CHRONO TEAM EXPAND

Version 1.6.0

Copyright TeamExpand 23/03/2016

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1. TX Chrono Overview

TX Chrono is a Web application that can be integrated with Microsoft Team Foundation Server and provides users with the ability to submit timesheet reports. It also allows resource managers to review and approve timesheets, as well as run reports on the submitted data.

TX Chrono consists of the following parts:

- Web User Interface
- Database

During configuration, TX Chrono subscribes to events from Team Foundation Server and reports any changes made to the time spent on a particular Work Item to TFS. Users log in to TX Chrono using a browser. TX Chrono synchronizes data stored in TX Chrono Database with information located in Team Foundation Server. Background synchronization runs approximately every hour and helps users keep the application's data up-to-date.

TX Chrono communicates with Team Foundation Server using its Service API. TX Chrono works with TFS 2008, TFS 2010, TFS 2012, TFS 2013, TFS 2015 and Visual Studio Online.

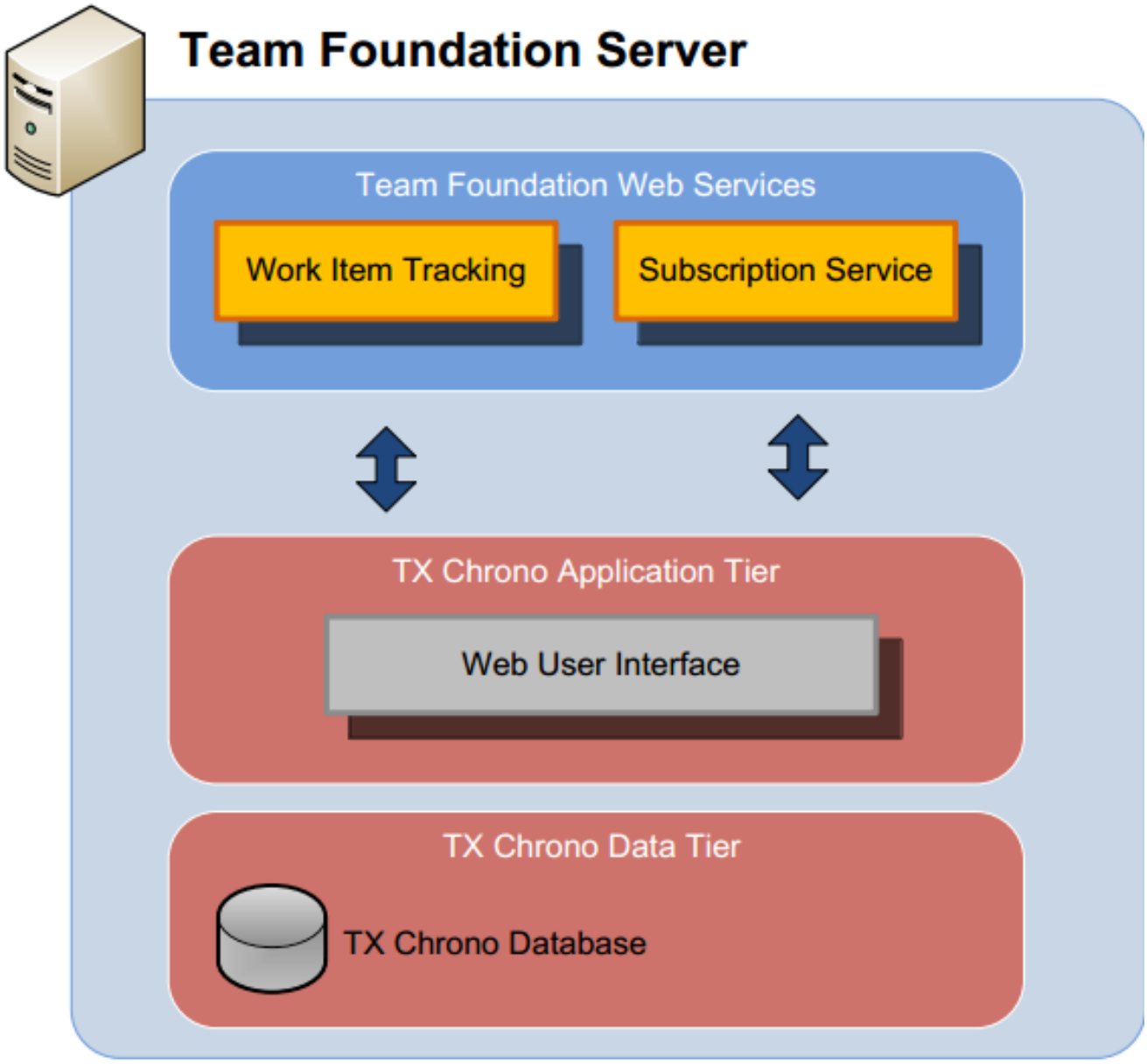
1.1 Supported Deployment Options

Using the TX Chrono installer, it is possible to install every part of TX Chrono on its own workstation, allowing them to function as expected. Below is the list of supported deployment options we recommend to use when installing TX Chrono.

1.1.1 Single-Server Deployment

It is possible to install TX Chrono on the same workstation where Team Foundation Server is installed.

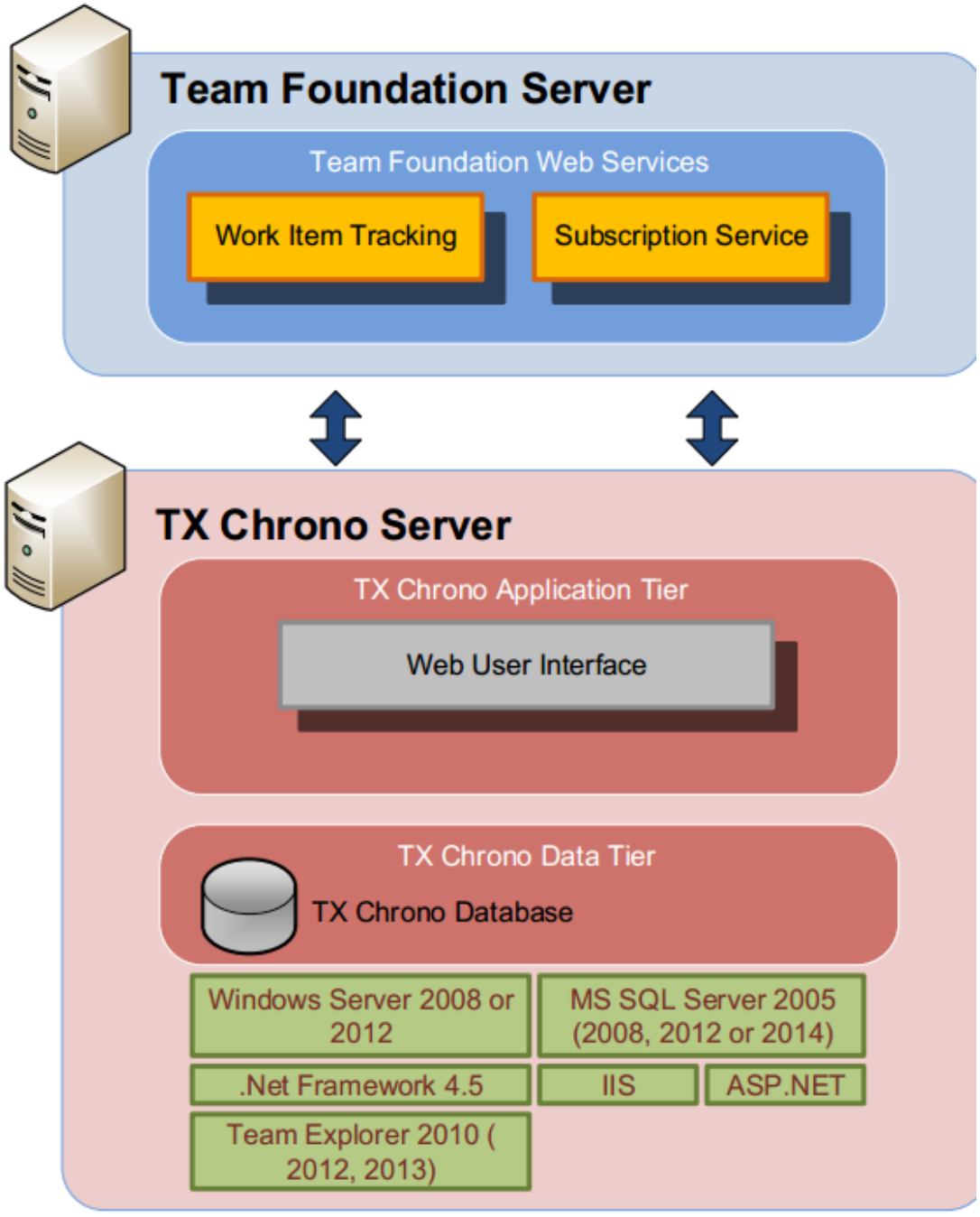
Note: This is the only supported deployment option if you are using Workgroups. If TX Chrono is installed in the Workgroups mode, it uses local computer as storage of users that are capable to log in to TX Chrono. The users must be the same ones that have permissions to access Team Foundation Server.



