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

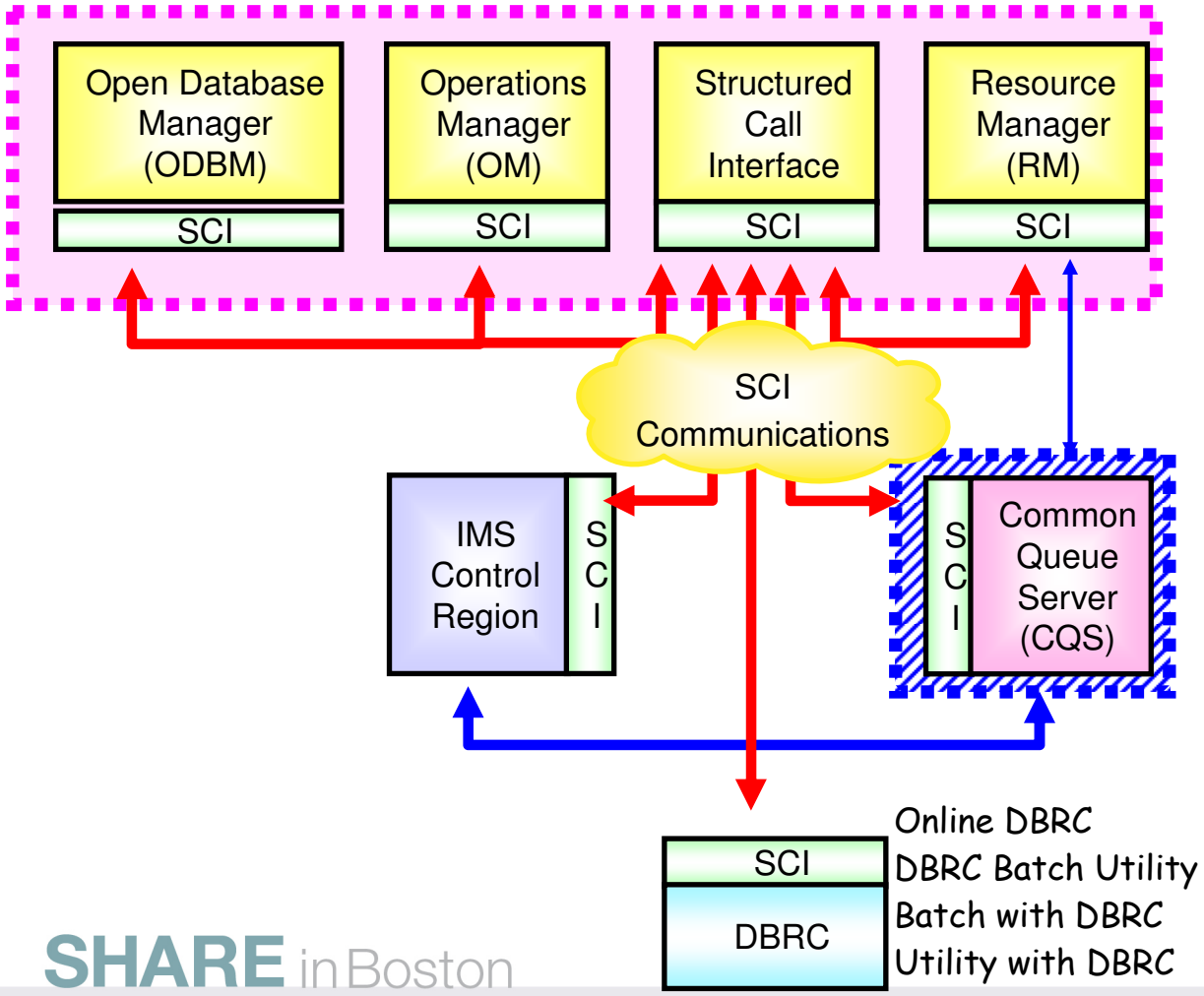
Common Service Layer (CSL) Managers

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

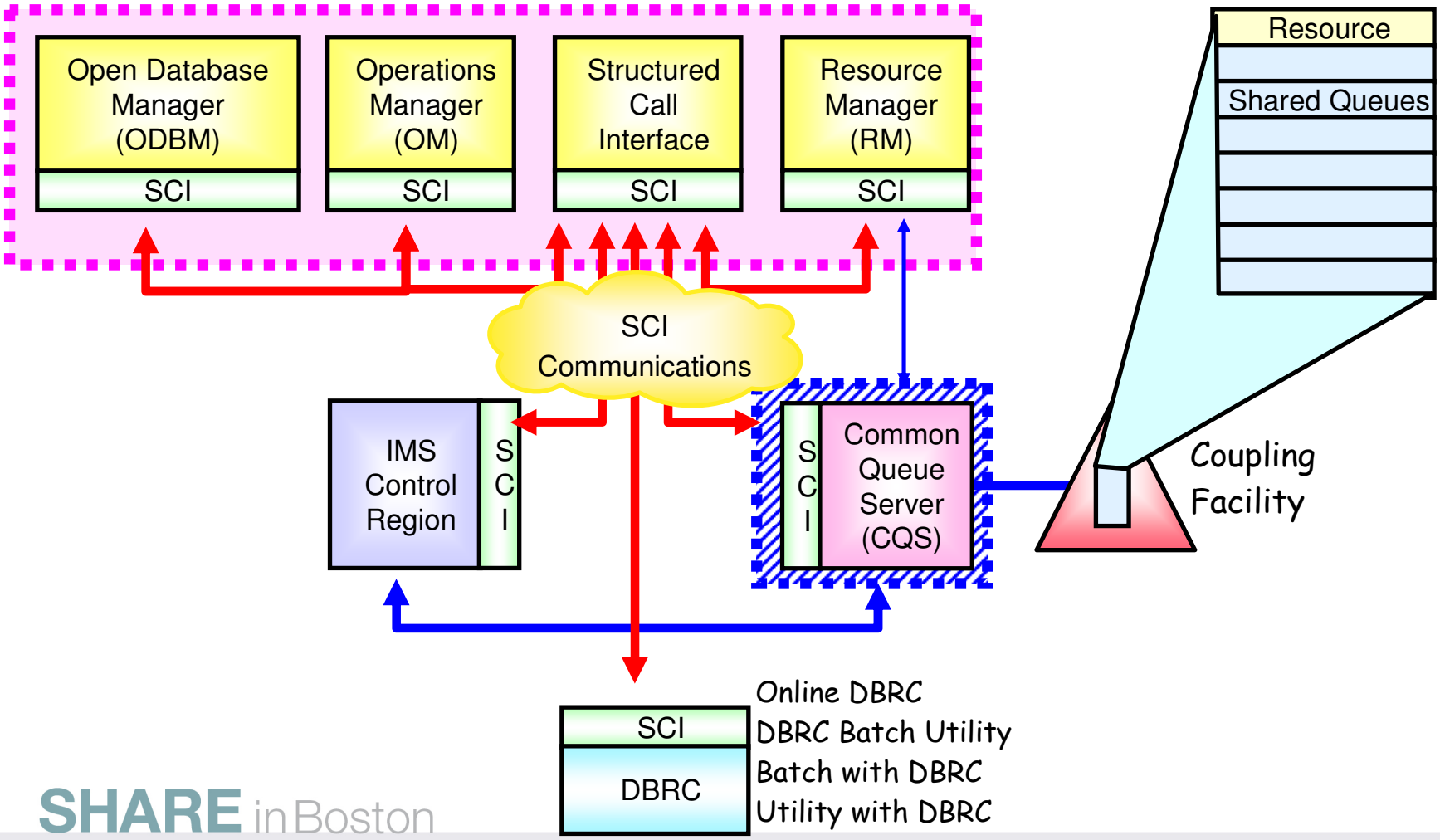
- Based on BPE (Base Primitive Environment)
- Can use CQS (Common Queue Server)

- New address spaces
  - OM, RM, SCI, ODBM, CQS
- New CF structures (optional)
  - Resource, shared queues

