User Guide

QAD Customer Version Control

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

Contents

QAD CVC User Guide Change Summary

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

Date/Version	Description	Reference
December 2018/2.6.1.0	Rebranded for CVC 2.6.1.0	--
November 2018/2.6.0.1	Initial version	--

Chapter 1

QAD CVC Overview

This chapter provides a functional and architectural overview of QAD Customer Version Control (CVC).

Introduction to Customer Version Control

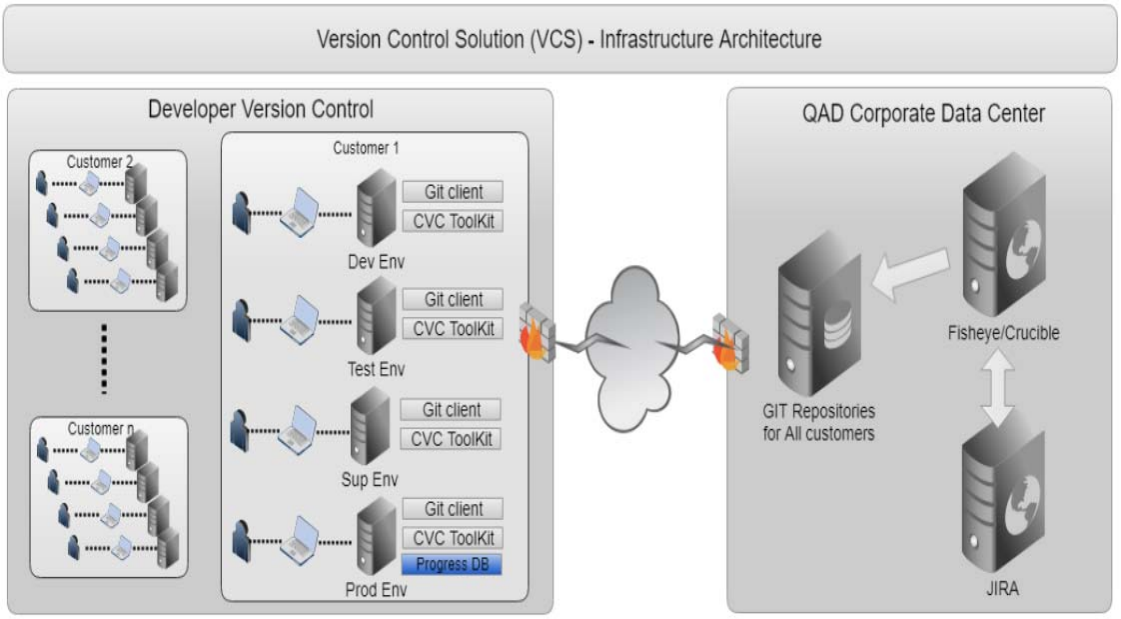
QAD Customer Version Control, also known as QAD CVC, is a version control system (VCS) for software delivery. It provides a controlled, traceable, and secure process for the maintenance, update, and delivery of software within customer environments.

QAD CVC is an integrated tool chain providing version control for QAD service software development life cycle (SSDLC). It is specifically tailored for the QAD customization development process.

Architecture

QAD CVC is a command line toolkit and is based on Git. It requires a Progress database to store all the metadata. The CVC toolkit should be installed in customer environments including development, test, support, and production. CVC pushes changes to a remote Git repository hosted by QAD, and this repository is connected to QAD's JIRA and Fisheye systems.

Fig. 1.1
Architecture of QAD CVC

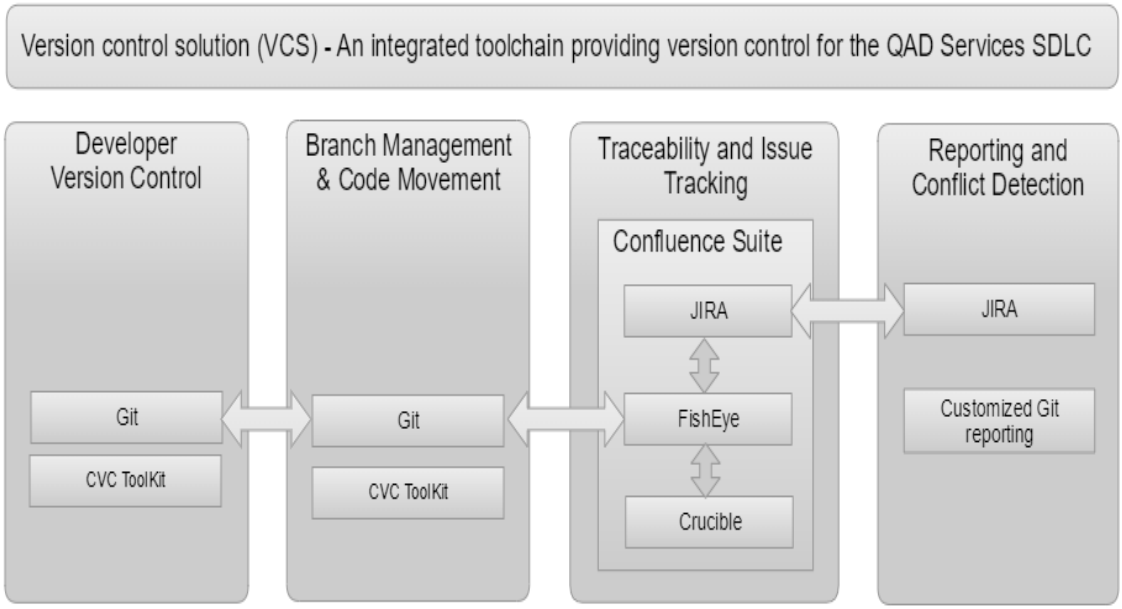


Key Features

QAD CVC provides the following key features:

- Developer version control
- Branch management and code movement
- Traceability and issue tracking
- Reporting and conflict detection
- QAD compile tools integration

Fig. 1.2
Key Features of QAD CVC



Developer Version Control

The developer version control process is the foundation layer of the CVC system. The CVC toolkit records changes to a file or a set of files over time so that you can recall specific versions later. It helps developers increase productivity and enhance code quality while improving communication between different development teams.

QAD CVC also allows environment-breaking changes to be reverted, quickly restoring functionality. In addition, developer version control enables users to set up a standardized development process, making sure that all file changes are linked to valid tickets. This also ensures code integrity, making sure that code cannot be accidentally overwritten by others in the future.

Branch Management and Code Movement

QAD CVC has embedded a special branching and merging strategy built atop Git for source control, with specific attention paid toward the goals of quality, integrity, and ease of development. It allows you to pick file changes by ticket and apply them easily in the test and production environments. It also checks dependencies between tickets so you can make sure not to promote partial ticket changes if multiple tickets have changed the same file.

Traceability and Issue Tracking

QAD CVC keeps a full history of content changes. It tracks every change made in the environments detailed with the modifier information, modified date, and the changed content itself.

QAD CVC provides granular access control to CVC commands. This is regulated by user roles and environments, thus ensuring that only the right people can make changes to the code. QAD CVC also stores all activity history in the database, allowing users to view full command history through provided reports.

QAD CVC is integrated with a suite of commonly used tools for issue tracking, namely, QAD JIRA and Fisheye systems. JIRA automatically updates issues and transitions work when code is committed in CVC. Developers can directly create new code reviews from JIRA tickets and use the QAD Fisheye system to review the file changes online.

Reporting and Conflict Detection

QAD CVC provides various reports based on the commit history and metadata stored in the database. The reports can be exported to files in several different formats and can be sent to email addresses as attachments directly.

QAD CVC can help developers to analyze the impact of a version upgrade or new installation of a standard product or patch release. It can generate a report listing all customized files that may be affected by applying the incoming update. The listed files should then be reviewed and revised to ensure that they work with the new updated files.

For more details about available reports, see “Report Process” on page 17.

QAD Compile Tools Integration

QAD CVC is integrated with all major QAD compile tools, including YAB, QDT, and MFGUTIL. The compilation process is triggered after CVC commits file changes in the environment. The compile propath is predefined in the metadata for each file, so users can make sure the files are always compiled with the same compile propath in all customer environments. If the compilation fails, CVC immediately rolls back the file changes to the previous version to keep the environment in a clean and usable status.

CVC Basics

User Roles

QAD CVC has a well-organized permission control system based on user roles. Users can only run the set of commands relevant to their roles. Administrator users can entitle each role to different sets of CVC commands in different environments. One user can be assigned with multiple roles.

The following roles are predefined in CVC:

- Developer

  Developer users can access the commands related to their development work—for example, `cvc checkout`, `cvc checkin`, and `cvc report`.

- Release manager

  Release manager users can use commands like `cvc promote` and `cvc backout` to make changes to the non-development environments.

- Reporter

Reporter users can only run reporting-related commands, and they do not have access to make code changes to the environments.

- Administrator

  Administrator users manage all the CVC metadata information, such as users, roles, modules, environments, and so on.

Environment Model

Generally, for a CVC customer, there are three environments that need to be maintained with one code base. The environments are named `devl` (for development), `test` (for testing), and `prod` (for production). Those environments are predefined in the CVC database. CVC allows administrator users to define more environments for multi-site customers, but this document only describes the simple environment model.

New customizations can only be added in the development environment, which should always be the first entry in the environment list. The other environments only accept code changes through the `cvc promote` command. This command can help users pick the changes by ticket and apply them easily to the target environment.

Code changes can only be promoted from one specific environment to one target environment. The former environment is defined as the target environment's pre-environment in the system metadata. Users cannot change the pre-environment once it is set. For example, the `test` environment's pre-environment is `devl`, so every change in the `test` environment should be from the `devl` environment.

The typical workflow is as follows:

1. Developers check in new changes in the `devl` environment.
2. Then, after code review and approval, release managers can promote the code changes from `devl` to `test` for testing purpose.
3. Finally, if the changes work as expected, release managers can promote them from `test` to `prod` to put them online.

Module Definition

The concept module in CVC includes the detailed information of a file object, including parent directory and all compilation-related information. All the files in the version control system should be linked to a module. Users need to specify the module when they try to add new files into version control. This makes sure the files are placed in the correct directory and are always compiled with the same settings across the environments.

Module fields vary with environment types. For example, the `yab-process` and `code-instance` fields are available only in YAB environments. You can check the list of all the modules in the current environment with the `cvc module-show` command. Administrator users can add more modules and update existing modules with the `cvc module` command.

Table lists all module fields and their descriptions.