Picture 1. Single-Server Deployment

1.1.2 Separate Server Deployment

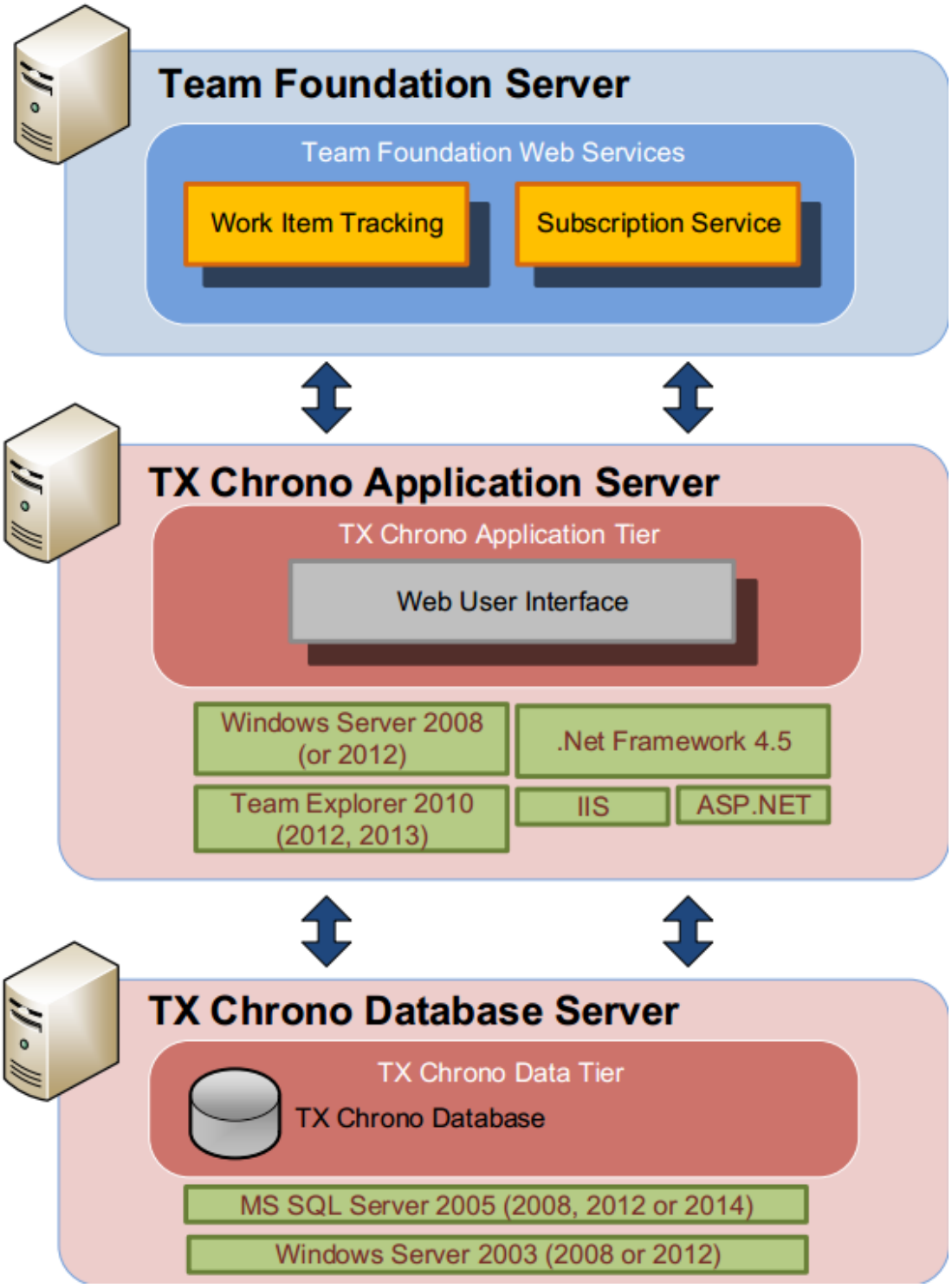
It is possible to install TX Chrono on a separate workstation.



Picture 2. Separate Server Deployment

1.1.3 Extended Separate Server Deployment

Optionally, you can deploy a TX Chrono database on a separate server, thus improving the performance of the server where TX Chrono is installed.



Picture 3. Extended Separate Server Deployment

1.2 TX Chrono Hardware Requirements

TX Chrono runs best on workstations that have a 1.8+ GHz processor, with 1+ GB of RAM. Since TX Chrono stores temporary information received from Team Foundation Server, there must be from 500MB to 2GB of free space on each of the logical drives.

1.3 TX Chrono Software Requirements

The following software is required to have TX Chrono installed and function correctly:

- Windows Server 2008, 2012
- IIS 7, IIS8 or higher (with IIS6 compatibility components)
- Team Foundation Server 2010, 2012, 2013. 2015 or Visual Studio Online
- Team Explorer 2010 to work with TFS 2010
- Team Explorer 2012 to work with TFS 2012
- Team Explorer 2013 to work with TFS 2013 or Visual Studio Online
- .NET Framework 4.5
- SQL Server Express 2005, 2008, 2012 or 2014

We recommend you to install the latest service packs on your operating system.

To access TX Chrono, users can utilize the following browsers:

- Internet Explorer 9.0 – 11.0
- Firefox
- Google Chrome

The browser must support JavaScript and Cookies, as well as have them enabled.

1.3.1 Adding TX Chrono Web Site to the Trusted Sites Security Zone

When using Internet Explorer, for security reasons, JavaScript and Cookies might be disabled by default. Therefore, one may be required to add TX Chrono Web Site to the Trusted Sites Security Zone.

To do that, try the following:

1. Locate the browser Window > go to the **Tools** menu > click **Internet Options** >
2. Then, choose **Security tab** > choose **Local Intranet** > click the **Sites** button >
3. Click the **Advanced** button.
4. As a result, you will see the **Local Intranet** window.
5. In the **Add this Web site to the zone** text box, enter the TX Chrono User Interface URL (http://<TX Chrono Web Site Address>), making sure the **Require server verification (https:) for all web sites in this zone** check-box is unchecked, and click the **Add** button.

2. Before You Install

Before you start installing TX Chrono, please make sure that everything is set up and configured correctly. Below are the steps we recommend you to walk through before installing TX Chrono.

2.1 Step 1 – All Requirements Are Met

Please make sure that the servers you are going to deploy TX Chrono to comply with the Hardware and Software Requirements described in the following sections:

- Hardware Requirements
- Software Requirements

2.2 Step 2 – People Assigned to Corresponding Project Roles

Please make sure that all persons who participate in projects (and report working time for it) are included in corresponding project roles. This is required by TX Chrono in order to build role hierarchy and grant permissions to view reports and approve/decline working time.

2.3 Step 3 – Review Your Time Reports

TX Chrono executes bi-directional working time synchronization with Team Foundation Server. It means that each action involved in adding or subtracting the time reported for a particular Work Item (by editing the “Completed work” field) will be synchronized with the current week time report in TX Chrono. On the other hand, each change in TX Chrono will be synchronized with the “Completed work” field for a particular Work Item.

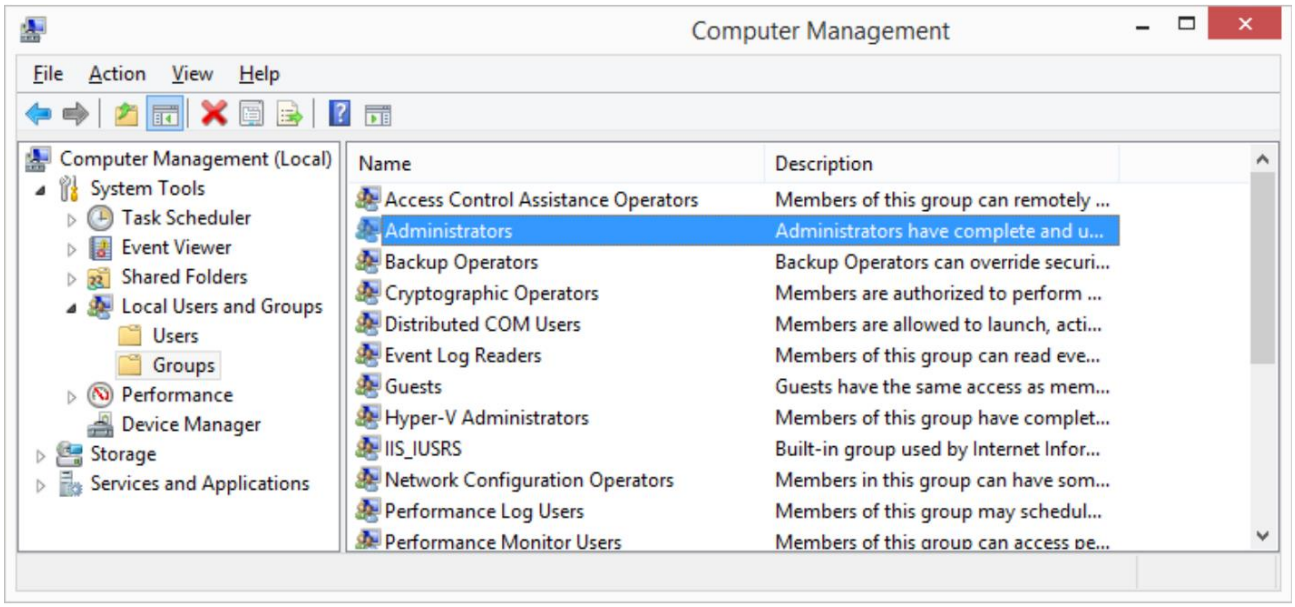
Before you install TX Chrono, you need to make sure that all Work Items have their Completed Work values up-to-date. The reason is that after TX Chrono is installed, it will start controlling every operation that involves changes in time reported to a particular Work Item in Team Foundation Server.

