Understanding the Common Service Layer (CSL) Requirements for IMS 10 and IMS 11 New Functions

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Agenda …

- Common Service Layer (CSL) Overview
- New Functions in IMS 10 and IMS 11 using the Common Service Layer (CSL)
- IMSplex Configurations
  - IMSplex with single IMS (single-IMS IMSplex)
  - IMSplex with multiple IMSs (multiple-IMS IMSplex)
- General CSL configurations and basic setup for IMS 10 / IMS 11 functions
  - SCI only (with DBRC)
  - OM and SCI only
  - Combinations of SCI / OM / RM / ODBM
Agenda

• CSL Configurations - Considerations and Charts
  • CSL configurations requiring DBRC SCI registration
  • CSL configurations for IMS 10 / IMS 11 functions
    • Single-IMS IMSplex
    • Multiple-IMS IMSplex without RM
    • Multiple-IMS IMSplex with RM
• Setting up the CSL environment that fits your needs
  • Detailed setup for each IMS 10 and IMS 11 function
• Sample CSL PROCs and Initialization PROCLIB members
• Summary
Common Service Layer (CSL) Overview

- An architecture to improve the systems management capabilities for IMS systems
  - Operations management (Operations Manager)
  - Resource management (Resource Manager)
  - IMS Database access (Open Database Manager)
- Provides
  - A single system image (IMSplex)
  - Ease of use through a single point of control
  - Shared resources across all IMS systems
- Reduces complexity of managing multiple IMS systems
Common Service Layer (CSL) Managers

- Operations Manager (OM) (IMS 8)
- Resource Manager (RM) (IMS 8)
- Structured Call Interface (SCI) (IMS 8)
- Open Database Manager (ODBM) (IMS 11)

- Based on BPE (Base Primitive Environment)
- Can use CQS (Common Queue Server)

- New address spaces
  - OM, RM, SCI, ODBM, CQS
- New CF structures (optional)
  - Resource, shared queues
CSL Architecture (Address Spaces)
CSL Architecture (CF Structures)
In an IMSplex

- All members share the same CF structures
- Intra-IMSplex communications is implemented by SCI
  - Uses XCF across z/OS images
Operations Manager (OM) Overview

• Provides ‘single point of control’ for command entry into an IMSplex
  • Focal point for operations management and automation
• Provides the following services
  • Route commands to IMSplex members registered for the command
  • Consolidate command responses from individual IMSplex members into a single response to present to the command originator
  • Support for new IMSplex commands (type-2 commands) and for existing IMS commands (type-1 commands)
  • An API for IMS commands for automation
  • Command security for authorization using RACF or equivalent plus user exit
  • User exit capability for editing command input and responses
• Configuration
  • One or more OM address spaces required per IMSplex
Resource Manager (RM) Overview

- Provides infrastructure for managing global resources and IMSplex-wide processes
  - IMS is responsible for exploiting RM services
- Provides the following services
  - Maintains global resource information using a resource structure in a Coupling Facility
  - Coordinates IMSplex-wide processes
- Used for the following functions
  - Sysplex Terminal Management (STM) (IMS 8)
  - Global Online Change (GOLC) (IMS 8)
  - Global Callable Services (IMS 8)
  - Global Status (IMS 10)
  - Sysplex Serial Program Management (SSPM) (IMS 10)
  - ACBLIB Member Online Change (IMS 10)
  - Database Quiesce (IMS 11)
Resource Manager (RM) Configuration

- Resource management in the IMSplex is performed by a combination of the IMS Control Region, the Resource Manager, the Common Queue Server, and a Resource Structure
  - OM and SCI are used for command entry and communications
- Zero or more RM address spaces required per IMSplex
  - Need one or more RM address spaces to enable any RM functions
Structured Call Interface (SCI) Overview

- Provides communications services among IMSplex members in a single z/OS image and across multiple z/OS images in an IMSplex
- Provides the following services
  - Member registration services (security)
    - OM, RM, CQS, ODBM, IMS, SPOC, IMS Connect, DBRC
  - Communications services
- Used for the following functions
  - Automatic RECON Loss Notification (ARLN) (IMS 8)
  - Parallel RECON Access (PRA) (IMS 10)
  - Database Quiesce (IMS 11)
- One SCI address space is required on each z/OS image where CSL is active
Open Database Manager (ODBM) Overview

• Supports open standards for distributed and local Java application program connectivity to IMS databases (IMS 11)

• Provides the following services
  • IMS Universal Drivers
  • Works with IMS Connect using DRDA for distributed access (type-4)
  • Works through DRA (Database Resource Adapter) interface for local access within a z/OS LPAR or across z/OS LPARs (type-2)

• Used for the following functions
  • Open Database (IMS 11)

• One ODBM address space is required on each z/OS image that contains databases to which ODBM clients (such as the IMS Universal Drivers) require access per IMSplex
### IMS Version 10 New Functions using CSL

<table>
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<tr>
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<td>DEDB UPDATE DB</td>
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**OM (Operations Manager)**

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</tr>
</thead>
<tbody>
<tr>
<td>Sysplex Serial Program Management</td>
<td>SCI (Structured Call Interface)</td>
</tr>
<tr>
<td>Global Status</td>
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</tr>
</tbody>
</table>

**RM (Resource Manager)**
### IMS Version 11 New Functions using CSL

<table>
<thead>
<tr>
<th><strong>RM (Resource Manager)</strong></th>
<th><strong>SCI (Structured Call Interface)</strong></th>
<th><strong>ODBM (Open Database Manager)</strong></th>
</tr>
</thead>
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<td>Database Quiesce</td>
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</tr>
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<tr>
<td>Type-2 Command Enhancements</td>
<td>SCI</td>
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</tr>
<tr>
<td>- QUERY for TM Resources</td>
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<tr>
<td>- UPDATE enhancements for DEDBs</td>
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<tr>
<td>- 64-bit Fast Path Buffer Pool</td>
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<tr>
<td>- 64-bit ACB Storage Pool</td>
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<tr>
<td>- Transaction Timeout support</td>
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<tr>
<td>- QUERY for OTMA information</td>
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<tr>
<td>- OTMA routing descriptor support</td>
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<tr>
<td>- CREATE/DELETE/UPDATE/QUERY</td>
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<td></td>
</tr>
</tbody>
</table>

**OM (Operations Manager)**

- Database Quiesce
- New User Exits
- Type-2 Command Enhancements
  - QUERY for TM Resources
  - UPDATE enhancements for DEDBs
  - 64-bit Fast Path Buffer Pool
  - 64-bit ACB Storage Pool
  - Transaction Timeout support
  - QUERY for OTMA information
  - OTMA routing descriptor support
    - CREATE/DELETE/UPDATE/QUERY
IMSplex Configurations

- CSL requires an IMSplex setup and configuration
  - IMSplex definition
  - Single-IMS IMSplex
    - Standalone IMS control region
      - No data sharing
      - No shared queues
  - Multiple-IMS IMSplex
    - Two or more IMS control regions, usually with
      - Data sharing
      - Shared queues
IMSplex Definition …

- An IMSplex is a set of IMS address spaces that are working together as a unit and are most likely running in a parallel sysplex (but not required)

- Examples of an IMSplex configuration include:
  - A set of IMS control regions at the V10 and/or V11 level without a CSL that are data sharing or message queue sharing
  - A set of IMS control regions at the V10 and/or V11 level with a CSL that are data sharing and message queue sharing
  - A single IMS control region at the V10 or V11 level with a CSL