Table 1.1
Module Fields

Field	Description	Example
name	Module name	mfgpro_cust
type	Module type (standard or custom)	custom
root-dir	Root directory to store source code	mfgpro/xxsrc
src-dir (optional)	Unencrypted source directory (relative to `root-dir`)	src
xrc-dir (optional)	Encrypted source directory (relative to `root-dir`)	xrc
work-dir (optional)	Work directory to put rcode (relative to environment directory)	mfgpro/xxsrc/work
yab-process (optional)	YAB process to compile	code-mfg-update
code-instance (optional)	Name of the YAB code instance	mfg
rcode-dir (optional)	Directory to put rcode files (relative to environment directory)	mfgpro
compile-propath (optional)	Propath for compile (separated by commas)	mfgpro/xxsrc/src, mfgpro/xrc, mfgpro/src
compile-pf (optional)	Compile pf file (relative to deploy tool's directory)	scripts/batchCompile.pf
languages (optional)	Languages code to compile module	us
rcode-layout (optional)	rcode layout (three options available: `staggered`, `flat`, or `source`)	staggered
source-layout (optional)	Source layout (two options available: `twoletter` or `flat`)	twoletter
before-compile (optional)	Scripts to run before compilation	
after-compile (optional)	Scripts to run after compilation	

Getting Help

If you need help while using QAD CVC, there are two ways to get the comprehensive manual page (manpage) help for any CVC command:

```
$ cvc <verb> --detailed-help
$ man cvc-<verb>
```

For example, you can get the manpage help for the `cvc checkout` command by running the following command:

```
$ cvc checkout --detailed-help
```

You can access the commands anywhere, even offline. If the manual page or this document fails to help solve your issues and you need in-person help, you can try sending an email to the CVC forum (forum_customer_version_control@qad.com).

In addition, if you do not need the full-blown manual page help, but just need a quick refresher on the available options for a certain CVC command, you can ask for the more concise “help” output with the `-h` or `--help` options, as in:

```
$ cvc checkout -h
Customer Version Control -- checkout tool (2.6.0.0)
usage: cvc checkout <files>... -t <arg> [-l <arg>] [-f] [-c] [-n <arg>] [-e <arg>] [-h] [-
dh] [-y]
```

`-l,--list-file <arg>`	List containing the files to be checked out.
`-f,--force`	Forcibly check out files despite any lock.
`-c,--cancel`	Cancel the file checkout operation.
`-n,--note <arg>`	Note to check out files.
`-e,--env <arg>`	Name of the environment to operate on.
`-t,--ticket <arg>`	Ticket number.
`-h,--help`	Display help information.
`-dh,--detailed-help`	Display detailed help information.
`-y,--yes-to-question`	Answer yes to all questions.

Chapter 2

QAD CVC Usage

This chapter provides detailed instructions on using QAD Customer Version Control.

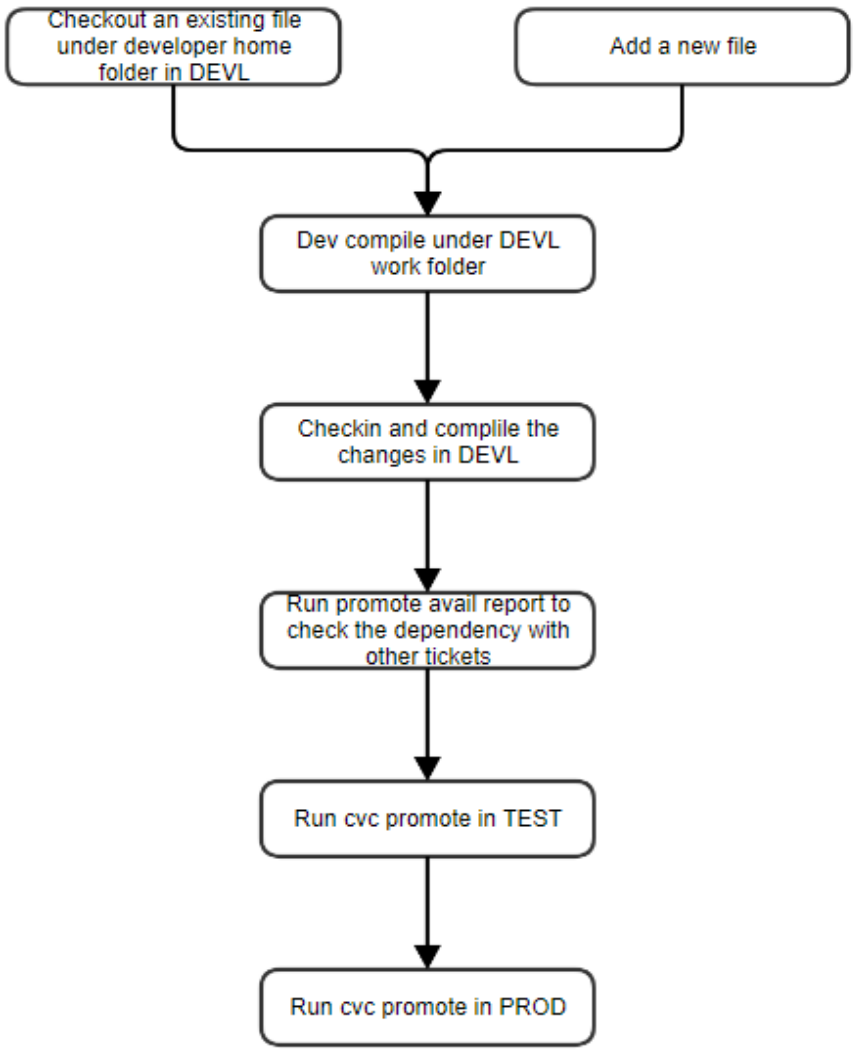
Typical Customization Process

This section describes how to perform a typical customization in the customer environment through CVC.

Process Diagram

Figure 2.1 illustrates the main customization process.

Fig. 2.1
Typical Customization Process Diagram



Process Description

A typical customization involves the following operations:

- Checking out an existing file

  Users can run the `cvc checkout` command to check out files.

CVC then locks all the files that have been checked out to prevent other users from checking out them.

Users can specify the `--force` option to use force checkout. This means the users acquire the file lock.

If user A checks out a file and user B then forcibly checks out the same file, user A needs to perform a checkout again. If there are conflicts, CVC shows a warning message and waits for a manual merge.

- Adding a new file

  Users can run the `cvc add` command to add files, but only brand-new files can be added by using this command.

  The `cvc add` command requires users to specify a module for the new files. The module determines the target folder to hold those files in the system as well as all compilation-related information of the files. Users can view all module information by running the `cvc module-show` command.

- Performing quick compilation

  Users can run the `cvc dev-compile` command to quickly compile local changes.

  The `cvc dev-compile` command reports the `nothing to compile` error if the users did not run the `cvc add` or `cvc checkout` command before.

- Checking in changes

  Users can run the `cvc checkin` command to check in changes.

  After modifying a file, which was checked out by using the `cvc checkout` command, the user could not check in this file if he does not have the file lock.

  When users add a file using the `cvc add` command, CVC checks whether the file already exists.

  The `cvc checkin` command requires a commit message and a ticket number. Such information is used in future promotion or backout.

  The `cvc checkin` command also involves compilation. The check-in fails if there is any compilation error.

Example

To add a new file `us/xx/xxnewfile.p` to module `Custom-MFG`, run:

```
$ cvc add --ticket CVC-100 --module Custom-MFG us/xx/xxnewfile.p
```

To check out an existing file `us/xx/xxsosorp.p` with ticket CVC-100, run:

```
$ cvc checkout --ticket CVC-100 us/xx/xxsosorp.p
```

After making some changes, to compile local changes within the work directory, run:

```
$ cvc dev-compile
```

To check in the changes with note, run:

```
$ cvc checkin --ticket CVC-100 --note "Add xxnewfile.p and change xxsosorp.p"
```

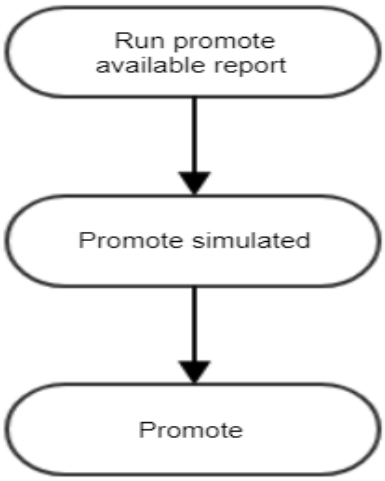
Ticket Promotion Process

This section explains the basic process of promotion and also discusses some special cases and errors that users may encounter when using the `cvc promote` command.

Process Diagram

Figure 2.1 illustrates the ticket promotion process.

Fig. 2.2
Ticket Promotion Process Diagram



Process Description

A typical ticket promotion involves the following operations:

- Obtaining the list of tickets available for promotion

  Users can run the `cvc promote --available` command to obtain the list of tickets available for promotion.

- Performing a simulated promotion

  Users can specify the `--simulate` option to perform a simulated promotion.

  The `cvc promote` command requires a ticket list and a promotion target environment, and uses tickets as promotion units.

  The `cvc promote` command checks the environment settings to determine the source environment. The pre-environment of the target environment is treated as the source environment.

  Users can specify multiple tickets within one `cvc promote` command to promote the tickets together.

- Performing promotion

  QAD recommends that users run a simulated promotion before the real one. In this way, users can check the file change list through the simulation first.

  The `cvc promote` command applies the ticket-related changes from the source environment to the target environment.

  The `cvc promote` command verifies ticket dependencies before conducting promotion.

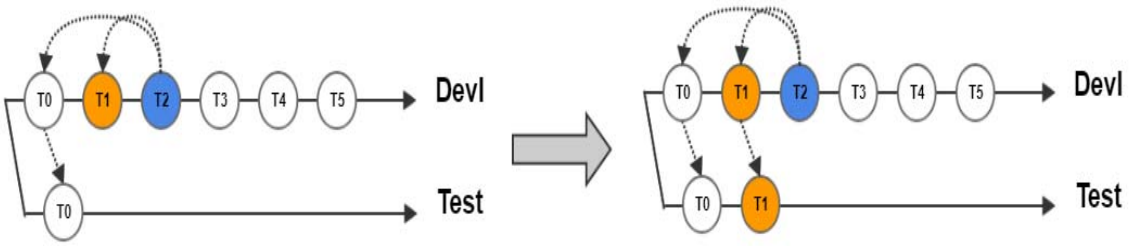
  The `cvc promote` command compiles the file changes during promotion.

  Users can specify the `--no-compile` option to avoid compiling the file changes.

The normal promotion process is completed if no error occurs. The following discusses some special cases and errors in promotion.