2.4 Step 4 – You Have Permissions to Install TX Chrono

It is required that the installation is performed by the computer administrator. In other words, on every computer where TX Chrono components will be installed, the user responsible for the installation must be included into the group of local Administrators.

Use the following steps to accomplish this:

- Go to **Start** > **Control Panel** > **Administrative tools** > **Computer Management**. In the console tree, expand the ‘Local Users and Groups’ group and select Groups from the list.



Picture 4. Administrators Group

2.5 Step 5 – Uninstall Previous Version of TX Chrono

If you had a previous version of TX Chrono installed, please uninstall it. The versions are incompatible and can cause each other to work improperly.

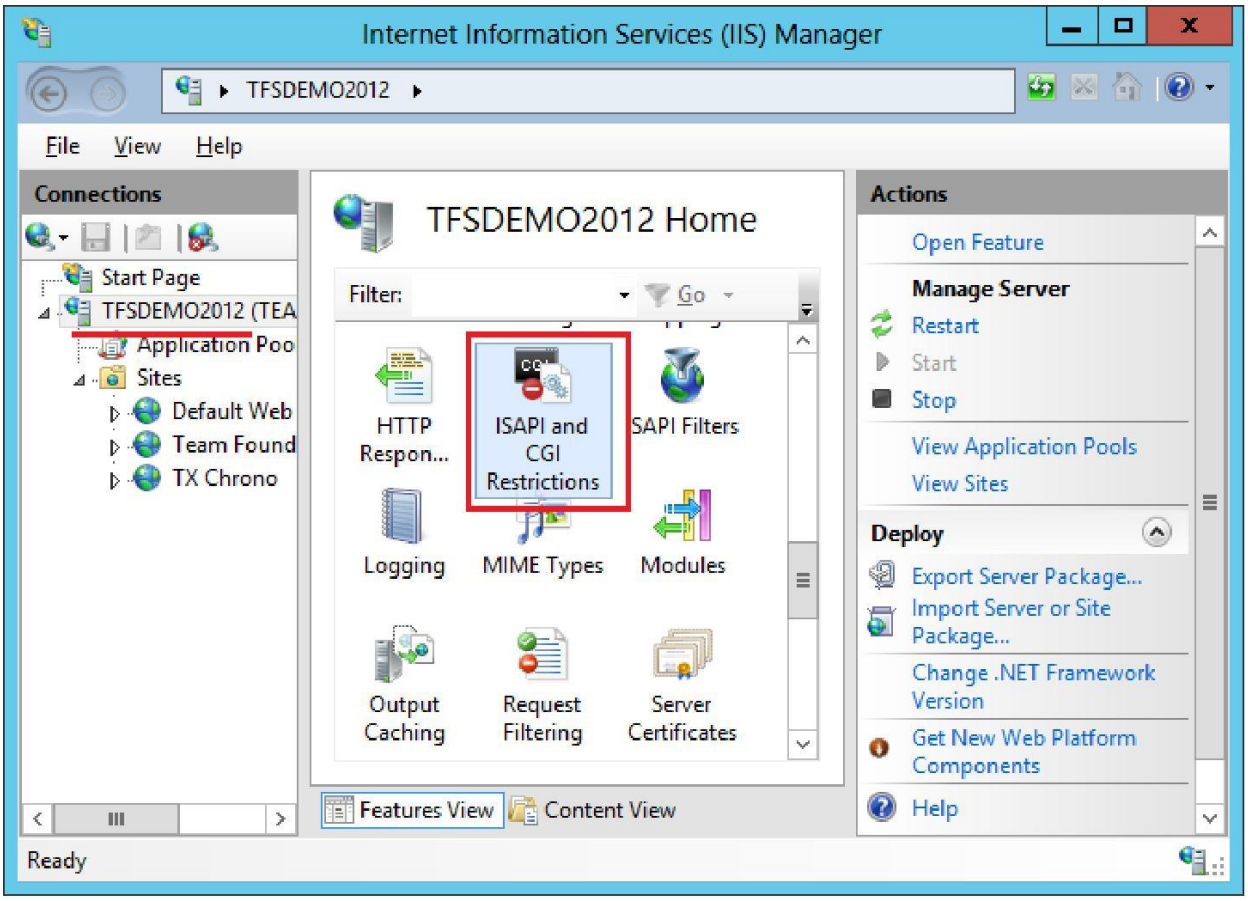
You can do it in two ways:

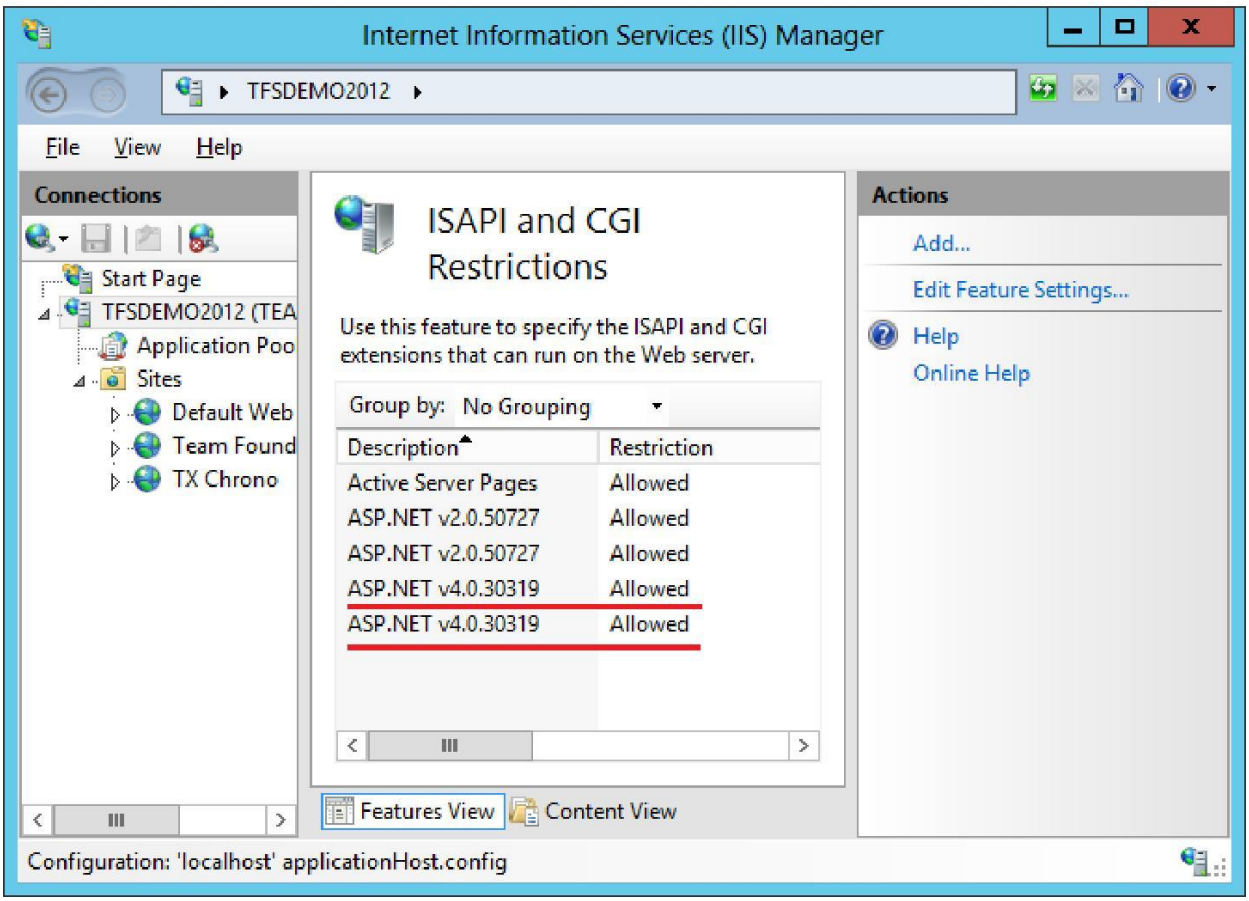
- using the TX Chrono Installer from the previous version
- or using Add or Remove Programs from Control Panel

> **Note:** Please, refer our Upgrade Guide if you want to upgrade to the newer version