- Examples of IMSplex components are:
  - IMS subsystems (DB/DC, DBCTL, DCCTL, XRF active, XRF alternate)
  - CQS
  - CSL managers (OM, RM, SCI, ODBM)
  - IMS Connect
  - A batch or DB utility region using DBRC
  - DBRC batch utility
IMSplex Definition

- An IMSplex name is defined in various IMS PROCLIB configuration members to indicate that an IMSplex exists
- CSL requires the use of an IMSplex
- Each component of a particular IMSplex must use the same IMSplex name
  - Applies to single-IMS IMSplex
  - Applies to multiple-IMS IMSplex
- CSL terminology
  - SCI – an address space
  - OM – an address space
  - RM – an address space
  - Resource structure – a coupling facility structure
Single-IMS IMSplex Configuration

- Allows a Single-IMS System user (i.e. no data sharing and no shared queues) to exploit some CSL-based facilities
  - SPOCs and the new operations interface and functions
  - Dynamic Resource Definition (IMS 10)
  - ACBLIB Member Online Change (IMS 10)
  - Database Quiesce (IMS 11)
  - Open Database (IMS 11)
- Also called ‘Enhanced Command Environment’
- Only contains SCI and OM CSL managers
  - RM and resource structure not included
- Set up by using system parameter to request this configuration
  - RMENV=N (DFSDFxxx CSL section or DFSCGxxx)
    - IMS can automatically start the SCI and OM address spaces
Single-IMS IMSplex Configuration
Multiple-IMS IMSplex Configuration

- Allows a user with multiple IMS systems (typically with data sharing and/or shared queues) to exploit any CSL-based functions
- Can contain subset of CSL managers or all CSL managers
  - SCI
  - SCI and OM
  - SCI and OM and RM
  - SCI and OM and RM and Resource Structure
  - SCI and OM and ODBM
  - SCI and OM and ODBM and RM
  - SCI and OM and ODBM and RM and Resource Structure
- Set up by using system parameter to request this configuration
  - Either RMENV=Y or N (DFSDFxxx CSL section or DFSCGxxx)
    - IMS will not automatically start the CSL address spaces with RMENV=Y
General CSL configurations and basic setup for IMS 10 / IMS 11 Functions …

- SCI only (with DBRC)
  - PRA (Parallel RECON Access) (IMS 10)
- OM and SCI only
  - DRD, Managed Resources, MSC Dynamic Updates (IMS 10)
  - OM Audit Trail (IMS 10)
  - Batch SPOC Utility (IMS 10)
  - ACBLIB Member Online Change (IMS 10)
  - Type-2 Command Enhancements (IMS 10 and IMS 11)
  - Database Quiesce (IMS 11)
  - New User Exits (IMS 11)
General CSL configurations and basic setup for IMS 10 / IMS 11 Functions

• Combinations of OM / SCI / RM / ODBM
  • DRD, Managed Resources, MSC Dynamic Updates (IMS 10)
  • OM Audit Trail (IMS 10)
  • Batch SPOC Utility (IMS 10)
  • Type-2 Command Enhancements (IMS 10 and IMS 11)
  • ACBLIB Member Online Change (IMS 10)
  • Sysplex Serial Management (IMS 10)
  • Global Status (IMS 10)
  • Database Quiesce (IMS 11)
  • Open Database (IMS 11)
  • New User Exits (IMS 11)
IMSplex CSL Basic Setup – SCI only …

- Set up with the following
  - CSL Initialization PROCLIB members (CSLSIxxx)
  - CSL procedures (CSLSCI, DBRC / DSPBPROC w/BPE (IMS 11))
- Do not define IMSplex in IMS procedure via DFSDFxxx CSL section or DFSCGxxx
  - Applies to both a single-IMS IMSplex and a multiple-IMS IMSplex
- Must define IMSplex name and DBRC group ID via DBRC parameters
  - First, use CHANGE.RECON IMSPLEX(imsplex_name,group_ID) command to set the IMSplex name and the DBRC group ID in the RECONs
  - Then each DBRC instance must specify matching values either via
    - **Recommended** - the DBRC SCI Registration Exit (DSPSCIX0)
    - **Not recommended**
      - **DBRC JCL procedure parameters** (**IMSPLEX=,DBRCGRP=**)  
      - **DBRC Initialization member** – **DSPBIxxx** (with BPE)
      - DBRC group ID ‘001’ is used if IMSPLEX= specified with no group ID
IMSplex CSL Basic Setup – SCI only ...

**SCI Procedure**

```plaintext
//SCI1 PROC  RGN=0,SOUT=A, RESLIB='IMS.SDFSRESL',
//      BPECFG=BPEPLX0,  <<< BPE configuration parms
//      SCIINIT=001,  <<< default CSLSIxxx member
//      PARM1=  <<< PROCLIB member overrides
//SCIPROC EXEC  PGM=BPEINI00,REGION=&RGN,
//             PARM='BPECFG=&BPECFG,'  <<< initialize for SCI
//             BPEINIT=CSLSINI0,
//             SCIINIT=&SCIINIT,PARM1'  <<< SCI PROCLIB member
//STEPLIB  DD DSN=&RESLIB,DISP=SHR
// ..
```

**CSLSI001 - SCI Initialization Member**

```plaintext
ARMRST=Y|N  <<< ARM restart enabled?
SCINAME=SCI1  <<< SCI Name (SClid = SCI1SC)
   Name must be unique within IMSplex;
   shows up on messages from this component.
IMSPLEX(NAME=PLX0)  <<< IMSplex name = CSLPLX0.
   IMSplex XCF group name.
   Name must be same for all SCI and DBRC address spaces
FORCE=(ALL,[SHUTDOWN])  <<< Cleanup ECSA [and shutdown]
```

SHARE inBoston
IMSplex CSL Basic Setup – SCI only …

DBRC Procedure (using BPE with IMS 11) - DSPBPROC

//DBRC PROC RGN=0M,SOUT=A, RESLIB=‘IMS.SDFSRESL’,
//                   BPECFG=BPECONF,
//                   BPEINIT=DSPBINI0,
//                   DBRCINIT=000,IMSId=IMS1,
//                   PARM1=,
//DBRCPROC EXEC     PGM=BPEINI00,REGION=&RGN,
//                   PARM=’BPECFG=&BPECFG,
//                   DBRCINIT=&DBRCINIT,
//                   &IMSId=&IMSId,PARM1=,
//                   DBRCGRP=001,IMSPLEX=PLEX0
//STEPLIB DD       DSN=&RESLIB,DISP=SHR
//                 DD       DSN=SYS1.CSSLIB, DISP=SHR
IMSplex CSL Basic Setup – SCI only

DBRC SCI registration exit - DSPSCIX0

<<< Preferred way to set IMSplex name and DBRC group ID

OR

DSPBIxxx - DBRC Initialization Member (w/BPE)

IMSPLEX(NAME=PLX0) <<< IMSplex name = CSLPLX0
IMSplex SCF group name
Name must be same for all SCI and DBRC address spaces

DBRCGRP=nnn <<< DBRC group ID

OR

In DBRC (DSPBPROC) procedure JCL

IMSPLEX=PLX0 <<< IMSplex name = CSLPLX0
IMSplex SCF group name
Name must be same for all SCI and DBRC address spaces

