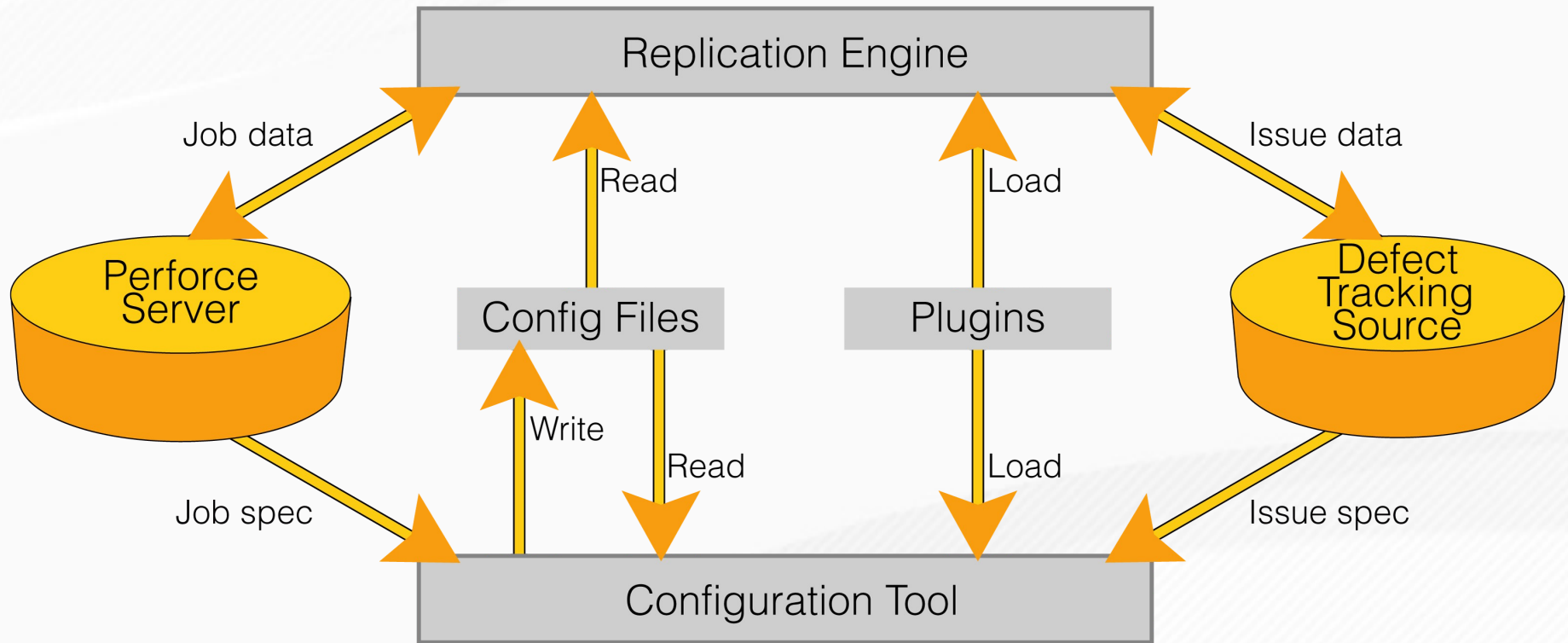# Perforce Defect Tracking Gateway: Support Training

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Perforce Software

Agenda

- Perforce Defect Tracking Gateway
  - Architecture
  - Behavior
- P4DTG Software Developers Kit
  - Package
  - Plugins
- Support Support
- Unsupported Support
- Questions

