QAD Enterprise Applications

Installation Guide

QAD Integrated Customization Toolkit

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QAD ICT 4.1.22
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QAD Inc.
100 Innovation Place
Santa Barbara, California 93108
Phone (805) 566-6000
http://www.qad.com

Contents

QAD ICT Install Guide Change Summary

The following table summarizes significant differences between this document and previous versions.

Date/Version	Description	Reference
December 2016/QAD ICT 4.1.22	Updated to reflect single-file approach on YAB installation	page 6
March 2016/QAD ICT 4.1.20, Rev 1	Various updates related to new YAB installation procedure on 2016 EE	throughout
March 2015/QAD ICT 4.1.20	Added notes regarding installations that do not use QAD Warehousing	
	Other minor changes	
April 2014/QAD ICT 4.1.18	Updated section on upgrading from earlier versions	page 4
	Added 2014 EE-specific information on compilation Propath	page 19
	Replaced Progress Editor screen capture	page 28
	Added EE-specific information on validating ICT installation	page 33
October 2013/QAD ICT 4.1.16	Minor updates and corrections	throughout
	Noted that licensing step applies only to ICT Toolkit	page 30
	Updated screen captures in Validation section	page 31
June 2013/QAD ICT 4.1.14 Rev 1	Added separate compile instructions for Windows on Enterprise Edition	page 22 page 20
April 2013/QAD ICT 4.1.14	Numerous changes throughout	--
November 2012/QAD ICT 4.1	Provided additional information on updating startup programs for 2011-2012 EE	page 8
	Provided additional information on 2012.1 EE install	page 7
October 2012/QAD ICT 4.1	Updated to reference version 4.1	throughout
	Removed information on transferring software package	throughout
	Added information on using QAD ICT with later versions of QAD Enterprise Applications	throughout
July 2012/QAD ICT 4.0	Corrected message range reference to say 39100-39199	page 4
	Removed reference to icacc.p	page 30
	Replaced screen capture of ICT Control Table	page 30
June 2012/QAD ICT 4.0	Removed “Upgrade” chapter; replaced with upgrade instructions as part of normal installation	various
May 2012/QAD ICT 4.0	First formal release of document	

Chapter 1

Overview

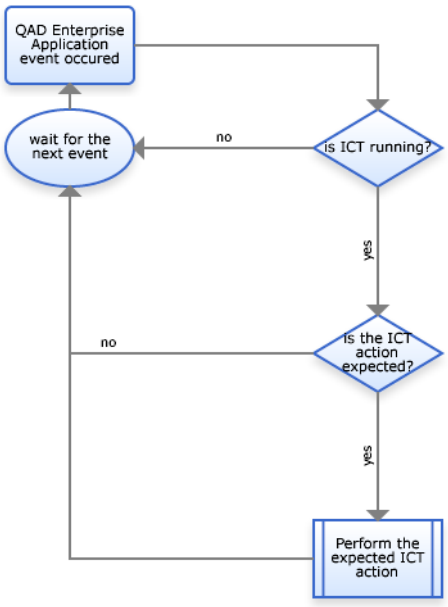
This section contains basic topics that you should understand before attempting a QAD ICT installation or upgrade.

Introduction

This chapter provides an overview of QAD ICT and describes how QAD ICT complements QAD Enterprise Applications.

QAD ICT

The QAD Integrated Customization Toolkit enables you to design and develop customizations in a non-intrusive way, which means eliminating or limiting the changes in the original standard applications. The following figure is an overview of ICT processing. See *QAD Integrated Customization Toolkit User Guide* for more information.



Chapter 2

Preparation for the Installation

This chapter includes information you can use when preparing to install QAD ICT.

Initial Considerations

QAD ICT is a service product and should be installed as any other customization you receive from QAD Services. In this installation guide, it is installed in the `$QADICT` layer.

Starting with 2016 EE, QAD ICT is installed using YAB, QAD's software installation and administration tool. To install QAD ICT on that version, see "Enterprise Edition 2016 EE" on page 6.

QAD recommends that you first install QAD ICT in a test environment and (if approved) then in the production environment.

Note QAD ICT uses message numbers from 39100 to 39199. It is highly recommended that you delete all custom messages in the 39100-39199 range because they will be overwritten during the ICT installation process.

Upgrades from Earlier Versions

QAD ICT 4.1 is backward-compatible with earlier versions, but it is recommended that after the installation of QAD ICT 4.1, the developers use the new features and functions in the latest version.

Note If you use the task utility in your current version of ICT, you should close all WIP tasks before the upgrade process. Otherwise, they will automatically be closed by ICT.

Note After upgrade you must configure ICT Control Table (90.24.24) because the whole setup will be overwritten

The following list summarizes the upgrade from each earlier version. Perform the installation as described in this guide. All additional changes required to upgrade from an earlier version of QAD ICT are marked as ***UPGRADE NOTE***.

- **QAD ICT 1.x.** The only required step, after installing QAD ICT 4.1.20 in a QAD ICT 1.0 environment, is to execute a utility program that deletes the old menu structure of QAD ICT 1.0.
- **QAD ICT 2.x.** The only required step, after installing QAD ICT 4.1.20 in a QAD ICT 2.0 (SP1) environment, is to execute a utility program that reorders some QAD ICT data.
- **QAD ICT 3.x.** The only required step, after installing QAD ICT 4.1.20 in a QAD ICT 3.0 environment, is to execute (one time) the utility programs that complete new data required by the upgraded functionality of ICT tasks and Frame & Field properties.
- **Other QAD ICT versions.** Recompile program hooks.

Chapter 3

Installation

This chapter describes QAD ICT installation tasks, including the changes to be made in the startup programs of the Standard and Enterprise Edition releases of QAD Enterprise Applications. It is assumed that QAD Development Services has already done this or the changes will be made locally.

Important If this has not been supplied to you (in addition to the QAD ICT software), please consult QAD Services. QAD ICT cannot be activated without these changes.

Enterprise Edition 2016 EE

Important Starting with 2016 EE, you must use YAB to install QAD ICT.

YAB is a deployment and management tool set that covers all products installed into an Enterprise Edition environment. YAB is a configuration management tool that installs when you load 2016 EE.

This guide assumes that the EE environment is already initialized and provides a proper YAB installation.

See *QAD Enterprise Edition Installation Guide* for more information about using YAB.

In a YAB environment, QAD software is organized into packages. QAD ICT installation requires two packages:

- integrated-customization-toolkit: the QAD ICT software itself
- yab-ict: a YAB package that contains processes specific to QAD ICT installation and configuration

Both packages are available in a single file:

```
integrated-customization-toolkit-yab-on-premise-4.1.22.0.zip
```

To install QAD ICT using YAB:

1. Download the zipfile from QAD Release Fulfillment and place it in a convenient location; for example, the `/qad/install` directory on the server where QAD ICT will be installed.
2. Navigate to the environment directory where QAD ICT will be installed (`/qad/dev02/qad` in the following example).
3. Edit the `./build/config/configuration.properties` files for your environment, adding the following:

   ```
   ict.toolkit=true
   ```

4. Run the `yab install` command, including the full path to the zip file.

   Important This will perform a full YAB update, during which the environment will be fully restarted.

   Example

   ```
   $ pwd
   /qad/dev02/qad
   $ yab install /qad/install/integrated-customization-toolkit-yab-on-premise-
   4.1.22.0.zip
   ```

5. The system performs additional ICT installation steps as shown below (not all YAB update steps have been included because they may be different for your environment):

```
Validating                                                                    OK
Initializing instance                                                         OK
Reconfiguring instance                                                        OK
Resolving and copying packages                                                OK

Starting update...

…
…
…

279/295 module-ict-compile-list-update                    OK (0.012 s)
280/295 code-ict-update                                   OK (26.465 s)
281/295 module-ict-control-update                         OK (0.222 s)
282/295 chui-client-us-update                             OK (0.061 s)
283/295 aim-client-us-update                              OK (0.035 s)
284/295 copy-mfg-configs-update                           OK (0.012 s)
285/295 copy-mfg-auditing-progress-configs-update         OK (0.016 s)
286/295 copy-mfg-auditing-qad-configs-update              OK (0.010 s)
287/295 report-archiving-update                           OK (0.025 s)
288/295 report-cmr-update                                 OK (0.026 s)
289/295 report-fin-update                                 OK (0.025 s)
290/295 report-mrc-update                                 OK (0.032 s)
291/295 report-periodic-costing-update                    OK (0.009 s)
292/295 metadata-qracore-update                           SKIPPED (0.103 s)
293/295 metadata-fincore-update                           SKIPPED (0.032 s)
294/295 metadata-mfgcoreplus-update                       SKIPPED (0.024 s)
295/295 qxtend-application-id-update                      OK (0.051 s)
------------------------------------------------------------------------------
Cleaning up                                                                   OK

INSTALL SUCCESSFUL
$
```

6 If the installation fails, check the `./build/logs/yab.log` file.

Once installed, the following two packages should show up with the `yab info` command:

```
$ yab info | grep toolkit
integrated-customization-toolkit                    4.1.22.0       local
$ yab info | grep yab-ict
yab-ict                                             1.3.0.3        local
```

The installation also creates the following directory in the local catalog:

`./build/catalog/packages/integrated-customization-toolkit`

This contains the ICT source code as well as dmp standard files.

The ICT compiled code is stored under `./dist/ict`.

