Unit Objectives

After completing this unit, you should be able to:

• Describe CICS Processing
• Describe CICS Application Programming Interface (API)
• List 6 Programming Languages used write CICS Applications
• List 2 CICS Programming Techniques
• Describe CICS System Definition
• List 3 types of CICS Supplied Transactions
Typical mainframe workloads (Batch and Online)

- **Batch job**
  - Input Data
  - Process data to perform a particular task
  - Output Data

- **Online (real time) transaction**
  - Query
  - Access shared data on behalf of online user
  - Reply
z/OS Transaction System
What is CICS?

Customer Information Control System

Transaction Processor:
- Run online applications
- Many sessions with the same application(s)
- Manages the sharing of resources
- Maintains integrity of data
- Prioritization of execution, with fast response
CICS Architecture

CICS functions:
- Application programming
- Web services
- Web interfaces
- Java applications in CICS
- Network services
- Database services
- External interfaces
- Customization
- System management
- Performance and monitoring
- Security
- Recovery and restart
CICS Message Format (DFHCCnnnn)

where **CC** is a CICS subcomponent

- **AC** abnormal condition program component
- **AD** Development Deployment Tool messages
- **AI** auto-install terminal model manager (AITM)
- **AM** RDO allocation manager
- **AP** application domain
- **BA** business transaction services (BTS) domain
- **BR** Bridging to 3270 transactions
- **CA** RDO command utility routine
- **CC** catalog domain (local and global)
- **CE** sign on program component
- **CF** coupling facility data tables server
- **CP** CPI Communications component
- **CQ** CQ console messages
- **CR** ISC remote scheduler component
- **CZ** class libraries domain
- **DB** CICS database control component
- **DD** directory manager
- **DH** Document handler component
- **DM** domain manager domain
- **DP** debugging profile domain
- **DS** dispatcher domain
- **DU** dump domain
- **DX** database control component
- **EJ** Enterprise Java domain
- **EM** Event Manager domain
- **ER** user backout program
- **EX** external CICS interface
- **FC** file control component
- **FE** terminal test program component
- **IC** interval control program
- **IE** IP ECI domain
- **II** CORBA and IIOP domain
- **IN** indoubt testing tool
- **IR** interregion component
- **JC** online journal control component
- **KC** transaction/profile manager
- **KE** kernel domain
- **LD** loader domain
- **LG** logger domain
- **LM** lock manager domain
- **MC** BMS message control program component
- **ME** message domain
- **MN** monitor domain
- **MU** message editing utility program
- **MV** MVS™ RESMGR exit stub
- **NC** Named counter sequence number server
- **NQ** enqueue manager domain
CICS Message Format (DFHCCnnnn)

where **CC** is a CICS subcomponent

- **OT** Object Transaction Services domain
- **PA** parameter manager domain
- **PC** program control program component
- **PD** print dump exit routine DFHPDX
- **PG** program manager domain
- **PI** pipeline manager domain
- **PR** partner resource manager
- **PS** system spooler interface control component
- **RD** RDO allocation manager
- **RM** recovery manager
- **RP** ONC RPC
- **RS** communications resynchronization program
- **RT** ISC transaction routing component
- **RU** recovery utility program
- **RX** RRS-coordinated EXCI domain
- **RZ** Request Streams domain
- **SH** Scheduler domain
- **SI** system initialization component
- **SJ** Scaleable Java domain
- **SK** sub task control program component
- **SM** storage manager domain
- **SN** signon component
- **SO** Sockets domain
- **SR** system recovery component
- **ST** statistics domain
- **SZ** front end programming interface (FEPI)
- **TC** terminal control program component
- **TD** transient data component
- **TF** terminal facility manager
- **TI** timer domain
- **TM** system termination program component
- **TO** terminal object resolution program component
- **TP** BMS terminal page retrieval program component
- **TR** trace domain
- **TS** temporary storage domain
- **UP** measured usage license charging support macro
- **US** user domain
- **WB** Web Interface
- **XA** XRF alternate component
- **XC** XRF CICS availability manager
- **XG** XRF general component
- **XM** transaction manager
- **XO** XRF CICS availability manager
- **XS** shared temporary storage queue pool server
- **XR** security component
- **XQ** terminal control working set component
- **ZE** TCP error message writer component
- **ZN** syncpoint component
CICS transaction flow
CICS transaction flow (Cont…)
CICS transaction flow (Cont...)
CICS Application Programming

**Languages**
- COBOL
- Java
- C/C++
- REXX
- Assembler
- PL/I

**Application Program Interface (API)**

**EXEC CICS** ....

- Abend support
- APPC basic conversation
- APPC mapped conversation
- Authentication
- Batch data interchange
- BMS
- Built-in functions
- Business transaction services (BTS)
- Channel commands
- Console support
- Diagnostic services
- Document services
- Environment services
- Event processing
- Exception support
- File control services
- Interval control services
- Journaling
- Monitoring
- Named counter server
- Program control
- Scheduling services
- Security services
- Spool Interface (JES)
- Storage control
- Syncpoint
- Task control
- TCP/IP services
- Temporary storage control
- Terminal control
- Transient data
- Web support
- Web services
Typical CICS Business Application