Perforce Defect Tracking Gateway

Configuration File: Data Sources
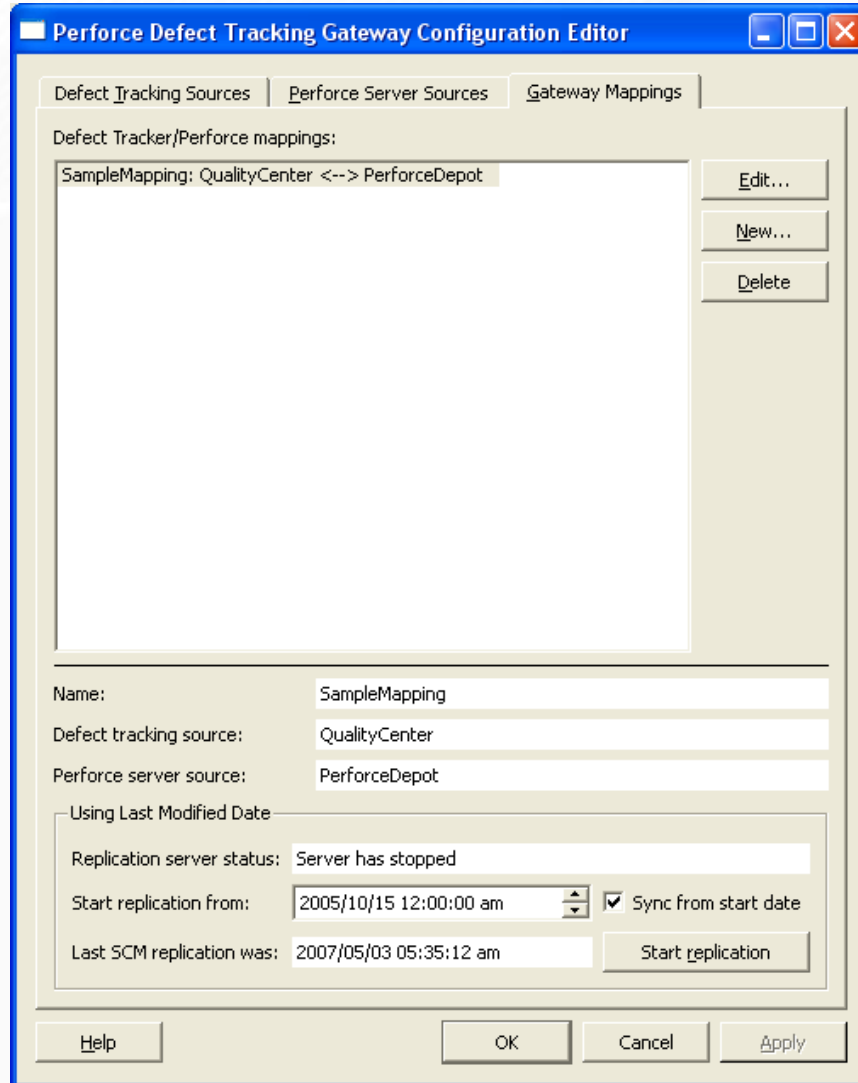


```xml
<DTGConfiguration>
  <DataSource
    type="DTS"
    plugin="Quality Center 9.0"
    nickname="QualityCenter"
    server="win-ateague:8080"
    user="sa"
    password="******"
    module=
        "DEFAULT:QualityCenter_Demo"
    moddate_field="Modified"
    moduser_field="*Not Supported*" />
</DTGConfiguration>
```

Configuration File: Data Mappings

Edit Perforce-Defect Tracker Mapping

Mapping name: SampleMapping
Defect tracker source: QualityCenter
Perforce server source: PerforceDepot

Defect tracker fields (*: read-only)

Actual Fix Time : WORD
Attachment : LINE *
Defect ID : WORD *
Version Stamp : WORD *
Closing Date : DATE
Closed in Version : SELECT
Cycle ID : WORD *
TestSet Reference : LINE *
Description : TEXT
Detected By : LINE
Detected on Date : DATE
Detected in Version : SELECT
Comments : TEXT
Estimated Fix Time : WORD

Copy to Perforce   Mirror with Perforce

Perforce fields (*: read-only)

List of Change Numbers : LINE *
Fix Details : TEXT (append) *
Job : word *
Status : select
Owner : word
ModDate : date *
ModBy : word *
Created : date *
CreatedBy : word *
Description : text
date-2 : date
date-i2d : date
date-id : date

Copy to Defect tracker   Mirror with Defect tracker

Field mappings:

DEFECT TRACKER <- MIRRORED -> PERFORCE
  Description <--> Description
DEFECT TRACKER -> COPIED -> PERFORCE
  Assigned To -> Owner (truncate)
PERFORCE -> COPIED -> DEFECT TRACKER
  line-2 -> Reproducible
  List of Change Numbers -> BG_USER_01
PERFORCE FIX DETAILS -> COPIED -> DEFECT TRAC...
  P4Fix -> Comments (append)