Enterprise Edition 2012.1 EE to 2015 EE

Extract the software from the `<release_number>_2` directory in the `$QADICTINSTALL` directory and make sure that all resources are stored as follows:

- xrc contents in `$QADICT/xrc`
- src contents in `$QADICT/src` (optional)
- `utcompil.wrk` in `$QADICT`
- Data contents in `$QADICT/data`

Add the following lines at the end of the ICT `utcompil.wrk` list:

```
runProgramMapper.p
us/wh/whapish.p
```

```
us/wh/whapist.p
us/wh/whgblmgr.p
```

Important **Always** add the `whapish.p` and `whapist.p` programs to the compilation list even if you are not using the Warehousing module.

Note `runProgramMapper.p` must be compiled into `$QADICT`. Directory `$QADICT/tools` must not exist.

Note If `us/wh/whgblmgr.p` is not available, do not add it to the ICT `utcompil.wrk` list.

Enterprise Edition 2011 EE, 2011.1 EE, and 2012 EE

This section describes the installation tasks for those versions of Enterprise Edition.

Extract Software Package

Extract the software from the <*release_number*>_2 directory in the `$QADICTINSTALL` directory and make sure that all resources are stored as follows:

- xrc contents in the `$QADICT/xrc`
- src contents in the `$QADICT/src` (optional)
- utcompil.wrk in the `$QADICT`
- data contents in the `$QADICT/data`

Update the Enterprise Edition Startup Programs (2011 EE, 2011.1 EE, and 2012 EE)

This section describes the changes to be made in the startup programs of those Enterprise Edition releases of QAD Enterprise Applications. Modify the following programs as instructed.

Note If these programs have been modified and are stored in directories before the `$QADICT` layer in the Propath (for example, PATCH, CUST), the described changes should be made in the modified programs, not in the standard ones.

Important **Always** update wh* programs even if you are not using the Warehousing module.

Make the following change in the custom or standard version of `whapish.p` of the Enterprise Edition release the customer is using. Add the QAD ICT include just before the variable definitions.

```
{mfsubdirs.i}
{us/bbi/mfdeclre.i}

/* QAD ICT - Integrated Customization Toolkit */
{us/bbi/icdef.i &AIMTRIGGERS=false}

define variable LVApiGblHandle as handle no-undo.
define variable LVApiTrfHandle as handle no-undo.
```

Also in the custom or standard version of `whapist.p` of the Enterprise Edition release the customer is using, add the QAD ICT at the end of the program.

```
    /* Shut down AIM triggers. */
    {us/bbi/gprun.i ""whapish.p""}
end.
```

```
/* QAD ICT - Integrated Customization Toolkit */
{us/bbi/icmf.i}
```

And at the beginning of the program:

```
{mfsubdirs.i}
{us/bbi/mfdeclre.i}

define variable LVApiGblHandle as handle no-undo.
```

Make the following changes in the include `whgptrrf.i` of the Enterprise Edition release the customer is using (if available). Add the additional code as shown below.

```
/* QAD ICT - Integrated Customization Toolkit */

{mfsubdirs.i}
{us/bbi/icdef.i &AIMTRIGGERS=true}

/************************/
/* GLOBAL GO TRIGGER */
/************************/
on go anywhere do:
    {us/bbi/icttrggo.i} /*QAD ICT*/
    run proc_ui_check no-error.
end.

/************************/
/* GLOBAL LEAVE TRIGGER */
/************************/
on leave anywhere do:
    {us/bbi/icttrglv.i} /*QAD ICT*/
    run proc_ui_check no-error.
end.

on entry anywhere do:
    {us/bbi/icttrgen.i} /*QAD ICT*/
end.


/*****************/
/* ASSIGN SR_QTY */
```

Note Make sure that you recompile `whgblmgr.p`, as this program uses the updated `whgptrrf.i`. The include file `whgptrrf.i` must be stored in the `xrc/us/wh/` directory.

Update Additional Startup Programs

As needed, modify the startup programs for additional QAD Enterprise Applications as shown.

QGen

Make the following change in the custom or standard version of `runProgramMapper.p` of the QXtend release the customer is using.

Note When using QGen, the Ctrl+O key will show the QGen menu and not the QAD ICT developers menu, if the QAD ICT menu accelerator is set to Ctrl+O.

Copy `runProgramMapper.p` into `$QADICT`. Compile the file into the same directory.

The change occurs in two places; just before the on leave trigger definition and at the end of the leave trigger definition.

The optional language parameter of `icqgen.i` should be the default language which is being used for that customer (in most cases, that will be US).

```
/* Reset everything ready for a new run through. */
run newRunThrough in pHandle.
```

```
/* QAD ICT - Integrated Customization Toolkit */
{us/bbi/icqgen.i &LANGUAGE="us"}

/************************************ TRIGGERS ******************/
/* On leaving a field update the data for the field */
on leave anywhere do:
    /*
    * Work out a valid focus handle. This will usually just be the
...
                else
                    message "Invalid handle pHandle".
            end.
        end.
    end.

    /* QAD ICT - Integrated Customization Toolkit */
    {us/bbi/icttrglv.i}
end.
```

Note Make sure that the object for `runProgramMapper` is saved in the base directory and that the QGen script will first pick up this customized version.

Copy Changed Programs to a Proper Directory

Create the `$QADICT xrc/us/wh` subdirectory for modified EE startup programs:

```
mkdir $QADICT/xrc/us  (if necessary)
mkdir $QADICT/xrc/us/wh
```

Make sure all modified wh* programs are in `$QADICT/xrc/us/wh.`

Add the following lines at the end of the ICT `utcompil.wrk` list:

```
runProgramMapper.p
us/wh/whapish.p
us/wh/whapist.p
us/wh/whgblmgr.p
```

Note `runProgramMapper.p` must be compiled into `$QADICT`. Directory `$QADICT/tools` must not exist.

Note If `us/wh/whgblmgr.p` is not available, do not add it to the ICT `utcompil.wrk` list.

Enterprise Edition Earlier than 2011 EE

This section describes installation tasks for Enterprise Edition versions before 2011 EE.

Extract Software Package

Extract the software from the <*release_number*>_1 directory in the $QADICTINSTALL directory and make sure that all resources are stored as follows:

- xrc contents in the $QADICT/xrc
- src contents in the $QADICT/src (optional)
- utcompil.wrk in the $QADICT
- Data contents in the $QADICT/data

Update the Enterprise Edition Startup Programs (before 2011 EE)

This section describes the changes to be made in the startup programs of the Enterprise Edition releases of QAD Enterprise Applications. Modify the following programs as instructed.

Note If these programs have been modified and are stored in directories before the $QADICT layer in the Propath (for example, PATCH, CUST), the described changes should be made in the modified programs, not in the standard ones.

Important **Always** update wh* programs even if you are not using the Warehousing module.

Make the following change in the custom or standard version of whapish.p of the Enterprise Edition release the customer is using. Add the QAD ICT include just before the variable definitions.

```
{mfdeclre.i}

/* QAD ICT - Integrated Customization Toolkit */
{icdef.i &AIMTRIGGERS=false}

define variable LVApiGblHandle as handle no-undo.
define variable LVApiTrfHandle as handle no-undo.
```

Also in the custom or standard version of whapist.p of the Enterprise Edition release the customer is using, add QAD ICT at the end of the program.

```
    /* Shut down AIM triggers. */
    {gprun.i ""whapish.p""}
end.

/* QAD ICT - Integrated Customization Toolkit */
{icmf.i}
```

Make the following changes in the include whgptrrf.i of the Enterprise Edition release the customer is using. Add the additional code as shown below.

```
/*V8:ConvertMode=NoConvert*/

/* QAD ICT - Integrated Customization Toolkit */
{icdef.i &AIMTRIGGERS=true}

/************************/
/* GLOBAL GO TRIGGER */
/************************/
on go anywhere do:
    {icttrggo.i} /*QAD ICT*/
    run proc_ui_check no-error.
end.
```

```
/************************/
/* GLOBAL LEAVE TRIGGER */
/************************/
on leave anywhere do:
    {icttrglv.i} /*QAD ICT*/
    run proc_ui_check no-error.
end.

on entry anywhere do:
    {icttrgen.i} /*QAD ICT*/
end.

/*****************/
/* ASSIGN SR_QTY */
```

Note Make sure that you recompile `whgblmgr.p`, as this program uses the updated `whgptrrf.i`.

Update Additional Startup Programs

As needed, modify the startup programs for additional QAD Enterprise Applications as shown.

QXtend

Make the following change in the custom or standard version of `mfwb01aa.p` of the QAD Enterprise Applications release the customer is using. Add the QAD ICT include just before the do transaction for `lvucap.p`.

```
/* QAD ICT - Integrated Customization Toolkit */
{icmf.i}

/* Log the transaction for the pricing */
do transaction:
    {gprun.i ""lvucap.p""
            "(input "'qxtend'", input "''")"}
end.
```

QGen

Make the following change in the custom or standard version of `runProgramMapper.p` of the QXtend release the customer is using.

Note When using QGen, the Ctrl+O key will show the QGen menu and not the QAD ICT developers menu, if the QAD ICT menu accelerator is set to Ctrl+O.

The change consists of two changes; just before the on leave trigger definition and at the end of the leave trigger definition.