DBRCGRP=nnn <<< DBRC group ID
**IMSplex CSL Basic Setup – OM and SCI Only**

- An IMS control region within an IMSplex defined with a CSL cannot start unless at least one OM is active in the IMSplex and an SCI resides on each z/OS image in the IMSplex
  - Applies to both a single-IMS IMSplex and a multiple-IMS IMSplex
- Set up by using various system parameters
  - DFSDFxxx CSL section (recommended) or DFSCGxxx

```plaintext
<SECTION=COMMON SERVICE LAYER>
IMSPLEX=PLX0           <<< IMSplex name = CSLPLX0.
                   IMSplex XCF group name.
RMENV=N               <<< Not using RM
OMPROC=CSLOM           <<< Procedure for automatically starting OM with RMENV=N
SCIPROC=CSLSCI         <<< Procedure for automatically starting SCI with RMENV=N

- CSL initialization PROCLIB members (CSLOIxxx, CSLSIxxx)
- CSL procedures (CSLSCI, CSLOM, DBRC/DSPBPROC w/BPE)
```
IMSplex CSL Basic Setup
– Combinations of SCI / OM / RM / ODBM

• Set up by using various system parameters
  • DFSDFxxx CSL section (recommended) or DFSCGxxx

```plaintext
<SECTION=COMMON SERVICE LAYER>
IMSPLEX=PLX0      <<< IMSplex name = CSLPLX0.
                    IMSplex XCF group name.
                    Name must be same for all CSL address spaces
RMENV=Y | N       <<< Using RM?
OMPROC=CSLOM      <<< Procedure for automatically starting OM with RMENV=N
SCIPROC=CSLSCI    <<< Procedure for automatically starting SCI with RMENV=N
```

• CSL initialization PROCLIB members (CSLOIxxx, CSLSIxxx, CSLRIxxx, CSLDIxxx, CSLDCxxx)
• CSL procedures (CSLSCI, CSLOM, CSLRM, CSLODBM, DBRC/DSPBPROC w/BPE)
IMSplex CSL Configuration – Start Up Sequence Guidelines

- Recommended start up sequence with all components
  - SCI
  - OM
  - CQS
  - RM
  - IMS
    - DBRC
  - SPOC
  - ODBM
  - IMS Connect
IMSplex CSL Configuration – Instance Guidelines

- Recommendation for **multiple-IMS IMSplex**
  - Activate more than one instance of CSL managers OM, RM, and ODBM in the IMSplex
    - Advantages
      - *Better performance for CSL communications within an LPAR versus across LPARs*
      - *Backup available if CSL component fails*
    - Disadvantages
      - *More CSL address spaces to manage*
CSL Configurations – Considerations and Charts

• CSL Configurations requiring DBRC SCI registration
  • PRA (IMS 10), Database Quiesce (IMS 11)
• CSL Configurations for IMS 10 / IMS 11 Functions
  • Single-IMS IMSplex
  • Multiple-IMS IMSplex without RM
  • Multiple-IMS IMSplex with RM
CSL configurations –
Requiring DBRC SCI Registration …

- If using PRA (IMS 10) or Database Quiesce (IMS 11) SCI requires
  - RECON data sets must be registered with SCI
  - DBRC instances participating in a database quiesce must be in the same DBRC group and IMSplex
  - DBRC MINVERS must be 11.1 for database quiesce
- Must define IMSplex name and DBRC group ID via DBRC parameters
  - First, use CHANGE.RECON IMSPLEX(imsplex_name,group_ID) command to set the IMSplex name and the DBRC group ID in the RECONs
  - Then each DBRC instance must specify matching values either via
    - Recommended - the DBRC SCI Registration Exit (DSPSCIX0)
    - Not recommended
      - DBRC JCL procedure parameters (IMSPLEX=,DBRCGRP=)
      - DBRC Initialization member – DSPBIxxx (w/BPE)
      - DBRC group ID ‘001’ is used if IMSPLEX= specified with no group ID
CSL Configurations –
Requiring DBRC SCI Registration

DBRC SCI registration exit - DSPSCIXO

<<< Preferred way to set IMSplex name and DBRC group ID

OR

DSPBIxxx - DBRC Initialization Member (w/BPE)

IMSPLEX(NAME=PLX0) <<< IMSplex name = CSLPLX0
IMSplex SCF group name
Name must be same for all SCI and DBRC address spaces

DBRCGRP=nnn <<< DBRC group ID

OR

In DBRC (DSPBPROC) procedure JCL

IMSPLEX=PLX0 <<< IMSplex name = CSLPLX0
IMSplex SCF group name
Name must be same for all SCI and DBRC address spaces

DBRCGRP=nnn <<< DBRC group ID
CSL configurations for IMS 10 / IMS 11 Functions – Single-IMS IMSplex …

- Using RMENV=N
  - ‘Enhanced command environment’
CSL configurations for IMS 10 / IMS 11 Functions
- Single-IMS IMSplex …

- SCI only - requires DBRC SCI registration
  - PRA (IMS 10)
- SCI and OM only – no requirement for DBRC SCI registration
  - Type-2 commands (IMS 10 / IMS 11)
  - DRD (IMS 10)
  - ACBLIB Member Online Change (IMS 10) (local mode only)
  - OM Audit Trail (IMS 10)
  - Batch SPOC Utility (IMS 10)
- SCI and OM only – requires DBRC SCI registration
  - Database Quiesce (IMS 11)
- SCI and OM and ODBM only – no requirement for DBRC SCI registration
  - Open Database (IMS 11)
CSL configurations for IMS 10 / IMS 11 Functions
- Single-IMS IMSplex

- Not applicable
  - SCI and OM and RM
  - SCI and OM and RM and resource structure
  - SCI and OM and ODBM and RM
  - SCI and OM and ODBM and RM and resource structure
## Single-IMS IMSplex – IMS 10 Functions

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<th>OM</th>
<th>RM</th>
<th>RM structure /CQS</th>
<th>ODBM</th>
<th>DBRC SCI</th>
<th>IMS TM</th>
<th>DBCTL</th>
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<td>DRD</td>
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<tr>
<td>OM Audit Trail</td>
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<td>Batch SPOC</td>
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<tr>
<td>Type-2 Commands</td>
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<td>ACBLIB Member OLC</td>
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<td>SSPM(shared queues)</td>
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<td>Global Status</td>
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<td>PRA</td>
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## Single-IMS IMSplex – IMS 11 Functions

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<tbody>
<tr>
<td>Database Quiesce</td>
<td>X</td>
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<td>X</td>
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<tr>
<td>Type-2 Command Enhancements</td>
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<tr>
<td>Open Database</td>
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<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
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</tbody>
</table>
CSL configurations for IMS 10 / IMS 11 Functions
- Multiple-IMS IMSplex without RM ...

- Using RMENV=N
  - Not using any RM functions
CSL configurations for IMS 10 / IMS 11 Functions
- Multiple-IMS IMSplex without RM ...

- SCI only – requires DBRC SCI registration
  - PRA (IMS 10)

- SCI and OM only – no requirement for DBRC SCI registration
  - Type-2 commands (IMS 10 / IMS 11)
  - DRD (IMS 10)
  - ACBLIB Member Online Change (IMS 10) (local only)
  - OM Audit Trail (IMS 10)
  - Batch SPOC Utility (IMS 10)

- SCI and OM and ODBM only – no requirement for DBRC SCI registration
  - Open Database (IMS 11)
CSL configurations for IMS 10 / IMS 11 Functions
- Multi-IMS IMSPlex without RM

- Not applicable
  - SCI and OM and RM
  - SCI and OM and RM and resource structure
  - SCI and OM and ODBM and RM
  - SCI and OM and ODBM and RM and resource structure

- Note that Database Quiesce is not available in this configuration
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</thead>
<tbody>
<tr>
<td>DRD</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>OM Audit Trail</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Batch SPOC</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Type-2 Commands</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>ACBLIB Member OLC</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>SSPM(shared queues)</td>
<td>NA</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Global Status</td>
<td>NA</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PRA</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
</tbody>
</table>
## Multiple-IMS IMSplex w/o RM – IMS 11 Functions

<table>
<thead>
<tr>
<th>IMS 11 Features</th>
<th>SCI</th>
<th>OM</th>
<th>RM</th>
<th>RM structure /CQS</th>
<th>ODBM</th>
<th>DBRC SCI</th>
<th>IMS TM</th>
<th>DBCTL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Database Quiesce</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Type-2 Command Enhance-ments</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>New User Exits</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Open Database</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>
CSL configurations for IMS 10 / 11 Functions
- Multiple-IMS IMSplex with RM ...