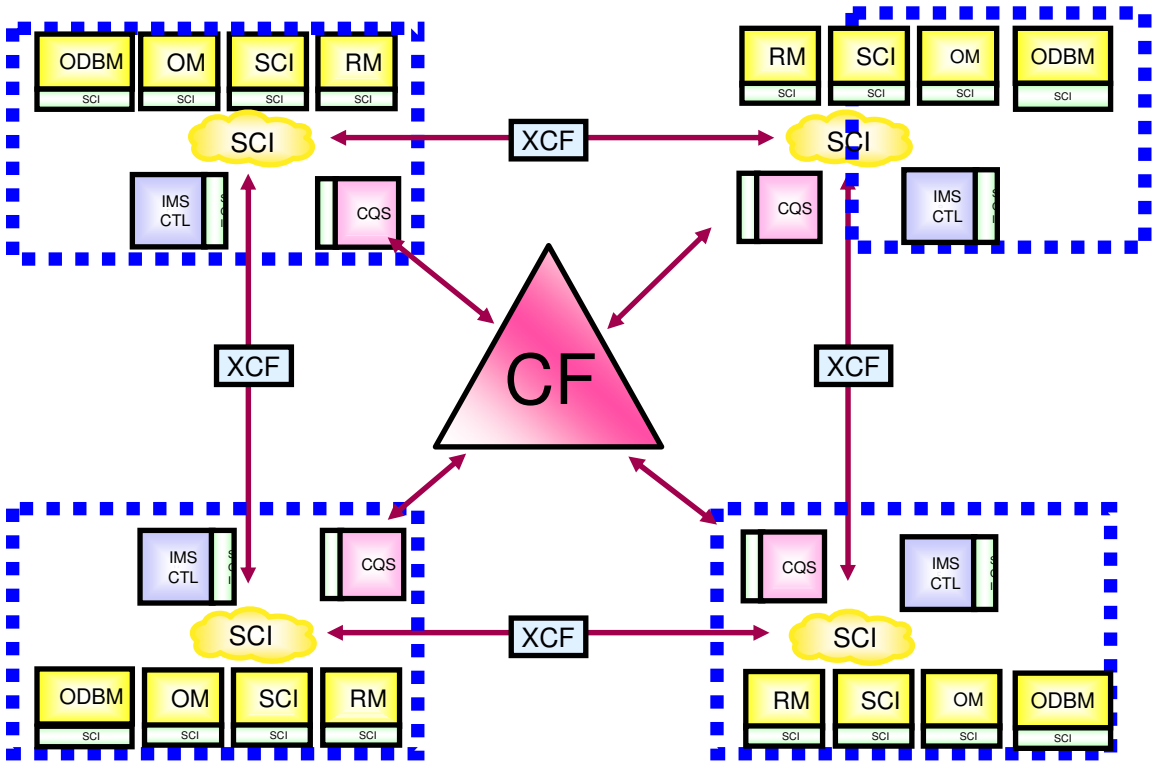
CSL Architecture (Address Spaces)



CSL Architecture (CF Structures)



IMSplex with Multiple IMS Systems Configuration



Resource List Structure
LOGR List Structures
Shared Queues List Structures
OSAM Cache Structure
VSAM Cache Structure
Shared VSO Cache Structures
IRLM Lock Structure
VGR List Structure

