, they override the specification.
**IMSDLDBR=**

determines the value used as the DBRC (Data Base Recovery Control facility) parameter when the SAS System invokes a DLI or DBB region.

V5 Alias: DLIDBRC=

Syntax: IMSDLDBR=* | Y | N or DLIDBRC=* | Y | N

Default: IMSDLDBR=* specifies that the DBRC parameter is null in the IMS/ESA parameter list, so the default IMS-DL/I action is taken.

Valid as part of: SAS invocation or in the OPTIONS statement.

Interface(s): Engine, DATA step

Restrictable: N

Details: When IMSDLDBR=Y, DBRC is used during execution of IMS/ESA (the default IMS action if IMS/ESA is generated with DBRC). IMSDLDBR=N specifies that DBRC is not to be used in the execution of IMS/ESA.

---

**IMSDLLEXC=**

specifies a value for the EXCPVR parameter.

V5 Alias: DLIEXCPV=

Syntax: IMSDLLEXC=0 | 1 or DLIEXCPV=0 | 1

Default: IMSDLLEXC=0 specifies that the ISAM/OSAM Data Base Buffer Pool is not to be long-term page-fixed.

Valid as part of: SAS invocation or in the OPTIONS statement.

Interface(s): Engine, DATA step

Restrictable: N

Details: IMSDLLEXC=1 specifies that the ISAM/OSAM Data Base Buffer Pool is to be long-term page-fixed.

---

**IMSDLFMT=**

specifies a value for the FMTO parameter.

V5 Alias: DLIFMT=

Syntax: IMSDLFMT=P | T | N or DLIFMT=P | T | N

Default: IMSDLFMT=P ignores processing of the FDDL table.

Valid as part of: SAS invocation or in the OPTIONS statement

Interface(s): Engine, DATA step

Restrictable: N
Details: IMSDLFMT=T specifies that a formatted dump will contain IMS/ESA data areas and that the formatted dump delete list (FDDL) is processed (the default IMS-DL/I action). IMSDLFMT=N suppresses production of a formatted dump.

---

**IMSDLIRL=**

determines the value of the IRLM parameter when the SAS System invokes a DLI or DBB region.

V5 Alias: DLIRLM=

Syntax: IMSDLIRL=* | Y | N or DLIRLM=* | Y | N

Default: IMSDLIRL=* specifies that the IRLM parameter is null in the IMS/ESA parameter list so that the default IMS-DL/I action is taken.

Valid as part of: SAS invocation or in the OPTIONS statement.

Interface(s): Engine, DATA step

Restrictable: N

Details: IMSDLIRL=Y specifies that IRLM is to be used in this execution of IMS/ESA (the default IMS-DL/I action if IMS/ESA was generated with IRLM). IMSDLIRL=N specifies that IRLM is not to be used in this execution of IMS/ESA.

---

**IMSDLIRN=**

specifies an IRLM subsystem name.

V5 Alias: DLIRLMNM=

Syntax: IMSDLIRN=* | name or DLIRLMNM=* | name

Default: IMSDLIRN=* specifies that the parameter is null in the attach parameter list, and no IRLM subsystem is used.

Valid as part of: SAS invocation or in the OPTIONS statement.

Interface(s): Engine, DATA step

Restrictable: N

Details: The name is used at initialization to specify the IRLM subsystem name when IMSDLIRL=Y.

---

**IMSDLLOG=**

specifies a value for the LOGA parameter.

V5 Alias: DLLOGA=

Syntax: IMSDLLOG=0 | 1 or DLLOGA=0 | 1

Default: IMSDLLOG=0 specifies that BSAM be used to access the IEFRDER log data set.
**IMSDLMON=**

specifies a value for the MON parameter.

**V5 Alias:** DLIMON=

**Syntax:** IMSDLMON=N | Y or DLIMON=N | Y

**Default:** IMSDLMON=N specifies that DB Monitor output is not produced (also the default IMS-DL/I action).

**Valid as part of:** SAS invocation or in the OPTIONS statement.

**Interface(s):** Engine, DATA step

**Restrictable:** N

**Details:** IMSDLMON=Y produces DB Monitor records on the IMSMON file (if allocated), or on the IEFRDER log if the IMSMON file is not allocated.

---

**IMSDLSRC=**

specifies a value for the SRCH parameter.

**V5 alias:** DLISRCH=

**Syntax:** IMSDLSRC=0 | 1 or DLISRCH=0 | 1

**Default:** IMSDLSRC=0 specifies a standard module search for directed load.

**Valid as part of:** SAS invocation or in the OPTIONS statement.

**Interface(s):** Engine, DATA step

**Restrictable:** N

**Details:** IMSDLSRC=1 specifies that the Job Pack Area (JPA) and Link Pack Area (LPA) are searched before a PDS in a directed load.