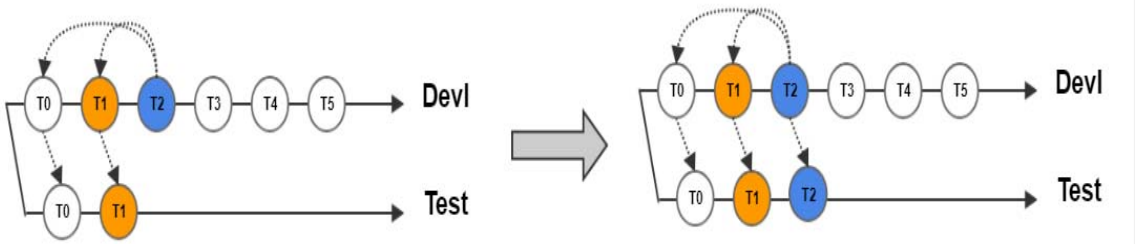
Example **Promoting dependent tickets**

Fig. 2.3
Promoting Dependent Ticket T1



Assume that T2 has dependencies with T1 and T0, and now you want to promote T2 to `prod`. There are two feasible ways to implement the promotion. You can either promote all T0, T1, and T2 in one command, or promote T0 and T1 before T2. Note that you cannot promote T2 without promoting T0 and T1. If you only promote T2, an error occurs. In this case, you need to promote it separately. Since T0 is already in the `test` branch, you only need to promote T1 before promoting T2.

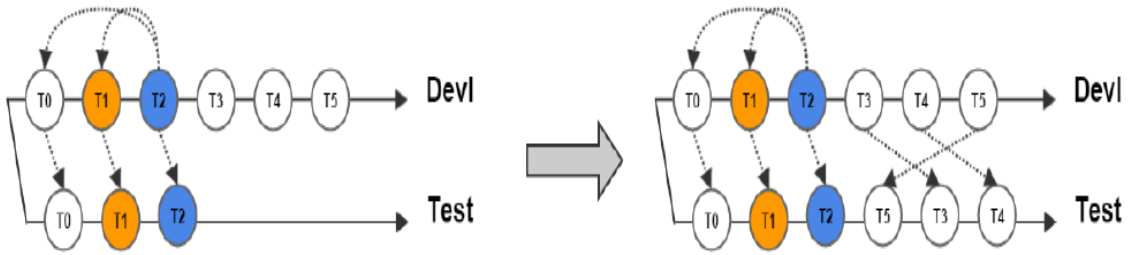
Fig. 2.4
Promoting Dependent Ticket T2



After promoting T1 into the `test` branch, you can promote T2 to the `test` branch because all dependent tickets (T0 and T1) have been already promoted to the `test` branch.

Example **Promoting independent tickets**

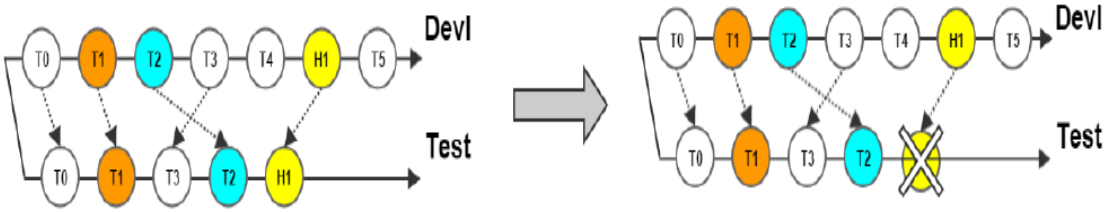
Fig. 2.5
Promoting Independent Tickets T3, T4, and T5



When promoting independent tickets, T3, T4, and T5, you could first promote T5, then T3, and finally T4 to the `test` branch. The sequence in the `test` branch is T5, T3, and T4 as the diagram above shows.

Example **Handling errors in promotion**

Fig. 2.6
Handling Errors When Promoting Ticket H1



If a promotion fails, CVC rolls back to exactly what the environment was before the promotion execution. As shown in Figure 2.6, the user promotes H1 from `devl` to `test`, but receives an error message. The system invokes the rollback function and removes all related data generated from this promotion in the `test` environment.

Example

To list all the tickets that could be promoted in the `test` environment, run:

```
$ cvc promote --available --env test
```

To simulate the process of promoting ticket CVC-101 to the `test` environment, run:

```
$ cvc promote CVC-101 --env test --simulate
```

To promote ticket CVC-101 from the `devl` environment to `test`, run:

```
$ cvc promote CVC-101 --env test
```

To promote ticket CVC-101 from the `test` environment to `sup`, run:

```
$ cvc promote CVC-101 --env sup
```

To promote ticket CVC-101 from the `sup` environment to `prod`, run:

```
$ cvc promote CVC-101 --env prod
```

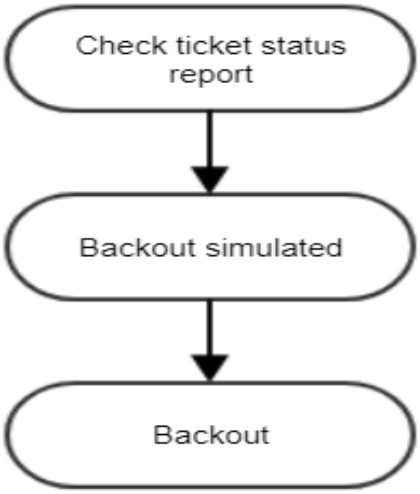
Ticket Backout Process

This section explains the basic process of ticket backout and also discusses some special cases and errors that users may encounter when using the `cvc backout` command.

Process Diagram

Figure 2.7 illustrates the ticket backout process.

Fig. 2.7
Backout Process Diagram



Process Description

A typical ticket backout involves the following operations:

- Obtaining the ticket status report

  Users can run the `cvc report --ticket` command to obtain ticket commit information.

  In the target environment, users can only back out the tickets that have not been promoted to the next environment.

- Performing a simulated backout

  Users can specify the `--simulate` option to perform a simulated backout.

  The `cvc backout` command requires a list of tickets and a target environment, and uses tickets as backout units.

  The `cvc backout` command checks the environment settings in the database. Users need to define the target environment.

  Users can specify multiple tickets in one `cvc backout` command to back out the tickets together.

- Performing a backout

  QAD recommends that users run a simulated backout before the real one. In this way, users can check the file change list through the simulation first.

  The `cvc backout` command reverts the ticket related changes in the target environment.

  The `cvc backout` command verifies ticket dependencies before conducting backout.

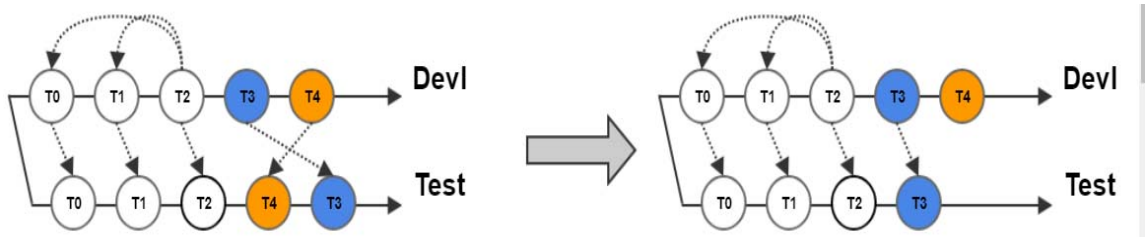
  Users can specify the `--no-compile` option to avoid compiling the file changes.

  If the target environment is the first environment (which means its pre-environment is empty), the environment is treated as a development environment. If users perform backout in a development environment, CVC prompts the users with a message asking if they want to back up those file changes in their local directory. As the changes in the development environment have not been promoted to any environment yet, users are not able to get back the changes easily after backout.

The normal backout process is completed if no error occurs. The following discusses some special cases and errors in backout.

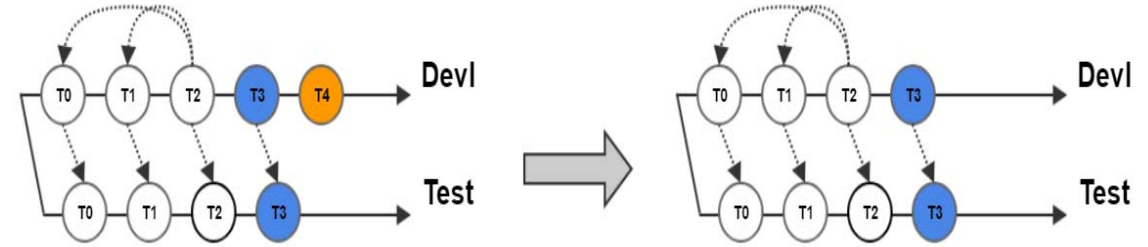
Example **Backing out independent tickets**

Fig. 2.8
Backing Out Independent Ticket T4 in test



Assume that you have promoted a ticket named T4 from the `devl` environment to the `test` environment and it has no dependency with other tickets. If you find T4 useless and want to remove it from `test`, you should run the `cvc backout` command in the `test` environment.

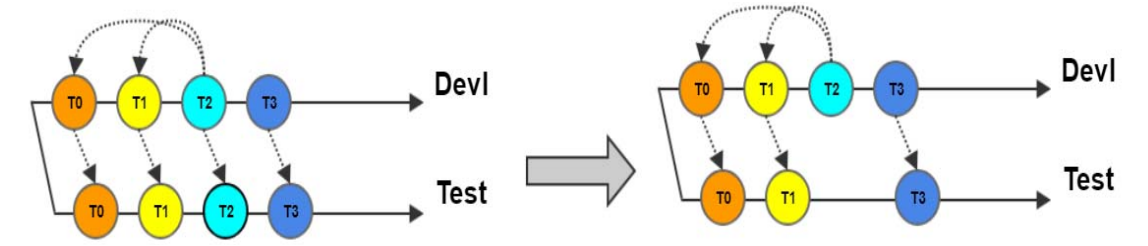
Fig. 2.9
Backing Out Independent Ticket T4 in devl



If you want to remove T4 from the `devl` environment, specify the `devl` environment. Then T4 is removed completely from `devl`.

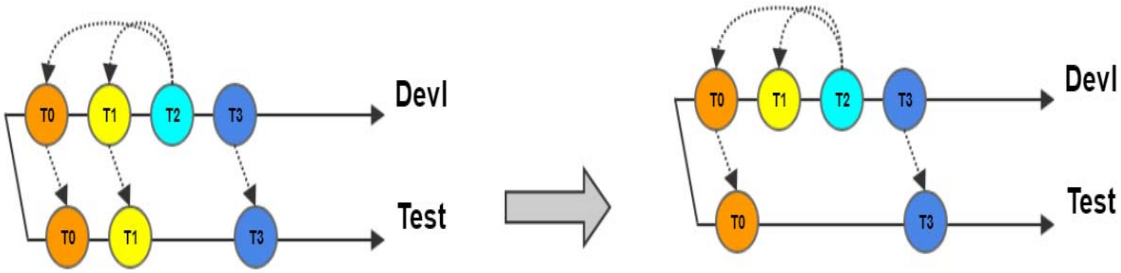
Example **Backing out dependent tickets**

Fig. 2.10
Backing Out Dependent Ticket T2 in test



Assume that you have a ticket named T2 and it has dependencies with two tickets, T1 and T0. T1 and T0 are independent to each other. If you want to back out T1, you have to back out T2 first.