The optional language parameter of `icqgen.i` should be the default language that is being used for that customer (in most cases, that will be US).

```
/* Reset everything ready for a new run through. */
run newRunThrough in pHandle.

/* QAD ICT - Integrated Customization Toolkit */
{icqgen.i &LANGUAGE="us"}

/*********************************** TRIGGERS ******************/
/* On leaving a field update the data for the field */
on leave anywhere do:
    /*
    * Work out a valid focus handle. This will usually just be the
...
                else
```

```
                    message "Invalid handle pHandle".
                end.
            end.
        end.
/* QAD ICT - Integrated Customization Toolkit */
{icttrglv.i}
end.
```

Note Make sure that the object for `runProgramMapper` is saved in the base directory and that the QGen script will first pick up this customized version.

Add the following lines at the end of the ICT utcompil.wrk list:

```
whgblmgr.p
whapish.p
whapist.p
runProgramMapper.p
```

Standard Edition

This section describes installation tasks for Standard Edition.

Extract Software Package

Extract the software from the <*release_number*>_1 directory in the `$QADICTINSTALL` directory and make sure that all resources are stored as follows:

- xrc contents in `$QADICT/xrc`
- src contents in `$QADICT/src` (optional)
- utcompil.wrk in `$QADICT`
- Data contents in `$QADICT/data`

Copy the following menu program file:

```
cp $QADICTINSTALL/SE_Files/icmenu.p.se $QADICT/xrc/icmenu.p
```

Update the Standard Edition Startup Programs

This paragraph describes the changes to be made in the startup programs of the Standard Edition releases of QAD Enterprise Applications. Please modify the follow programs as instructed.

Note If these programs have been modified and are stored in directories before the `$QADICT` layer in the Propath (for example, PATCH, CUST), the described changes should be made in the modified programs, not in standard ones.

Make the following change in the custom or standard version of `mf1.p` of the QAD Enterprise Applications release the customer is using. Add the QAD ICT include just before the call to `mf1a.p`.

```
/* QAD ICT - Integrated Customization Toolkit */
{icmf.i}

/* NOW CALL THE TRANSLATABLE PORTION OF THE (OLD) MF1.P */
{gprun1.i ""mf1a.p""}

PROCEDURE registerReasonMessage:
```

Make the following change in the custom or standard version of `mfwb01a.p` of the QAD Enterprise Applications release the customer is using. Please add the QAD ICT include just before run set-session-formats.

```
/* QAD ICT - Integrated Customization Toolkit */
{icmf.i}

run set-session-formats in sess-context-hdl
(input global_userid).

/*Check license usage*/
{gprunp.i
"lvgenpl" "p"
"validateUserCountExceeded_HTML"
"(input 'MFG/PRO', output licenseMsgNum, output licenseMsgDesc)" }
```

For QAD SE 2010+ .NET UI 2.9.1+ versions:

```
/* QAD ICT - Integrated Customization Toolkit */
{icmf.i}
run set-session-formats in mfwb02handle()
    (input global_userid).

/*Check license usage*/
{gprunp.i
"lvgenpl" "p"
"validateUserCountExceeded_HTML"
"(input 'MFG/PRO', output licenseMsgNum, output licenseMsgDesc)" }
```

Update Additional Startup Programs

As needed, modify the startup programs for additional QAD Enterprise Applications as shown.

QXtend

Make the following change in the custom or standard version of `mfwb01aa.p` of the QAD Enterprise Applications release the customer is using. Add the QAD ICT include just before the do transaction for `lvucap.p`.

```
/* QAD ICT - Integrated Customization Toolkit */
{icmf.i}

/* Log the transaction for the pricing */
do transaction:
    {gprun.i ""lvucap.p""
        "(input "'qxtend'", input "'")"}
end.
```

QGen

Make the following change in the custom or standard version of `runProgramMapper.p` of the QXtend release the customer is using. The change consists of two changes; just before the on leave trigger definition and at the end of the leave trigger definition.

The optional language parameter of `icqgen.i` should be the default language that is being used for that customer (in most cases, that will be US).

```
/* Reset everything ready for a new run through. */
run newRunThrough in pHandle.

 /* QAD ICT - Integrated Customization Toolkit */
{icqgen.i &LANGUAGE="us"}

 /********************************** TRIGGERS *******************/
/* On leaving a field update the data for the field */
```

```
on leave anywhere do:
    /*
    * Work out a valid focus handle. This will usually just be the
...
                else
                    message "Invalid handle pHandle".
            end.
        end.
    end.

     /* QAD ICT - Integrated Customization Toolkit */
    {icttrglv.i}
end.
```

Note Make sure that the compiled object for `runProgramMapper` is saved in the proper directory and that the QGen script will first pick up this customized version.

AIM API

Make the following changes in the include `whgptrrf.i` of the AIM release the customer is using. Add the additional code as shown below.

```
/*V8:ConvertMode=NoConvert*/

/* QAD ICT - Integrated Customization Toolkit */
{icdef.i &AIMTRIGGERS=true}

/************************/
/* GLOBAL GO TRIGGER */
/************************/
on go anywhere do:
    {icttrggo.i} /*QAD ICT*/
    run proc_ui_check no-error.
end.

/************************/
/* GLOBAL LEAVE TRIGGER */
/************************/
on leave anywhere do:
    {icttrglv.i} /*QAD ICT*/
    run proc_ui_check no-error.
end.

on entry anywhere do:
    {icttrgen.i} /*QAD ICT*/
end.

/*****************/
/* ASSIGN SR_QTY */
```

Note Make sure that you recompile `whaimapi.p` and `whapist2.p`, as these programs use the updated `whgptrrf.i` and are called in the AIM startup programs for Character, GUI, Desktop, and .NET UI.

RF Terminals

Make the following change in the custom or standard version of `whmf1.p` of the QAD Enterprise Applications release the customer is using. Add the QAD ICT include just before the call to `whmf1a.p`.

```
/* QAD ICT - Integrated Customization Toolkit */
{icmf.i}

{gprun1.i ""whmf1a.p""}

{whgpevip.i} /*ENVIRONMENT PROCEDURES*/
```

Add the following lines at the end of the ICT `utcompil.wrk` list:

```
whmf1.p
whaimapi.p
whapist2.p
runProgramMapper.p
mfwb01aa.p
mfwb01a.p
mf1.p
```

Chapter 4

Compiling and Completing the Installation

This chapter describes the compilation process, which is a part of the correct installation of QAD ICT software, as well as the tasks required to complete the QAD ICT installation.

Note All changes required due to upgrade from an earlier version of QAD ICT are marked as ***UPGRADE NOTE***.

Important Note that in a 2016 EE and YAB environment, you should *never* directly change any files. Otherwise, the changes will be reverted by any later YAB update. Any change to the environment must be performed through YAB. See *QAD Enterprise Edition Installation Guide* for more information.

Compilation Considerations

Based on the supplied `utcompil.wrk`, the software must be compiled using an appropriate compiler such as QDT/QDT BatchCompiler or MFGUTIL. If you have any compilation errors, review and resolve them.

Add the startup programs just modified for ICT to the `$QADICT/utcompil.wrk` list. If they are considered to be compiled in the `$QADICT` layer (neither custom nor patch layer), add them to the $QADICT/utcompil.wrk list.

If you are installing QAD ICT on a 2016 EE installation, YAB *must* be used to perform the extra steps. See “Enterprise Edition 2016 EE” below.

Enterprise Edition 2016 EE

ICT compilation is performed by the `<yab install>` command, so you are not required to manually compile the files again. In a YAB environment, the ICT programs are compiled during installation under the `./dist/ict` directory.

The `<yab install>` command also updates the various session Propaths as appropriate, so this does not have to be done again.

The following processes are specific to ICT in a YAB environment:

- code-ict-update - Recompiles all 'ict' source code.
- module-ict-compile-list-update - Concatenates the standard and custom ICT compile list.
- module-ict-control-update - Updates the ICT control record.
- module-ict-update - Updates the 'ICT' module.
- path-ict-update - Updates the 'ICT' path.

These processes are mentioned here for information only. They do not need to be performed after a new ICT installation unless settings need to be changed. Refer to the `<yab help>` command for more options and information.

Update ICT Accelerator Mapping Key

Some environments may already have CTRL-O mapped for the ICT Accelerator shortcut key. Because QGEN is already using that key, the ICT Accelerator key should be remapped to CTRL-R.

Check the current key:

```
$ yab config ict.menu.accelerator
ict.menu.accelerator=o
BUILD SUCCESSFUL (1.640 s)
```

If this is 'o' then this probably conflicts with QGEN. Edit the `./build/config/configuration.properties` file and add:

```
ict.menu.accelerator=r
```

And run:

```
$ yab -v module-ict-control-update
```

Enterprise Edition 2012.1 EE to 2015 EE

Compile ICT and EE modified programs using the QDT batch compiler solution.

For 2014+ EE, the QRA-API module should be listed in a compilation Propath. (Refer to the original 2014EE `01batchCompile.ksh` script to identify the proper sequence in the Propath.)

Sample 2015 EE ICT compilation Propath in the `compileICT.ksh` script:

```
compilePropath=$QADICT/xrc:$QADUI:$QADQXTEND/xrc:$QADQXTEND/tools:$QADEA/modules/qra-
api/src:$QADWMS/xrc:$QADEA/xrc:$QADEA/xrc/us/bbi:$QADEA/xrc/proxy:$QADEA/fin
```

UNIX

Create the `$QADICT/compileICT.ksh` script.