- 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

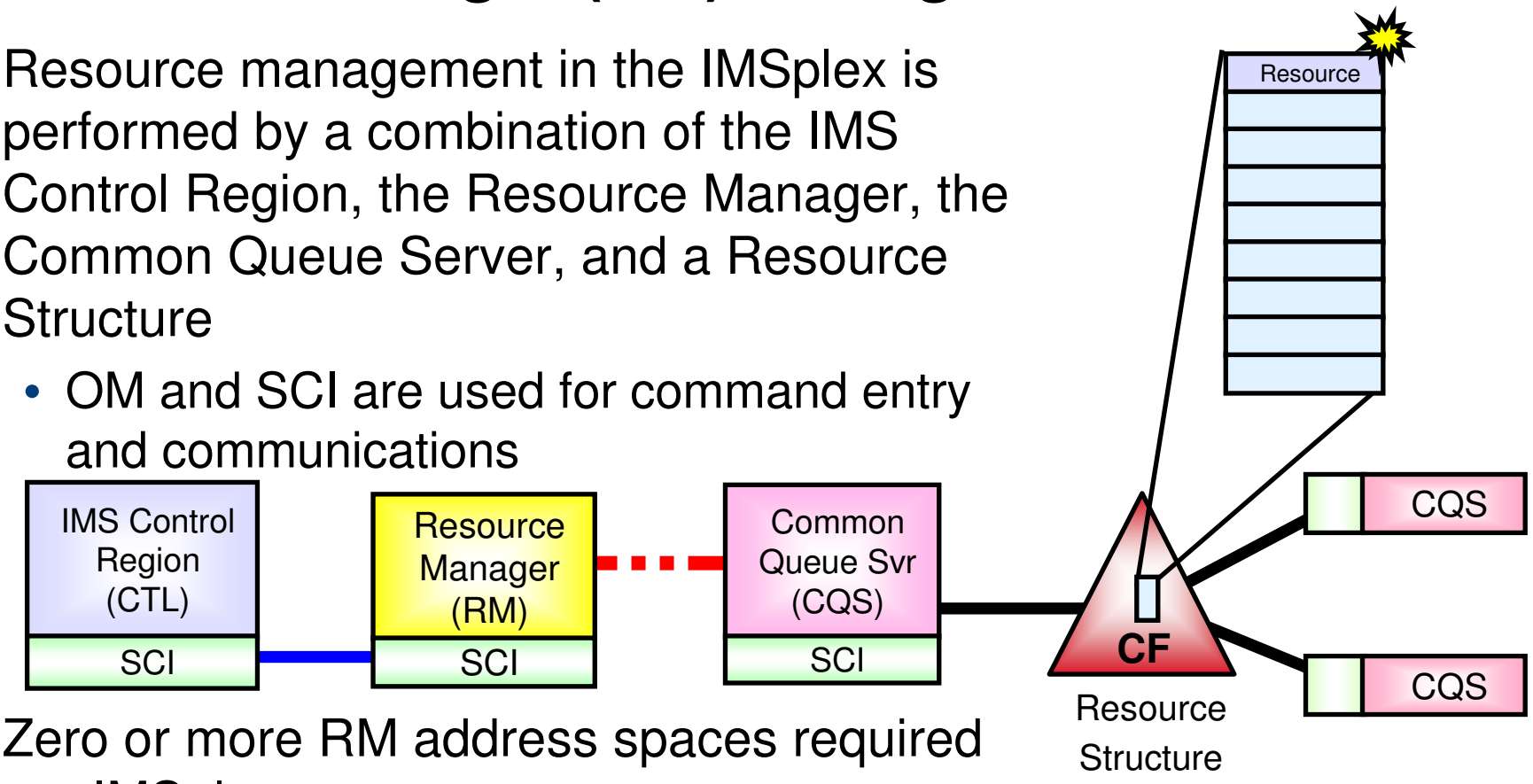
- Provides ‘single point of control’ for command entry into an IMSplex
  - Focal point for operations management and automation
- Provides the following services
  - Route commands to IMSplex members registered for the command
  - Consolidate command responses from individual IMSplex members into a single 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

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

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

OM (Operations Manager)

- 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)

- Database Quiesce

RM (Resource Manager)

- Database Quiesce

SCI (Structured Call Interface)

- Open Database

ODBM (Open Database Manager)