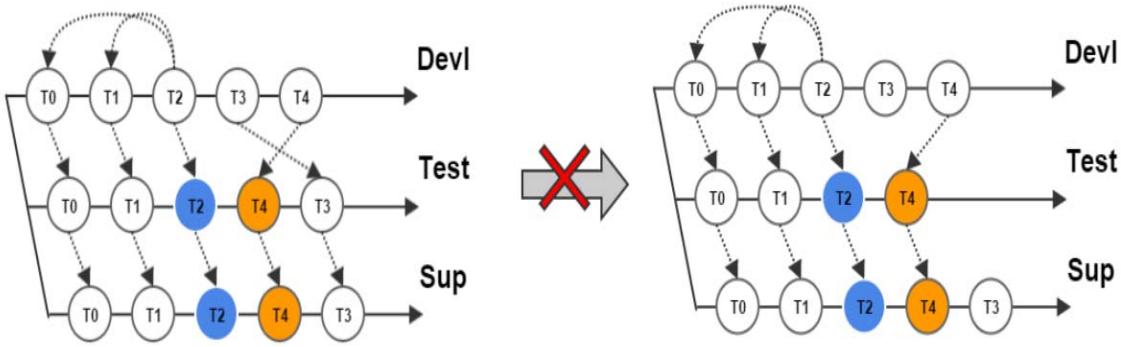
Fig. 2.11
Backing Out Dependent Ticket T1 in test



After backing out T2 from `test`, now you are able to back out T1 from `test`.

Example **Handling errors in ticket backout**

Fig. 2.12
Handling Errors When Backing Out T3 in test



Assume that you want to back out a ticket named T3 from `test`. The ticket has already promoted to `sup`, which means it is available in all four environments. It is illegal to back out a ticket when it still exists in a higher environment. In this case, you could not back out T3 before removing it from `sup`. In other words, you can back out a ticket in the current environment only after you have backed it out in all higher environments.

Example

To list all ticket commits in all environments, run:

```
$ cvc report --ticket CVC-101
```

To simulate the process of backing out ticket CVC-101 in the `test` environment, run:

```
$ cvc backout CVC-101 --env test –simulate
```

To back out ticket CVC-101 in the `test` environment, run:

```
$ cvc backout CVC-101 --env test
```

To back out ticket CVC-101 in the `devl` environment, run:

```
$ cvc backout CVC-101 --env devl
```

Report Process

This section introduces some report features of QAD CVC.

CVC supports the following reports:

- Activity log report

- File detail report
- Module detail report
- Environment commit report
- Ticket commit report
- Overlap report
- File history report
- Promote available tickets report
- Environment difference report
- Recent file report
- JIRA ticket status report

Users can run the `cvc report --help` command to obtain all the options in the help message.

Users can specify the `--report-type` option to obtain reports in different formats, such as default (tabular), csv, xml, json or raw report.

Users can specify the `--mail-to` and `--mail-subject` options to send a report file to a specified email address.

Example

To view command usage, run:
```
$ cvc report --help
```

To list activity logs, run:
```
$ cvc report --activity-log
```

To show the details of files ending with `somt.p`, run:
```
$ cvc report --file *somt.p
```

To show the details about module `mfgpro_cust`, run:
```
$ cvc report --module mfgpro_cust
```

To list the environment commits in the `devl` environment, run:
```
$ cvc report --env devl
```

To list the commits of ticket CVC-101, run:
```
$ cvc report --ticket CVC-101
```

To list the potential overlaps of files named `us/xx/xxlsomt.p` in the `devl` environment, run:
```
$ cvc report --overlap "us/xx/xx1somt.p" --env devl
```

To list the file history of file `us/xx/sosorp.p` during the last 1000 days, run:
```
$ cvc report –-file-history us/so/sosorp.p --days 1000
```

To list the tickets available for promotion, run:
```
$ cvc report --promote-avail --env test
```

To list the different commits in the environments `devl` and `test`, run:
```
$ cvc report --env-diff devl test
```

To list the recent file changes during the last 100 days, run:
```
$ cvc report --recent-files --days 100
```

To list the JIRA ticket status of ticket CVC-101, run:
```
$ cvc report –-jira-status CVC-101
```

Chapter 3

Command Manual

This chapter describes the usage of each CVC command.

cvc add

Description

The `cvc add` command allows developers to add files into custom modules before check-in. Then users can run the `cvc checkin` command to check in local changes. If a file exists in the standard module, CVC prevents users from adding the file and prompts them to source it first.

Usage

Syntax

```
cvc add <files>... -t <arg> [-m <arg>] [-ns] [-s] [-c] [-l <arg>] [-e <arg>] [-h] [-dh] [-y]
```

Option Explanation

`-m,--module <arg>`	Module name.
`-ns,--non-src`	Add new files to the module's root directory instead of src directory.
`-s,--status`	Show status of local file addition.
`-c,--cancel`	Cancel the file addition.
`-l,--list-file <arg>`	List containing the files to be added.
`-e,--env <arg>`	Name of the environment to operate on.
`-t,--ticket <arg>`	Ticket number.
`-h,--help`	Display help information.
`-dh,--detailed-help`	Display detailed help information.
`-y,--yes-to-question`	Answer yes to all questions.

Example

To add the file `us/xx/xxsample1.p` to the custom module `mfgpro_cust`, run:

```
$ cvc add --ticket CVC-100 --module mfgpro_cust us/xx/xxsample1.p
```

To add the files specified in the `file.lst` file to the custom module `mfgpro_cust` using the `--list-file` option, run:

```
$ cvc add --ticket CVC-100 --module mfgpro_cust --list-file file.lst
```

The following is an example of the content in the `file.lst` file:

```
us/xx/xxsample1.p
us/xx/xxsample2.p
```

cvc analyze-rcode

Description

The `cvc analyze-rcode` command is available only in QDT and SE environments.

This command allows release managers to analyze existing rcode of a specified module and update program references. It finds all `.r` files in the module's rcode directory, and analyzes and updates program references.

Usage

Syntax

```
cvc analyze-rcode -m <arg> [-e <arg>] [-h] [-dh] [-y]
```

Option Explanation

`-m,--module <arg>`	Module name.
`-e,--env <arg>`	Name of the environment to operate on.
`-h,--help`	Display help information.
`-dh,--detailed-help`	Display detailed help information.
`-y,--yes-to-question`	Answer yes to all questions.

Example

To analyze rcode files of module `mfgpro_cust` in the `devl` environment, run:

```
$ cvc analyze-rcode --module mfgpro_cust --env devl
```

cvc backout

Description

The `cvc backout` command allows release managers to revert ticket changes in the target environment, especially from the previous promotion. This command uses tickets as backout units.

After reverting the changes in the target environment, the `cvc backout` command compiles all program files related to the tickets and then deploys the rcode files generated to the module's rcode directory.

Users need to make sure that all tickets to be backed out are backed out in the high-level environment first if they have been promoted. For example, there are four environments: `devl`, `test`, `sup`, and `prod`. `devl` is the first environment that developers make changes in, and `prod` is the last one. When you back out one ticket in the `devl` environment, you receive an error message if the ticket is already promoted to the `test` environment. You need to back out the ticket in the `test` environment first. You also need to make sure that all the dependencies related to the tickets have already been backed out, or you need to back them out together.

QAD recommends that you run the `cvc backout --simulate` command to obtain the accumulated file change list before you perform an actual backout.

In addition, if you run the `cvc backout` command in the first environment like `devl`, you obtain a backup copy of all the file changes saved in your current folder.

Usage

Syntax

```
cvc backout <tickets>... [-s] [-l <arg>] [-nc] [-e <arg>] [-h] [-dh] [-y]
```

Option Explanation

`-s,--simulate`	Perform a dry run but not perform the actual backout.
`-l,--list-file <arg>`	List containing the tickets to be backed out.
`-nc,--no-compile`	Not compile after backout.
`-e,--env <arg>`	Name of the environment to operate on.
`-h,--help`	Display help information.
`-dh,--detailed-help`	Display detailed help information.
`-y,--yes-to-question`	Answer yes to all questions.

Example

To back out the ticket `CVC-100` in the `test` environment without compiling, run:

```
$ cvc backout --env test --no-compile CVC-100
```

To back out the tickets in the `ticket.lst` file using the `--list-file` option in the `prod` environment with compiling, run:

```
$ cvc backout --env prod --list-file ticket.lst
```

The following is an example of the content in the `ticket.lst` file:

```
CVC-101
CVC-102
```

cvc check-consistency

Description

The `cvc check-consistency` command is available only in QDT and SE environments.

This command uses xcode to encrypt the module's src files and then compares the encrypted files' checksum with the related xrc files'.

Usage

Syntax

```
cvc check-consistency -m <arg> [-e <arg>] [-h] [-dh] [-y]
```

Option Explanation

`-m,--module <arg>`	Module name.
`-e,--env <arg>`	Name of the environment to operate on.
`-h,--help`	Display help information.
`-dh,--detailed-help`	Display detailed help information.
`-y,--yes-to-question`	Answer yes to all questions.

Example

To check code consistency of the module `mfgpro_cust` in the `devl` environment, run:

```
$ cvc check-consistency --module mfgpro_cust --env devl
```

cvc check-env

Description

The `cvc check-env (ce)` command allows users to check whether the specified environment is clean and reports the change list if any version-controlled files were changed manually instead of using `cvc` commands.

Usage

Syntax

```
cvc check-env [-e <arg>] [-h] [-dh] [-y]
```

Option Explanation

`-e,--env <arg>`	Name of the environment to operate on.
`-h,--help`	Display help information.
`-dh,--detailed-help`	Display detailed help information.
`-y,--yes-to-question`	Answer yes to all questions.

Example

To check the current environment and make the system report whether the environment is clean (if not clean, report the change list as well), run:

```
$ cvc check-env
```

To check the `devl` environment and make the system report whether `devl` is clean (if not clean, report the change list as well), run:

```
$ cvc check-env --env devl
```

cvc checkin

Description

The `cvc checkin (ci)` command allows developers to check in local changes of customization into the version control system. To perform customization on existing files, you need to use the `cvc checkout` command to check out those files to your ticket folder first. Make sure that you have the file lock of the files you want to check in. If you lose your lock on a file, you can run the `cvc checkout --force` command again to reacquire the lock. To add new files, you need to run the `cvc add` command first to specify the custom module of those new files. To delete files, you can delete the local files in your ticket folder and check in the changes. The `cvc checkin` command triggers the compilation based on the module compile propath and then puts the rcode file in the rcode directory of the module. If there are several files but for different modules, CVC compiles the files separately with different compile propaths and rcode directories.

