## CA Gen 8.6 Support of ECI v2: Customer Training Webinar

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#### ECI v2 Training Agenda

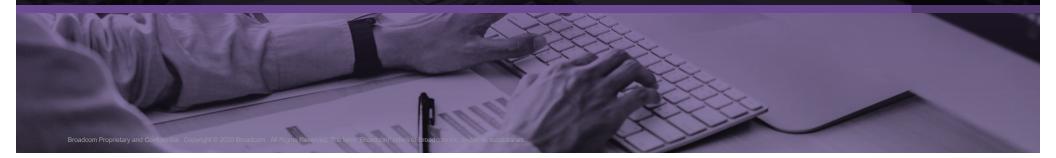
- Overview
- Configuration
- Usage
- Additional Information
- Questions



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# ECI v2 Training

Overview



#### What is ECI?

- External Call Interface (ECI) is an API provided by IBM that provides client applications access to CICS programs
- Provided with IBM's CICS Transaction Gateway (CTG)
- One of the middleware options provided by CA Gen for many years to allow Gen clients to access Gen COBOL servers on CICS
- Client applications must reside on same machine as CTG
- Uses the DFHCOMMAREA to send data to/from CICS programs
  - Data size limited to 32 KB
- Now referred to as ECI v1

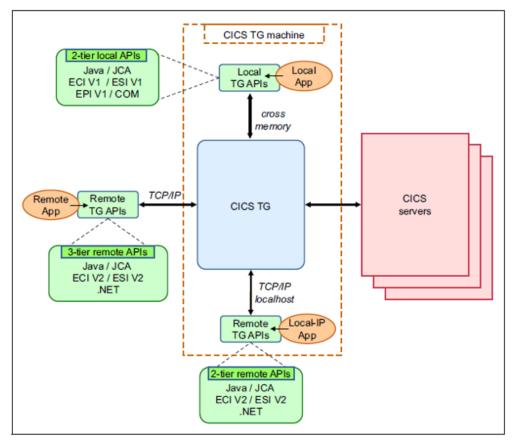


#### What is ECI v2?

- ECI v2 is a newer API provided by IBM that provides client applications access to CICS programs
- Provided with IBM's CICS Transaction Gateway (CTG)
- · Allows client applications to reside on different machine than CTG
  - Smaller client footprint
  - CTG configuration and administration can be centralized
- · Can now use Channels/Containers to send data to/from CICS
  - Data size limited to 16 MB
  - Requires use of the IPIC network protocol
- Can still use DFHCOMMAREA to send data to/from CICS
  - Data size limited to 32 KB



#### **CICS Transaction Gateway Deployment Models**



#### Source: IBM CICS Transaction Gateway Volume 1 Configuration and Administration



#### What's in (and not in) the CA Gen 8.6 ECI v2 Enhancement?

- · CA Gen C clients only
  - GUI clients
  - COM Proxy clients
  - C Proxy clients
- Did not change runtimes for Java clients or for Communications Bridge
- Still support ECI v1 flows for backward compatibility
- Added support for ECI v2 flows
  - DFHCOMMAREA
  - Containers
- · Server-to-Server flows still limited to a data size of 32 KB
  - ECI is not used for Server-to-Server flows



#### Supported ECI Flow Types for CA Gen C Clients

| Flow Type | Data<br>Encapsulation<br>Type | Data<br>Size<br>Limit | Network<br>Protocol | Reason why someone might choose<br>this option                           |
|-----------|-------------------------------|-----------------------|---------------------|--|
| ECI v1    | COMMAREA                      | 32 KB                 | ECI over TCP/IP     | Backward compatibility   |
| ECI v2    | COMMAREA                      | 32 KB                 | ECI over TCP/IP     | CTG remote application support, but don't have IPIC configured           |
| ECI v2    | COMMAREA                      | 32 KB                 | IPIC                | CTG remote application support, IPIC benefits, but don't need Containers |
| ECI v2    | CONTAINER                     | 16 MB                 | IPIC                | CTG remote application support, IPIC benefits and >32 KB                 |



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# ECI v2 Training

Configuration



#### Configuration

#### CICS Resources

- TCPIPService
- IPCONN
  - Required if using IPIC
  - · Can be predefined or autoinstalled
- CICS Transaction Gateway (CTG)
  - CICS Transaction Gateway Configuration Tool
  - Edit ctg.ini file