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

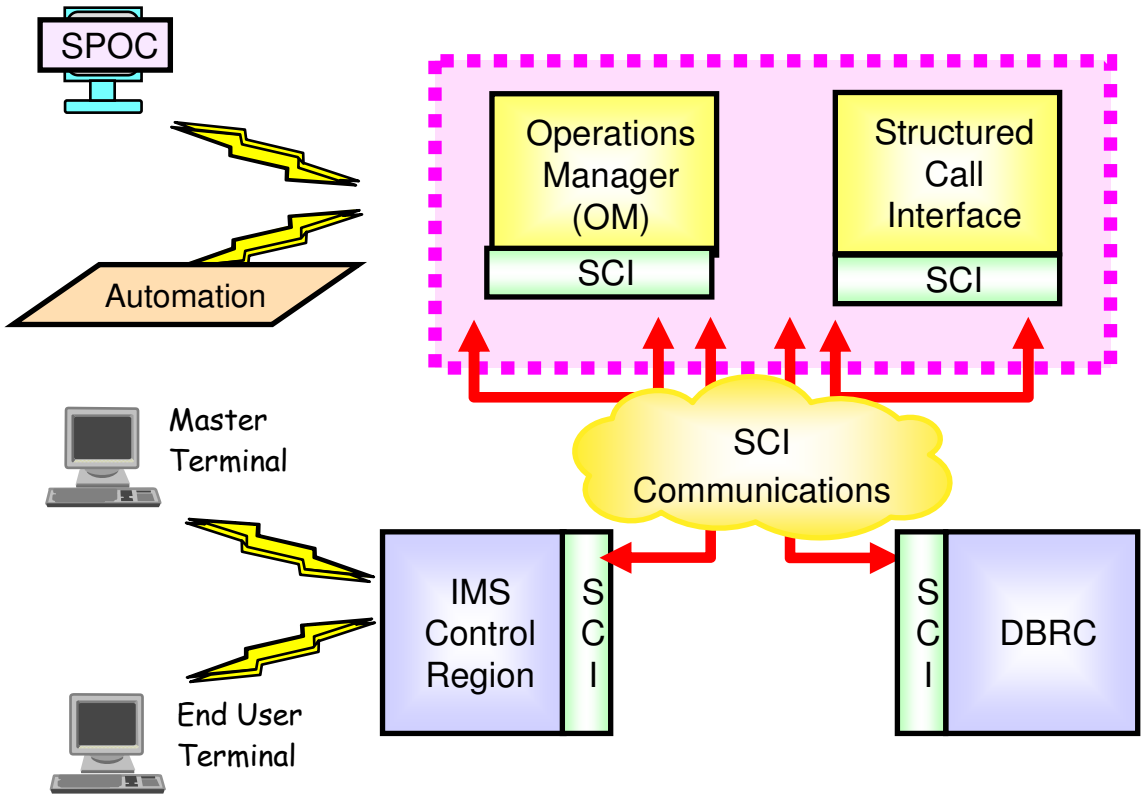
IMSplex Definition

- 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

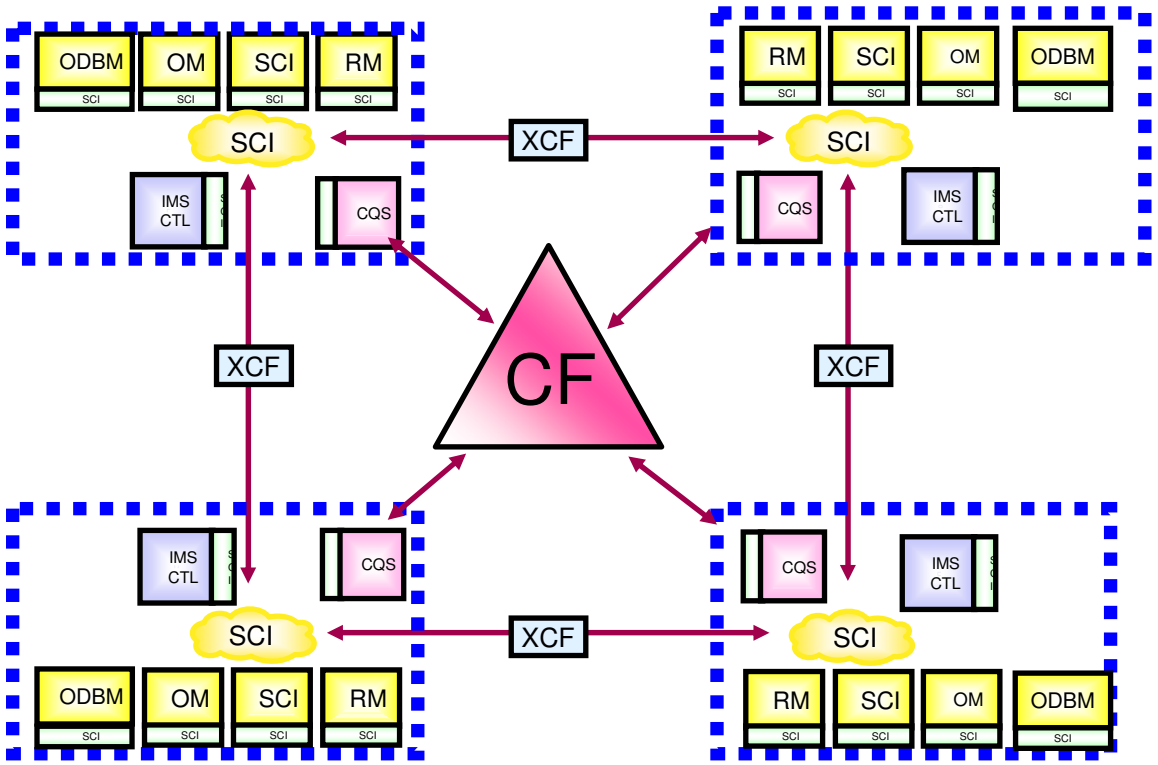
Single-IMS IMSplex Configuration



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

Multiple-IMS IMSplex Configuration



- Resource List Structure
- LOGR List Structures
- Shared Queues List Structures
- OSAM Cache Structure
- VSAM Cache Structure
- Shared VSO Cache Structures
- IRLM Lock Structure
- VGR List Structure

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 mulitple-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

```
//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,
//                  BPEINIT=CSLSINI0,                  <<< initialize for SCI
//                  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 (SCIid = 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=BPECONFG,                    <<< BPE configuration parms
                     BPEINIT=DSPBINI0,                   <<< BPE initialization member
//                   DBRCINIT=000,IMSID=IMS1,            <<< default DSPBIxxx member
//                   PARM1=                              << PROCLIB member overrides
