# Client and Server Examples for z/VSE CICS

This chapter describes the examples provided for the COBOL Wrapper for z/VSE CICS. All examples here can be found in the EntireX directory *examples/RPC* under UNIX and Windows. Alternatively, you can download the full set of z/VSE COBOL examples from Software AG's customer service site Empower. In Empower, choose **Products** > **Download Components**. The examples are provided as AWS tape `EXAMPLE.AWS`. The tape contains source code and the corresponding objects and phases, ready to run. This chapter describes the following examples:

- Basic RPC CALC Example
- Basic RPC SQUARE Example
- Reliable RPC SENDMAIL Example

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# Basic RPC CALC Example

- CALC Client using Call Interface (CALCCLT)
- CALC Client using DFHACOMMAREA (CALC1CLT)
- CALC Server (CALC)

## CALC Client using Call Interface (CALCCLT)

The `CALC` CICS client example `CALCCLT` is implemented with interface type "CICS with standard linkage calling convention". See *Client Interface Types* for more information.

| Name | Type | Sublibrary | Description | Notes |
|---|---|---|---|---|
| README1.TXT | Text file | EXAMPLE.COBCLTC | Client build instructions and description. | |
| CALCCLT.C | COBOL source code | EXAMPLE.COBCLTC | An RPC client application calling the remote procedure (RPC service) CALC. | 1 |
| CALC.C | COBOL source code | EXAMPLE.COBCLTC | Client interface object for IDL program CALC. | 2 |
| CALC.C | COBOL copybook | EXAMPLE.COBCPYC | Client interface object copybook for IDL program CALC. | 2 |
| ERXCOMM.C | COBOL copybook | EXAMPLE.COBCPY | RPC Communication Area copybook. | 2 |
| COBSRVID.C | COBOL source code | EXAMPLE.COBCLTC | Generic RPC Service. | 2 |
| CALCMAP.A | CICS map | EXAMPLE.COBCLTC | CICS map for RPC client CALCCLT. | |
| CALCMAP.C | COBOL copybook | EXAMPLE.COBCPYC | Generated CICS Map COBOL Definitions. | 3 |
| CALCLT.J | JCL | EXAMPLE.COBCLTC | Job control to build the RPC client CALCCLT. | 4 |
| CALCDFH.J | JCL | EXAMPLE.COBCLTC | CICS CSD definitions job control for RPC client CALCCLT. | |

**Notes:**

1. Built according to the client-side build instructions, see *Using the COBOL Wrapper for CICS with Call Interfaces (z/OS and z/VSE)*.
2. Generate these objects with the EntireX Workbench or use the example library contained in EXAMPLE.AWS.
3. Generated from CALCMAP.A during execution of CALCCLT.J.
4. Adapt the JCL to your needs.

For more information, refer to the README1.TXT file in EntireX directory *examples/RPC/basic/example/CobolClient/vseCICS/Callinterface* under UNIX or Windows, or the downloaded example sublibrary EXAMPLE.COBCLTC.

## CALC Client using DFHACOMMAREA (CALC1CLT)

The CALC CICS client example CALC1CLT is implemented with interface type "CICS with DFHCOMMAREA calling convention". See *Client Interface Types* for more information.

| Name | Type | Sublibrary | Description | Notes |
|---|---|---|---|---|
| README3.TXT | Text file | EXAMPLE.COBCLTC | Client build instructions and description. | |
| CALC1CLT.C | COBOL source code | EXAMPLE.COBCLTC | An RPC client application calling the remote procedure (RPC service) CALC. | 1 |
| CALC1.C | COBOL source code | EXAMPLE.COBCLTC | Client interface object for IDL program CALC. | 2 |
| CALC1.C | COBOL copybook | EXAMPLE.COBCPYC | Client interface object copybook for IDL program CALC. | 2 |
| ERXCOMM.C | COBOL copybook | EXAMPLE.COBCPY | RPC Communication Area copybook. | 2,5 |
| COBSRVIC.C | COBOL source code | EXAMPLE.COBCLTC | Generic RPC Service. | 2 |
| CALC1MAP.A | CICS map | EXAMPLE.COBCLTC | CICS map for RPC client CALC1CLT. | |
| CALC1MAP.C | COBOL copybook | EXAMPLE.COBCPYC | Generated CICS Map COBOL Definitions. | 3 |
| CALC1CLT.J | JCL | EXAMPLE.COBCLTC | Job control to build the RPC client CALC1CLT. | 4 |
| CALC1DFH.J | JCL | EXAMPLE.COBCLTC | CICS CSD definitions job control for RPC client CALC1CLT. | |

**Notes:**

1. Built according to the client-side build instructions, see *Using the COBOL Wrapper for CICS with DFHCOMMAREA Calling Convention (z/OS and z/VSE)*.
2. Generate these objects with the EntireX Workbench or use the example library contained in EXAMPLE.AWS.
3. Generated from CALC1MAP.A during execution of CALC1CLT.J.
4. Adapt the JCL to your needs.
5. Built as COBSRVI.PHASE by CALC1CLT.J.