- Using RMENV=Y
  - Using some RM functions
CSL configurations for IMS 10/11 Features – Multiple-IMS IMSplex with RM …

• SCI and RM only – requires DBRC SCI registration
  • PRA (IMS 10)
• SCI and OM and RM – no requirement for DBRC SCI registration
  • Type-2 commands (IMS 10 and IMS 11)
  • DRD
  • ACBLIB Member Online Change (IMS 10)
  • OM Audit Trail (IMS 10)
  • Batch SPOC Utility (IMS 10)
• SCI and OM and RM – requires DBRC SCI registration
  • Database Quiesce (IMS 11)
CSL configurations for IMS 10/11 Functions – Multiple-IMS IMSplex with RM

- SCI and OM and RM and resource structure
  - Global Status (IMS 10)
  - SSPM (also CQS) (IMS 10)
- SCI and OM and ODBM and RM
  - Open Database (IMS 11)
- SCI and OM and ODBM and RM and resource structure
  - Open Database (IMS 11)
  - Global Status (IMS 10)
  - SSPM (also CQS) (IMS 10)
## Multiple-IMS IMSplex with RM – IMS 10 Functions

<table>
<thead>
<tr>
<th>IMS 10 Features</th>
<th>SCI</th>
<th>OM</th>
<th>RM</th>
<th>RM structure /CQS</th>
<th>ODBM</th>
<th>DBRC SCI SCI</th>
<th>IMS TM</th>
<th>DBCTL</th>
</tr>
</thead>
<tbody>
<tr>
<td>DRD</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OM Audit Trail</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Batch SPOC</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Type-2 Commands</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ACBLIB Member OLC</td>
<td>X</td>
<td>X</td>
<td>O/R</td>
<td>R w/RM</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SSPM(shared queues)</td>
<td>X</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Global Status</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PRA</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## Multiple-IMS IMSplex with RM – IMS 11 Functions

<table>
<thead>
<tr>
<th>IMS 11 Features</th>
<th>SCI</th>
<th>OM</th>
<th>RM</th>
<th>RM structure/ CQS</th>
<th>ODBM</th>
<th>DBRC SCI</th>
<th>IMS TM</th>
<th>DBCTL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Database Quiesce</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>O</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Type-2 Command Enhancements</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>New User Exits</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Open Database</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td></td>
<td>X</td>
</tr>
</tbody>
</table>
Setting up the CSL Environment for:

- IMS 10 DRD
- IMS 10 OM Audit Trail
- IMS 10 Batch SPOC
- IMS 10 / IMS 11 Type-2 commands
- IMS 10 ACBLIB Member Online Change
  - RMENV=N with single-IMS IMSplex and multiple-IMS IMSplex
  - RMENV=Y with multiple-IMS IMSplex
- IMS 10 Sysplex Serial Program Management (SSPM)
- IMS 10 Global Status
- IMS 10 Parallel RECON Access (PRA)
Setting up the CSL Environment for:

- IMS 11 Database Quiesce
  - RMENV=N with single-IMS IMSplex
  - RMENV=Y with multiple-IMS IMSplex
- IMS 11 New User Exits
- IMS 11 Open Database
Setting up to use IMS 10 DRD

- DFSDFxxx CSL section (recommended) or DFSCGxxx

```xml
<SECTION=COMMON SERVICE LAYER>
 IMSPLEX=PLX0 <<< IMSplex name = CSLPLX0.
 IMSplex XCF group name.
 Name must be same for all CSL address spaces
 MODBLKS=OLC | DYN <<< MODBLKS resources defined dynamically or via online change
 CMDSEC=N | A | E | R <<< Command security for commands processed by OM
 UOM=MTO | NONE | ALL <<< Unsolicited output message sent to OM
 RMENV=Y | N <<< Using RM?
 OMPROC=CSLOM <<< Procedure for automatically starting OM with RMENV=N
 SCIPROC=CSLSCI <<< Procedure for automatically starting SCI with RMENV=N

<SECTION=DYNAMIC_RESOURCES>
 AUTOIMPORT=AUTO | MODBLKS | NO | RDDS <<< Automatic import options during IMS cold start
 AUTOEXPORT=AUTO | N | RDDS <<< Automatic export options at checkpoint
 IMPORTERR=ABORT | CONTINUE <<< Error during automatic import processing due to invalid
 RDDSDERR=ABORT | NOIMPORT resource or descriptor definition
 RDDSDSN=(dsn1,dsn2,dsn3,…dsnN) <<< Access error during automatic import processing
 <<< Dataset names for system resource definition datasets
 <<< 2 required, 3 or more recommended, set BLKSIZE to 32,760
```
Setting up to use IMS 10 DRD ...

- CSL initialization PROCLIB members - CSLOIxxx, CSLSIxxx
  - Optional - CSLRIxxx, CSLDIxxx, CSLDCxxx
- CSL procedures - CSLSCI, CSLOM
  - Optional - CSLRM, CSLODBM, DBRC (DSPBPROC w/BPE)
Setting up to use IMS 10 OM Audit Trail ...

- DFSDFxxx CSL section (recommended) or DFSCGxxx

```
<SECTION=COMMON SERVICE LAYER>
IMSPLEX=PLX0  <<< IMSplex name = CSLPLX0, IMSplex XCF group name.
                   Name must be same for all CSL address spaces
CMDSEC=N | A | E | R  <<< Command security for commands processed by OM
UOM=MTO | NONE | ALL  <<< Unsolicited output message sent to OM
RMENV=Y | N  <<< Using RM?
OMPROC=CSLOM  <<< Procedure for automatically starting OM with RMENV=N
SCIPROC=CSLSCI <<< Procedure for automatically starting SCI with RMENV=N
```
Setting up to use IMS 10 OM Audit Trail ...

- CSL OM initialization PROCLIB member – CSLOIxxx
  - Specifies z/OS logstream name

  ARMREST=Y|N <<< ARM restart enabled?
  OMNAME=OM1 <<< OM Name (OMid = OM1OM)
  Name must be unique within IMSplex; shows up on messages from this component.

  IMSPLEX(NAME=PLX0, AUDITLOG=logstreamname)
  <<< IMSplex name = CSLPLX0.
  IMSplex XCF group name.
  Name must be same for all CSL address spaces, CQS, and IMS.

  <<< z/OS logstream name
  Contains commands, command responses, unsolicited output
  SAF security rules need to be defined

  CMDSEC=N|E|R|A <<< OM Command Security Level
  CMDLANG=ENU <<< US English]
  CMDTEXTDSN=IMS.TRANABLE <<< Command syntax translation table
Setting up to use IMS 10 OM Audit Trail

• CSL initialization PROCLIB members – CSLSIxxx, CSLOIxxx
  • Optional - CSLRIxxx, CSLDIxxx, CSLDCxxx
• CSL procedures - CSLSCI, CSLOM
  • Optional - CSLRM, CSLODBM, DBRC(DSPBPROC/BPE)
Setting up to use IMS 10 batch SPOC ...