2.6 Step 6 – Check Your IIS Configuration

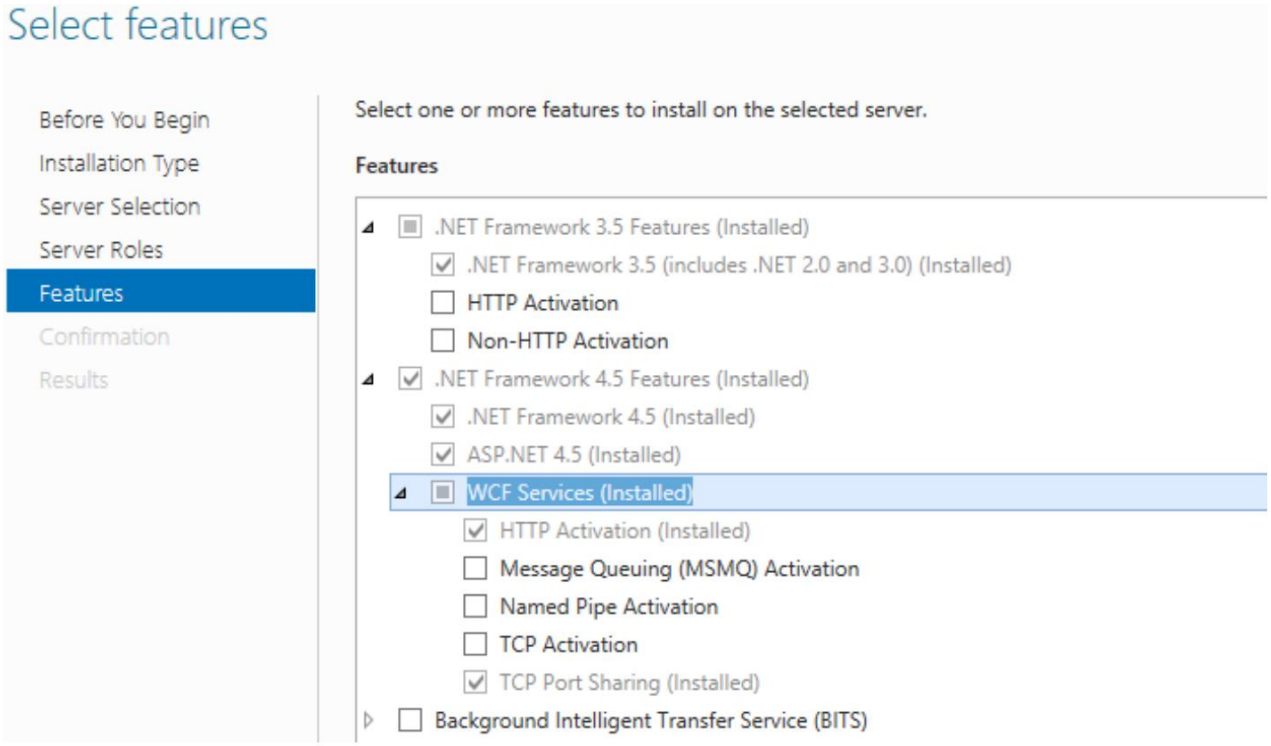
Check if ISAPI and CGI Restrictions are configured properly for .Net 4:

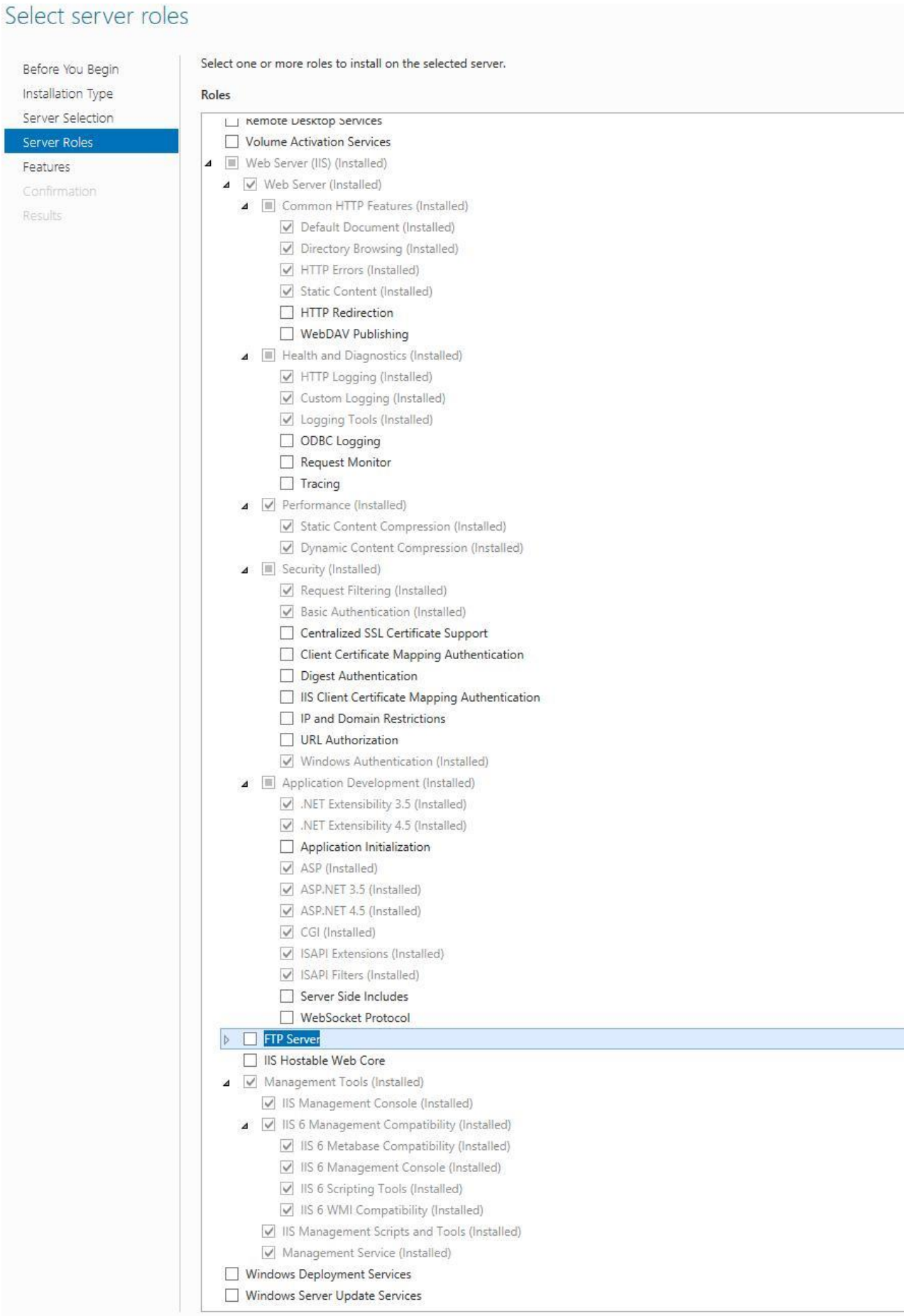

Internet Information Services (IIS) Manager
TFSDEMO2012
File View Help
Connections
Start Page
TFSDEMO2012 (TEA
Application Poo
Sites
Default Web
Team Found
TX Chrono
TFSDEMO2012 Home
Filter:
Go
HTTP Respon...
ISAPI and CGI Restrictions
SAPI Filters
Logging
MIME Types
Modules
Output Caching
Request Filtering
Server Certificates
Features View
Content View
Actions
Open Feature
Manage Server
Restart
Start
Stop
View Application Pools
View Sites
Deploy
Export Server Package...
Import Server or Site Package...
Change .NET Framework Version
Get New Web Platform Components
Help
Ready


Internet Information Services (IIS) Manager
TFSDEMO2012
File View Help
Connections
Start Page
TFSDEMO2012 (TEA
Application Poo
Sites
Default Web
Team Found
TX Chrono
ISAPI and CGI Restrictions
Use this feature to specify the ISAPI and CGI extensions that can run on the Web server.
Group by: No Grouping
Description
Restriction
Active Server Pages Allowed
ASP.NET v2.0.50727 Allowed
ASP.NET v2.0.50727 Allowed
ASP.NET v4.0.30319 Allowed
ASP.NET v4.0.30319 Allowed
Features View
Content View
Actions
Add...
Edit Feature Settings...
Help
Online Help
Configuration: 'localhost' applicationHost.config

2.7 Step 7 – Check if Basic Web Server Components are installed

Basically TX Chrono can be smoothly installed on the same machine with TFS. Here go reference screenshots in case if you decide to install TX Chrono apart TFS Server:




Select server roles
Before You Begin
Installation Type
Server Selection
Server Roles
Features
Confirmation
Results
Select one or more roles to install on the selected server.
Roles
Remote Desktop Services
Volume Activation Services
Web Server (IIS) (Installed)
Web Server (Installed)
Common HTTP Features (Installed)
Default Document (Installed)
Directory Browsing (Installed)
HTTP Errors (Installed)
Static Content (Installed)
HTTP Redirection
WebDAV Publishing
Health and Diagnostics (Installed)
HTTP Logging (Installed)
Custom Logging (Installed)
Logging Tools (Installed)
ODBC Logging
Request Monitor
Tracing
Performance (Installed)
Static Content Compression (Installed)
Dynamic Content Compression (Installed)
Security (Installed)
Request Filtering (Installed)
Basic Authentication (Installed)
Centralized SSL Certificate Support
Client Certificate Mapping Authentication
Digest Authentication
IIS Client Certificate Mapping Authentication
IP and Domain Restrictions
URL Authorization
Windows Authentication (Installed)
Application Development (Installed)
.NET Extensibility 3.5 (Installed)
.NET Extensibility 4.5 (Installed)
Application Initialization
ASP (Installed)
ASP.NET 3.5 (Installed)
ASP.NET 4.5 (Installed)
CGI (Installed)
ISAPI Extensions (Installed)
ISAPI Filters (Installed)
Server Side Includes
WebSocket Protocol
FTP Server
IIS Hostable Web Core
Management Tools (Installed)
IIS Management Console (Installed)
IIS 6 Management Compatibility (Installed)
IIS 6 Metabase Compatibility (Installed)
IIS 6 Management Console (Installed)
IIS 6 Scripting Tools (Installed)
IIS 6 WMI Compatibility (Installed)
IIS Management Scripts and Tools (Installed)
Management Service (Installed)
Windows Deployment Services
Windows Server Update Services