#### **CEDA DEF TCPIPS**

| DEF TCPIPS     |                |                     |                     |
|----------------|----------------|---------------------|---------------------|
| OVERTYPE TO MC | NTEV           |                     | CICS RELEASE = 0720 |
|                |                |                     | CICS KELEASE - 0720 |
|                | TCpipservice(  |                     |                     |
| TCpipservice   | ; ==>          |                     |                     |
| GROup          |                |                     |                     |
| DEScription    | ==>            |                     |                     |
| Urm            | ==>            |                     |                     |
| POrtnumber     | ==> 00000      | 1-65535             |                     |
| STatus         | ==> Open       | Open   Closed       |                     |
| PROtocol       | ==>            | Http   Eci   User   | IPic                |
| TRansaction    | ==>            |                     |                     |
| Backlog        | ==> 00000      | 0-32767             |                     |
| TSqprefix      |                |                     |                     |
| Host           | ==>            |                     |                     |
| (Mixed Case)   | ==>            |                     |                     |
| Ipaddress      | ==>            |                     |                     |
| SPeciftcps     | ==>            |                     |                     |
| SOcketclose    | ==> <u>N</u> 0 | No   0-240000 (HHMM | SS)                 |
| MAXPersist     | ==> <u>N</u> 0 | No   0-65535        |                     |
| + MAXDatalen   | ==>            | 3-524288            |                     |



#### **CEDA DEF IPCONN**

| DEF IPCONN<br>OVERTYPE TO MODIFY |              | CICS | RELEASE = ( | )72( |
|----------------------------------|--------------|------|-------------|------|
| CEDA DEFine Ipconn(              |              |      |             |      |
| Ipconn ==>                       |              |      |             |      |
| Group ==>                        |              |      |             |      |
| DEScription ==>                  |              |      |             |      |
| IPIC CONNECTION IDENTIFIERS      |              |      |             |      |
| APplid ==>                       |              |      |             |      |
| Networkid ==>                    |              |      |             |      |
| HOst ==>                         |              |      |             |      |
| (Mixed Case) ==>                 |              |      |             |      |
| Port ==> No                      | No   1-65535 |      |             |      |
| Tcpipservice ==>                 |              |      |             |      |
| HA ==> No                        | No   Yes     |      |             |      |
| IPIC CONNECTION PROPERTIES       |              |      |             |      |
| Receivecount ==> 001             | 1-999        |      |             |      |
| SENdcount ==> 000                | 0-999        |      |             |      |
| Queuelimit ==> No                | No   0-9999  |      |             |      |
| MAxqtime ==> No                  | No   0-9999  |      |             |      |
| + OPERATIONAL PROPERTIES         |              |      |             |      |
|                                  |              |      |             |      |



#### **TCP/IP Protocol Handler for Gateway Daemon**

| IBM CICS Transaction Gateway Configuration Tool |                              |  |
|---|------------------------------|--|
| File Edit Options Settings Help                 |                              |  |
| 12 🖆 🎽 🖟 🖬 🔊 🎾 🛍 🖄 🖄                            |                              |  |
| CICS Transaction Gateway                        | TCP/IP protocol handler      |  |
| Gateway daemon                                  |                              | Enable protocol handler                      |
|   | Bind address                 |  |
| - SSL   | Port                         | 2006   |
| нттр  | Connection timeout (ms)      | 2000   |
| HTTPS   | Idle timeout (ms)            | 600000                                       |
| Statistics API                                  | Ping frequency interval (ms) | 60000  |
| En Sector                                       |                              | Drop working connections                     |
| 🖃 🛆 🖉 Workload Manager                          | SO_LINGER setting            | 0  |
| Server Groups                                   |                              | Require Java Clients to use security classes |
| Programs  |                              |  |
| CICS Servers                                    |                              |  |
| GQA3IPIC (IPIC)                                 |                              |  |
| SQA3IPIC (IPIC)                                 |                              |  |
| GQA2IPIC (IPIC)                                 |                              |  |
| GQA1IPIC (IPIC)                                 |                              |  |
| SQA4IPIC (IPIC)                                 |                              |  |
| SQAZIPIC (IPIC)                                 |                              |  |
| JQAZTCP (TCP/IP)     JQAZTCP (TCP/IP)           |                              |  |
| - J GQA2ICP (ICP/IP)<br>- J SQA1IPIC (IPIC)     |                              |  |
| - J SQA IIPIC (IPIC)                            |                              |  |
| GQA3TCP (TCP/IP)                                |                              |  |
| GQASICP (TCP/IP)                                |                              |  |
| GQATCP (TCP/IP)                                 |                              |  |
| GQA4IPIC (ICI/II')                              |                              |  |
| REGITCP (TCP/IP)                                |                              |  |
| REGIPIC (IPIC)                                  |                              |  |
| Web services                                    |                              |  |
| w messel  |                              |  |