- DFSDFxxx CSL section (recommended) or DFSCGxxx

```
<SECTION=COMMON SERVICE LAYER>
IMSPLEX=PLX0
<<< IMSplex name = CSLPLX0.
    IMSplex XCF group name.
    Name must be same for all CSL address spaces
CMDSEC=N | A | E | R
<<< Command security for commands processed by OM
UOM=MTO | NONE | ALL
<<< Unsolicited output messages sent to OM
RMENV=Y | N
<<< Using RM?
OMPROC=CSLOM
<<< Procedure for automatically starting OM with RMENV=N
SCIPROC=CSLSCI
<<< Procedure for automatically starting SCI with RMENV=N
```

- CSL initialization PROCLIB members - CSLOIxxx, CSLSIxxx
  - Optional - CSLRIxxx, CSLDIxxx, CSLDCxxx
- CSL procedures - CSLSCI, CSLOM
  - Optional - CSLRM, CSLODBM, DBRC(DSPBPROC w/BPE)
Setting up to use IMS 10 batch SPOC

- **Batch SPOC JCL**
  
  ```
  //SPOCJOB JOB, MSGCLASS=H, NOTIFY=&SYSUID, USER=&SYSUID
  //SPOC EXEC PGM=CSLUSPOC, PARM=('IMSPLEX=PLEX0, WAIT=30,F=BYCOL')
  //STEPLIB DD DSN=IMS.SDFSRESL, DISP=SHR
  //SYSPRINT DD SYSOUT=*  
  //SYSIN DD *  
  QUERY IMSPLEX SHOW(JOB, TYPE, STATUS) 
  QRY TRAN NAME(INV1*) SHOW(ALL) 
  /*EOF
  ```

- **Batch SPOC return codes**

<table>
<thead>
<tr>
<th>Code</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>The utility completed successfully.</td>
</tr>
<tr>
<td>4</td>
<td>Warning messages were issued. Check the output file.</td>
</tr>
<tr>
<td>8</td>
<td>A problem was encountered. Check the output file. One or more IMS operator commands failed. Rerun the utility with commands as needed.</td>
</tr>
</tbody>
</table>
Setting up to use IMS 10 / IMS 11 Type-2 commands

- DFSDFxxx CSL section (recommended) or DFSCGxxx

```
<SECTION=COMMON SERVICE LAYER>
IMSPLEX=PLX0 <<< IMSplex name = CSLPLX0.
CMDSEC=N | A | E | R <<< Command security for commands processed by OM
CMDSEC=N | A | E | R <<< Command security for commands processed by OM
UOM=MTO | NONE | ALL <<< Unsolicited output message sent to OM
RMENV=Y | N <<< Using RM?
OMPROC=CSLOM <<< Procedure for automatically starting OM with RMENV=N
OMPROC=CSLOM <<< Procedure for automatically starting OM with RMENV=N
SCIPROC=CSLSCI <<< Procedure for automatically starting SCI with RMENV=N
```

- CSL initialization PROCLIB members - CSLOIxxx, CSLSIxxx
  - Optional - CSLRIxxx, CSLDIxxx, CSLDCxxx

- CSL procedures - CSLSCI, CSLOM
  - Optional - CSLRM, CSLODBM, DBRC(DSPBPROC w/BPE)
Setting up to use IMS 10 / IMS 11 Type-2 commands …

• Start a TSO SPOC
  • use the IMS Application menu
  • enter TSO DFSSPOC in any ISPF command line
  • Enter DFSSPOC in the ISPF Option 6 command line followed by optional parameters for DFSSPOC
  • Call the TSO SPOC from other applications through a command interface

• Further details are in the IMS 10 or IMS 11 Operations and Automation Guide, Chapter 1, topic Starting and setting up the TSO SPOC
Setting up to use IMS 10 / IMS 11 Type-2 commands - SPOC Command Entry Panel

File  Action  Manage resources  SPOC  View  Options  Help

-----------------------------------------------

PLX0  IMS Single Point of Control
Command ===>  QRY TRAN NAME(A*)  SHOW(ALL)
-----------------------------------------------  Plex . ____  Route . IMS13____  Wait . ____
Response for:
Setting up to use IMS 10 ACBLIB Member Online Change ...

- ACBLIB member online change based on Global Online Change (IMS 8) architecture
- DFSDFxxx CSL section (recommended) or DFSCGxxx

```plaintext
<SECTION=COMMON SERVICE LAYER>
IMSPLEX=PLX0

OLC= LOCAL | GLOBAL
OLCSTAT=datasetname
ACBSHR=Y | N
CMDSEC=N | A | E | R
RMENV=Y | N
OMPROC=CSLOM
SCIPROC=CSLSCI

Different considerations with
- RMENV=N with single IMS-IMSplex and multiple-IMS IMSplex
- RMENV=Y with multiple-IMS IMSplex
```
Setting up to use IMS 10 ACBLIB Member Online Change – RMENV=N, OLC=GLOBAL

- Considerations with RMENV=N and OLC=GLOBAL
  - Single-IMS IMSplex
    - Single-IMS has its own OLCSTAT dataset
      - Must have OLCSTAT defined
    - Must use type-2 INITIATE OLC … commands
      - Cannot use type-1 /MODIFY commands
      - No MODSTAT dataset
  - Multiple-IMS IMSplex
    - Each IMS within the multiple-IMS IMSplex has its own OLCSTAT dataset
      - OLCSTAT dataset cannot be shared by multiple members in the IMSplex
        - Must use unique OLCSTAT dataset defined for each IMS in multiple-IMS IMSplex
    - Each IMS must use its own type-2 INITIATE OLC… command and user must ensure those commands are routed to only one member
      - Cannot use type-1 /MODIFY commands
      - No MODSTAT dataset
    - User is responsible for coordination of changes across different members of the multiple-IMS IMSplex
      - Like coordination with OLC=LOCAL using /MODIFY
Setting up to use IMS 10 ACBLIB Member
Online Change – RMENV=N, OLC=GLOBAL

• Considerations with RMENV=N and OLC=GLOBAL
  • Single-IMS IMSplex
    • CSL initialization PROCLIB members – CSLOIxxx, CSLSIxxx
      • Optional - CSLDIxxx, CSLDCxxx
    • CSL procedures - CSLSCI, CSLOM
      • Optional - CSLODBM, DBRC(DSPBPROC w/BPE)
  • Multiple-IMS IMSplex
    • CSL initialization PROCLIB members – CSLOIxxx, CSLSIxxx
      • Optional - CSLDIxxx, CSLDCxxx, DSPBIxxx
    • CSL procedures - CSLSCI, CSLOM
      • Optional - CSLODBM, DBRC(DSBPROC w/BPE)
Setting up to use IMS 10 ACBLIB Member Online Change – RMENV=Y, OLC=GLOBAL ...