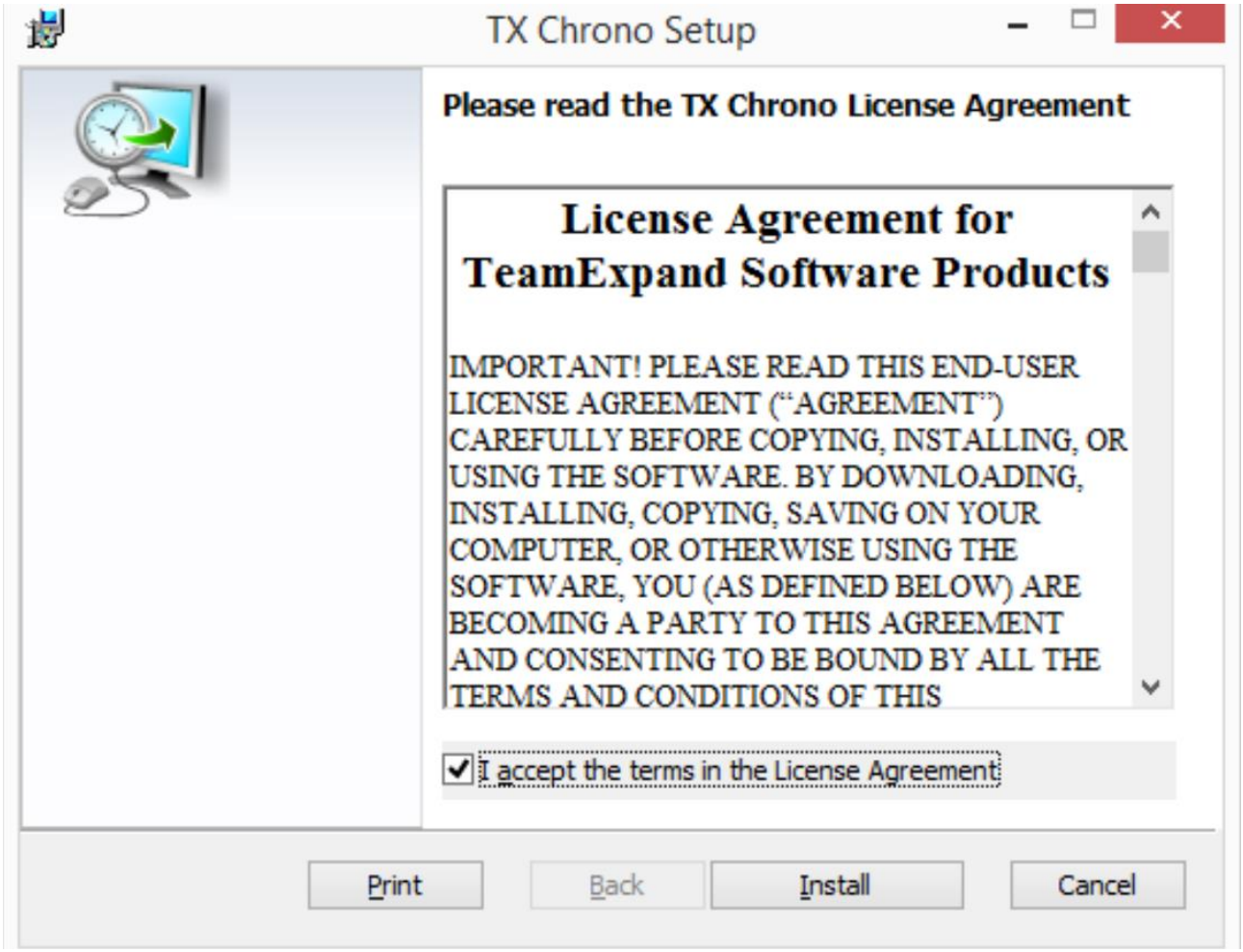
3. TX Chrono Installation

3.1 Install Web Site

In order to install TX Chrono Web Site run TXChronoSetup.exe (if it has not been run). The window shown in **Error! Reference source not found.**5 will be displayed.

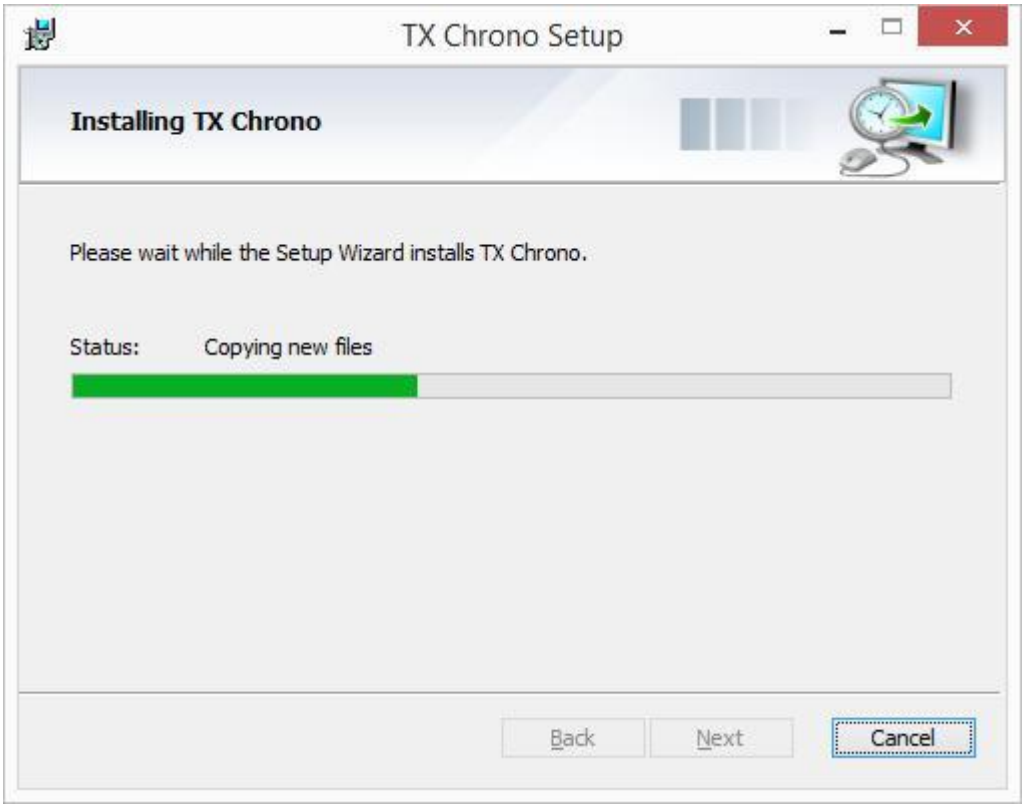
Specify the port number in the ‘Site Port’ field and the physical path where you want the application to be installed to in the ‘Physical Path’ field. Click **Install** to start the installation process.

TX Chrono Setup window will show up:



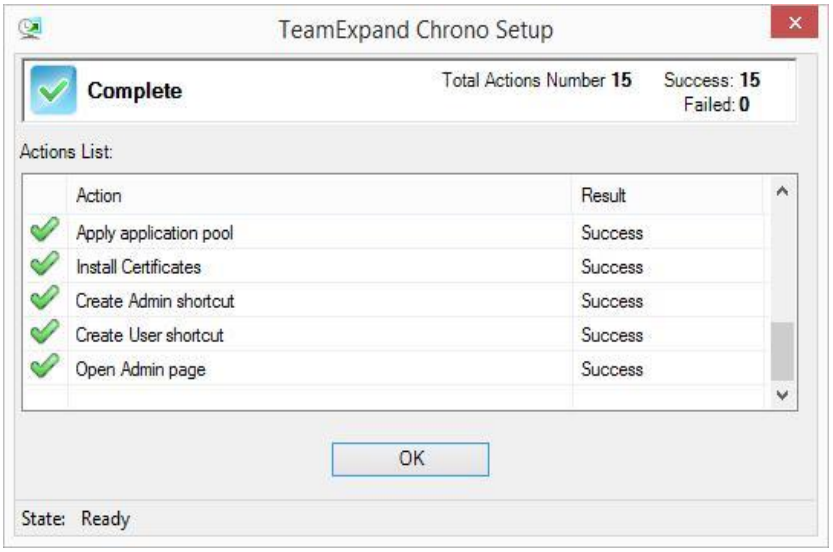
Picture 6. TX Chrono Setup window.

After you agree with License Agreement and press **Install** button Installation Configuration window appears.



Picture 7. TX Chrono Setup Progress window.