//DBRCPROC         EXEC      PGM=BPEINI00,REGION=&RGN,
//                   PARM='BPECFG=&BPECFG,
//                   DBRCINIT=&DBRCINIT,                 <<< initialize for DBRC
//                   &IMSID=&IMSID,PARM1=,
                     DBRCGRP=001,IMSPLEX=PLEX0           <<< Use DBRC SCI registration
//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

```
<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

IMS 10 Features	SCI	OM	RM	RM structure /CQS	ODBM	DBRC SCI	IMS TM	DBCTL
DRD	X	X					X	X
OM Audit Trail	X	X					X	X
Batch SPOC	X	X					X	X
Type-2 Commands	X	X					X	X
ACBLIB Member OLC	X	X					X	X
SSPM(shared queues)	NA							
Global Status	NA							
PRA	X					X	X	X

Single-IMS IMSplex – IMS 11 Functions

IMS 11 Features	SCI	OM	RM	RM structure /CQS	ODBM	DBRC SCI	IMS TM	DBCTL
Database Quiesce	X	X				X	X	X
Type-2 Command Enhance-ments	X	X					X	X
New User Exits	X	X					X	
Open Database	X	X			X		X	X

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

IMS 10 Features	SCI	OM	RM	RM structure /CQS	ODBM	DBRC SCI	IMS TM	DBCTL
DRD	X	X					X	X
OM Audit Trail	X	X					X	X
Batch SPOC	X	X					X	X
Type-2 Commands	X	X					X	X
ACBLIB Member OLC	X	X					X	X
SSPM(shared queues)	NA							
Global Status	NA							
PRA	X					X	X	X