- Considerations with RMENV=Y and OLC=GLOBAL
  - Multiple-IMS IMSplex
    - IMSplex has only one shared OLCSTAT dataset
      - Single OLCSTAT dataset is shared by all the members in the IMSplex
      - Must have single OLCSTAT dataset defined
    - Must use single type-2 INITIATE OLC … command
      - OM command master will process command via coordination from RM address space and optionally RM resource structure
      - User is not responsible for coordination of changes across different members of the multiple-IMS IMSplex
    - Cannot use type-1 /MODIFY commands
    - No MODSTAT dataset
  - Can use single ACBLIB for the IMSplex – ACBSHR=Y
    - Global online change updates only one shared ACBLIB
  - Can use different ACBLIB in the IMSplex – ACBSHR=N
    - Global online change ensures each ACBLIB is updated
Setting up to use IMS 10 ACBLIB Member
Online Change – RMENV=Y,OLC=GLOBAL

• Considerations with RMENV=Y and OLC=GLOBAL
  • Multiple-IMS IMSplex
    • CSL initialization PROCLIB members – CSLOIxxx,CSLSIxxx, CSLRIxxx
      • Optional - CSLDIxxx, CSLDCxxx
    • CSL procedures - CSLSCI, CSLOM, CSLRM
      • Optional - CSLODBM, DBRC(DSPBPROC)
Setting up to use IMS 10 Sysplex Serial Program Management (SSPM) …

- DFSDFxxx CSL section (recommended) or DFSCGxxx

```xml
<SECTION=COMMON SERVICE LAYER>
IMSPLEX=PLX0 <<< IMSplex name = CSLPLX0.
     IMSplex XCF group name.
     Name must be same for all CSL address spaces
RMENV=Y <<< SSPM uses RM and resource structure

- CSL RM Initialization PROCLIB member = CSLRIxxx
  - Specifies Resource Structure

  ARMRST=Y\N <<< ARM restart enabled?
  RMNAME=RM1 <<< RM Name (RMid = RM1RM)
  CQSSSN=CQS1 <<< CQS NAME

  IMSPLEX(
    NAME=PLX0, <<< IMSplex Name = CSLPLX0
    RSRCSTRUCTURE(
      STRNAME=RSRCSTR1)) <<< Resource Structure
    Name
```
Setting up to use IMS 10 Sysplex Serial Program Management (SSPM) …

- Shared queues (CQS) has 3 PROCLIB members
  - CQSIPxxx (unique)
    - Identified by CQSINIT parameter on CQS procedure
      
      CQSGROUP=SQGP0,
      STRDEFG=000,
      STRDEFL=001,
      IMSPLEX(NAME=PLX0)

- CQSSGxxx (common to all CQSs)
  - Identifies name of Resource Structure
    
    RSRCSTRUCTURE(STRNAME=RSRCSTR1)

- CQSSLxxx (unique)
  - Specifies shared queues parameters
Setting up to use IMS 10 Sysplex Serial Program Management (SSPM) …

- CSL initialization PROCLIB members - CSLOIxxx, CSLSIxxx, CSLRIxxx, CQSIPxxx, CQSSGxxx, CQSSLxxx
  - Optional - CSLDIxxx, CSLDCxxx
- CSL procedures - CSLSCI, CSLOM, CSLRM, CQS
  - Optional - CSLODBM, DBRC(DSPBPROC w/BPE)
Setting up to use IMS 10 Global Status ...

- **DFSDFxxx CSL section (recommended) or DFSCGxxx**
  
  \[
  \text{<SECTION=COMMON SERVICE LAYER>}
  \]
  
  **IMSPLEX=PLX0**
  
  \[<<< \text{ IMSplex name = CSLPLX0.} \]
  
  \[<<< \text{ IMSplex XCF group name.} \]
  
  \[<<< \text{ Name must be same for all CSL address spaces} \]
  
  **PLEXPARM=(GSTSDB=N | Y, GSTSAREA=N | Y, GSTSTRAN=N | Y)**
  
  \[<<< \text{ Global status for databases is maintained in RM} \]
  
  \[<<< \text{ Global status for areas is maintained in RM} \]
  
  \[<<< \text{ Global status for transactions is maintained in RM} \]
  
  **CMDSEC=N | A | E | R**
  
  \[<<< \text{ Command security for commands processed by OM} \]
  
  **UOM=MTO | NONE | ALL**
  
  \[<<< \text{ Unsolicited output message sent to OM} \]
  
  **RMENV=Y**
  
  \[<<< \text{ Global status used RM and resource structure} \]

- **CSL RM initialization PROCLIB member – CSLR1xxx**
  
  - Specifies resource structure

  **ARMRST=Y|N**
  
  \[<<< \text{ ARM restart enabled?} \]
  
  **RMNAME=RM1**
  
  \[<<< \text{ RM Name (RMid = RM1RM) } \]
  
  **CQSSSN=CQS1**
  
  \[<<< \text{ CQS NAME} \]
  
  **IMSPLEX(**
  
  \[\text{ NAME=PLX0,} \]
  
  \[\text{ RSRCSTRUCTURE(} \]
  
  \[\text{ STRNAME=RSRCSTR1))} \]
  
  \[<<< \text{ IMSplex Name = CSLPLX0} \]
  
  \[<<< \text{ Resource Structure} \]
  
  \[<<< \text{ Name} \]
Setting up to use IMS 10 Global Status

- CSL initialization PROCLIB members - CSLOIxxx, CSLSIxxx, CSLRIxxx, CQSIPxxx, CQSSGxxx
  - Optional - CSLDIxxx, CSLDCxxx
- CSL procedures - CSLSCI, CSLOM, CSLRM, CQS
  - Optional - CSLODBM, DBRC(DSPBPROC w/BPE)
Setting up to use IMS 10 Parallel RECON Access (PRA) ...

- SCI-only configuration does not need CSL definition via DFSDFxxx CSL section or DFSCGxxx
- See previous charts 25-28
Setting up to use IMS 10 Parallel RECON Access (PRA) …

- Using PRA with IMSplex configuration including OM/RM/ODBM
- DFSDFxxx CSL section (recommended) or DFSCGxxx

```
<SECTION=COMMON SERVICE LAYER>
IMSPLEX=PLX0
<<< IMSplex name = CSLPLX0.
     IMSplex XCF group name.
     Name must be same for all CSL address spaces

CMDSEC=N | A | E | R
<<< Command security for commands processed by OM

RMENV=Y | N
<<< Using RM?
OMPROC=CSLOM
<<< Procedure for automatically starting OM with RMENV=N
SCIPROC=CSLSCI
<<< Procedure for automatically starting SCI with RMENV=N
```
Setting up to use IMS 10 Parallel RECON Access (PRA) …

- If using PRA (IMS 10),
  - RECON data sets must be registered with SCI
  - Must define IMSplex name and DBRC group ID via DBRC parameters
    - First, use `CHANGE.RECON IMSPLEX(imsplex_name,group_ID)` command to set the IMSplex name and the DBRC group ID in the RECONs
    - Then each DBRC instance must specify matching values either via
      - Recommended - the DBRC SCI Registration Exit (DSPSCIX0)
      - Not recommended
        - `DBRC JCL procedure parameters (IMSPLEX=,DBRCGRP=)`
        - `DBRC Initialization member – DSPBIxxx (w/BPE)`
      - DBRC group ID ‘001’ is used if IMSPLEX= specified with no group ID
Setting up to use IMS 10 Parallel RECON Access (PRA) …

DBRC SCI registration exit - DSPSCIXO

<<< Preferred way to set IMSplex name and DBRC group ID

OR

DSPBlxxx - DBRC Initialization Member (w/BPE)

IMSPLEX(NAME=PLX0) <<< IMSplex name = CSLPLX0
IMSpex SCF group name
Name must be same for all SCI and DBRC address spaces

DBRCGRP=nnn <<< DBRC group ID

OR

In DBRC (DSPBPROC) procedure JCL

IMSPLEX=PLX0 <<< IMSplex name = CSLPLX0
IMSpex SCF group name
Name must be same for all SCI and DBRC address spaces

DBRCGRP=nnn <<< DBRC group ID
Setting up to use IMS 10 Parallel RECON Access (PRA)

- Using PRA with IMSplex configuration including OM/RM/ODBM
- CSL initialization PROCLIB members – CSLOIxxx, CSLSIxxx
  - Optional - CSLRIxxx, CSLDIxxx, CSLDCxxx
- CSL procedures – CSLSCI, CSLOM, DBRC(DSPBPROC w/BPE)
  - Optional – CSLRM, CSLODBM
Setting up to use IMS 11 Database Quiesce
- Using in Single-IMS IMSplex ...