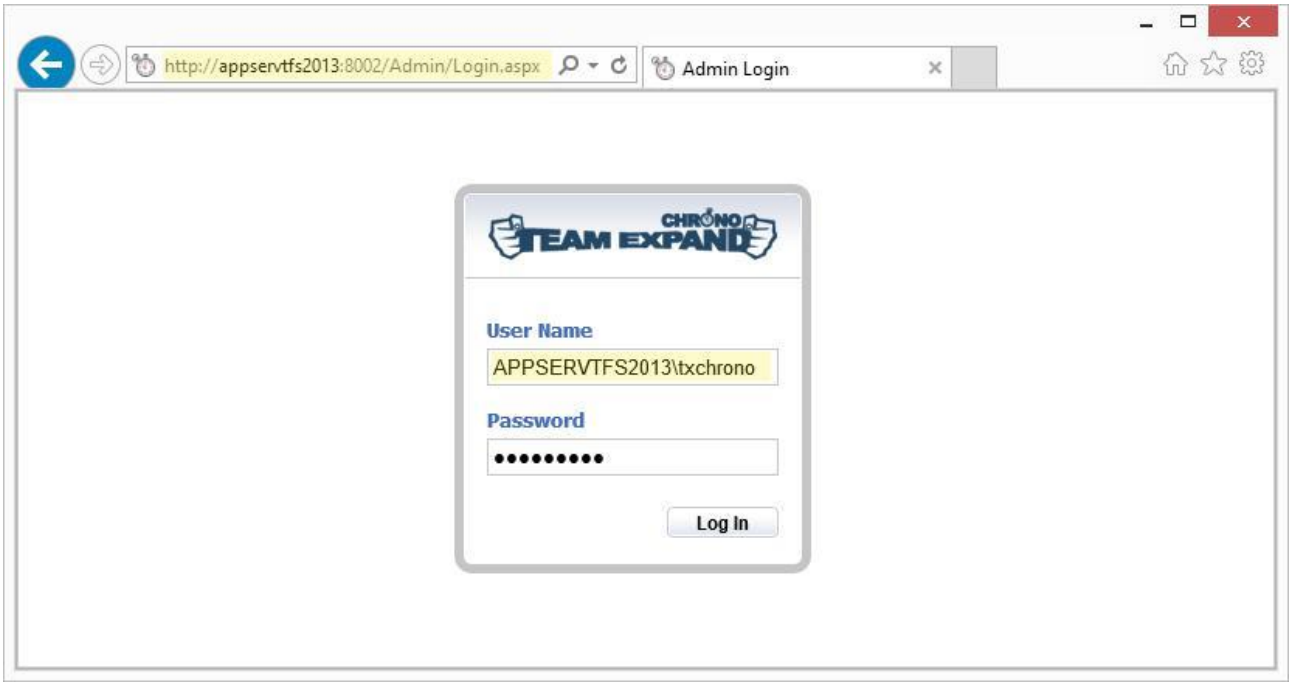
After installation is configured and files are deployed a window with additional actions shows up:



Picture 8. TX Chrono Setup Progress window.

3.2 Installation Completion

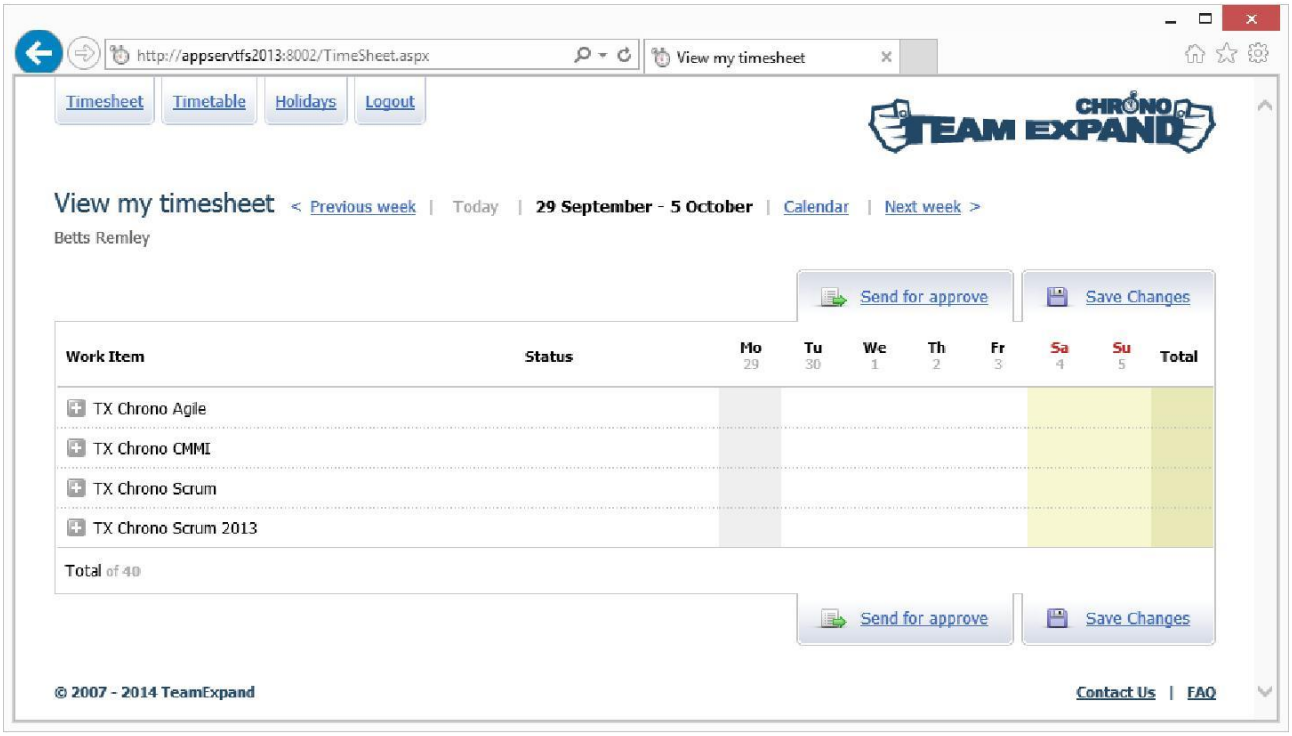
Just after application installation browser window with Admin Login page is automatically opened:



Picture 9. Log in form

After Admin Login you need to configure connection to TFS, select Project Collections to synchronize with and choose & configure your User Environment Type. You can find detailed instructions in the **Configuration Guide**.

After application is configured and synchronized you can use your AD or TFS account to log in. Once you logged in, you can start working with the application as shown in Picture 10:



Picture 10. TeamExpand Chrono Timesheet

4. TX Chrono Configuration

After you installed TX Chrono, you need to configure it as described in the TX Chrono Configuration Guide in any of the following cases:

- TFS permissions configuration does not include the following project user groups: **Project Administrators**, **Contributors**, **Readers** or intended users are members of user groups other than the ones listed above.
- Timesheets need to be synchronized with work items other than **Tasks**. E.g., your workflow may include **Bugs, Sprint Backlog Task, Product Backlog Item**, etc.
- You need work items to be available in timesheets as the work items get into state other than **Active** and **In Progress**. E.g. your team members start working on tasks, as the tasks get into the **New** or **In Testing** states.
- You need tasks that are not to be synchronized with any TFS work items. E.g., your team members may need to be able to submit time to the **Sickness**, **Vacation,** or **Holiday** tasks. Refer to the TX Chrono Configuration Guide to learn how to set up *Virtual Projects*.
- You need time reported in timesheets to be synchronized with work item fields other than **Completed Work,** e.g. for that you may have a field called **Actual Effort.**
- You want TX Chrono to display some additional information for each work item, e.g. **Iteration Path** or **Estimate.**
- You want to customize **Default Timetable**
- You want to setup **Mail Notifications** for such user actions as Send Time for Approve, Approve or Decline time
- You want to adjust **Background Synchronization** interval or forcibly trigger sync
- You want to change **User Authentication** type

Note: For full configuration reference you can apply to our Configuration Guide

5. TX Chrono License Retrieval

After TX Chrono is installed and up-and-running, you have a 30-day trial period. After it ends, you will have to request a license.

After purchase, you will receive two license files: **license.lic** and **license_chrono.lic**. To apply your license you need to accomplish the steps below.

5.1 How does TX License work

License Service validates most TX Chrono operations. There are three types of License Service: Web-based, Integrated and Portable. We recommend using Integrated version of License service because it is more secure, reliable and fast. Just after installation, TX Chrono by default is configured to use Web-based License Service. If you are going to keep using Web-based License Service, you can skip step 4.2.

5.2 Configure TX Chrono to use Integrated License Service

In order to configure TX Chrono license a user should be logged in to TX Chrono and be included in the Team Foundation Administrators server group of Team Foundation Server. Once it is done, the License menu option will become available in the list of TX Chrono menu options as shown in the image below.