Make sure that the Propath and other parameters are properly set for an EE environment. Detailed information about how to run the QDT Batch Compiler is available in the existing batch compiler script—for example, `$QADQDT/envs/$QADENV/scripts/01batchCompile.ksh`—or in the `01batchCompile.log` files from the `$QADQDT/logs` directory.

The example below assumes that you are installing ICT into `/dr01/qadapps/ict` to an existing 2015 EE installation found in `/dr01/qadapps/qea` with QDT in `/dr01/qadapps/qdt` and WMS in `/dr01/qadapps/warehousing`.

```
DLC=/progress/dlc102b; export DLC
PATH=$PATH:$DLC/bin; export PATH
QADEA=/dr01/qadapps/qea
QADICT=/dr01/qadapps/ict
QADQDT=/dr01/qadapps/qdt
QADUI=$QADEA/qadui
QADQXTEND=$QADEA/qxtend
QADENV=live
PROPATH=$QADQDT/xmfgusrc:$QADQDT:$QADQDT/resources; export PROPATH
cd $QADQDT
$DLC/bin/_progres -pf $QADQDT/envs/$QADENV/scripts/batchCompile.pf  -param
"rcodeDestFormat=1,compileListFilename=$QADICT/utcompil.wrk,destinationDirectory=
$QADICT,topLevelList=none,noCompileList=nocompile.lst,progOnlyList=
ProgressOnly.lst,oraOnlyList=OracleOnly.lst,srcCodeFormat=twoletter,compilePropath=
$QADICT/xrc:$QADUI:$QADQXTEND/xrc:$QADQXTEND/tools:$QADEA/xrc:$QADEA/xrc/us/bbi:$QADEA
/xrc/proxy:$QADEA/fin" >> $QADICT/compileICT.log 2>&1
```

Check the compilation results in `$QADICT/compileICT.log`.

```
...
08/30/12 @ 16:07:27 [root] - Compiling /dr01/qadapps/ict/xrc/us/ic/ictstrp.p to
/dr01/qadapps/ict/us/ic
08/30/12 @ 16:07:28 [root] - Compiling /dr01/qadapps/ict/xrc/us/ic/ictuca.p to
/dr01/qadapps/ict/us/ic
08/30/12 @ 16:07:28 [root] - Compiling /dr01/qadapps/ict/xrc/us/ic/icuatrp.p to
/dr01/qadapps/ict/us/ic
08/30/12 @ 16:07:28 [root] - Compiling /dr01/qadapps/ict/xrc/us/ic/icuatxrp.p to
/dr01/qadapps/ict/us/ic
08/30/12 @ 16:07:29 [root] - Compiling /dr01/qadapps/ict/xrc/us/ic/icuipers.p to
/dr01/qadapps/ict/us/ic
08/30/12 @ 16:07:29 [root] - Compiling /dr01/qadapps/ict/xrc/us/ic/icuitmt.p to
/dr01/qadapps/ict/us/ic
08/30/12 @ 16:07:29 [root] - Compiling /dr01/qadapps/ict/xrc/us/ic/icvlmt.p to
/dr01/qadapps/ict/us/ic
08/30/12 @ 16:07:29 [root] - Compile contained 0 errors.
08/30/12 @ 16:07:29 [root] - Compile contained 0 warnings.
```

Windows

Create the `%QADICT%\compileICT.bat` script.

Make sure that the Propath and other parameters are properly set for an EE environment. Detailed information about how to run the QDT Batch Compiler is available in the existing batch compiler script—for example, `%QADQDT%\envs\%QADENV%\scripts\01batchCompile.bat`—or in the `01batchCompile.log` files from the `%QADQDT%\logs` directory.

The example below assumes that you are installing ICT into `C:\ict` to an existing 2012.1 EE installation found in `C:\qadapps` with QDT in `C:\qdt`.

```
SET DLC=C:\Progress\OpenEdge
SET PATH=%PATH%;%DLC%\bin
SET QADEA=\qadapps
SET QADICT=\ict
SET QADQDT=\qdt
SET QADUI=%QADEA%\qadui
SET QADQXTEND=%QADEA%\qxtend
SET QADENV=pilot
C:
cd %QADQDT%
C:\Progress\OpenEdge\bin\_progres.exe -pf C:\qdt\envs\pilot\scripts\batchCompile.pf -
ininame C:\qdt\ini\batchCompile.ini -param "rcodeDestFor-mat=1,compileListFilename=
%QADICT%\utcompil.wrk,destinationDirectory=%QADICT%,topLevelList=none,noCompileList=
nocompile.lst,progOnlyList=ProgressOnly.lst,oraOnlyList=OracleOnly.lst,srcCodeFormat=
twoletter,compilePropath=
%QADICT%\xrc;%QADUI%;%QADQXTEND%\xrc;%QADQXTEND%\tools;%QADEA%\xrc;%QADEA%\xrc\us\bbi;
%QADEA%\xrc\proxy;%QADEA%\fin" >> %QADICT%\compileICT.log 2>&1
```

Check the compilation results in `%QADICT%\compileICT.log`.

```
...
05/27/13 @ 07:32:29 [mfg] - Compiling \qadapps\ict\xrc\us\ic\ictstop.p to
\qadapps\ict\us/ic
05/27/13 @ 07:32:29 [mfg] - Compiling \qadapps\ict\xrc\us\ic\ictstrp.p to
\qadapps\ict\us/ic
05/27/13 @ 07:32:29 [mfg] - Compiling \qadapps\ict\xrc\us\ic\ictuca.p to
\qadapps\ict\us/ic
05/27/13 @ 07:32:29 [mfg] - Compiling \qadapps\ict\xrc\us\ic\icuatrp.p to
\qadapps\ict\us/ic
05/27/13 @ 07:32:29 [mfg] - Compiling \qadapps\ict\xrc\us\ic\icuatxrp.p to
\qadapps\ict\us/ic
05/27/13 @ 07:32:30 [mfg] - Compiling \qadapps\ict\xrc\us\ic\icuipers.p to
\qadapps\ict\us/ic
05/27/13 @ 07:32:30 [mfg] - Compiling \qadapps\ict\xrc\us\ic\icuitmt.p to
\qadapps\ict\us/ic
05/27/13 @ 07:32:30 [mfg] - Compiling \qadapps\ict\xrc\us\ic\icvlmt.p to
\qadapps\ict\us/ic
05/27/13 @ 07:32:31 [mfg] - Compile contained 0 errors.
05/27/13 @ 07:32:31 [mfg] - Compile contained 0 warnings.
```

Propath Settings

Make sure that the Propath is set properly to point to the $QADICT folder in the first position:

ICT,(NETUI),(QXTEND),(MSW/PSW),(WMS),CORE (all core layers, including BBI, FIN, QRA, PROXY),(CONFIGURATOR),(CRM)

Both the compilation and runtime Propath should be adjusted to the following order:

1. (CUST/PATCH/LOCAL)
2. ICT

3 (NETUI)

4 (QXTEND)

5 (MSW/PSW)

6 (WMS)

7 CORE (all core layers, including BBI, FIN, QRA, PROXY)

8 (CONFIGURATOR)

9 (CRM)

Enterprise Edition 2011 EE, 2011.1 EE, and 2012 EE

Compile ICT and EE modified programs using the QDT batch compiler solution.

UNIX

Create the `$QADICT/compileICT.ksh` script.

Make sure that the Propath and other parameters are properly set for an EE environment. Detailed information about how to run the QDT Batch Compiler is available in the existing batch compiler script—for example, `$QADQDT/envs/$QADENV/scripts/01batchCompile.ksh`—or in the `01batchCompile.log` files from the `$QADQDT/logs` directory.

The example below assumes you are installing ICT into `/dr01/qadapps/ict` to an existing 2012 EE installation found in `/dr01/qadapps/qea` with QDT in `/dr01/qadapps/qdt`.

```
DLC=/progress/dlc102b; export DLC
PATH=$PATH:$DLC/bin; export PATH
QADEA=/dr01/qadapps/qea
QADICT=/dr01/qadapps/ict
QADQDT=/dr01/qadapps/qdt
QADUI=$QADEA/qadui
QADQXTEND=$QADEA/qxtend
QADENV=live
PROPATH=$QADQDT/xmfgusrc:$QADQDT:$QADQDT/resources; export PROPATH
cd $QADQDT
$DLC/bin/_progres -pf $QADQDT/envs/$QADENV/scripts/batchCompile.pf  -param
"rcodeDestFormat=1,compileListFilename=$QADICT/utcompil.wrk,destinationDirectory=
$QADICT,topLevelList=none,noCompileList=nocompile.lst,progOnlyList=
ProgressOnly.lst,oraOnlyList=OracleOnly.lst,srcCodeFormat=twoletter,compilePropath=
$QADICT/xrc:$QADUI:$QADQXTEND/xrc:$QADQXTEND:$QADEA/xrc:$QADEA/xrc/us/bbi:$QADEA/xrc/
proxy:$QADEA/fin" >> $QADICT/compileICT.log 2>&1
```

Check the compilation results in `$QADICT/compileICT.log`.

```
...
08/30/12 @ 16:07:27 [root] - Compiling /dr01/qadapps/ict/xrc/us/ic/ictstrp.p to
/dr01/qadapps/ict/us/ic
08/30/12 @ 16:07:28 [root] - Compiling /dr01/qadapps/ict/xrc/us/ic/ictuca.p to
/dr01/qadapps/ict/us/ic
08/30/12 @ 16:07:28 [root] - Compiling /dr01/qadapps/ict/xrc/us/ic/icuatrp.p to
/dr01/qadapps/ict/us/ic
08/30/12 @ 16:07:28 [root] - Compiling /dr01/qadapps/ict/xrc/us/ic/icuatxrp.p to
/dr01/qadapps/ict/us/ic
08/30/12 @ 16:07:29 [root] - Compiling /dr01/qadapps/ict/xrc/us/ic/icuipers.p to
/dr01/qadapps/ict/us/ic
08/30/12 @ 16:07:29 [root] - Compiling /dr01/qadapps/ict/xrc/us/ic/icuitmt.p to
/dr01/qadapps/ict/us/ic
08/30/12 @ 16:07:29 [root] - Compiling /dr01/qadapps/ict/xrc/us/ic/icvlmt.p to
```

```
/dr01/qadapps/ict/us/ic
08/30/12 @ 16:07:29 [root] - Compile contained 0 errors.
08/30/12 @ 16:07:29 [root] - Compile contained 0 warnings.
```

Windows

Create the `%QADICT%/compileICT.bat` script.