- Web browser
- Credit card application
- Credit card processing
- Application records (VSAM)
- Terminal
- CICS runtime
- Mainframe
Typical CICS Business Application
CICS Programming Technique (Conversational)

User Types

| Menu | Enter account 1234 | Function code M |

User Types Changes

| Record Update | Enter account 1234 | Name: Smith | Amount: $10.00 | Date: 05/28/04 |

User Types

| Menu | Enter account | Function code | "Update confirmed" |
CICS Programming Technique (Pseudo-Conversational)
CICS vs. J2EE Model-View-Controller (MVC) organization

It's not that different

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<th>CICS</th>
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<td>Beans EJB's Services</td>
<td>Business processing and data I/O</td>
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<tr>
<td>Web Service</td>
<td>JCA or MQ</td>
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<tr>
<td>Quotes Database</td>
<td>Securities Master</td>
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<tr>
<td>Customer Accounts</td>
<td>Order File</td>
</tr>
</tbody>
</table>
Start CICS Address Space

**S CICSTS41,START=INITIAL**

- DFHPA1101  DFHSIT6$ IS BEING LOADED.
- DFHPA1103  END OF FILE ON SYSIN.
- DFHSM0113I Storage protection is not active.
- DFHDM0101I CICS is initializing.
- DFHW20100I Web2.0 domain initialization has started.
- DFHWB0109I Web domain initialization has started.
- DFHSO0100I Sockets domain initialization has started.
- DFHEJ0101 Enterprise Java domain initialization has started.
  
  Java is a trademark of Sun Microsystems, Inc.
- DFHDH0100I Document domain initialization has started.
- DFHXS1100I Security initialization has started.
- DFHSI1500 CICS startup is in progress for CICS Transaction
  Server Version 4.1.0
- DFHXS1102I Security is inactive.
- DFHWB0110I Web domain initialization has ended.
- DFHSI1502I CICS startup is Initial.
- DFHW20101I Web2.0 domain initialization has ended.
- DFHFC0100I File Control initialization has started.
- DFHTD0100I Transient Data initialization has started.
- DFHFC0101I File Control initialization has ended.
- DFHWB1007I Initializing CICS Web environment.
- DFHWB1008 CICS Web environment initialization is complete.
- DFHSI1517 Control is being given to CICS.
- DFHEJ0102 Enterprise Java domain initialization has ended.
CICS Activity Messages Logged in MSGUSR

SDSF STATUS DISPLAY
PREFIX=CICS* DEST=(ALL) OWNER=*  
NP      JOBNAME   JobID     Queue
?      CICSTS41   STC00807   EXECUTION

SDSF JOB DATA SET DISPLAY - JOB CICSTS41
PREFIX=CICS* DEST=(ALL) OWNER=*  
SYSNAME=  
NP        DDNAME    StepName
          JESMSGGLG   JES2
          JESJCL     JES2
          JESYSMSG   JES2
          SYSPRINT   CICSTS41
          SYSPRINT   CICSTS41
          DFHCXRF     CICSTS41
          MSGUSR     CICSTS41
          CEEMSG     CICSTS41
          CEEOUT     CICSTS41
          COUT       CICSTS41
          CRPO       CICSTS41
CICS Resource Definitions Administration

CICS System Definition
CICS 3270 Access

Choose from the following commands:
(Not all applications are available in every system.)

TSO   - Logon TSO (24x80)
IMS   - Logon IMS
CICS  - Logon CICS TS 4.1
CICS32 - Logon CICS TS 3.2

cics_
CICS 3270 Signon Screen – Authentication Disabled
CICS 3270 Access – CICS Supplied Operator Transaction
# CICS 3270 Access – CICS Supplied Operator Transaction

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<th>INTtrace</th>
<th>PROCesstype</th>
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<td>JMModel</td>
<td>Rrequestmodel</td>
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<td>ENQ</td>
<td>JOURNALname</td>
<td>RRms</td>
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<td>ENQModel</td>
<td>JVM</td>
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<td>EVENTBinding</td>
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<td>EVENTProcess</td>
<td>JVMServer</td>
<td>SYDumpcode</td>
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<td>LIBRARY</td>
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<td>CONNection</td>
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<td>DB2Conn</td>
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<tr>
<td>DB2Entry</td>
<td>FEPoPset</td>
<td>MQConn</td>
<td>TCPIPService</td>
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<td>DB2Tran</td>
<td>FETraget</td>
<td>MQIni</td>
<td>TDqueue</td>
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<tr>
<td>DEleteshipped</td>
<td>File</td>
<td>Netname</td>
<td>TErninal</td>
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<td>Dispatcher</td>
<td>Gtftrace</td>
<td>PArnter</td>
<td>TRansection</td>
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<tr>
<td>DJar</td>
<td>Host</td>
<td>PIPEline</td>
<td>TRDumpcode</td>
<td></td>
</tr>
</tbody>
</table>

**SYSID=S660 APPLID=CICSTS41**

**PF 1 HELP 3 END 5 VAR 9 MSG**
CICS Supplied Transactions

CEMT (*Operations*)

CEDF (*Program Debug*)

CEDA (*Administration*)
CEDB
CEDC

Many supplied CICS transactions exist for administration and operation

All supplied CICS transactions begin with C

Manual dedicated to CICS Supplied Transactions
CICS Professional Manuals and Documentation
Unit summary

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