---

**IMSDLSWP=**

determines the value of the SWAP parameter when the SAS System invokes an IMS/ESA DLI or DBB region.

**V5 Alias:** DLISWP=

**Syntax:** IMSDLSWP=* | Y | N or DLISWP=* | Y | N
Default:IMS DLUPD= specifies that the SWAP parameter is null in the IMS/ESA parameter list so that the default IMS-DL/I action is taken.
Valid as part of: SAS invocation or in the OPTIONS statement.
Interface(s): Engine, DATA step
Restrictable: N
Details: A value of IMS DLUPD = Y indicates that the address space is swappable; IMS DLUPD = N indicates that the address space is non-swappable.

IMSDLUPD=

specifies whether or not a SAS/ACCESS to IMS-DL/I program that accesses databases through the engine can issue update calls within a DLI or DBB region.
V5 Alias: none
Syntax: IMSDLUPD = Y | N
Default: IMSDLUPD = Y allows update processing of databases within a DLI or DBB region.
Valid as part of: SAS invocation
Interface(s): Engine
Restrictable: Y
Details: IMSDLUPD = N causes the SAS System to return an error message indicating that you are not authorized to update the database if an update call is issued.

IMSID=

specifies a value for the IMSID parameter (the subsystem identifier) when the SAS System attaches a BMP, DLI, or DBB region.
V5 Alias: none
Syntax: IMSID = * | value
Default: IMSID = * specifies that the parameter is null in the attach parameter list, and therefore the identifier specified at IMS/ESA definition is used.
Valid as part of: SAS invocation
Interface(s): Engine, DATA step
Restrictable: Y
Details: The value is used in initialization to establish communication with the control region that has the same IMSID value.

IMSIOB=

specifies a value for the number of OSAM I/O requests that can be active concurrently.
V5 Alias: none
Syntax: IMSIOB=\* | 999
Default: IMSIOB=\* specifies that the value is null in the attach parameter list.
Valid as part of: SAS invocation or in the OPTIONS statement.
Interface(s): Engine, DATA step
Restrictable: N
Details: For IMS/VS Release 2.2.0, enter a value of 999 to disable OSAM processing. This option is provided by an IBM APAR and PTF to eliminate CSA shortages due to the allocation of OSAM blocks.

**IMSREGTP=**

determines the type of IMS-DL/I region invoked.

V5 Alias: DLIRGNTP=
Syntax: IMSREGTP=DLI | DBB | BMP or DLIRGNTP=DLI | DBB | BMP
Default: IMSREGTP=DLI
Valid as part of: SAS invocation
Interface(s): Engine, DATA step
Restrictable: Y
Details: You can specify IMSREGTP=DLI or IMSREGTP=DBB to invoke a batch region using PSB or ACB libraries.

**IMSSPIE=**
specifies a value for the SPIE parameter when the SAS System invokes a DLI, DBB, or BMP region.

V5 Alias: DLISPIE=
Syntax: IMSSPIE=0 | 1 or DLISPIE=0 | 1
Default: IMSSPIE=0 allows a user SPIE (if any) to remain in effect while processing IMS-DL/I calls.
Valid as part of: SAS invocation or in the OPTIONS statement.
Interface(s): Engine, DATA step
Restrictable: N
Details: IMSSPIE=1 negates the user SPIE while processing the IMS-DL/I calls but reinstates it prior to returning to the application program.

**IMSTEST=**
specifies a value for the TEST parameter when the SAS System invokes a DLI, DBB, or BMP region.
V5 Alias:   DLITEST=
Syntax:   IMSTEST=0 | 1 or DLITEST=0 | 1
Default:   IMSTEST=0 specifies that the addresses in the user call lists are not checked for validity.
Valid as part of: SAS invocation or in the OPTIONS statement.
Interface(s): Engine, DATA step
Restrictable: N
Details: When IMSTEST=1, the addresses in the user call lists are checked for validity.

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**IMSWHST=**

specifies whether or not the IMS-DL/I engine should retrieve IMS-DL/I records if qualified IMS-DL/I segment search arguments are not generated to be passed to IMS-DL/I.

V5 Alias: none
Syntax:   IMSWHST=N | Y
Default:   IMSWHST=N specifies that IMS-DL/I records should be retrieved for processing regardless of whether or not qualified IMS-DL/I segment search arguments are passed to IMS.
Valid as part of: SAS invocation
Interface(s): Engine
Restrictable: Y
Details:   IMSWHST=Y specifies that IMS-DL/I records should be retrieved for processing only if qualified IMS-DL/I segment search arguments are passed to IMS-DL/I.