#### **Configure CICS Servers – TCP/IP**

| IBM CICS Transaction Gateway    | -                         |                              |
|---------------------------------|---------------------------|------------------------------|
| File Edit Options Settings Help | ما المعالية من المحمل     |                              |
| 1 🖌 📩 🔏 🛍 🔊                     | 🎾 🛍 🔄 🌌 🋍                 |                              |
| CICS Transaction Gateway        | Server connection         |                              |
| 🖃 🚺 Gateway daemon              | Server name REG1TCF       | 2                            |
|                                 | Description CICS Reg      | gion using TCP/IP            |
| - 🖓 SSL                         | Network protocol TCP/IP   | $\sim$                       |
|                                 | TCP/IP settings           |                              |
| НТТР5                           | Initial transaction       |                              |
| Statistics API                  | Model terminal definition |                              |
| 🖃 🔊 Client daemon               | Host name or IP address   | CTGhost.mycorp.com           |
| 🖃 🖉 Workload Manager            | Port                      | 33333                        |
| Server Groups                   | Connection timeout (sec)  | 0                            |
| Programs                        |                           |                              |
| CICS Servers                    | Server idle timeout (min) |                              |
| GQA3IPIC (IPIC)                 |                           | Send TCP/IP KeepAlive packet |
| SQA3IPIC (IPIC)                 |                           | Use uppercase security       |
| GQA2IPIC (IPIC)                 |                           |                              |
| GQA1IPIC (IPIC)                 |                           |                              |
| SQA4IPIC (IPIC)                 |                           |                              |
| SQA2IPIC (IPIC)                 |                           |                              |
| SQA2TCP (TCP/IP)                |                           |                              |
| GQA2TCP (TCP/IP)                |                           |                              |
| SQA1IPIC (IPIC)                 |                           |                              |
| FRED (IPIC)                     |                           |                              |
| GQA3TCP (TCP/IP)                |                           |                              |
| GQA1TCP (TCP/IP)                |                           |                              |
| GQA4TCP (TCP/IP)                |                           |                              |
| GQA4IPIC (IPIC)                 |                           |                              |
| REGITCP (TCP/IP)                |                           |                              |
| REG 11PIC (IPIC)                |                           |                              |
| Web services                    |                           |                              |

| CEDA DEFine TCpipservice( MYTCPS1 ) |                           |                               |  |  |  |  |
|-------------------------------------|---------------------------|-------------------------------|--|--|--|--|
| TCpipservice                        | TCpipservice ==> MYTCPS01 |                               |  |  |  |  |
| GROup                               | ==> MYGROU                | IP                            |  |  |  |  |
| DEScription                         | ==> TCPIP                 | SERVICE USING ECI OVER TCP/IP |  |  |  |  |
| Urm                                 | ==>                       |                               |  |  |  |  |
| POrtnumber                          | ==> 33333                 | 1-65535                       |  |  |  |  |
| STatus                              | ==> Open                  | Open   Closed                 |  |  |  |  |
| PROtocol                            | ==> Eci                   | Http   Eci   User   IPic      |  |  |  |  |



#### **Configure CICS Servers – IPIC**

| BM CICS Transaction Gateway Configuration Tool |                                      |                               |               |  |  |  |
|--|--------------------------------------|-------------------------------|---------------|--|--|--|
| File Edit Options Settings Help                |                                      |                               |               |  |  |  |
| 12 🖆 🛬 🖟 🛍 🗯 🗯 🌋 12                            |                                      |                               |               |  |  |  |
| CICS Transaction Gateway     Server connection |                                      |                               |               |  |  |  |
| Gateway daemon                                 | Server name REG1IPIC                 |                               |               |  |  |  |
| TCP/IP   | Description CICS Region              | n using IPIC                  |               |  |  |  |
| - 🛒 SSL  | Network protocol $$ IPIC $$ $$ $$ $$ |                               |               |  |  |  |
| 🕅 нттр   | IPIC Settings                        |                               |               |  |  |  |
| - 🖓 HTTPS                                      | Host name or IP address              | CTGhost.mycorp.com            |               |  |  |  |
| Statistics API                                 | Port                                 | 44444                         |               |  |  |  |
| 🖃 🔊 Client daemon                              |                                      |                               |               |  |  |  |
| 🖨 🖉 Workload Manager                           | Send sessions                        | 100                           |               |  |  |  |
| Server Groups                                  | Target APPLID                        |                               |               |  |  |  |
| Programs                                       | Target APPLID qualifier              |                               |               |  |  |  |
| E- CICS Servers                                | Connection timeout (sec)             | 0                             |               |  |  |  |
| GQA3IPIC (IPIC)                                | Server retry interval (sec)          | 60                            |               |  |  |  |
| SQA3IPIC (IPIC)                                | Server idle timeout (min)            | 0                             |               |  |  |  |
| GQA2IPIC (IPIC)                                | Heartbeat Interval (sec)             | 30                            |               |  |  |  |
| GQA1IPIC (IPIC)                                |                                      | Send TCP/IP KeepAlive packets |               |  |  |  |
| SQA4IPIC (IPIC)                                | ECI timeout (sec)                    | 0                             |               |  |  |  |
| — 💭 SQA2IPIC (IPIC)                            |                                      | Use SSL                       |               |  |  |  |
| SQA2TCP (TCP/IP)                               | Use only these cipher suites         |                               | Add           |  |  |  |
| GQA2TCP (TCP/IP)                               |                                      |                               | Remove        |  |  |  |
| SQA1IPIC (IPIC)                                |                                      |                               | remove        |  |  |  |
| - 💭 FRED (IPIC)                                |                                      |                               |               |  |  |  |
| GQA3TCP (TCP/IP)                               |                                      |                               |               |  |  |  |
| GQA1TCP (TCP/IP)                               |                                      |                               |               |  |  |  |
| GQA4TCP (TCP/IP)                               |                                      |                               |               |  |  |  |
| GQA4IPIC (IPIC)                                |                                      |                               | ~             |  |  |  |
| REG1TCP (TCP/IP)                               | SSL settings                         |                               |               |  |  |  |
| REG1IPIC (IPIC)                                | Key ring file                        |                               | Edit key ring |  |  |  |
| Web services                                   | Key ring password                    |                               |               |  |  |  |

