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)

- Open Database Manager (ODBM)
- Operations Manager (OM)
- Structured Call Interface
- Resource Manager (RM)
- IMS Control Region
- Common Queue Server (CQS)
- Online DBRC
  - DBRC Batch Utility
  - Batch with DBRC
  - Utility with DBRC

SCI Communications
CSI DBRC Common Queue Server (CQS) Operations Manager (OM)

SCI IMS Control Region

Resource Manager (RM)

Structured Call Interface

Shared Queues

SCI Communications

Open Database Manager (ODBM)

SCI

SCI

SCI

SCI

SCI

SCI

Online DBRC

DBRC Batch Utility

Batch with DBRC

Utility with DBRC

Coupling Facility

SHARE in Anaheim 2011
• 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 function
    • Resource structure required if two or more RM address spaces
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

- Dynamic Resource Definition (DRD)
- Manage Resources Application
- Dynamic Updates of MSC Resources
- OM Audit Trail
- Batch SPOC Utility

OM (Operations Manager)

- Type-2 Command Enhancements
  - QUERY for Work, Related Resources
  - QUEUE for message
  - Resource timestamps
  - QUERY statistics for MSC Bandwidth
  - DEDB UPDATE DB

- ACBLIB Member Online Change
- Sysplex Serial Program Management
- Global Status

RM (Resource Manager)

- Parallel RECON Access (PRA)
- SCI (Structured Call Interface)
IMS Version 11 New Functions using CSL

- 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

OM (Operations Manager)

RM (Resource Manager)

SCI (Structured Call Interface)

ODBM (Open Database Manager)
<table>
<thead>
<tr>
<th>IMS Version 12 New Functions using CSL</th>
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<tr>
<td><strong>IMS Repository</strong></td>
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<td>Dynamic Full Function Buffer Pools</td>
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<td>IMS Connect type-2 Commands</td>
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<td>MSC TCP/IP</td>
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<td>User exit enhancements</td>
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<td>OM (Operations Manager)</td>
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<td><strong>RM (Resource Manager)</strong></td>
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<td>SCI (Structured Call Interface)</td>
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<tr>
<td>ODBM (Open Database Manager)</td>
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</tbody>
</table>
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
  - ODBM – 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

- SPOC
- Automation
- Master Terminal
- End User Terminal
- Operations Manager (OM)
- Structured Call Interface
- SCI Communications
- IMS Control Region
- DBRC
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 (DSPSCI0)
    - **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

```
//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

```
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]
```
 IMSplex CSL Basic Setup – SCI only …

DBRC Procedure (using BPE with IMS 11) - DSPBPROC

//DBRC PROC  RGN=0M,SOUT=A, RESLIB=‘IMS.SDFSRESL’,
//              BPECFG=BPECONFIG,
//              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

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

• Having more than 1 RM address space in an IMSplex requires a resource structure
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 - DSPSCIX0

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

OR

DSPBIxxx - DBRC Initialization Member (w/BPE)

IMSPLEX(NAME=PLX0) <<< IMSplex name = CSLPLX0
IMSpelix 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
IMSpelix 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
<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</th>
<th>IMS TM</th>
<th>DBCTL</th>
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<tbody>
<tr>
<td>DRD</td>
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<td>SSPM(shared queues)</td>
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<td>Global Status</td>
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## Single-IMS IMSplex – IMS 11 Functions

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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
## Multiple-IMS IMSplex w/o RM – IMS 10 Functions

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<td>Batch SPOC</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Type-2 Commands</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>ACBLIB Member OLC</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td>X</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>
</tr>
<tr>
<td>Global Status</td>
<td>NA</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>X</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 Enhancements</td>
<td></td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X X</td>
</tr>
<tr>
<td>New User Exits</td>
<td>X</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Open Database</td>
<td>X</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
<td>X</td>
<td>X X</td>
<td>X 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
Functions –
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, resource structure optional
  - Database Quiesce (IMS 11)
CSL configurations for IMS 10/11
Functions –
Multiple-IMS IMSpox 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</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>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Global Status</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</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 Enhance-ments</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></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>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Open Database</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td>X</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

**<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 resource or descriptor definition

- **RDDSERR=ABORT | NOIMPORT**
  - Access error during automatic import processing

- **RDDSDSN=(dsn1,dsn2,dsn3,...dsnn)**
  - 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

ARMRST=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.SDFSDATA <<< 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

```xml
<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.
    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
```

- 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

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          <<< IMSplex name = CSLPLX0.
                      >>> IMSplex XCF group name.
                      >>> Name must be same for all CSL address spaces
OLC= LOCAL | GLOBAL   <<< Enable local online change (via /MODIFY) or global online change (via INITIATE OLC)
OLCSTAT=datasetname   <<< OLCSTAT dataset name if OLC=GLOBAL
ACBSHR=Y | N           <<< Share ACBLIB among members listed in OLCSTAT
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
```

- 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(DSPBROC 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

  `<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
  - CQSPIxxx (unique)
    - Identified by CQSNINIT 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, CSLRlxxx, CQSIPIxxx, 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