Usage

Syntax

```
cvc checkin <files>... -n <arg> -t <arg> [-l <arg>] [-nc] [-s] [-e <arg>] [-h] [-dh] [-y]
```

Option Explanation

`-n,--note <arg>`	Note to check in files.
`-l,--list-file <arg>`	List containing the files to be checked in.
`-nc,--no-compile`	Not compile after check-in.
`-s,--simulate`	Perform a dry run but not perform the actual check-in.
`-e,--env <arg>`	Name of the environment to operate on.
`-h,--help`	Display help information.
`-dh,--detailed-help`	Display detailed help information.
`-y,--yes-to-question`	Answer yes to all questions.

Example

To check in all the files in the ticket folder `CVC-100`, run:

```
$ cvc checkin --ticket CVC-100 --note "Check in all the files"
```

To check in the file `us/so/sosomt.p` in the ticket folder `CVC-100`, run:

```
$ cvc checkin --ticket CVC-100 --note "Check in us/so/sosomt.p"
us/so/sosomt.p
```

To check in the files specified in the `file.lst` file in the ticket folder `CVC-100` using the `--list-file` option, run:

```
$ cvc checkin --ticket CVC-100 --module mfgpro_cust --list-file file.lst --note "Check in
files in the list"
```

The following is an example of the content in the `file.lst` file:

```
us/xx/xxsample1.p
us/xx/xxsample2.p
```

cvc checkout

Description

The `cvc checkout(co)` command allows developers to check out files from custom modules and copy them to the ticket folder. You can only check out files from custom modules. If a file only exists in standard modules, you need to run the `cvc source` command to source the file first.

The application scenarios of this command are as follows:

- Normal checkout: Check out files to the ticket folder for customization. Once the files have been checked out, they become locked. This stops other developers from checking out the same files. However, the other developers could use the `-force` flag to forcibly check out the files and transfer the lock to themselves.
- Force checkout: Check out files that are locked by other developers. After a force checkout, you can acquire the file lock from other developers.
- Cancel checkout: Cancel the checkout operation and release the file lock. After a checkout is canceled, the specified files are deleted from the ticket folder.

Usage

Syntax

```
cvc checkout <files>... -t <arg> [-l <arg>] [-f] [-c] [-n <arg>] [-e <arg>] [-h] [-dh] [-y]
```

Option Explanation

`-l,--list-file <arg>`	List containing the files to be checked out.
`-f,--force`	Forcibly check out files despite any lock.
`-c,--cancel`	Cancel the file checkout.
`-n,--note <arg>`	Note to check out files.
`-e,--env <arg>`	Name of the environment to operate on.
`-h,--help`	Display help information.
`-dh,--detailed-help`	Display detailed help information.
`-y,--yes-to-question`	Answer yes to all questions.

Example

To check out the file `us/so/sosomt.p` to the local `CVC-100` folder, run:

```
$ cvc checkout --ticket CVC-100 us/so/sosomt.p
```

To forcibly check out the file `us/so/sosomt.p` to the local `CVC-100` folder, run:

```
$ cvc checkout --ticket CVC-100 --force us/so/sosomt.p
```

To cancel the checkout of the file `us/so/sosomt.p`, run:

```
$ cvc checkout --ticket CVC-100 --cancel us/so/sosomt.p
```

cvc config

Description

The `cvc config` command allows developers to view and set local configurations.

Users can check the JIRA project key and whether JIRA is enabled for the current environment by running the `cvc config -s` command.

Usage

Syntax

```
cvc config <options>... [-s] [-h] [-dh] [-y]
```

Option Explanation

`-s,--show`	Show all configurations.
`-h,--help`	Display help information.
`-dh,--detailed-help`	Display detailed help information.
`-y,--yes-to-question`	Answer yes to all questions.

Example

To show all configurations, run:

```
$ cvc config --show
```

To set the local value of `reportWidth` to `100`, run:

```
$ cvc config reportWidth 100
```

cvc delete

Description

The `cvc delete (del)` command allows developers to delete customization files in the version control system. To delete existing customization files, you need to check out those files to your ticket folder first, and then use the `cvc delete` command to commit the changes to the version control system. The `cvc delete` command triggers compilation of the files based on their module's compile propath and then deploys rcode files. If the files to be deleted belong to different modules, CVC compiles the files separately with their own module's compile propaths.

Usage

Syntax

```
cvc delete <files>... -n <arg> -t <arg> [-l <arg>] [-nc] [-s] [-e <arg>] [-h] [-dh] [-y]
```

Option Explanation

`-n,--note <arg>`	Note to delete files.
`-l,--list-file <arg>`	List containing the files to be deleted.
`-nc,--no-compile`	Not compile after deletion.
`-s,--simulate`	Perform a dry run but not perform the actual deletion.
`-e,--env <arg>`	Name of the environment to operate on.
`-h,--help`	Display help information.
`-dh,--detailed-help`	Display detailed help information.
`-y,--yes-to-question`	Answer yes to all questions.

Example

To delete the file `us/so/sosomt.p` in the ticket folder `CVC-100`, run:

```
$ cvc delete --ticket CVC-100 --note "Delete us/so/sosomt.p" us/so/sosomt.p
```

To delete the files specified in the `file.lst` file in the ticket folder `CVC-100` using the `--list-file` option, run:

```
$ cvc delete --ticket CVC-100 --module mfgpro_cust --list-file file.lst --note "Delete files in the list"
```

The following is an example of the content in the `file.lst` file:

```
us/xx/xxsample1.p
us/xx/xxsample2.p
```

cvc dev-compile

Description

The `cvc dev-compile (dc)` command allows developers to quickly compile programs before check-in. First, the `cvc dev-compile` command detects any file changes under the current ticket folder and copies the files to their respective modules' work directories. Then CVC compiles the files in batches using their respective modules' compile propaths. The `dev-compile` command does not affect program reference database records and deploys rcode to each module's work directory.

Usage

Syntax

```
cvc dev-compile <files>... [-l <arg>] [-e <arg>] [-h] [-dh] [-y]
```

Option Explanation

`-l,--list-file <arg>`	List containing the files to be compiled.
`-e,--env <arg>`	Name of the environment to operate on.
`-h,--help`	Display help information.
`-dh,--detailed-help`	Display detailed help information.
`-y,--yes-to-question`	Answer yes to all questions.

Example

To compile all programs under the current directory, run:

```
$ cvc dev-compile
```

cvc diff

Description

The `cvc diff` command displays the differences between two revisions. The revision should be specified by the commit SHA. The commit SHA can be found in file history reports through the `cvc report --file-history` command. Users can also find the commit SHA in the environment history reports using the `cvc report –env` command. In addition, users can specify a list of files to display the differences between two revisions of those files. CVC displays the differences on the screen and also keeps them in a report file in the current folder.

Usage

Syntax

```
cvc diff <files>... [-l <arg>] [-or <arg>] [-nr <arg>] [-e <arg>] [-h] [-dh] [-y]
```

Option Explanation

`-l,--list-file <arg>`	List containing the files to obtain differences.
`-or,--old-revision <arg>`	Commit SHA of the old revision.
`-nr,--new-revision <arg>`	Commit SHA of the new revision.
`-e,--env <arg>`	Name of the environment to operate on.
`-h,--help`	Display help information.
`-dh,--detailed-help`	Display detailed help information.
`-y,--yes-to-question`	Answer yes to all questions.

Example

To display the differences between the old revision `085cab4` and the latest revision of file `us/so/sosorp.p`, run:

```
$ cvc diff us/so/sosorp.p --old-revision 085cab4
```

To display the differences between the old revision `085cab4` and the new revision `a1af793`, run:

```
$ cvc diff --old-revision 085cab4 --new-revision a1af793
```

cvc download

Description

The `cvc download` command allows users to download files of a specific revision to the current folder from the central repository. The revision should be specified by the commit SHA. The commit SHA can be found in file history reports through the `cvc report --file-history` command.

The specified revision should contain changes to the list of files in the change set.

Usage

Syntax

```
cvc download <files>... [-l <arg>] [-r <arg>] [-e <arg>] [-h] [-dh] [-y]
```

Option Explanation

`-l,--list-file <arg>`	List containing the files to be downloaded.
`-r,--revision <arg>`	Commit SHA of the revision to be downloaded.
`-e,--env <arg>`	Name of the environment to operate on.
`-h,--help`	Display help information.
`-dh,--detailed-help`	Display detailed help information.
`-y,--yes-to-question`	Answer yes to all questions.

Example

To download the file `us/so/sosorp.p` of the revision `085cab4` to the current folder, run:

```
$ cvc download us/so/sosorp.p -r 085cab4
```

To download the file `us/so/sosorp.p` of the last revision to the current folder, run:

```
$ cvc download us/so/sosorp.p
```

cvc id

Description

The `cvc id` command displays the current user's name, email address, and user roles in the CVC tool.

Usage

Syntax

```
cvc id [-h] [-dh] [-y]
```

Option Explanation

`-h,--help`	Display help information.
`-dh,--detailed-help`	Display detailed help information.
`-y,--yes-to-question`	Answer yes to all questions.

Example

To display information about the current user, run:

```
$ cvc id
```

cvc module

Description

The `cvc module` command allows release managers to manage modules (including adding, updating, and deleting modules).

Usage

Syntax

```
cvc module -a | -u | -d | -s [-h] [-dh] [-y]
```

Option Explanation

`-a,--add`	Add a new module.
`-u,--update`	Update an existing module.
`-d,--delete`	Delete an existing module.
`-s,--show`	Show all modules in the system.
`-h,--help`	Display help information.
`-dh,--detailed-help`	Display detailed help information.
`-y,--yes-to-question`	Answer yes to all questions.

Usage and Option Explanation of `cvc module --add`

- YAB

```
cvc module -a -m <arg> -r <arg> [-work <arg>] [-p <arg>] [-c <arg>] [-bc <arg>] [-ac <arg>]
[-h] [-dh] [-y]
```

`-a,--add`	Add a new module.
`-m,--module <arg>`	Module name.
`-r,--root-dir <arg>`	Root directory to store source code.
`-work,--work-dir <arg>`	Work directory to put rcode (relative to environment directory).
`-p,--yab-process <arg>`	YAB process to compile (code-mfg-update, code-fin-update, and so on).
`-c,--code-instance <arg>`	YAB code instance name (mfg, fin, and so on).
`-bc,--before-compile <arg>`	Scripts to run before compile.
`-ac,--after-compile <arg>`	Scripts to run after compile.
`-h,--help`	Display help information.
`-dh,--detailed-help`	Display detailed help information.
`-y,--yes-to-question`	Answer yes to all questions.

- SE

```
cvc module -a -m <arg> -t <arg> -r <arg> [-src <arg>] [-xrc <arg>] [-work <arg>] [-rcode
<arg>] [-propath <arg>] [-pf <arg>] [-l <arg>] [-rl <arg>] [-sl <arg>] [-bc <arg>] [-ac
<arg>] [-h] [-dh] [-y]
```

`-a,--add`	Add a new module.
`-m,--module <arg>`	Module name.
`-t,--type <arg>`	Module type (standard or custom).
`-r,--root-dir <arg>`	Root directory to store source code.