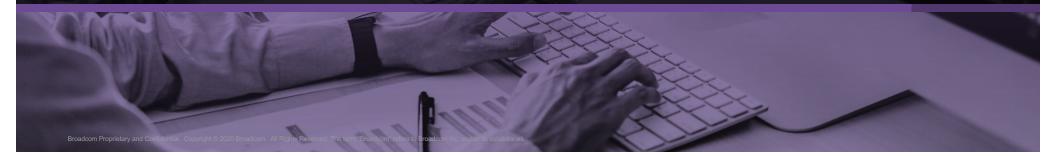
| CEDA DEFine  | TCpipservice(MYTCPS02  | )                        |
|--------------|------------------------|--------------------------|
| TCpipservice | ==> MYTCPS02           |                          |
| GROup        | ==> MYGROUP            |                          |
| DEScription  | ==> TCPIP SERVICE USIN | IG IPIC                  |
| Urm          | ==> DFHISAIP           |                          |
| POrtnumber   | ==> 44444              | 1-65535                  |
| STatus       | ==> Open               | Open   Closed            |
| PROtocol     | ==> IPic               | Http   Eci   User   IPic |





# ECI v2 Training

Usage



#### **PTFs Required for CA Gen 8.6 ECI v2 Enhancement**

- PTF for Windows
  - RTN86206
    - https://support.broadcom.com/download-center/solution-detail.html?aparNo=SS12686&os=WINDOWS
- PTFs for z/OS
  - SO12045
    - https://support.broadcom.com/download-center/solution-detail.html?aparNo=SO12045&os=z%2FOS
  - SO12046
    - <u>https://support.broadcom.com/download-center/solution-detail.html?aparNo=SO12046&os=z%2FOS</u>

NOTE: Code regeneration is not required



#### Modify COMMCFG.INI File

CA Gen uses the COMMCFG.INI file to specify which communication type a client will use to process the cooperative flow to a target server

For ECI two formats will be supported:

<TRANCODE> ECI {ECI System Name} (for backward compatibility) for example, \* ECI REG1TCP

#### <TRANCODE> ECI <Storage Type> {Host} {Port} {ECI System Name}

for example, \* ECI **COMMAREA** CTGhost.mycorp.com 2006 REG1TCP or \* ECI **COMMAREA** CTGhost.mycorp.com 2006 REG1IPIC or \* ECI **CONTAINER** CTGhost.mycorp.com 2006 REG1IPIC



#### CA Gen ECI DLLs

| Flow Type | Cooperative Flow<br>Runtime DLL | User Exit DLL | User Exit Source | User Exit<br>Makefile |
|-----------|---------------------------------|---------------|------------------|-----------------------|
| ECI v1    | ECICFN.DLL                      | ECICXN.DLL    | CIECICLX.C       | CECIEXIT.NT           |
| ECI v2    | ECIV2CFN.DLL                    | ECIV2CXN.DLL  | CIECIV2X.C       | CECIV2EX.NT           |

**NOTE:** CTG remote application support for ECI v2 requires IBM's CTGCLIENT.DLL to be deployed with the client application.



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## ECI v2 Training

Additional Information



#### **Additional Information**

- ECI v2 Overview
  - https://knowledge.broadcom.com/external/article?articleId=189046
- Troubleshooting and Common Errors
  - https://knowledge.broadcom.com/external/article?articleId=188849
- CTG Online Documentation
  - https://www.ibm.com/support/knowledgecenter/SSZHFX 9.2.0/welcome.html



### 

# ECI v2 Training

Questions



## **BROADCOM**°

# Thank You