  <SECTION=COMMON SERVICE LAYER>
  IMSPLEX=PLX0 <<< IMSplex name = CSLPLX0. IMSplex XCF group name.
  PLEXPARM=(GSTSDB=N | Y,
            GSTSAREA=N | Y,
            GSTSTRAN=N | Y) <<< Global status for databases is maintained in RM
  CMDSEC=N | A | E | R <<< Command security for commands processed by OM
  UOM=MTO | NONE | ALL <<< Unsolicited output message sent to OM
  RMENV=Y <<< Global status used 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,
            RSRCSstructure(
                    STRNAME=RSRCSTR1)) <<< IMSplex Name = CSLPLX0

Name must be same for all CSL address spaces
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=CSL0M  <<< 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

DSPBxxx - 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

```plaintext
<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=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 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
UOM=MTO | NONE | ALL
<<< Command security for commands processed by OM
<<< 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

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

  IMSPLEX(NAME=PLX0,  <<< IMSplex Name = CSLPLX0
    RSRCSTRUCTURE(  <<< Resource Structure
      STRNAME=RSRCSTR1))  <<< Name
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

```xml
<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=

<SECTION=USER_EXITS>
EXITDEF=(TYPE=RESTART | INITTERM | ICQSEVNT | ICQSSTEV | PPUE),
EXITS=(exitname1, exitname2,…)
<<< New user exit services architecture
</SECTION=
```
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.
  IMSplex XCF group name.
  Name must be same for all CSL address spaces

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

  RMENV=Y | N
  OMPROC=CSLOM
  SCIPROC=CSLSCI
  
  <<< Using RM?
  <<< Procedure for automatically starting OM with RMENV=N
  <<< Procedure for automatically starting SCI with RMENV=N

- **CSL ODBM Initialization PROCLIB member - CSLDIxxx**

  ARMRST=Y | N
  ODBMNAME=ODBM1
  ODBMCFG=OD1
  
  <<< ARM restart enabled?
  <<< ODBM Name (ODBMid = ODBM1OD)
  <<< ODBM Configuration Member CSLDCxxx

  IMSPLEX(NAME=PLX0),
  RRS=Y | N
  
  <<< IMSplex Name = CSLPLX0
  <<< Using RRS?
Setting up to use IMS 11 Open Database ...

- CSL ODBM Configuration PROCLIB member - CSLDCxxx

```xml
<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=GLOBAL_DATASTORE_CONFIGURATION>

<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 IMSPlx
  <<< 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 (CSLSCI)
- SCI Initialization PROCLIB member (CSLSIxxx)

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

- RM PROC (CSLRM)
- RM Initialization PROCLIB member (CSLRIMxx)

- ODBM PROC (CSLODBM)
- 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 – CSLS1xxx

**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 CSL address spaces, CQS, and IMS.

**FORCE=(ALL,[SHUTDOWN])**  <<< Cleanup ECSA [and shutdown]
OM PROC – Sample JCL for OM instance

//OM1 PROC
RGN=0,SOUT=A, RESLIB=‘IMS.SDFSRESL’,
// BPECFG=BPEPLX0, <<< BPE configuration parms
// OMINIT=001, <<< default CSLOIxxx member
// PARM1= <<< PROCLIB member overrides
//OMPROC EXEC
PGM=BPEINI00,REGION=&RGN,
// PARM='BPECFG=&BPECFG,
// BPEINIT=CSLOINI0, <<< initialize for OM
// OMINIT=&OMINIT,&PARM1'
//STEPLIB
DD DSN=&RESLIB,DISP=SHR
OM Initialization PROCLIB member – CSLOIxxx

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.SDFSDATA <<< 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=
//RMPROC EXEC  PGM=BPEINI00,REGION=&RGN,
//              PARM='BPECFG=&BPECFG,
//              BPEINIT=CSLRINI0,
//              RMINIT=&RMINIT,&PARM1'
//STEPLIB  DD     DSN=&RESLIB,DISP=SHR
// ..

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

<<< initialize for RM
<<< RM PROCLIB member
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
ODBMI POC – Sample JCL for ODBM instance

```plaintext
// ODBM1 PROC
RGN=0, SOUT=A, RESLIB='IMS.SDFSRESL',
  BPECFG=BPEPLX0,
  ODBMINIT=001,
  PARM1=

// OMPROC EXEC
PGM=BPEINI00, REGION=&RGN,
  PARM='BPECFG=&BPECFG,
  BPEINIT=CSLDINI0,
  ODBMINIT=&ODBMINIT,&PARM1'

// STEPLIB
DD DSN=&RESLIB, DISP=SHR
```

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

<<< initialize for ODBM
<<< ODBM PROCLIB member
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)
- Operations Manager (OM)
- Structured Call Interface
- Resource Manager (RM)
- SCI
- IMS Control Region
- Common Queue Server (CQS)
- SCI
- SCI / XCF
- Online DBRC
- DBRC Batch Utility

Shared Queues

Coupling Facility

CQS

SCI

IMS

SHARE

in Anaheim

2011