Edit Value Mappings   Unmap

Help   OK   Cancel

```xml
<DTGConfiguration>
  <DataMapping
    id="SampleMapping"
    scm_id="PerforceDepot"
    dts_id="QualityCenter"
    mirror_conflicts="ERROR">
    <FixRule
      dts_field="Comments"
      copy_type="APPEND"
      file_list="1"
      change_number="1"
      description="1"
      fixed_by="1"
      fixed_date="1" />
    <MirrorRules>
      <CopyRule
        scm_field="Description"
        dts_field="Description"
        copy_type="TEXT"
        truncate="0" />
      ...
```

Configuration File: Replication Settings


```xml
<DTGGateway>
  <DTGSettings
    id="SampleMapping"
    force="1">
    <LastUpdateSCM>
      <Date
        year="2007"
        month="5"
        day="3"
        hour="5"
        minute="35"
        second="12" />
    </LastUpdateSCM>
    <LastUpdateDTS>
      ...
    </LastUpdateDTS>
    <StartingDate>
      ...
    </StartingDate>
  </DTGSettings>
</DTGGateway>
```

P4DTG SDK

- Example Plugins
  - Perforce
  - Bugzilla
  - Mantis

- MyDTS Framework
  - Exported C Functions
  - MyDTG, MyDTGProject, MyDTGDefect Classes
  - MyDTS Class

- Command-line test tool

- Supports Windows XP, Visual Studio 2003/2005

Structure of a Plugin

- Shared Library (.so .dll)

- C Functional Interfaces

  - Library

  - Server

  - Project

  - Defect

- Opaque Types: Connection, Project, Defect

Support Tools

- ## Version Information
    - p4dtg-config - About page in help
    - Windows explorer - Properties on executables

- ## Configuration Files – config/* directory
    - src-SOURCE.xml
    - map-MAPNAME.xml
    - set-MAPNAME.xml
    - src-MAPNAME

- ## Log/Status Files – repl/* directory
    - log-MAPNAME
    - err-MAPNAME
    - (run|stop)-MAPNAME

- ## p4dtg-test
    - Type 'h'

- ## p4dtg@perforce.com

What could possibly go wrong?

- Installation
    - TDConnect, Jobspec,
- p4dtg-config
    - Connection failures, incomplete mappings, hacked xml, memory leaks,
- p4dtg-repl / p4dtg-service
    - Same user, old select values, clashing changes, network outages, rejected updates, startup order, other perforce/plugin errors
- SDK
    - Initial build, p4jobdt build, bugzilla build, design questions, design problems, coding problems

What more could someone want?

- Triggers
  - Prevent p4 job creation
  - Map bug id to job
  - State transition
- Plugins
  - Bugzilla, TeamTrack, C-Pine, Jira, Fogbugz
- Features
  - Filtered replication, many-to-many support
  - Configurable polling, reset period, logging
  - Unicode?

Magic Beans for Map Files

- <Attributes>
    <DataAttr name="log_level" value="0" /> [0-3]
    <DataAttr name="sleep_dur" value="5" /> [1-100]
    <DataAttr name="query_limit" value="1000" /> [1+]
</Attributes>