For more information, refer to the README3.TXT file in EntireX directory *examples/RPC/basic/example/CobolClient/vseCICS/Callinterface* under UNIX or Windows, or the downloaded example sublibrary EXAMPLE.COBCLTC.

## CALC Server (CALC)

The CALC CICS server example is built with COBOL Wrapper interface type "CICS with DFHCOMMAREA calling convention". See *Server Interface Types* for more information.

| Name | Type | Data Set | Description | Notes |
|---|---|---|---|---|
| README1.TXT | Text file | EXAMPLE.COBSRVC | CALC server build instructions and description. | |
| CALC.C | COBOL source code | EXAMPLE.COBSRVC | A server application providing the remote procedure CALC (RPC service), with associated example.idl. | 1 |
| CALC.J | JCL | EXAMPLE.COBSRVC | Job control to build the remote procedure CALC (RPC service). | 2 |
| CALCDFH.J | JCL | EXAMPLE.COBSRVC | CICS CSD definitions job control for remote procedure CALC (RPC service). | |

**Notes:**

1. Application built according to the server-side build instructions, see *Using the COBOL Wrapper for CICS with DFHCOMMAREA Calling Convention (z/OS and z/VSE)*.
2. Adapt the JCL to your needs.

For more information, refer to the README1.TXT file in EntireX directory *examples/RPC/basic/example/CobolServer/vseCICS* under UNIX or Windows, or the downloaded example sublibrary EXAMPLE.COBSRVC.

# Basic RPC SQUARE Example

- SQUARE Client using Call Interface (SQRECLT)
- SQUARE Client using DFHACOMMAREA (SQRE1CLT)
- SQUARE Server (SQUARE)

## SQUARE Client using Call Interface (SQRECLT)

The SQUARE CICS client example SQRECLT is implemented with interface type "CICS with standard linkage calling convention". See *Client Interface Types* for more information.

| Name | Type | Sublibrary | Description | Notes |
|---|---|---|---|---|
| README1.TXT | Text file | EXAMPLE.COBCLTC | Client build instructions and description. | |
| SQRECLT.C | COBOL source code | EXAMPLE.COBCLTC | An RPC client application calling the remote procedure (RPC service) SQUARE. | 1 |
| SQUARE.C | COBOL source code | EXAMPLE.COBCLTC | Client interface object for IDL program SQUARE. | 2 |
| SQUARE.C | COBOL copybook | EXAMPLE.COBCPYC | Client interface object copybook for IDL program SQUARE. | 2 |
| ERXCOMM.C | COBOL copybook | EXAMPLE.COBCPY | RPC Communication Area copybook. | 2 |
| COBSRVID.C | COBOL source code | EXAMPLE.COBCLTC | Generic RPC Service. | 2 |
| SQREMAP.A | CICS map | EXAMPLE.COBCLTC | CICS map for RPC client SQRECLT. | |
| SQREMAP.C | COBOL copybook | EXAMPLE.COBCPYC | Generated CICS Map COBOL Definitions. | 3 |
| SQRECLT.J | JCL | EXAMPLE.COBCLTC | Job control to build the RPC client SQRECLT. | 4 |
| SQREDFH.J | JCL | EXAMPLE.COBCLTC | CICS CSD definitions job control for RPC client SQRECLT. | |

**Notes:**

1. Built according to the client-side build instructions, see *Using the COBOL Wrapper for CICS with Call Interfaces (z/OS and z/VSE)*.
2. Generate these objects with the EntireX Workbench or use the example library contained in EXAMPLE.AWS.
3. Generated from SQREMAP.A during execution of SQRECLT.J.
4. Adapt the JCL to your needs.

For more information, refer to the README1.TXT file in EntireX directory *examples/RPC/basic/example/CobolClient/vseCICS/Callinterface* under UNIX or Windows, or the downloaded example sublibrary EXAMPLE.COBCLTC.