`-src,--src-dir <arg>`	Unencrypted source directory (relative to root directory).
`-xrc,--xrc-dir <arg>`	Encrypted source directory (relative to root directory).
`-work,--work-dir <arg>`	Work directory to put rcode (relative to environment directory).
`-rcode,--rcode-dir <arg>`	Directory to put rcode files (relative to environment directory).
`-propath,--compile-propath <arg>`	Propath for compile (separated by commas).
`-pf,--compile-pf <arg>`	Compile pf file (relative to QDT's dir).
`-l,--languages <arg>`	Languages code to compile module.
`-rl,--rcode-layout <arg>`	rcode layout (staggered, flat or source).
`-sl,--source-layout <arg>`	Source layout (twoletter or flat).
`-bc,--before-compile <arg>`	Scripts to run before compile.
`-ac,--after-compile <arg>`	Scripts to run after compile.
`-h,--help`	Display help information.
`-dh,--detailed-help`	Display detailed help information.
`-y,--yes-to-question`	Answer yes to all questions.

- QDT

```
cvc module -a -m <arg> -t <arg> -r <arg> [-src <arg>] [-xrc <arg>] [-work <arg>] [-rcode
<arg>] [-propath <arg>] [-pf <arg>] [-l <arg>] [-rl <arg>] [-sl <arg>] [-bc <arg>] [-ac
<arg>] [-h] [-dh] [-y]
```

`-a,--add`	Add a new module.
`-m,--module <arg>`	Module name.
`-t,--type <arg>`	Module type (standard or custom).
`-r,--root-dir <arg>`	Root directory to store source code.
`-src,--src-dir <arg>`	Unencrypted source directory (relative to root directory).
`-xrc,--xrc-dir <arg>`	Encrypted source directory (relative to root directory).
`-work,--work-dir <arg>`	Work directory to put rcode (relative to environment directory).
`-rcode,--rcode-dir <arg>`	Directory to put rcode files (relative to environment directory).
`-propath,--compile-propath <arg>`	Propath for compile (separated by commas).
`-pf,--compile-pf <arg>`	Compile pf file (relative to QDT's directory).
`-l,--languages <arg>`	Languages code to compile module.
`-rl,--rcode-layout <arg>`	rcode layout (staggered, flat or source).
`-sl,--source-layout <arg>`	Source layout (twoletter or flat).
`-bc,--before-compile <arg>`	Scripts to run before compile.
`-ac,--after-compile <arg>`	Scripts to run after compile.
`-h,--help`	Display help information.
`-dh,--detailed-help`	Display detailed help information.
`-y,--yes-to-question`	Answer yes to all questions.

Usage and Option Explanation of `cvc module --update`

- YAB

```
cvc module -u -m <arg> [-n <arg>] [-r <arg>] [-work <arg>] [-p <arg>] [-c <arg>] [-bc <arg>]
[-ac <arg>] [-h] [-dh] [-y]
```

`-u,--update`	Update an existing module.
`-m,--module <arg>`	Module name.
`-n,--new-name <arg>`	New module name.
`-r,--root-dir <arg>`	Root directory to store source code.
`-work,--work-dir <arg>`	Work directory to put rcode (relative to environment directory).
`-p,--yab-process <arg>`	YAB process to compile (code-mfg-update, code-fin-update, and so on).
`-c,--code-instance <arg>`	YAB code instance name (mfg, fin, and so on).
`-bc,--before-compile <arg>`	Scripts to run before compile.
`-ac,--after-compile <arg>`	Scripts to run after compile.
`-h,--help`	Display help information.
`-dh,--detailed-help`	Display detailed help information.
`-y,--yes-to-question`	Answer yes to all questions.

- SE

```
cvc module -u -m <arg> [-n <arg>] [-t <arg>] [-r <arg>] [-src <arg>] [-xrc <arg>] [-work
<arg>] [-rcode <arg>] [-propath <arg>] [-pf <arg>] [-l <arg>] [-rl <arg>] [-sl <arg>] [-bc
<arg>] [-ac <arg>] [-h] [-dh] [-y]
```

`-u,--update`	Update an existing module.
`-m,--module <arg>`	Module name.
`-n,--new-name <arg>`	New module name.
`-t,--type <arg>`	Module type (standard or custom).
`-r,--root-dir <arg>`	Root directory to store source code.
`-src,--src-dir <arg>`	Unencrypted source directory (relative to root directory).
`-xrc,--xrc-dir <arg>`	Encrypted source directory (relative to root directory).
`-work,--work-dir <arg>`	Work directory to put rcode (relative to environment directory).
`-rcode,--rcode-dir <arg>`	Directory to put rcode files (relative to environment directory).
`-propath,--compile-propath <arg>`	Propath for compile (separated by commas).
`-pf,--compile-pf <arg>`	Compile pf file (relative to QDT's dir).
`-l,--languages <arg>`	Languages code to compile module.
`-rl,--rcode-layout <arg>`	rcode layout (staggered, flat or source).
`-sl,--source-layout <arg>`	Source layout (twoletter or flat).
`-bc,--before-compile <arg>`	Scripts to run before compile.
`-ac,--after-compile <arg>`	Scripts to run after compile.
`-h,--help`	Display help information.
`-dh,--detailed-help`	Display detailed help information.
`-y,--yes-to-question`	Answer yes to all questions.

- QDT

```
cvc module -u -m <arg> [-n <arg>] [-t <arg>] [-r <arg>] [-src <arg>] [-xrc <arg>] [-work
```

```
<arg>] [-rcode <arg>] [-propath <arg>] [-pf <arg>] [-l <arg>] [-rl <arg>] [-sl <arg>] [-bc
<arg>] [-ac <arg>] [-h] [-dh] [-y]
```

`-u,--update`	Update an existing module.
`-m,--module <arg>`	Module name.
`-n,--new-name <arg>`	New module name.
`-t,--type <arg>`	Module type (standard or custom).
`-r,--root-dir <arg>`	Root directory to store source code.
`-src,--src-dir <arg>`	Unencrypted source directory (relative to root directory).
`-xrc,--xrc-dir <arg>`	Encrypted source directory (relative to root directory).
`-work,--work-dir <arg>`	Work directory to put rcode (relative to environment directory).
`-rcode,--rcode-dir <arg>`	Directory to put rcode files (relative to environment directory).
`-propath,--compile-propath <arg>`	Propath for compile (separated by commas).
`-pf,--compile-pf <arg>`	Compile pf file (relative to QDT's directory).
`-l,--languages <arg>`	Languages code to compile module.
`-rl,--rcode-layout <arg>`	rcode layout (staggered, flat or source).
`-sl,--source-layout <arg>`	Source layout (twoletter or flat).
`-bc,--before-compile <arg>`	Scripts to run before compile.
`-ac,--after-compile <arg>`	Scripts to run after compile.
`-h,--help`	Display help information.
`-dh,--detailed-help`	Display detailed help information.
`-y,--yes-to-question`	Answer yes to all questions.

Usage and Option Explanation of `cvc module --delete`

```
cvc module -d -m <arg> [-h] [-dh] [-y]
```

`-d,--delete`	Delete an existing module.
`-m,--module <arg>`	Module name.
`-h,--help`	Display help information.
`-dh,--detailed-help`	Display detailed help information.
`-y,--yes-to-question`	Answer yes to all questions.

Usage and Option Explanation of `cvc module --show`

```
cvc module -s [-h] [-dh] [-y]
```

`-s,--show`	Show all modules in the system.
`-h,--help`	Display help information.
`-dh,--detailed-help`	Display detailed help information.
`-y,--yes-to-question`	Answer yes to all questions.

Example

To add a new module, run:

Note Before you run this command, make sure that the module's root directory and work directory already exist in the system.

```
$ cvc module --add --module-name mfgpro_addon1 --root-dir mfgpro --work-dir mfgpro/work --yab-process "code-mfg-update"
```

To update an existing module, run:

Note Before you run this command, make sure that the new module's root directory and work directory already exist in the system.

```
$ cvc module --update --module-name mfgpro_cust --new-name mfgpro_1 --rootdir mfgpro_1 --work-dir work_1
```

To delete an existing module, run:

Note Make sure that all the files linked to the module have been unregistered before performing this operation. And you cannot undo this operation.

```
$ cvc module --delete --module-name mfgpro_cust
```

To display detailed module information, run:

```
$ cvc module --show
```

cvc module-show

Description

The `cvc module-show` command displays detailed module information.

Usage

Syntax

```
cvc module-show [-h] [-dh] [-y]
```

Option Explanation

`-h,--help`	Display help information.
`-dh,--detailed-help`	Display detailed help information.
`-y,--yes-to-question`	Answer yes to all questions.

Example

To display detailed module information, run:

```
$ cvc module-show
```

cvc promote

Description

The `cvc promote` command allows release managers to apply the changes of customization from the source environment to the target environment. The `cvc promote` command uses tickets as promote units.

You only need to specify the tickets to promote as well as the target environment name in the command. The source environment is determined by the configuration of environments.

The `cvc promote` command compiles all program files related to the tickets after applying the changes to the target environment. Then it deploys the generated rcode files to the module's rcode directory.

Make sure that all tickets to be promoted have unpromoted commits in the source environment. For example, there are four environments: `devl`, `test`, `sup`, and `prod`. `devl` is the first environment that developers make changes in, and `prod` is the last. If you want to promote one ticket from `devl` to `prod`, you need to promote it to `test` first, then to `sup` and finally to `prod`. You also need to make sure that all the dependencies related to the tickets have already been promoted, or you need to promote them together.

When promoting tickets to a hotfix environment, the `cvc promote` command checks if the target environment has any unresolved hotfix or emergency tickets. If there are some unresolved hotfix tickets, you need to promote the hotfix tickets first to the target environment. When promoting hotfix tickets, the `cvc promote` command compares the file changes of the hotfix tickets between two environments. A warning displays when the file changes differ between tickets.

If you choose to continue the promotion, the `cvc promote` command performs an auto-backout for hotfix tickets in the target environment, and then promotes the new changes.

Usage

Syntax

```
cvc promote <tickets>... [-s] [-l <arg>] [-nc] [-a] [-all] [-ex] [-e <arg>] [-h] [-dh] [-y]
```

Option Explanation

`-s,--simulate`	Perform a dry run but not perform the actual promotion.
`-l,--list-file <arg>`	List containing the tickets to be promoted.
`-nc,--no-compile`	Not compile after code promotion.
`-a,--avail-list`	Show the detailed available promotion list.
`-all,--all-available`	Promote all the tickets available to be promoted.
`-ex,--exclude`	Exclude the tickets specified in the arguments and list file (used with -all).
`-e,--env <arg>`	Name of the environment to operate on.
`-h,--help`	Display help information.
`-dh,--detailed-help`	Display detailed help information.
`-y,--yes-to-question`	Answer yes to all questions.