Multiple-IMS IMSplex w/o RM – IMS 11 Functions

IMS 11 Features	SCI	OM	RM	RM structure /CQS	ODBM	DBRC SCI	IMS TM	DBCTL
Database Quiesce								
Type-2 Command Enhance-ments	X	X					X	X
New User Exits	X	X					X	
Open Database	X	X			X		X	X

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

IMS 10 Features	SCI	OM	RM	RM structure /CQS	ODBM	DBRC SCI	IMS TM	DBCTL
DRD	X	X					X	X
OM Audit Trail	X	X					X	X
Batch SPOC	X	X					X	X
Type-2 Commands	X	X					X	X
ACBLIB Member OLC	X	X	O/R	R w/RM			X	X
SSPM(shared queues)	X		X	X			X	
Global Status	X	X	X	X			X	X
PRA	X					X	X	X

Multiple-IMS IMSplex with RM – IMS 11 Functions

IMS 11 Features	SCI	OM	RM	RM structure/ CQS	ODBM	DBRC SCI	IMS TM	DBCTL
Database Quiesce	X	X	X	O		X	X	X
Type-2 Command Enhance-ments	X	X					X	X
New User Exits	X	X					X	
Open Database	X	X			X		X	X

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.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

Code	Meaning
0	The utility completed successfully.
4	Warning messages were issued. Check the output file.
8	A problem was encountered. Check the output file. One or more IMS operator commands failed. Rerun the utility with commands as needed.

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


```
 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

```
<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(            <<< Resource Structure
      STRNAME=RSRCSTR1))        <<<   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

```
<SECTION=COMMON SERVICE LAYER>
IMSPLEX=PLX0                    <<<  IMSplex name = CSLPLX0.
                                     IMSplex XCF group name.
                                     Name must be same for all CSL address spaces
PLEXPARM=(GSTSDB=N | Y,         <<<  Global status for databases is maintained in RM
          GSTSAREA=N | Y,       <<<  Global status for areas is mainted in RM
          GSTSTRAN=N | Y)       <<<  Global status for transactions 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,                <<< IMSplex Name = CSLPLX0
      RSRCSTRUCTURE(            <<< Resource Structure
      STRNAME=RSRCSTR1))        <<<   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

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
```

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      <<<  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      <<<  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

```
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

```
<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.
                               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 ODBM Initialization PROCLIB member - CSLDIxxx

```
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?
```

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,      <<< Name of this IMS Connect within the IMSPlex
        TMEMBER=PLX0)      <<< 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,                    <<< BPE configuration parms
//                      SCIINIT=001,                       <<< default CSLSIxxx member
//                      PARM1=                             << PROCLIB member overrides
//SCIPROC  EXEC     PGM=BPEINI00,REGION=&RGN,
//                      PARM='BPECFG=&BPECFG,
//                      BPEINIT=CSLSINI0,                  <<< initialize for SCI
//                      SCIINIT=&SCIINIT,&PARM1'           <<< SCI PROCLIB member
//STEPLIB             DD        DSN=&RESLIB,DISP=SHR
//    ..
```

SCI Initialization PROCLIB member – CSLSIxxx

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'             <<< OM PROCLIB member
//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.TRANABLE       <<< Command syntax translation table
```

RM PROC – Sample JCL for RM instance

```
//RM1  PROC          RGN=0,SOUT=A, RESLIB='IMS.SDFSRESL',
//                     BPECFG=BPEPLX0,                    <<< BPE configuration parms
//                     RMINIT=001,                        <<< default CSLRIxxx member
//                     PARM1=                             <<< PROCLIB member overrides
//RMPROC  EXEC       PGM=BPEINI00,REGION=&RGN,
//                     PARM='BPECFG=&BPECFG,
//                     BPEINIT=CSLRINI0,                  <<< initialize for RM
//                     RMINIT=&RMINIT,&PARM1'             <<< 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,            <<< IMSplex Name = CSLPLX0
      RSRCSTRUCTURE(        <<< Resource Structure
      STRNAME=RSRCSTR1))    <<<   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 CSLDIxxx 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

ARMRST=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