- DFSDFxxx CSL section (recommended) or DFSCGxxx

```
<SECTION=COMMON SERVICE LAYER>
IMSPLEX=PLX0
<<< IMSplex name = CSLPLX0.
    IMSplex XCF group name.
    Name must be same for all CSL address spaces

DBQUIESCETO=30
<<< QUIESCE command timeout value in seconds (1-999)

CMDSEC=N | A | E | R
UOM=MTO | NONE | ALL
<<< Command security for commands processed by OM
<<< Unsolicited output message sent to OM

RMENV=N
OMPROC=CSLOM
SCIPROC=CSLSCI
<<< Using RM?
<<< Procedure for automatically starting OM with RMENV=N
<<< Procedure for automatically starting SCI with RMENV=N
```
Setting up to use IMS 11 Database Quiesce - Using in Single-IMS IMSplex ...

- When using Database Quiesce (IMS 11)
  - RECON data sets must be registered with SCI
  - Must define IMSplex name and DBRC group ID via DBRC parameters
    - First, use CHANGE.RECON IMSPLEX(imsplex_name,group_ID) command to set the IMSplex name and the DBRC group ID in the RECONs
    - Then each DBRC instance must specify matching values either via
      - Recommended - the DBRC SCI Registration Exit (DSPSCIX0)
      - Not recommended
        - DBRC JCL procedure parameters (IMSPLEX=,DBRCGRP=)
        - DBRC Initialization member – DSPBIxxx (w/BPE)
        - DBRC group ID ‘001’ is used if IMSPLEX= specified with no group ID
Setting up to use IMS 11 Database Quiesce - Using in Single-IMS IMSplex

- CSL initialization PROCLIB members - CSLOIxxx, CSLSIxxx
  - Optional - CSLDIxxx, CSLDCxxx
- CSL procedures - CSLSCI, CSLOM, DBRC (DSPBPROC)
  - Optional - CSLODBM
Setting up to use IMS 11 Database Quiesce
- Using in Multiple-IMS IMSplex

- DFSDFxxx CSL section (recommended) or DFSCGxxx

  <SECTION=COMMON SERVICE LAYER>
  IMSPLEX=PLX0
  >>> IMSplex name = CSLPLX0.
  IMSplex XCF group name.
  Name must be same for all CSL address spaces

  DBQUIESCETO=30
  >>> QUIESCE command timeout value in seconds (1-999)

  CMDSEC=N | A | E | R
  >>> Command security for commands processed by OM

  UOM=MTO | NONE | ALL
  >>> Unsolicited output message sent to OM

  RMENV=Y
  >>> Using RM?
Setting up to use IMS 11 Database Quiesce - Using in Multiple-IMS IMSplex …

- When using Database Quiesce (IMS 11)
  - RECON data sets must be registered with SCI
  - Must define IMSplex name and DBRC group ID via DBRC parameters
    - First, use CHANGE.RECON IMSPLEX(imsplex_name,group_ID) command to set the IMSplex name and the DBRC group ID in the RECONs
    - Then each DBRC instance must specify matching values either via
      - **Recommended** - the DBRC SCI Registration Exit (DSPSCIX0)
      - **Not recommended**
        - *DBRC JCL procedure parameters (IMSPLEX=,DBRCGRP=*)
        - *DBRC Initialization member – DSPBIxxx (w/BPE)*
      - DBRC group ID ‘001’ is used if IMSPLEX= specified with no group ID
Setting up to use IMS 11 Database Quiesce
- Using in Multiple-IMS IMSplex …

• CSL RM initialization PROCLIB member – CSLRIxxx
  • Optionally may specify resource structure
    • Recommended but not required

  ARMREST=YN
  RMNAME=RM1
  CQSSSN=CQS1

  IMSPLEX(NAME=PLX0,
          RSRCSTRUCTURE(
          STRNAME=RSRCSTR1))
Setting up to use IMS 11 Database Quiesce
- Using in Multiple-IMS IMSplex

- CSL initialization PROCLIB members - CSLOIxxx, CSLSIxxx, CSLRIxxx
  - Optional - CSLDIxxx, CSLDCxxx, CQSIPxxx, CQSSGxxx
- CSL procedures - CSLSCI, CSLOM, CSLRM, DBRC(DSPBPROC w/BPE)
  - Optional – CSLODBM, CQS
Setting up to use IMS 11 New User Exits …

- DFSDFxxx CSL section (recommended) or DFSCGxxx

  <SECTION=COMMON SERVICE LAYER>
  IMSPLEX=PLX0 <<< IMSplex name = CSLPLX0.
  IMSplex XCF group name.
  Name must be same for all CSL address spaces
  CMDSEC=N | A | E | R <<< Command security for commands processed by OM
  UOM=MTO | NONE | ALL <<< Unsolicited output message sent to OM
  RMENV=Y | N <<< Using RM?
  OMPROC=CSLOM <<< Procedure for automatically starting OM with RMENV=N
  SCIPROC=CSLSCI <<< Procedure for automatically starting SCI with RMENV=N

  <SECTION=USER_EXITs>
  EXITDEF=(TYPE=RESTART | INITTERM | ICQSEVNT | ICQSSTEV | PPUE),
  EXITS=(exitname1, exitname2,...) <<< New user exit services architecture
Setting up to use IMS 11 New User Exits

- CSL initialization PROCLIB members - CSLOIxxx, CSLSIxxx
  - Optional - CSLRIxxx, CSLDIxxx, CSLDCxxx
- CSL procedures - CSLSCI, CSLOM
  - Optional - CSLRM, CSLODBM, DBRC(DSPBPROC w/BPE)
Setting up to use IMS 11 Open Database …

- **DFSDFxxx CSL section (recommended) or DFSCGxxx**

  ```
  <SECTION=COMMON SERVICE LAYER>
  IMSPLEX=PLX0 <<< IMSplex name = CSLPLX0.
  CMDSEC=N | A | E | R <<< Command security for commands processed by OM
  UOM=MTO | NONE | ALL <<< Unsolicited output message sent to OM
  RMENV=Y | N <<< Using RM?
  OMPROC=CSLOM <<< Procedure for automatically starting OM with RMENV=N
  SCIPROC=CSLSCI <<< Procedure for automatically starting SCI with RMENV=N
  ARMRST=Y|N <<< ARM restart enabled?
  ODBMNAME=ODBM1 <<< ODBM Name (ODBMid = ODBM1OD)
  ODBMCFG=CQS1 <<< ODBM Configuration Member CSLDCxxx
  IMSPLEX(NAME=PLX0), <<< IMSplex Name = CSLPLX0
  RRS=Y | N <<< Using RRS?
  ```

- **CSL ODBM Initialization PROCLIB member - CSLDIxxx**
Setting up to use IMS 11 Open Database ...