Example

To promote the ticket `CVC-100` from environment `devl` to `test` without compiling, run:

```
$ cvc promote --env test --no-compile CVC-100
```

To promote the tickets specified in the `ticket.lst` file from environment `test` to `prod` with compiling by using the `--list-file` option, run:

```
$ cvc promote --env prod --list-file ticket.lst
```

The following is an example of the content in the `ticket.lst` file:

```
CVC-101
CVC-102
```

cvc register

Description

The `cvc register` command allows release managers to register files into a standard or custom module. Before using the `cvc register` command, make sure that all the files to be registered are placed in the module's predefined root directory; for instance, `/devl/apps/mfgpro/xxsrc`.

The `cvc register` command registers the files into the specified module. It also compiles the programs with the module's propath and reports errors if any of the generated rcode file is different from the existing rcode file.

The `cvc register simulation` command generates a log file that lists all the files to be registered. It also lists the files overlap between modules. After registration, you can use the `cvc checkout` command to check out the files from the custom module for customization.

Usage

Syntax

```
cvc register <files>... -m <arg> -t <arg> [-n <arg>] [-l <arg>] [-nc] [-s] [-d] [-e <arg>]
[-h] [-dh] [-y]
```

Option Explanation

`-m,--module <arg>`	Module name.
`-n,--note <arg>`	Note to register files.
`-l,--list-file <arg>`	List containing the include & exclude patterns.
`-nc,--no-compile`	Not compile after registration.
`-s,--simulate`	Perform a dry run but not perform the actual registration.
`-d,--delete`	Delete all file records from module.
`-e,--env <arg>`	Name of the environment to operate on.
`-t,--ticket <arg>`	Ticket number.
`-h,--help`	Display help information.
`-dh,--detailed-help`	Display detailed help information.
`-y,--yes-to-question`	Answer yes to all questions.

Example

To simulate the operation of registering the files in the `devl` environment into module `mfgpro_cust`, run:

```
$ cvc register --ticket CVC-100 --module mfgpro_cust --simulate --env devl
```

To register some files according to the `file.lst` file in the `devl` environment into module `mfgpro_cust`, run:

```
$ cvc register --ticket CVC-100 --module mfgpro_cust --list-file file.lst --env devl
```

The following is an example of the content in the `file.lst` file (only including the two listed directories):

```
exclude .*
include src/us/so/.*
include xrc/us/so/.*
```

The following is another example of the content in the `file.lst` file (excluding the `preSAQ022014` directory):

```
exclude .*preSAQ022014
```

To register the files in the `devl` environment into module `mfgpro_cust`, run:

```
$ cvc register --ticket CVC-100 --module mfgpro_cust --env devl
```

cvc rel-compile

Description

The `cvc rel-compile (rc)` command allows release managers to quickly compile the programs under the custom folder. First, the `cvc rel-compile` command finds programs in the module that is specified or that uses the programs you specified in the command. Then this command compiles programs in batches according to the custom module's compile propath. After that, the `cvc rel-compile` command updates program reference database records, and deploys rcode to the custom module's rcode directory.

Usage

Syntax

```
cvc rel-compile <files>... -m <arg> [-l <arg>] [-s] [-e <arg>] [-h] [-dh] [-y]
```

Option Explanation

`-m,--module <arg>`	Module name.
`-l,--list-file <arg>`	List containing the files to be compiled.
`-s,--simulate`	Perform a dry run but not perform the actual compile.
`-e,--env <arg>`	Name of the environment to operate on.
`-h,--help`	Display help information.
`-dh,--detailed-help`	Display detailed help information.
`-y,--yes-to-question`	Answer yes to all questions.

Example

To compile all programs in module `mfgpro_cust`, run:

```
$ cvc rel-compile -m mfgpro_cust
```

To compile two files `us/so/sosomt.p` and `us/so/sosorp.p` in module `mfgpro_cust`, run:

```
$ cvc rel-compile -m mfgpro_cust us/so/sosomt.p us/so/sosorp.p
```

To simulate the operation of compiling two files `us/so/sosomt.p` and `us/so/sosorp.p` in module `mfgpro_cust`, run:

```
$ cvc rel-compile -m mfgpro_cust us/so/sosomt.p us/so/sosorp.p -s
```

cvc report

Description

The `cvc report` command allows developers or release managers to view various kinds of reports.

Usage

Syntax

```
cvc report -a | -f | -m <arg> | -e <arg> | -t <arg> | -o | -fh | -pa | -ed | -rf [-r <arg>]
[-mt <arg>] [-ms <arg>] [-h] [-dh] [-y]
```

Option Explanation

`-a,--activity-log`	Show the report of user activity logs.
`-f,--file`	Show file information.
`-m,--module <arg>`	Show detailed module information.
`-e,--env <arg>`	Show the commits of the environment.
`-t,--ticket <arg>`	Show the commits of the ticket.
`-o,--overlap`	Show the potential overlap between the files.
`-fh,--file-history`	Show the change history of the files.
`-pa,--promote-avail`	Show the tickets available to be promoted.
`-ed,--env-diff`	Show different commits between two environments.
`-rf,--recent-files`	Show recent file changes.
`-r,--report-type <arg>`	Set the report type (default, raw, csv, xml or json).
`-mt,--mail-to <arg>`	Set the email address to receive the report file.
`-ms,--mail-subject <arg>`	Set the email subject to receive the report file (token: ${filename}, ${date}).
`-h,--help`	Display help information.
`-dh,--detailed-help`	Display detailed help information.
`-y,--yes-to-question`	Answer yes to all questions.

Usage and Option Explanation of `cvc report --activity-log`

```
cvc report -a [-e <arg>] [-u <arg>] [-d <arg>] [-r <arg>] [-mt <arg>] [-ms <arg>] [-h] [-
dh] [-y]
```

`-a,--activity-log`	Show the report of user activity logs.
`-e,--env <arg>`	Specify the environment to show activity logs.
`-u,--user <arg>`	Specify the user to show activity logs.
`-d,--days <arg>`	Show activity logs within the specific time period in days (default: 100).
`-r,--report-type <arg>`	Set the report type (default, raw, csv, xml or json).
`-mt,--mail-to <arg>`	Set the email address to receive the report file.
`-ms,--mail-subject <arg>`	Set the email subject to receive the report file (token: ${filename}, ${date}).
`-h,--help`	Display help information.
`-dh,--detailed-help`	Display detailed help information.
`-y,--yes-to-question`	Answer yes to all questions.

Usage and Option Explanation of `cvc report --file`

```
cvc report <files>... -f [-m <arg>] [-e <arg>] [-r <arg>] [-mt <arg>] [-ms <arg>] [-h] [-
dh] [-y]
```

`-f,--file`	Show file information.
`-m,--module <arg>`	Specify the module to show file information.
`-e,--env <arg>`	Specify the environment to show file information.
`-r,--report-type <arg>`	Set the report type (default, raw, csv, xml or json).
`-mt,--mail-to <arg>`	Set the email address to receive the report file.
`-ms,--mail-subject <arg>`	Set the email subject to receive the report file (token: ${filename}, ${date}).
`-h,--help`	Display help information.
`-dh,--detailed-help`	Display detailed help information.
`-y,--yes-to-question`	Answer yes to all questions.

Usage and Option Explanation of `cvc report --module`

```
cvc report -m <arg> [-e <arg>] [-r <arg>] [-mt <arg>] [-ms <arg>] [-h] [-dh] [-y]
```

`-m,--module <arg>`	Show detailed module information.
`-e,--env <arg>`	Specify the environment to show module information.
`-r,--report-type <arg>`	Set the report type (default, raw, csv, xml or json).
`-mt,--mail-to <arg>`	Set the email address to receive the report file.
`-ms,--mail-subject <arg>`	Set the email subject to receive the report file (token: ${filename}, ${date}).
`-h,--help`	Display help information.
`-dh,--detailed-help`	Display detailed help information.
`-y,--yes-to-question`	Answer yes to all questions.

Usage and Option Explanation of `cvc report --env`

```
cvc report -e <arg> [-d] [-r <arg>] [-mt <arg>] [-ms <arg>] [-h] [-dh] [-y]
```

`-e,--env <arg>`	Show the commits of the environment.
`-d,--details`	Show the commits of the environment with file details.
`-r,--report-type <arg>`	Set the report type (default, raw, csv, xml or json).
`-mt,--mail-to <arg>`	Set the email address to receive the report file.
`-ms,--mail-subject <arg>`	Set the email subject to receive the report file (token: ${filename}, ${date}).
`-h,--help`	Display help information.
`-dh,--detailed-help`	Display detailed help information.
`-y,--yes-to-question`	Answer yes to all questions.

Usage and Option Explanation of `cvc report --ticket`

```
cvc report -t <arg> [-d] [-r <arg>] [-mt <arg>] [-ms <arg>] [-h] [-dh] [-y]
```

`-t,--ticket <arg>`	Show the commits of the ticket.
`-d,--details`	Show the commits of the ticket with file details.
`-r,--report-type <arg>`	Set the report type (default, raw, csv, xml or json).

`-mt,--mail-to <arg>`	Set the email address to receive the report file.
`-ms,--mail-subject <arg>`	Set the email subject to receive the report file (token: ${filename}, ${date}).
`-h,--help`	Display help information.
`-dh,--detailed-help`	Display detailed help information.
`-y,--yes-to-question`	Answer yes to all questions.

Usage and Option Explanation of `cvc report --overlap`

```
cvc report <files>... -o [-e <arg>] [-l <arg>] [-r <arg>] [-mt <arg>] [-ms <arg>] [-h] [-dh] [-y]
```

`-o,--overlap`	Report the potential overlap between the files.
`-e,--env <arg>`	Specify the environment to detect the potential overlap.
`-l,--list-file <arg>`	List containing the files to detect potential overlap.
`-r,--report-type <arg>`	Set the report type (default, raw, csv, xml or json).
`-mt,--mail-to <arg>`	Set the email address to receive the report file.
`-ms,--mail-subject <arg>`	Set the email subject to receive the report file (token: ${filename}, ${date}).
`-h,--help`	Display help information.
`-dh,--detailed-help`	Display detailed help information.
`-y,--yes-to-question`	Answer yes to all questions.