Make sure that the Propath and other parameters are properly set for an EE environment. Detailed information about how to run the QDT Batch Compiler is available in the existing batch compiler script—for example, `%QADQDT%\envs\%QADENV%\scripts\01batchCompile.bat`—or in the `01batchCompile.log` files from the `%QADQDT%\logs` directory.

The example below assumes you are installing ICT into `C:\ict` to an existing 2012 EE installation found in `C:\qadapps` with QDT in `C:\qdt`.

```
SET DLC=C:\Progress\OpenEdge
SET PATH=%PATH%;%DLC%\bin
SET QADEA=\qadapps
SET QADICT=\ict
SET QADQDT=\qdt
SET QADUI=%QADEA%\qadui
SET QADQXTEND=%QADEA%\qxtend
SET QADENV=pilot
C:
cd %QADQDT%
C:\Progress\OpenEdge\bin\_progres.exe -pf C:\qdt\envs\pilot\scripts\batchCompile.pf -
ininame C:\qdt\ini\batchCompile.ini -param "rcodeDestFor-mat=1,compileListFilename=
%QADICT%\utcompil.wrk,destinationDirectory=%QADICT%,topLevelList=none,noCompileList=
nocompile.lst,progOnlyList=ProgressOnly.lst,oraOnlyList=OracleOnly.lst,srcCodeFormat=
twoletter,compilePropath=
%QADICT%\xrc;%QADUI%;%QADQXTEND%\xrc;%QADQXTEND%\tools;%QADEA%\xrc;%QADEA%\xrc\us\bbi;
%QADEA%\xrc\proxy;%QADEA%\fin" >> %QADICT%\compileICT.log 2>&1
```

Check the compilation results in `%QADICT%\compileICT.log`.

```
...
05/27/13 @ 07:32:29 [mfg] - Compiling \qadapps\ict\xrc\us\ic\ictstop.p to
\qadapps\ict\us/ic
05/27/13 @ 07:32:29 [mfg] - Compiling \qadapps\ict\xrc\us\ic\ictstrp.p to
\qadapps\ict\us/ic
05/27/13 @ 07:32:29 [mfg] - Compiling \qadapps\ict\xrc\us\ic\ictuca.p to
\qadapps\ict\us/ic
05/27/13 @ 07:32:29 [mfg] - Compiling \qadapps\ict\xrc\us\ic\icuatrp.p to
\qadapps\ict\us/ic
05/27/13 @ 07:32:29 [mfg] - Compiling \qadapps\ict\xrc\us\ic\icuatxrp.p to
\qadapps\ict\us/ic
05/27/13 @ 07:32:30 [mfg] - Compiling \qadapps\ict\xrc\us\ic\icuipers.p to
\qadapps\ict\us/ic
05/27/13 @ 07:32:30 [mfg] - Compiling \qadapps\ict\xrc\us\ic\icuitmt.p to
\qadapps\ict\us/ic
05/27/13 @ 07:32:30 [mfg] - Compiling \qadapps\ict\xrc\us\ic\icvlmt.p to
\qadapps\ict\us/ic
05/27/13 @ 07:32:31 [mfg] - Compile contained 0 errors.
05/27/13 @ 07:32:31 [mfg] - Compile contained 0 warnings.
```

Propath Settings

Make sure that the Propath is set properly to point to the `$QADICT` folder in the first position:

ICT,(NETUI),(QXTEND),(MSW/PSW),(WMS),CORE (all core layers, including BBI, FIN, QRA, PROXY)

Both the compilation and runtime Propath should be adjusted to the following order:

1. (CUST/PATCH/LOCAL)
2. ICT
3. (NETUI)
4. (QXTEND)
5. (MSW/PSW)
6. (WMS)
7. CORE (all core layers, including BBI, FIN, QRA, PROXY)

Enterprise Edition Before 2011 EE

Compile ICT and EE modified programs using the QDT batch compiler.

Create the `$QADICT/compileICT.ksh` script.

Make sure the Propath and other parameters are properly set for an EE environment. Detailed information about how to run the QDT Batch Compiler is available in the existing batch compiler script—for example, `$QADQDT/envs/$QADENV/scripts/01batchCompile.ksh`—or in the `01batchCompile.log` files from the `$QADQDT/logs` directory.

The example below assumes you are installing ICT into `/dr01/qadapps/ict` to an existing 2010 EE installation found in `/dr01/qadapps/qea` with QDT in `/dr01/qadapps/qdt.`

```
#!/bin/ksh
DLC=/dr01/progress/dlc; export DLC
PATH=$PATH:$DLC/bin; export PATH
QADEA=/dr01/qadapps/qea
QADICT=/dr01/qadapps/ict
QADQDT=/dr01/qadapps/qdt
QADENV=live
PROPATH=$QADQDT/xmfgusrc:$QADQDT:$QADQDT/resources; export PROPATH

cd $QADQDT
$DLC/bin/_progres -pf $QADQDT/envs/$QADENV/scripts/batchCompile.pf -param
"rcodeDestFormat=1,compileListFilename=$QADICT/utcompil.wrk,destinationDirectory=
$QADICT,compilePropath=$QADICT/xrc:$QADEA/xrc:$QADEA/xrc/proxy:$QADEA/fin" >>
$QADICT/compileICT.log 2>&1
```

Run the above script and check the log file.

```
04/20/12 @ 10:04:54 [root] - Compiling /dr01/qadapps/ict/xrc/icuatxrp.p
04/20/12 @ 10:04:54 [root] - Compiling /dr01/qadapps/ict/xrc/icuipers.p
04/20/12 @ 10:04:54 [root] - Compiling /dr01/qadapps/ict/xrc/icuitmt.p
04/20/12 @ 10:04:54 [root] - Compiling /dr01/qadapps/ict/xrc/icvlmt.p
04/20/12 @ 10:04:54 [root] - Compiling /dr01/qadapps/ict/xrc/runProgramMapper.p
04/20/12 @ 10:04:54 [root] - Compiling /dr01/qadapps/ict/xrc/whapist.p
04/20/12 @ 10:04:55 [root] - Compiling /dr01/qadapps/ict/xrc/whapish.p
04/20/12 @ 10:04:55 [root] - Compiling /dr01/qadapps/qea/xrc/whgblmgr.p
04/20/12 @ 10:04:56 [root] - Compile contained 3 errors.
04/20/12 @ 10:04:56 [root] - Compile contained 0 warnings.
```

Make sure that the Propath is set properly to point to the `$QADICT` folder in the first position:

ICT,(NETUI),(QXTEND),(MSW/PSW),(WMS),CORE (all core layers, including BBI, FIN, QRA, PROXY)

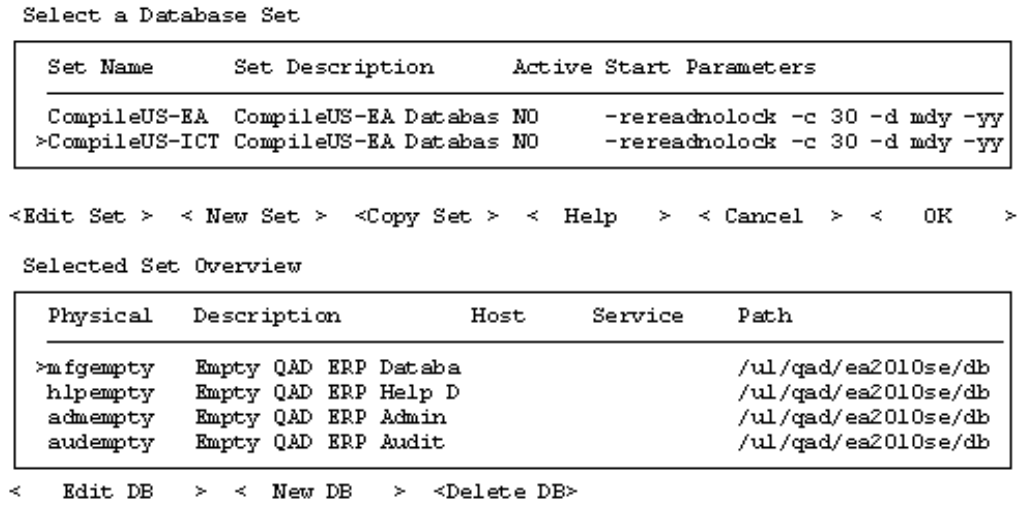
Both the compilation and runtime Propath should be adjusted to the following order:

1. (CUST/PATCH/LOCAL)
2. ICT
3. (NETUI)
4. (QXTEND)
5. (MSW/PSW)
6. (WMS)
7. CORE (all core layers, including BBI, FIN, QRA, PROXY)

Standard Edition

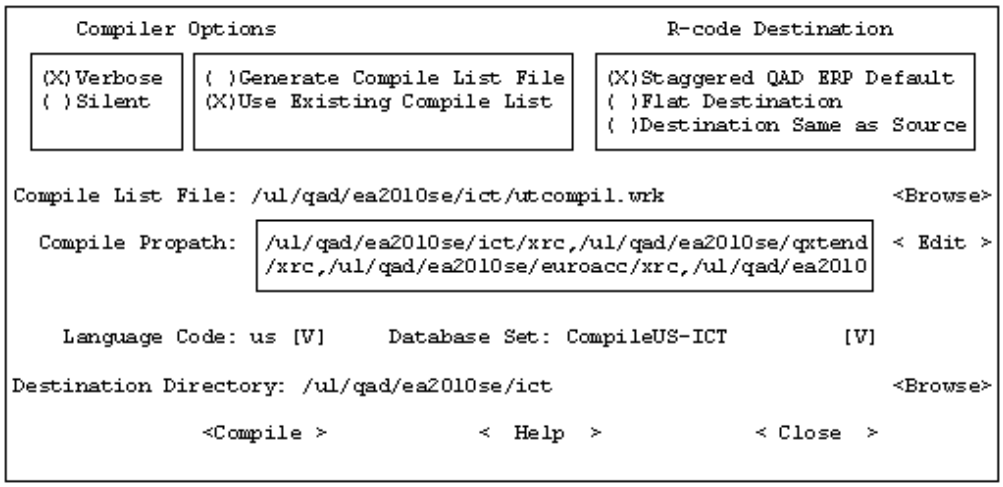
Launch the main mfgutil utility script/shortcut from the `$QADEA` directory. Alternatively, to avoid modifications to the main MFG/UTIL, copy `mfgutil` and `mfgutil.ini` to the `$QADICT` folder. Adjust the mfgutil script/shortcut to run it in the `$QADICT` working directory, then launch this utility from `$QADICT`.

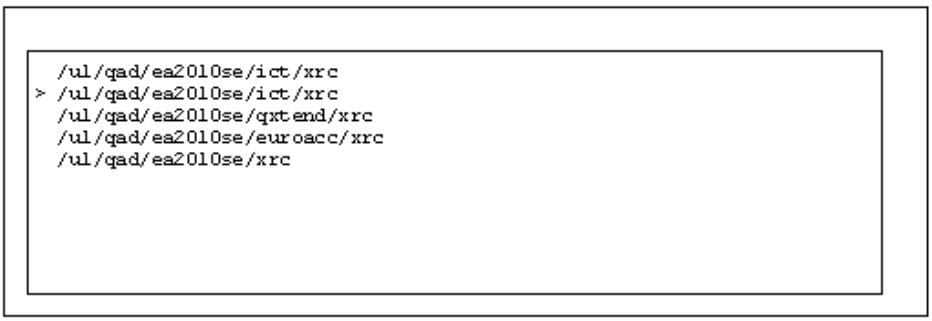
Copy the existing compilation database set used to compile European Accounting or base programs or any other layer that connects to all required databases (for example, CompileUS-EA or CompileUS, or Compile) and create the CompileUS-ICT database set.

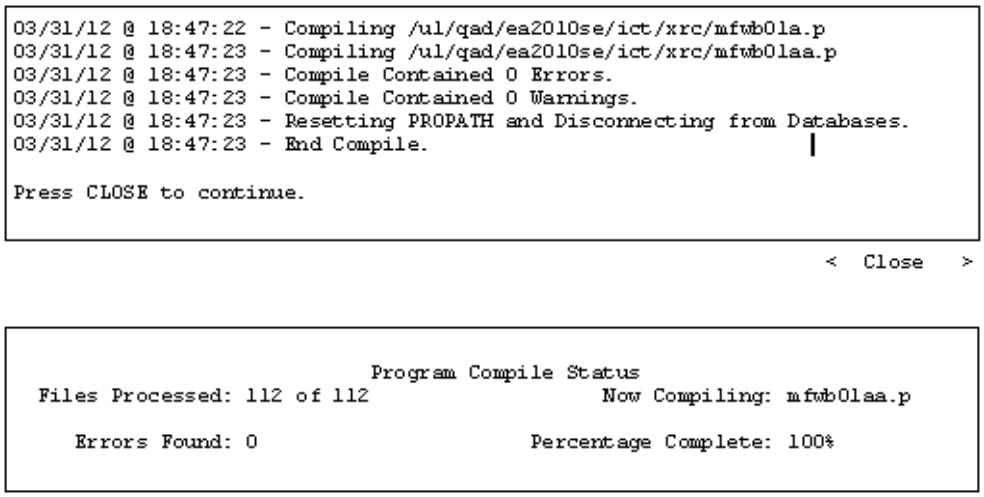


Add corresponding database sets for each required language (for example, CompilePL-ICT) based on existing database sets connecting to the language-specific compilation databases.

Compile ICT for US language using the just-created database set and the `$QADICT/utcompil.wrk` compilation list. Make sure that the Propath is set properly to point to the `$QADICT` folder on the first position: ICT,(QXTEND),(MSW/PSW),(WMS),CORE (all core layers, including BBI, FIN, QRA, PROXY).







Note R-code of AIM programs (wh* programs) should not be stored in the standard language directory (`/<language>/wh`). It should be compiled directly in the `$QADICT` directory.

Do this by adding the following QAD Warehousing (AIM) related programs to the `$QADEA/toplevel.lst` file:

```
cpdchk.r
cpdmf.r
cpdmf1.r
cpdst2.r
```

```
cpdstart.r
cpdstop.r
cpdtrig.r
whaimapi.r
whapist2.r
whmf1.r
whtrtxfr.r
```

This will ensure that these QAD Warehousing top-level programs will be compiled to the proper directory during all subsequent compilations done with MFG/UTIL.

Non-domained Versions

If you install QAD ICT on a non-domained version of QAD Enterprise Applications, read this section first, then perform the compilation described in the appropriate paragraph for the customer's version of QAD Enterprise Applications.

QAD ICT has been developed for eB2.1+ (domain version), but can also be installed on non-domain releases. If this is the case, set QAD ICT to non-domain, review the browse definitions, and regenerate these.

Note It is assumed that QAD Services will supply the correct icdomain.i and dump file before installing.

Setup File

As QAD ICT by default is set up for domained versions of QAD Enterprise Applications, you must change a setup file before you compile the software.

Copy the `icdomain.i.non-domained.mfg` file from the `/mfg` directory and rename it to `icdomain.i`. Move the file to the xrc layer (thus overwriting the default).

Additional Tasks for All Versions

After compilation, perform the tasks described in this section for all versions of QAD Enterprise Applications.

Make sure that your ERP application processes (including connection manager, telnet, and character client) are running with the OS user ID that belongs to the same OS group, to ensure that the newly created program files will be accessible from both .NET UI and character UI.

For this reason, the umask for these users should be set to 002 instead of the default 022. This value can be set either in a user login profile (.profile, .bash_profile, .bashrc, and so on, depending on the default shell assigned to the user) or in the application startup scripts (connmgr.*, telnet.*, client.*)

Update Runtime Scripts and Properties Files

Add `$QADICT` to the Propath for all QAD Enterprise Applications processes, including character client, connection manager, telnet, appserver, webspeed.

The `$QADICT` directory should be added just after the PATCH or CUST layer, before other QAD products folders, to follow the order: (CUST/PATCH/LOCAL), ICT, (NETUI), (QXTEND), (MSW/PSW), (WMS), CORE (all core layers, including BBI, FIN, QRA, PROXY).

Update the QGen client to run `$QADICT/runProgramMapper.r`.

Note In a 2016 EE YAB environment, the ICT layers are automatically added to the various session Propaths.

Note In a 2016 EE and YAB environment, the `./scripts/client-qgen.sh` startup program is automatically updated with the `runProgramMapper.p` bootstrap program as shown below:

```
$DLC/bin/_progres -pf /qad/dev01/qad02/build/work/generated/application.pf
$STARTUP_PARAMS -cpinternal $CODEPAGE -cpstream $CODEPAGE -p
com/d/qra/core/ClientBootstrap.p -param startup=runProgramMapper.p,mfgwrapper=
true,apimode=true,logfile=/qad/dev01/qad02/build/logs/client/sessi-qgen-${USER}.log
```

Start QAD Enterprise Applications

If no compilation errors occurred, log on to the environment for which you installed QAD ICT. At this point, QAD ICT is not active yet. QAD ICT data (such as message numbers and menus) must be loaded and QAD ICT must be activated.

Note If menu 90 has already been used, you can manually update the `qadict.dmp`. For any other change, please contact QAD Services.