- CSL ODBM Configuration PROCLIB member - CSLDCxxx

```
<SECTION=GLOBAL_DATASTORE_CONFIGURATION>
IDRETRY=0 <<< Retries after first data store connection fails (0-255)
TIMER=60 <<< Number of seconds between retries (1-99)
MAXTHRDS=1 <<< Maximum threads to any IMS data store (1-99)
FPBUF=0 <<< DEDB buffers per thread (0-999)
FPBOF=0 <<< DEDB overflow buffers per thread (0-999)
CNBA=0 <<< Total number of FP buffers for ODBM use (0-9999)

<SECTION=LOCAL_DATASTORE_CONFIGURATION
ODBMNAME(NAME=ODBM1) <<< ODBM Instances
DATASTORE(NAME=IMS1,ALIAS(NAME=IO1A),
<<< IMS data store properties per ODBM instance
FPBUF=,FPBOF=,CNBA=,MAXTHRDS)
<<< Optional local parameters (overrides global parms)
```

- IMS Connect HWSCFGxx Configuration Member

```
IMSPLEX(MEMBER=ICON1,
TMEMBER=PLX0) <<< Name of this IMS Connect within the IMSPlex
<<< Name of the IMSPlex with ODBM
```
Setting up to use IMS 11 Open Database

- CSL initialization PROCLIB members - CSLOIxxx, CSLSIxxx, CSLDIxxx, CSLDCxxx
  - Optional - CSLRIxxx
- CSL procedures - CSLSCI, CSLOM, CSLODBM
  - Optional – CSLRM, DBRC(DSPBPROC)
Sample CSL PROCs and Initialization
PROCLIB members

- SCI PROC (SCI)
- SCI Initialization PROCLIB member (CSLSIxxx)

- OM PROC (OM)
- OM Initialization PROCLIB member (CSLOIxxx)

- RM PROC (RM)
- RM Initialization PROCLIB member (CSLRIxxx)

- ODBM PROC (ODBM)
- ODBM Initialization PROCLIB member (CSLDIxxx)
- ODBM Configuration PROCLIB member (CSLDCxxx)
SCI PROC – Sample JCL for SCI instance

//SCI1 PROC  RGN=0,SOUT=A, RESLIB='IMS.SDFSRESL',
//      BPECFG=BPEPLX0,
//      SCIINIT=001,
//      PARM1=
//SCIPROC EXEC  PGM=BPEINI00,REGION=&RGN,
//      PARM='BPECFG=&BPECFG,
//      BPEINIT=CSLSINI0,
//      SCIINIT=&SCIINIT,&PARM1'
//STEPLIB       DD DSN=&RESLIB,DISP=SHR
// ..

<<< BPE configuration parms
<<< default CSLSIxxx member
<<< PROCLIB member overrides

<<< initialize for SCI
<<< SCI PROCLIB member
SCI Initialization PROCLIB member – CSLS\text{Ixxx}

\textbf{ARMRST=}[Y|N] \quad \text{<<<} \quad \text{ARM restart enabled?}

\textbf{SCINAME=SCI1} \quad \text{<<<} \quad \text{SCI Name (S} \text{Clid} = \text{SCI1SC)}

Name must be unique within IMSplex; shows up on messages from this component.

\textbf{IMSPLEX\textsc{(NAME=PLX0)}} \quad \text{<<<} \quad \text{IMSplex name = CSLPLX0. IMSplex XCF group name. Name must be same for all CSL address spaces, CQS, and IMS.}

\textbf{FORCE=(ALL,[SHUTDOWN])} \quad \text{<<<} \quad \text{Cleanup ECSA [and shutdown]}

OM PROC – Sample JCL for OM instance

//OM1 PROC
RGN=0,SOUT=A, RESLIB='IMS.SDFSRESL',
//
  BPECFG=BPEPLX0,
//
  OMINIT=001,
//
  PARM1=
//OMPROC EXEC
PGM=BPEINI00,REGION=&RGN,
//
  PARM='BPECFG=&BPECFG,
//
  BPEINIT=CSLOINI0,
//
  OMINIT=&OMINIT,&PARM1'
//STEPLIB
DD
  DSN=&RESLIB,DISP=SHR
OM Initialization PROCLIB member – CSLOlxxx

ARMRST=Y|N  <<< ARM restart enabled?
OMNAME=OM1  <<< OM Name (OMid = OM1OM)
IMSPLEX(NAME=PLX0)  <<< IMSplex name = CSLPLX0
CMDSEC=N|E|R|A  <<< Command Security Level
                None, Exit, RACF, All
CMDLANG=ENU  <<< US English
CMDTEXTDSN=IMS.TRANABLE  <<< Command syntax translation table
RM PROC – Sample JCL for RM instance

//RM1 PROC  RGN=0,SOUT=A, RESLIB=‘IMS.SDFSRESL’,
// BPECFG=BPEPLX0,
// RMINIT=001,
// PARM1= <<< BPE configuration parms <<< default CSLRIxxx member <<< PROCLIB member overrides
//RMPROC EXEC  PGM=BPEINI00,REGION=&RGN,
// PARM='BPECFG=&BPECFG,
// BPEINIT=CSLRINI0,
// RMINIT=&RMINIT,&PARM1' <<< initialize for RM <<< RM PROCLIB member
//STEPLIB  DD      DSN=&RESLIB,DISP=SHR
// ..
RM Initialization PROCLIB member – CSLRIxxx

ARMRST=Y|N  <<< ARM restart enabled?
RMNAME=RM1  <<< RM Name (RMid = RM1RM)
CQSSSN=CQS1  <<< CQS NAME
IMSPLEX(
    NAME=PLX0,
    RSRCSTRUCTURE(
        STRNAME=RSRCSTR1))  <<< IMSplex Name = CSLPLX0
                        <<< Resource Structure
                        <<< Name
ODBM PROC – Sample JCL for ODBM instance

//ODBM1 PROC RGN=0,SOUT=A, RESLIB='IMS.SDFSRESL',
// BPECFG=BPEPLX0, <<< BPE configuration parms
// ODBMINIT=001, <<< default CSLDlxxx member
// PARM1= <<< PROCLIB member overrides
//OMPROC EXEC PGM=BPEINI00,REGION=&RGN,
// PARM='BPECFG=&BPECFG,
// BPEINIT=CSLDINI0, <<< initialize for ODBM
// ODBMINIT=&ODBMINIT,&PARM1' <<< ODBM PROCLIB member
//STEPLIB DD DSN=&RESLIB,DISP=SHR
ODBM PROCLIB members

• CSLDIxxx (ODBM Initialization Member)
  • Identified by ODBMINIT parameter on ODBM procedure

  ARMREST=$Y|N$ <<< ARM restart enabled?
  ODBMNAME=ODBM11 <<< ODBM Name (ODBMid = ODBM11OD)
  IMSPLEX(NAME=PLX0) <<< IMSplex name = CSLPLX0
  ODBMCFG=xxx <<< ODBM Configuration member
  RRS=$Y|N$ <<< RRS enabled?

• CSLDCxxx (ODBM configuration member)
  • Identifies data store connections
    • Global section
    • Local section
Common Service (CSL) Summary

- Common Service Layer is part of the evolving IMSplex architecture
  - Required to take advantage of many new IMS 10 and IMS 11 functions
- Improvements for Operations Management
- Improvements for Resource Management
- Improvements for IMS Database Access

- Begin implementing CSL now so you can exploit new IMS 10 and IMS 11 functions
CSL Architecture – IMS 11

- Open Database Manager (ODBM)
  - SCI
- Operations Manager (OM)
  - SCI
- Structured Call Interface
  - SCI
- Resource Manager (RM)
  - SCI

SCM Communications

- IMS Control Region
  - SCI

Common Queue Server (CQS)

- SCI / XCF

Online DBRC
- DBRC Batch Utility
- Batch with DBRC
- Utility with DBRC

Coupling Facility

Resource
- Shared Queues