Usage and Option Explanation of `cvc report --file-history`

```
cvc report <files>... -fh [-m <arg>] [-e <arg>] [-l <arg>] [-d <arg>] [-t <arg>] [-r <arg>] [-mt <arg>] [-ms <arg>] [-h] [-dh] [-y]
```

`-fh,--file-history`	Report the change history of the files.
`-m,--module <arg>`	Specify the module to show file history.
`-e,--env <arg>`	Specify the environment to show file history.
`-l,--list-file <arg>`	List containing the files to find file history.
`-d,--days <arg>`	Show file history within the specific time period in days.
`-t,--to <arg>`	Specify the name of the file where CVC prints the report to.
`-r,--report-type <arg>`	Set the report type (default, raw, csv, xml or json).
`-mt,--mail-to <arg>`	Set the email address to receive the report file.
`-ms,--mail-subject <arg>`	Set the email subject to receive the report file (token: ${filename}, ${date}).
`-h,--help`	Display help information.
`-dh,--detailed-help`	Display detailed help information.
`-y,--yes-to-question`	Answer yes to all questions.

Usage and Option Explanation of `cvc report --promote-avail`

```
cvc report -pa [-e <arg>] [-r <arg>] [-mt <arg>] [-ms <arg>] [-h] [-dh] [-y]
```

`-pa,--promote-avail`	Show the tickets available to be promoted.
`-e,--env <arg>`	Specify the environment to show tickets available to be promoted.
`-r,--report-type <arg>`	Set the report type (default, raw, csv, xml or json).
`-mt,--mail-to <arg>`	Set the email address to receive the report file.
`-ms,--mail-subject <arg>`	Set the email subject to receive the report file (token: ${filename}, ${date}).
`-h,--help`	Display help information.
`-dh,--detailed-help`	Display detailed help information.
`-y,--yes-to-question`	Answer yes to all questions.

Usage and Option Explanation of `cvc report --jira-status`

```
cvc report <tickets>... -j [-l <arg>] [-r <arg>] [-mt <arg>] [-ms <arg>] [-h] [-dh] [-y]
```

`-j,--jira-status`	Show JIRA status of the tickets.
`-l,--list-file <arg>`	List containing the JIRA tickets.
`-r,--report-type <arg>`	Set the report type (default, raw, csv, xml or json).
`-mt,--mail-to <arg>`	Set the email address to receive the report file.
`-ms,--mail-subject <arg>`	Set the email subject to receive the report file (token: ${filename}, ${date}).
`-h,--help`	Display help information.
`-dh,--detailed-help`	Display detailed help information.
`-y,--yes-to-question`	Answer yes to all questions.

Usage and Option Explanation of `cvc report --env-diff`

```
cvc report <envs>... -ed [-r <arg>] [-mt <arg>] [-ms <arg>] [-h] [-dh] [-y]
```

`-ed,--env-diff`	Show different commits between two environments.
`-r,--report-type <arg>`	Set the report type (default, raw, csv, xml or json).
`-mt,--mail-to <arg>`	Set the email address to receive the report file.
`-ms,--mail-subject <arg>`	Set the email subject to receive the report file (token: ${filename}, ${date}).
`-h,--help`	Display help information.
`-dh,--detailed-help`	Display detailed help information.
`-y,--yes-to-question`	Answer yes to all questions.

Usage and Option Explanation of `cvc report --recent-files`

```
cvc report -rf [-e <arg>] [-d <arg>] [-r <arg>] [-mt <arg>] [-ms <arg>] [-h] [-dh] [-y]
```

`-rf,--recent-files`	Show recent file changes.
`-e,--env <arg>`	Specify the environment to show recent file changes.
`-d,--days <arg>`	Show the file changes within the specific time period in days (default: 100).
`-r,--report-type <arg>`	Set the report type (default, raw, csv, xml or json).
`-mt,--mail-to <arg>`	Set the email address to receive the report file.

`-ms,--mail-subject <arg>`	Set the email subject to receive the report file (token: ${filename}, ${date}).
`-h,--help`	Display help information.
`-dh,--detailed-help`	Display detailed help information.
`-y,--yes-to-question`	Answer yes to all questions.

Example

To list all the user activity records with the environment, user IDs, time, `cvc` command names, and ticket information, run:

```
$ cvc report --activity-log
```

To list all the files with the module, environment, and file path information, run:

```
$ cvc report --file
```

To list all the files ending with `.md` linked to module `mfgpro_cust` in the `devl` environment, run:

```
$ cvc report --file --module mfgpro_cust --env devl *.md
```

To show the detailed information of module `mfgpro_cust` in key-value pairs, run:

```
$ cvc report --module mfgpro_cust
```

To show the commit history of ticket `CVC-100`, run:

```
$ cvc report --ticket CVC-100
```

To list the commit history in the `test` environment including the ticket message, date, changed file counts, and details, run:

```
$ cvc report --env test
```

To show the potential conflicts of the file `us/so/sosorp.p`, run:

```
$ cvc report --overlap us/so/sosorp.p
```

To show the tickets available for promotion to the `test` environment, run:

```
$ cvc report --promote-avail --env test
```

To show the information about JIRA ticket `CVC-101`, run:

```
$ cvc report --jira-status CVC-101
```

To show the file history of the file `us/so/sosorp.p`, run:

```
$ cvc report --file-history us/so/sosorp.p
```

To show the different commits between environments `devl` and `test`, run:

```
$ cvc report --env-diff devl test
```

To show the file changes in the `devl` environment during the last 10 days, run:

```
$ cvc report --recent-files --env devl --days 10
```

cvc revert

Description

The `cvc revert` command allows administrator users to revert file changes by ticket. This command obtains old file revisions of each specified file before the ticket commits. Then it makes a new Git commit with those old file revisions.

After reverting the file changes in the target environment, the `cvc revert` command compiles all the program files reverted by the ticket. This command then deploys the generated rcode files to the module's rcode directory.

QAD recommends that you run the `cvc revert --simulate` command to obtain the accumulated file change list before you perform the actual reversion. In addition, if you run the `cvc revert` command in the first environment like `devl`, you obtain a backup copy of all the file changes saved in your current folder.

Usage

Syntax

```
cvc revert <files>... -n <arg> -t <arg> [-l <arg>] [-s] [-nc] [-e <arg>] [-h] [-dh] [-y]
```

Option Explanation

`-n,--note <arg>`	Note to revert files.
`-l,--list-file <arg>`	List containing the files to be reverted.
`-s,--simulate`	Perform a dry run but not perform the actual revert.
`-nc,--no-compile`	Not compile after revert.
`-e,--env <arg>`	Name of the environment to operate on.
`-t,--ticket <arg>`	Ticket number.
`-h,--help`	Display help information.
`-dh,--detailed-help`	Display detailed help information.
`-y,--yes-to-question`	Answer yes to all questions.

Example

To revert the file `us/so/sosomt.p` by the ticket `CVC-100`, run:

```
$ cvc revert --ticket CVC-100 --note "Revert sosomt.p" us/so/sosomt.p
```

To revert the files specified in the `file.lst` file by the ticket `CVC-100` using the `--list-file` option, run:

```
$ cvc revert --ticket CVC-100 --note "Revert the files" --list-file
file.lst
```

The following is an example of the content in the `file.lst` file:

```
us/xx/xxsample1.p
us/xx/xxsample2.p
```

cvc source

Description

The `cvc source` command allows release managers to add source files to a custom module.

After the files are sourced, developers can check out files for customization. Only release managers can source files.

You can only add source files to custom modules. The source files should exist in standard modules. You need to prepare all the source files you want to add in the ticket directory. Or you can use the auto source or copy local option to make CVC find the source files within the module's propath.

If you run this command with the copy local option, those source files are copied to the local ticket folder. If not, those source files are copied to the specified module's directory based on their file format. If the file is a program file, it can be added to the module's src directory. Otherwise, it is added to the module's root directory.

Usage

Syntax

```
cvc source <files>... -m <arg> -t <arg> [-n <arg>] [-a] [-l <arg>] [-cl] [-e <arg>] [-h] [-dh] [-y]
```

Option Explanation

`-m,--module <arg>`	Add source files that belong to the module.
`-n,--note <arg>`	Note to source files.
`-a,--auto`	Perform an auto-source.
`-l,--list-file <arg>`	List containing the files to be sourced.
`-cl,--copy-local`	Copy the source files to the local ticket folder.
`-e,--env <arg>`	Name of the environment to operate on.
`-t,--ticket <arg>`	Ticket number.
`-h,--help`	Display help information.
`-dh,--detailed-help`	Display detailed help information.
`-y,--yes-to-question`	Answer yes to all questions.

Example

To source the files in the ticket folder `CVC-100` to the custom module `mfgpro_cust` (the ticket folder contains the file `us/so/sosomt.p`), run:

```
$ cvc source --ticket CVC-100 --module mfgpro_cust --note "Source us/so/sosomt.p"
```

To scan the propath of `mfgpro_cust` to find the file `us/so/sosomt.p` and source it to the custom module `mfgpro_cust`, run:

```
$ cvc source --auto --ticket CVC-100 --module mfgpro_cust --note "Source us/so/sosomt.p"
```

To scan the propath of `mfgpro_cust` to find the file `us/so/sosomt.p` and copy it to local ticket folder `CVC-100`, run:

```
$ cvc source --copy-local --ticket CVC-100 --module mfgpro_cust --note "Source us/so/sosomt.p"
```

cvc status

Description

The `cvc status` command displays the ticket folder status information that is read from the `.cvc` or `.info` file. This command also displays the file checkout status. You can filter the result by ticket, login ID, file list, or environment.

Usage

Syntax

```
cvc status <files>... -g | -s [-h] [-dh] [-y]
```

Option Explanation

`-g,--global`	Show global file checkout status.
`-s,--show`	Show the status of file addition/checkout in the current folder.
`-h,--help`	Display help information.
`-dh,--detailed-help`	Display detailed help information.
`-y,--yes-to-question`	Answer yes to all questions.

Usage and Option Explanation of `cvc status --global`

```
cvc status <files>... [-g] [-e <arg>] [-t <arg>] [-u <arg>] [-l <arg>] [-h] [-dh] [-y]
```

`-g,--global`	Show global file checkout status.
`-e,--env <arg>`	Filter status by environment.
`-t,--ticket <arg>`	Filter status by ticket.
`-u,--user <arg>`	Filter status by user.
`-l,--list-file <arg>`	List containing the file names to filter status.
`-h,--help`	Display help information.
`-dh,--detailed-help`	Display detailed help information.
`-y,--yes-to-question`	Answer yes to all questions.

Usage and Option Explanation of `cvc status --show`

```
cvc status <files>... -s [-h] [-dh] [-y]
```

`-s,--show`	Show the status of file addition/checkout in the current folder.
`-h,--help`	Display help information.
`-dh,--detailed-help`	Display detailed help information.
`-y,--yes-to-question`	Answer yes to all questions.

Example

To display the addition or checkout status of the current ticket folder, run:

```
$ cvc status --show
```

To display the checkout status information of files checked out by the administrator user using the ticket `CVC-100`, run:

```
$ cvc status ---global --ticket CVC-100 --user admin
```

To display the checkout status information of the file `us/so/sosomt.p` in the `devl` environment:

```
$ cvc status --global --env devl us/so/sosomt.p
```

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