Navigate to ‘Licenses -> License Service’ page:

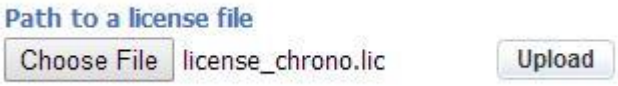
On the page opened select from the ‘Type’ dropdown list ‘Integrated’ option:

Upload **license.lic** file (browse for file and click Upload button):

5.3 Upload a License to TX Chrono

Navigate to Licenses page:

By clicking the Licenses link, you will be redirected to the License Upload page where you will be able to upload a license file you received (**license_chrono.lic**):



5.4 Check License state

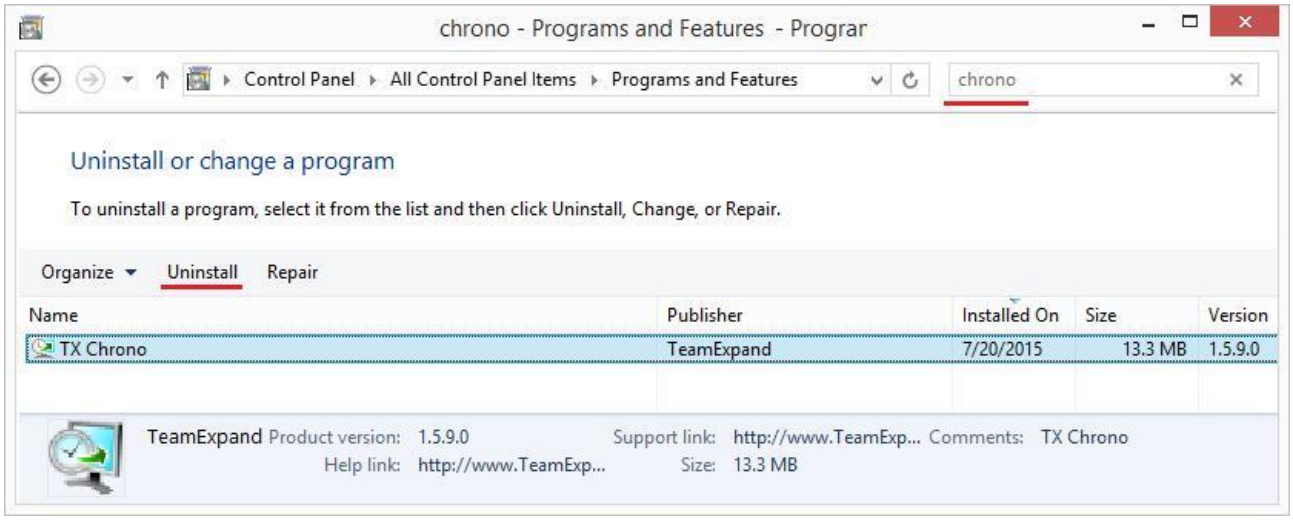
To check if all steps were done correctly you can navigate to the License Details page:

6. TX Chrono Removal

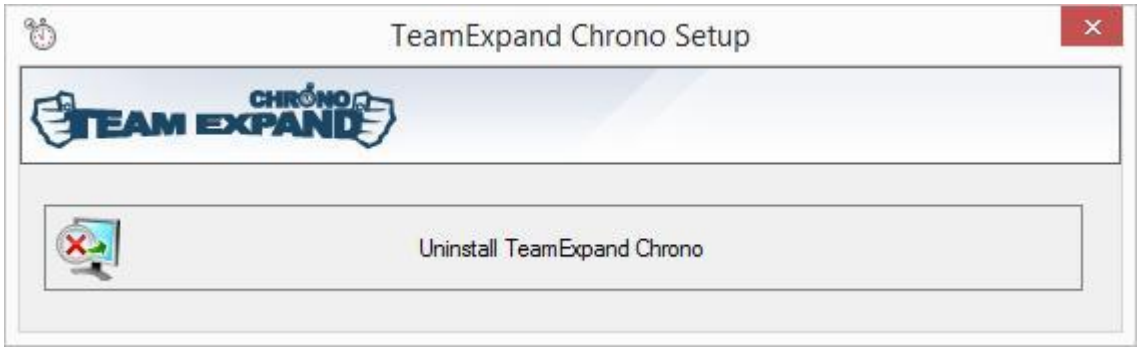
6.1 Web Site Removal

There are two different ways to uninstall TX Chrono:

1. Go to Add or Remove Programs (Start -> Control Panel -> Add or Remove Programs). Select 'TX Chrono' from the program list and click **Uninstall**.

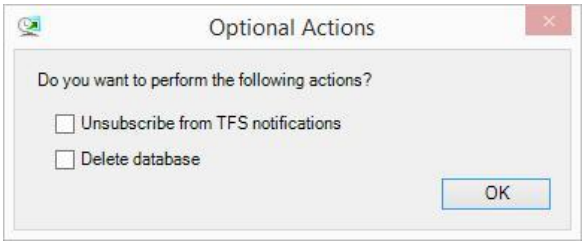


2. Run **TXChronoSetup.exe** and click **Uninstall TeamExpand Chrono**.



6.2 Database Removal

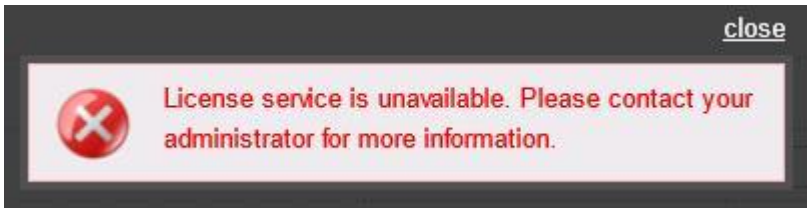
After Web Site Uninstall process initiated you will be offered to Unsubscribe from TFS events and Delete Database:



Select items you want to delete and press OK button to continue.

7. Troubleshooting

7.1 TX Chrono Reports LSE:008 Error when try to save time reports

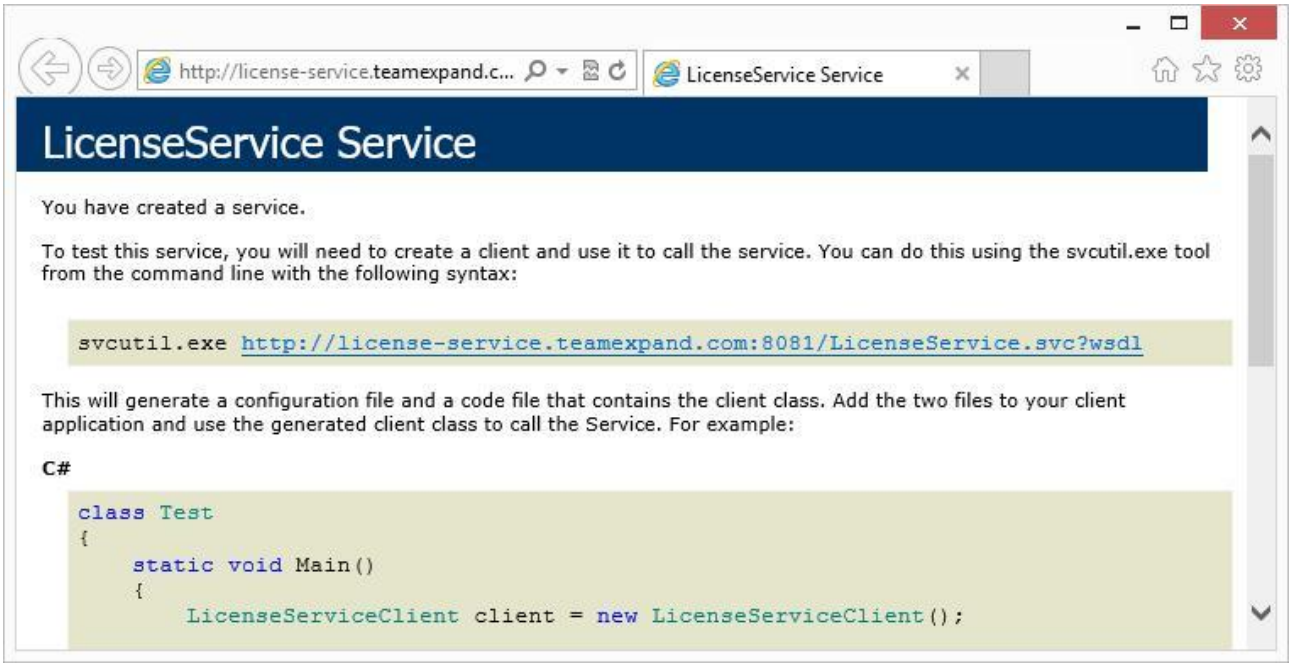


This error code means that TX Chrono is unable to access License Server at TeamExpand.com. It may be caused by several reasons:

- Firewall prevents TX Chrono from accessing the License Server
  In this case, we suggest allowing access to "*.teamexpand.com" from the workstation where TX Chrono is installed.
- Time is incorrectly set on the workstation where TX Chrono is installed
  This can be fixed by setting a correct time according to your time zone. It is possible to have 5-10 minutes time deviations.

  To check if license service is available you can open following link in browser on the machine where TX Chrono is installed:

http://license-service.teamexpand.com:8081/licenseservice.svc



If due to some security reasons you could not provide access to the URL from the box where TX Chrono is installed you can use Integrated License Service. To implement this follow the steps described in the 4.2 section of this Guide.

Note: To get trial license (or purchase one) file you can apply our support service: support@teamexpand.com

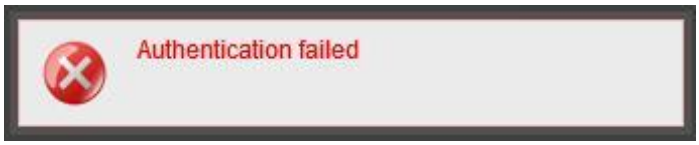
7.2 Login is not presented in the list of logins attached

If you see this error it means that number of TX Chrono users exceeds you license capacity. To resolve the issue you can use one of the following options:

1. Buy extra user slots by contacting TeamExpand: support@teamexpand.com
2. Free existing user slots by disabling accounts that will not be used with TX Chrono anymore:

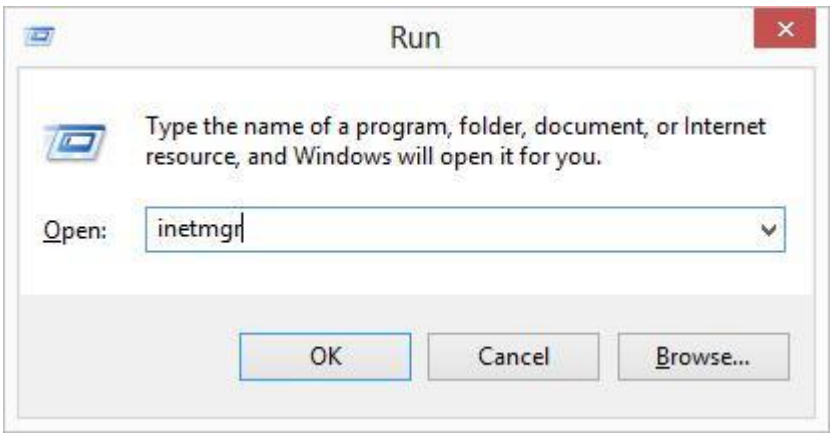
More information about licensed-users management you can find in the TX Chrono User Guide.