Note The `qadict.dmp` is provided for the iso8859-1 and compatible codepages setup. If you run an incompatible codepage setup (for example, 1250), the `qadict.dmp` must be adjusted accordingly:

```
[Session]
Numeric-format=AMERICAN
Date-Format=mdy
cpstream=1250
cpinternal=1250
```

UPGRADE NOTE QAD ICT 1.0 has a different menu structure. Because of this, if you upgrade ICT 1.0 to ICT 4.0 or higher, the existing ICT menu must be deleted before you start loading data. To delete the whole QAD ICT menu, run the `icmenrm.p` program.

```
+-----------------------------------------------------++------------------+
|Warning!!Procedure will delete the existing QAD ICT menu.||Start deleting: yes|
+-----------------------------------------------------++------------------+
```

UPGRADE NOTE If you upgrade QAD Enterprise Application Enterprise Edition, you must perform a System Sync with the Resource option selected using System Synchronize after running `icmenrm.p`.

UPGRADE NOTE If you upgrade QAD Enterprise Applications from a non-domained version, you must run the conversion tool `ictcnv36.p` to add the proper domain into your customizations. Run the tool after you load all customizations into the new system.

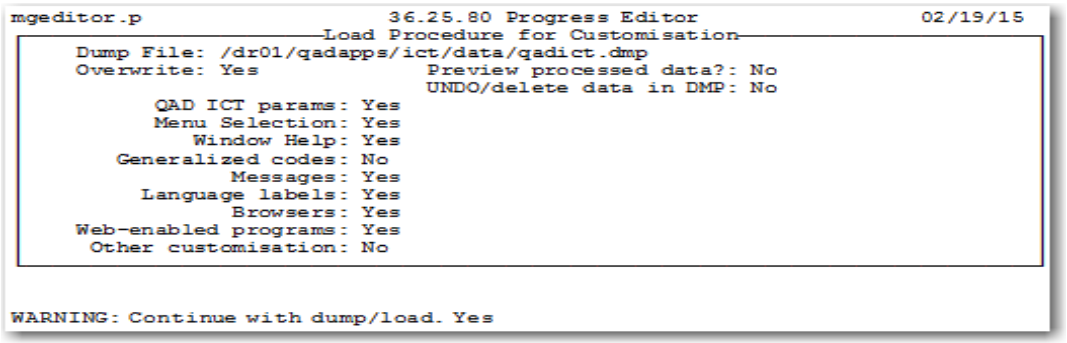
UPGRADE NOTE If you upgrade to ICT 4.1.18, you must recompile all existing program hooks callers.

After logon, start the QAD ICT Data Loader program `icdatmt.p` from the menu. For an Enterprise Edition release, go to the editor (via `mgeditor`) and execute the 4GL command: `run us/ic/icdatmt.p` (as the menu permissions have not been set yet).

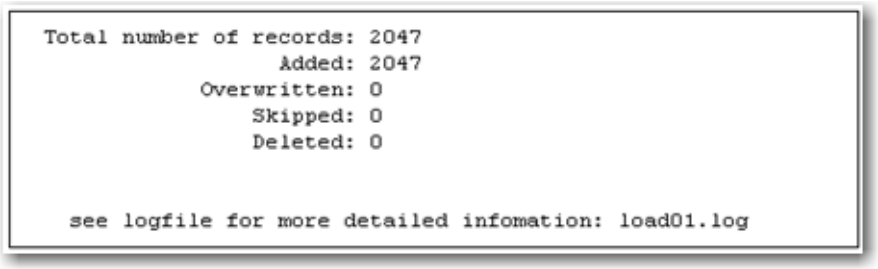
In the loader program, fill in the QAD ICT dump file name `qadict.dmp`. (The `qadict.dmp` supports both Standard Edition and Enterprise Edition.)

2016 EE and YAB only: The file is located in the local catalog after yab install. For 2016 EE, the one in the directory ending with "_2" should be used:

```
$ find . -name qadict.dmp
./build/catalog/packages/integrated-customization-
toolkit/4/1/20/0/4.1.20_2/data/qadict.dmp
./build/catalog/packages/integrated-customization-
toolkit/4/1/20/0/4.1.20_1/data/qadict.dmp
```



After confirmation, QAD ICT loader will load the data and summarize what has been loaded (details can also be found in the log file). The number of records can differ depending on which QAD ICT release you are installing.



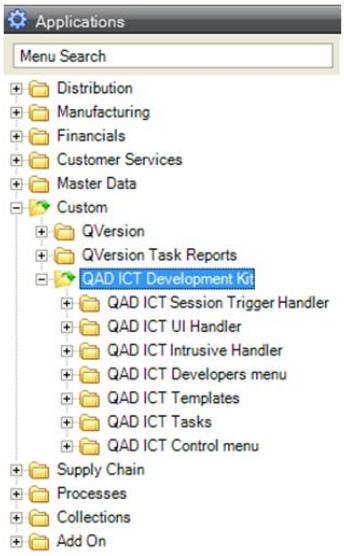
When installing in a Standard Edition release, you should have the QAD ICT menu available as option 90 in the main system menu (if it was not changed manually in the `qadict.dmp` file).

2016 EE and YAB only: After the file is loaded, you need to perform both module-ict-control-update and fin-sync-run (financial synchronization) processes:

```
$ yab -clean module-ict-control-update

                    module-ict-control-update (1 task)
-------------------------------------------------------------------------------
1/1 module-ict-control-update                                 OK (0.319 s)
-------------------------------------------------------------------------------

BUILD SUCCESSFUL (7.254 s)
$

$ yab -topic:Topic15 fin-sync-run

                            fin-sync-run (1 task)
-------------------------------------------------------------------------------
1/1 fin-sync-run                                              OK (2.608 s)
-------------------------------------------------------------------------------

BUILD SUCCESSFUL (3.745 s)
```

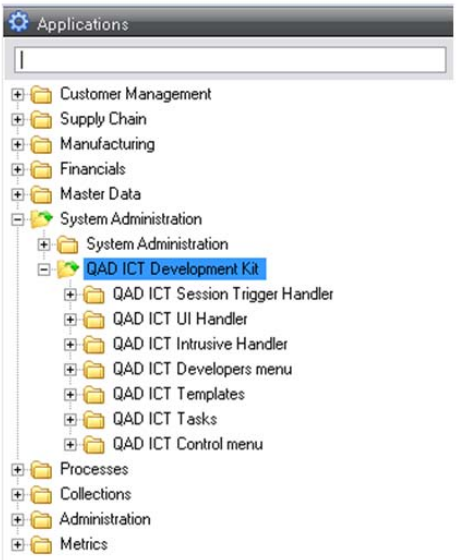
If any of those steps fail, check `./build/log/yab.log` file for errors. After the two yab processes above are run, you need to manually set the permissions for 90.* menus in .NET UI Role Permissions Maintain (36.3.6.5).

In .NET UI, you will see the ICT menu in the Custom menu, QAD ICT Development Kit.



When installing in an Enterprise Edition release, synchronization should be performed automatically during `.dmp` file loading. If you received any synchronization errors when loading the `.dmp` file, perform a System Sync with the Resource option selected using System Synchronize. Do a log-off/on and run Role Permissions Maintain (for SuperUser) and update permissions to ICT menu options accordingly. See the QAD Enterprise Edition *Security and Controls User Guide* for information about setting up security roles.

In .NET UI, after log-off/on, you will see QAD ICT in the System Administration Menu, QAD ICT Development Kit.

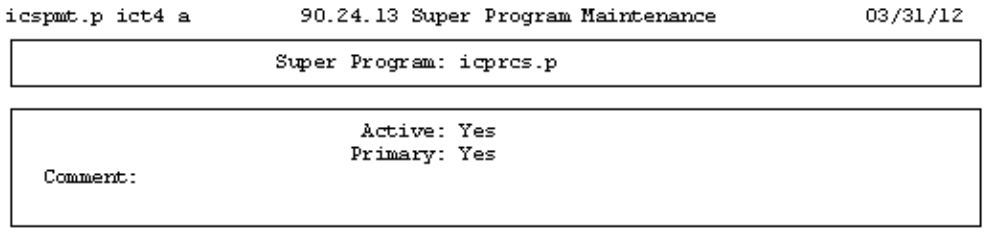


Define QAD ICT Licensing (ICT Toolkit Only)

Note Complete this task only if you purchased an ICT Toolkit License. If you only have a runtime license, skip this section.

Run License Registration (36.16.10.1) and register the license provided by GCA. See the QAD Enterprise Application user guide section on License Registration for details.

To make sure that QAD ICT will be loaded during startup, run Super Program Maintenance (90.24.13) and check for two records. The most important one is `icprcs.p`.



If the Active and Primary fields are not set to Yes, QAD ICT might not work correctly as the QAD ICT package must be loaded (during startup) as the first (super) package.

In addition to `icprcs.p`, also make sure that `icrctrg.p` (for Active change Triggers) is defined as a super procedure and that Active is set to Yes and Primary to No.

2016 EE and YAB only: Make sure that the toolkit is enabled within YAB:

```
$ yab config ict.toolkit
ict.toolkit=true
BUILD SUCCESSFUL (1.315 s)
```

If not true, then add the `ict.toolkit=true` line in `build/config/configuration.properties` and perform a full yab update (this also fully restarts the environment).

Set Up QAD ICT Control Table (ICT Toolkit Only)

QAD ICT Control Table (90.24.24) defines where the ICT Developer Menu is installed. If during the initial load of QAD ICT data the menu numbers were changed, enter here the changed menu number in this program.