  - Log: 0 - Errors, 1 - Warnings, 2 - Details, 3 – Info

- FILTERING IS CHANGING

Wrap up and Questions

- P4DTG links defects with fix information

- P4DTG uses plugins to connect to DTS

- Plugins are dynamic shared libraries

- P4DTG SDK provides a complete framework

- SDK is in limited beta

- Contact: partners@perforce.com

- Questions...
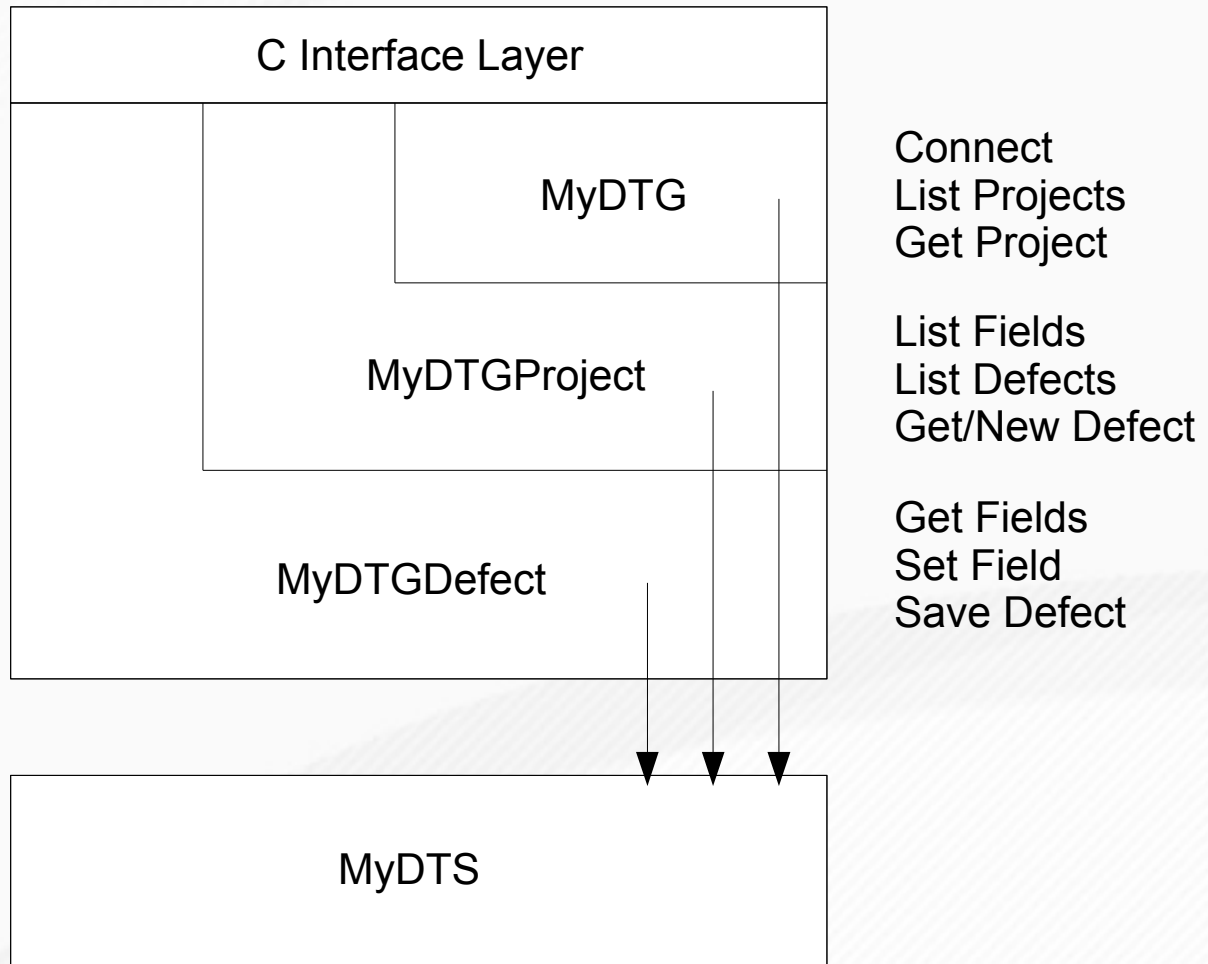
Beyond here lie monsters...

Goals

- Primary
  - Automatic linking of fix information
  - Third party defect tracker integration
  - Robust and scalable

- Secondary
  - Customizable replication
  - Easy to adopt and maintain

Design Decisions

- Level of Integration
  - DTS vs Database API
  - C/C++ Level vs Interpreted vs Webservices

- Workflow Impacts
  - Defect state vs Development process

- Data Field Mapping
  - 5 types: DATE, WORD, LINE, TEXT, SELECT
  - Read/Write vs Read Only

- Authentication

- Platform

MyDTS Framework Architecture

C Interface Layer

MyDTG

MyDTGProject

MyDTGDefect

Connect
List Projects
Get Project

List Fields
List Defects
Get/New Defect

Get Fields
Set Field
Save Defect

MyDTS

Step by Step

- Compile framework and test tool
- Code incrementally
- Test at each stage
- Key areas
  - Connection
  - Data type mapping
  - Listing changed defects