## SQUARE Client using DFHACOMMAREA (SQRE1CLT)

The SQUARE CICS client example SQRE1CLT is implemented with interface type "CICS with DFHCOMMAREA calling convention". See *Client Interface Types* for more information.

| Name | Type | Sublibrary | Description | Notes |
|---|---|---|---|---|
| README3.TXT | Text file | EXAMPLE.COBCLTC | Client build instructions and description. | |
| SQRE1CLT.C | COBOL source code | EXAMPLE.COBCLTC | An RPC client application calling the remote procedure (RPC service) SQUARE. | 1 |
| SQRE1.C | COBOL source code | EXAMPLE.COBCLTC | Client interface object for IDL program SQUARE. | 2 |
| SQRE1.C | COBOL copybook | EXAMPLE.COBCPYC | Client interface object copybook for IDL program SQUARE. | 2 |
| ERXCOMM.C | COBOL copybook | EXAMPLE.COBCPY | RPC Communication Area copybook. | 2,5 |
| COBSRVIC.C | COBOL source code | EXAMPLE.COBCLTC | Generic RPC Service. | 2 |
| SQRE1MAP.A | CICS map | EXAMPLE.COBCLTC | CICS map for RPC client SQRE1CLT. | |
| SQRE1MAP.C | COBOL copybook | EXAMPLE.COBCPYC | Generated CICS Map COBOL Definitions. | 3 |
| SQRE1CLT.J | JCL | EXAMPLE.COBCLTC | Job control to build the RPC client SQRE1CLT. | 4 |
| CALC1DFH.J | JCL | EXAMPLE.COBCLTC | CICS CSD definitions job control for RPC client SQRE1CLT. | |

**Notes:**

1. Built according to the client-side build instructions, see *Using the COBOL Wrapper for CICS with DFHCOMMAREA Calling Convention (z/OS and z/VSE)*.
2. Generate these objects with the EntireX Workbench or use the example library contained in EXAMPLE.AWS.
3. Generated from SQRE1MAP.A during execution of SQRE1CLT.J.
4. Adapt the JCL to your needs.
5. Built as COBSRVI.PHASE by SQRE1CLT.J.

For more information, refer to the README3.TXT file in EntireX directory *examples/RPC/basic/example/CobolClient/vseCICS/Callinterface* under UNIX or Windows, or the downloaded example sublibrary EXAMPLE.COBCLTC.

## SQUARE Server (SQUARE)

The SQUARE CICS server example is built with COBOL Wrapper interface type "CICS with DFHCOMMAREA calling convention". See *Server Interface Types* for more information.

| Name | Type | Data Set | Description | Notes |
|---|---|---|---|---|
| README1.TXT | Text file | EXAMPLE.COBSRVC | CALC server build instructions and description. | |
| SQUARE.C | COBOL source code | EXAMPLE.COBSRVC | A server application providing the remote procedure SQUARE (RPC service), with associated example.idl. | 1 |
| SQUARE.J | JCL | EXAMPLE.COBSRVC | Job control to build the remote procedure SQUARE (RPC service). | 2 |
| SQREDFH.J | JCL | EXAMPLE.COBSRVC | CICS CSD definitions job control for remote procedure SQUARE (RPC service). | |

**Notes:**

1. Application built according to the server-side build instructions, see *Using the COBOL Wrapper for CICS with DFHCOMMAREA Calling Convention (z/OS and z/VSE)*.
2. Adapt the JCL to your needs.

For more information, refer to the README1.TXT file in EntireX directory *examples/RPC/basic/example/CobolServer/vseCICS* under UNIX or Windows, or the downloaded example sublibrary EXAMPLE.COBSRVC.

# Reliable RPC SENDMAIL Example

- SENDMAIL Client using Call Interface (SENDCLT)
- SENDMAIL Client using DFHACOMMAREA (SEND1CLT)
- SENDMAIL Server (SENDMAIL)

## SENDMAIL Client using Call Interface (SENDCLT)

The SENDMAIL CICS client example SENDCLT is implemented with interface type "CICS with standard linkage calling convention". See *Client Interface Types* for more information.

| Name | Type | Sublibrary | Description | Notes |
|---|---|---|---|---|
| README2.TXT | Text file | EXAMPLE.COBCLTC | Client build instructions and description. | |
| SENDCLT.C | COBOL source code | EXAMPLE.COBCLTC | An RPC client application calling the remote procedure (RPC service) SENDMAIL. | 1 |
| SENDMAIL.C | COBOL source code | EXAMPLE.COBCLTC | Client interface object for IDL program SENDMAIL. | 2 |
| SENDMAIL.C | COBOL copybook | EXAMPLE.COBCPYC | Client interface object copybook for IDL program SENDMAIL. | 2 |
| ERXCOMM.C | COBOL copybook | EXAMPLE.COBCPY | RPC Communication Area copybook. | 2 |
| COBSRVID.C | COBOL source code | EXAMPLE.COBCLTC | Generic RPC Service. | 2 |
| SENDMAP.A | CICS map | EXAMPLE.COBCLTC | CICS map for RPC client SENDCLT. | |
| SENDMAP.C | COBOL copybook | EXAMPLE.COBCPYC | Generated CICS Map COBOL Definitions. | 3 |
| SENDCLT.J | JCL | EXAMPLE.COBCLTC | Job control to build the RPC client SENDCLT. | 4 |
| SENDDFH.J | JCL | EXAMPLE.COBCLTC | CICS CSD definitions job control for RPC client SENDCLT. | |

**Notes:**

1. Built according to the client-side build instructions, see *Using the COBOL Wrapper for CICS with Call Interfaces (z/OS and z/VSE)*. See also *Reliable RPC for COBOL Wrapper*.
2. Generate these objects with the EntireX Workbench or use the example library contained in EXAMPLE.AWS.
3. Generated from SENDMAP.A during execution of SENDCLT.J.
4. Adapt the JCL to your needs.