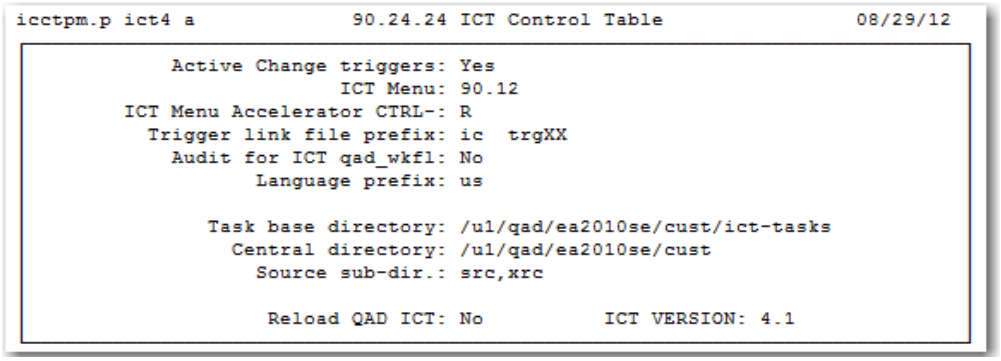
The language prefix defines the default language that is being used for the customer (in most cases, that will be US).

Task base directory is used to indicate where task subdirectories are created. Task directory is obtained by concatenating the base directory and the task ID. The new or modified custom procedures are kept in the task directory and compiled there as long as the task is open. Once the task is closed, all such files are moved automatically to the central directory (r-codes to global_user_lang_dir + first two letters subdirectory, source code files to the first source subdirectory) and thus become visible to all users.

Central directory is used to indicate the directory where the customer customizations are stored (subscriber, UI triggered, validation, other non ICT-related procedures). This directory is usually the first one on the Propath.

Both the task base directory and central directory must have full write, read, and execute rights for further ICT developers.

Source sub-dir defines a comma-separated list of source subdirectories used to extend the Propath. The first subdirectory is the target subdirectory for customized source files in the central directory.



Note If you have a runtime license, Active Change Triggers must be No to improve overall performance.

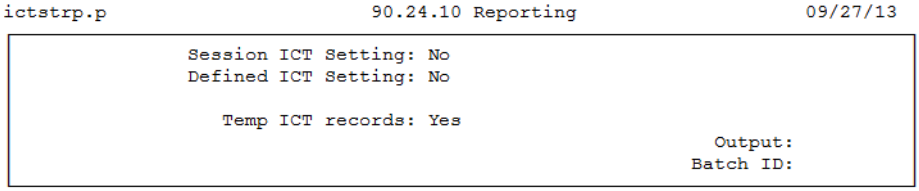
QAD ICT is reloaded if Reload QAD ICT is set to Yes and you press F1 (Go). Optionally, you can log off and log on again to QAD Enterprise Applications. The ICT processing is restarted ONLY for the current user. For .NET UI/Desktop users, restart the Connection Manager.

UPGRADE NOTE When you upgrade your QAD ICT installation, it is necessary to run two procedures that automatically adjust your existing customizations to ICT 4.1 requirements. It is very important to run them after ICT Control Table configuration. Remember to close all WIP ICT tasks; otherwise, ICT closes them automatically. Run the program `ictcnv35.p` to update the existing Frame & Fields settings. Run the utility `ictcnv34.p` (it is best to run the compiled version, `us/ic/ictcnv34.r`) to convert existing ICT tasks to conform to the new version of ICT. This procedure assigns all existing customizations that are not linked with any task to the new created task. (The system prompts you for the task name during the conversion.)

UPGRADE NOTE When you upgrade your QAD ICT installation, it is important to authorize all developed customizations. To do this, run the authorization tool program `icauthmt.p`. Execute `icauthmt.p` and reload QADICT.

Validate that QAD ICT Is Working

Important **Note that procedure `icacc.p` in the following screenshots was used before ICT 4.0. Since ICT 4.0, it has been replaced by `icaccX.p` (where *X* is the shortcut key) or is not present at all (if the shortcut key is not defined in ICT Control Table, 90.24.24).**



```
ictstrp.p ict4                          a              90.24.10 Reporting                                        Date: 06/18/13
Page:    1                                                    10USA                                               Time: 03:31:33

Temp ICT records
-------------------------------------------------------------------------------------------------------------------------------

Key 1                Key 2                Key 3               Key 4               Character Field 1    Decimal Field 1
-------------------- -------------------- ------------------- ------------------- -------------------- ---------------
QadIctPersistentProg icacco.p                                 1046                activateTriggers us/            0.00
QadIctPersistentProg icentron.p                               7445                startUIEntry us/ic/i            0.00
QadIctPersistentProg ictrg00.p                                7443                activateTriggers us/            0.00
QadIctPersistentProg icuipers.p                               7444                activateTriggers us/            0.00

QadIctSuperProcedure icprcs.p                                 7439                us/ic/ictstart.p                0.00
QadIctSuperProcedure icrctrg.p                                7441                us/ic/ictstart.p                0.00

Trigger              delete brw_mstr      us/ic/icrctrg.p     ?                   us/ic/icrctrg.p                 0.00
```

If you do not get this screen (search for Key 1 data QadIctSuperProcedure) or you get run-time error messages (for example, *** “getTempTable” was not found. (293)), QAD ICT is not loaded (via the restart or log off/on).

If this happens, make sure that the Propath is set up correctly and is first pointing to the customized QAD ICT `mf1.p`. If you cannot resolve the issue, contact QAD Services.

Run the same validation in .NET UI. The same information as in Character UI should be displayed.

If QXtend Inbound is installed:

1. Run the 90.24.10 report in a QGen session. This should result in the following information:

```
ictstrp.p                                                  90.24.10 Reporting
Page:    1                                                        10USA

Temp ICT records
-------------------------------------------------------------------------------

Key 1                Key 2                Key 3               Key 4
-------------------- -------------------- ------------------- ----------------
QadIctPersistentProg icentron.p                               1041
QadIctPersistentProg icuipers.p                               1040

QadIctSuperProcedure icprcs.p                                 1037
QadIctSuperProcedure icrctrg.p                                1039

Trigger              delete brw_mstr      us/ic/icrctrg.p     ?
Trigger              delete code_mstr     us/ic/icrctrg.p     ?
Trigger              delete cref_mstr     us/ic/icrctrg.p     ?
Trigger              delete drl_mstr      us/ic/icrctrg.p     ?
Trigger              delete flh_mstr      us/ic/icrctrg.p     ?

Browse or type search string and press [RETURN]:
```

2. Run the QXtend UI adapter script. (The exact name and path of this script can be found in the QXtend UI Adapter connection pool configuration settings; for example, `/u1/qad/ea2010se/qxtend/client.qxtend`.)

   The method is prepared for scripts in single-byte encoding, so this should be used in Standard Edition. To test QXtend and ICT in Enterprise Edition, which uses UTF-8, the QXtend script must be copied and adjusted to one-byte encoding. (Note that this copy is only for testing purposes. Connection Manager must point to the original script.)

   Enter or paste the following connection string in the empty field displayed by the UI adapter script (it requires that the “mfg” user in the application has no password defined):

   `app=ictstrp.p;id=qps;ip=127.0.0.1;term=vt320;xenguser=mfg:`

   and run the report with Output to “terminal” instead of “page.”

```
ict4 ict4 a
```

```
              Session ICT settings: No
              Defined ICT settings: No

                  Temp ICT records: Yes
                                                          Output: terminal
                                                        Batch ID:
```

```
ict4 a
                                    Date: 03/31/12
Page:    1                                              qad.inc
                                    Time: 21:48:17

Temp ICT records
-------------------------------------------------------------------------------

Key 1                Key 2               Key 3               Key 4               Character Field 1    Decimal Field 1
-------------------- ------------------- ------------------- ------------------- -------------------- ---------------
QadIctPersistentProg icentron.p          1045                startUIEntry        us/ic/i                        0.00
QadIctPersistentProg icuipers.p          1044                activateTriggers    us/                            0.00

QadIctSuperProcedure icacc.p             1042                                    us/ic/icmf.p                   0.00
QadIctSuperProcedure icprcs.p            1040                                    us/ic/icmf.p                   0.00
QadIctSuperProcedure icrctrg.p           1043                                    us/ic/icmf.p                   0.00
```

Enterprise Edition

The QXI UI API runtime process bypasses the screen buffer (due to UTF-8 requirements), so nothing is displayed and the report is not presented on the screen.

The above test, however, can still be executed using these two variations:

- Invisible

  Accept the first invisible frame with ctrl-x (like it was visible), then enter “file1” for the “output to” field (also invisible) and accept with ctrl-x. After the report is executed, the `file1.prn` file will be created in the home directory.

- Verbose

  Make a copy of the client.qxtend script and remove the “-ucc” parameter, which will switch back the screen buffer processing. The codepage can be also changed from utf-8 to iso8859-1 to display frames properly.

Product Information Resources

QAD offers a number of online resources to help you get more information about using QAD products.

QAD Forums (community.qad.com)
Ask questions and share information with other members of the user community, including QAD experts.

QAD Knowledgebase (knowledgebase.qad.com)*
Search for answers, tips, or solutions related to any QAD product or topic.

QAD Document Library (documentlibrary.qad.com)
Get browser-based access to user guides, release notes, training guides, and so on; use powerful search features to find the document you want, then read online, or download and print PDF.

QAD Learning Center (learning.qad.com)*
Visit QAD's one-stop destination for all courses and training materials.

*Log-in required