For more information, refer to the README2.TXT file in EntireX directory *examples/RPC/reliable/example/CobolClient/vseCICS/Callinterface* under UNIX or Windows, or the downloaded example sublibrary EXAMPLE.COBCLTC.

## SENDMAIL Client using DFHACOMMAREA (SEND1CLT)

The SENDMAIL CICS client example SEND1CLT is implemented with interface type "CICS with DFHCOMMAREA calling convention". See *Client Interface Types* for more information.

| Name | Type | Sublibrary | Description | Notes |
|---|---|---|---|---|
| README4.TXT | Text file | EXAMPLE.COBCLTC | Client build instructions and description. | |
| SEND1CLT.C | COBOL source code | EXAMPLE.COBCLTC | An RPC client application calling the remote procedure (RPC service) SENDMAIL. | 1 |
| SEND1.C | COBOL source code | EXAMPLE.COBCLTC | Client interface object for IDL program SENDMAIL. | 2 |
| SEND1.C | COBOL copybook | EXAMPLE.COBCPYC | Client interface object copybook for IDL program SENDMAIL. | 2 |
| ERXCOMM.C | COBOL copybook | EXAMPLE.COBCPY | RPC Communication Area copybook. | 2,5 |
| COBSRVIC.C | COBOL source code | EXAMPLE.COBCLTC | Generic RPC Service. | 2 |
| SEND1MAP.A | CICS map | EXAMPLE.COBCLTC | CICS map for RPC client SEND1CLT. | |
| SEND1MAP.C | COBOL copybook | EXAMPLE.COBCPYC | Generated CICS Map COBOL Definitions. | 3 |
| SEND1CLT.J | JCL | EXAMPLE.COBCLTC | Job control to build the RPC client SEND1CLT. | 4 |
| SEND1DFH.J | JCL | EXAMPLE.COBCLTC | CICS CSD definitions job control for RPC client SEND1CLT. | |

**Notes:**

1. Built according to the client-side build instructions, see *Using the COBOL Wrapper for CICS with DFHCOMMAREA Calling Convention (z/OS and z/VSE)*. See also *Reliable RPC for COBOL Wrapper*
2. Generate these objects with the EntireX Workbench or use the example library contained in EXAMPLE.AWS.
3. Generated from SEND1MAP.A during execution of SEND1CLT.J.
4. Adapt the JCL to your needs.
5. Built as COBSRVI.PHASE by SEND1CLT.J.

For more information, refer to the README4.TXT file in EntireX directory *examples/RPC/reliable/example/CobolClient/vseCICS/Callinterface* under UNIX or Windows, or the downloaded example sublibrary EXAMPLE.COBCLTC.

## SENDMAIL Server (SENDMAIL)

The SENDMAIL CICS server example is built with COBOL Wrapper interface type "CICS with DFHCOMMAREA calling convention". See *Server Interface Types* for more information.

| Name | Type | Data Set | Description | Notes |
|---|---|---|---|---|
| README2.TXT | Text file | EXAMPLE.COBSRVC | SENDMAIL server build instructions and description. | |
| SENDMAIL.C | COBOL source code | EXAMPLE.COBSRVC | A server application providing the remote procedure SENDMAIL (RPC service), with associated example.idl. | 1 |
| SENDMAIL.J | JCL | EXAMPLE.COBSRVC | Job control to build the remote procedure SENDMAIL (RPC service). | 2 |
| SENDDFH.J | JCL | EXAMPLE.COBSRVC | CICS CSD definitions job control for remote procedure SENDMAIL (RPC service). | |

**Notes:**

1. Application built according to the server-side build instructions, see *Using the COBOL Wrapper for CICS with DFHCOMMAREA Calling Convention (z/OS and z/VSE)*. See also *Reliable RPC for COBOL Wrapper*.
2. Adapt the JCL to your needs.

For more information, refer to the README2.TXT file in EntireX directory *examples/RPC/reliable/example/CobolServer/vseCICS* under UNIX or Windows, or the downloaded example sublibrary EXAMPLE.COBSRVC.