7.3 Authentication Failed

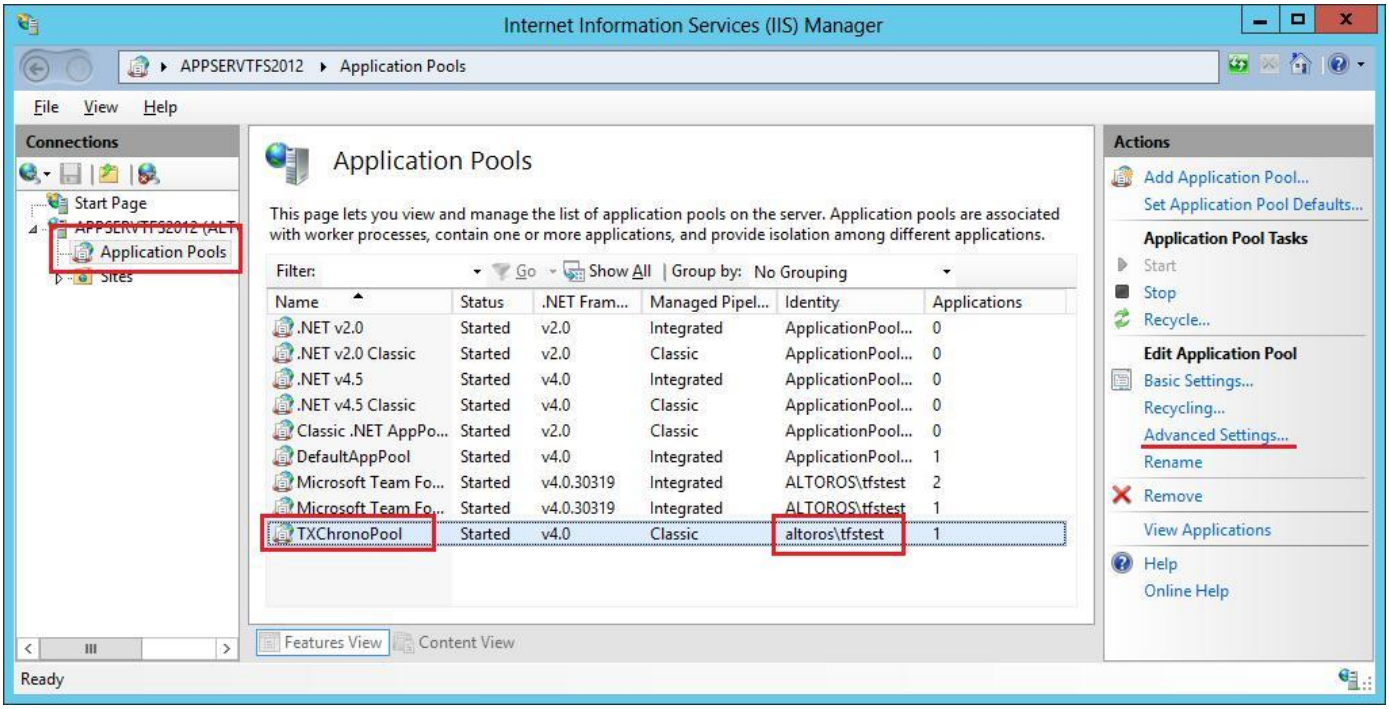


Most likely, this error occurs when you change password for the account that is used with TX Chrono. You can follow the steps below to update the password on IIS:

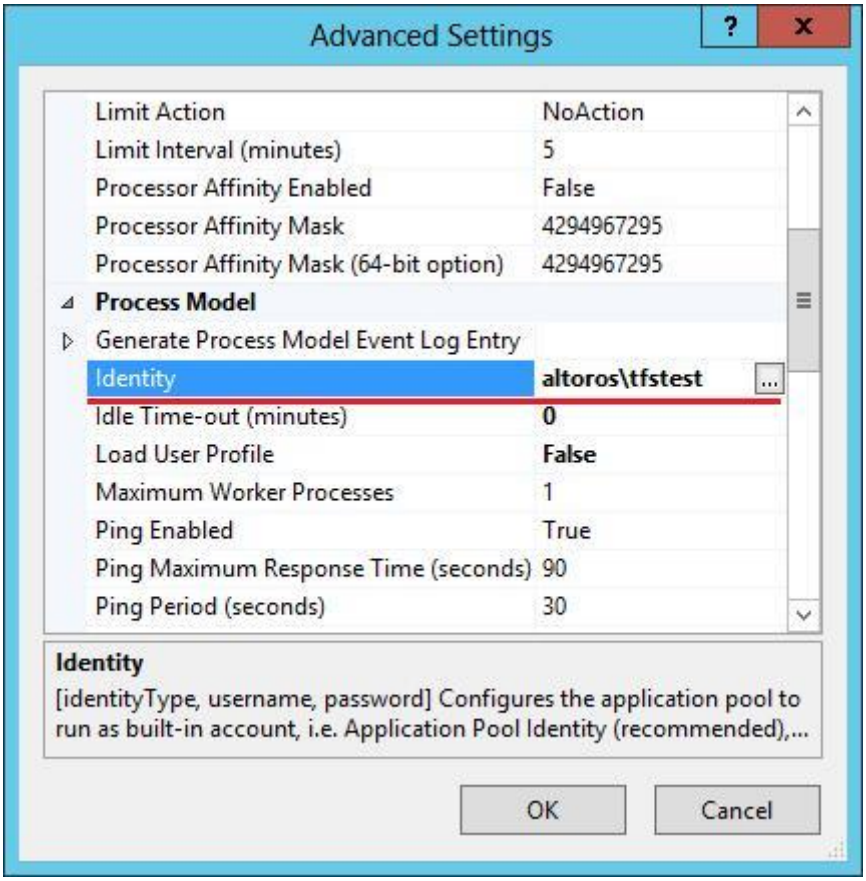
1. Run Internet Information Services (IIS) Manager on the machine where TX Chrono is installed:



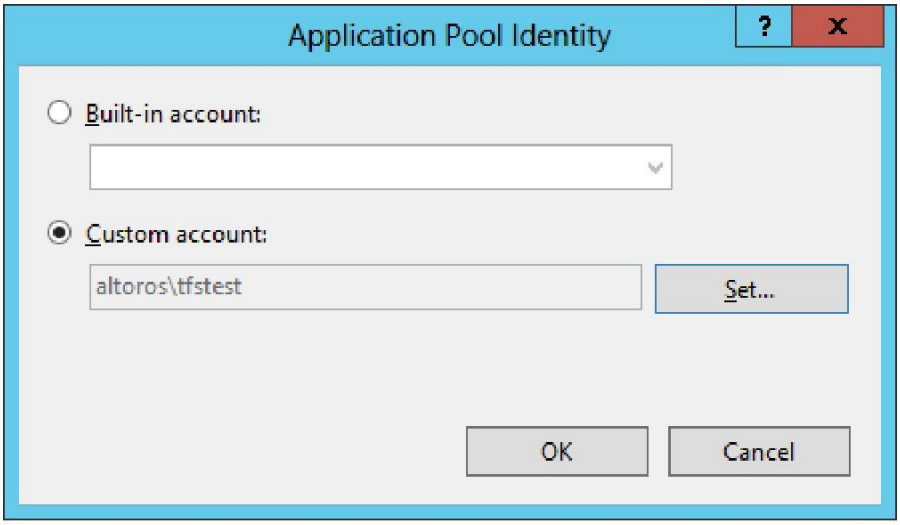
2. Select TX Chrono Application Pool:

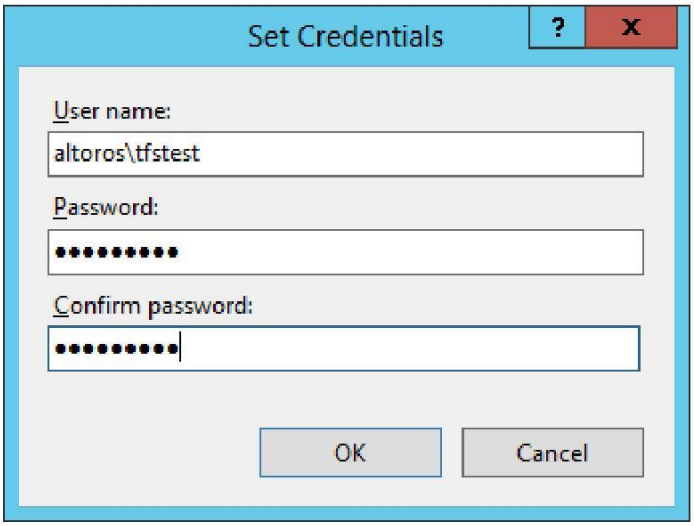


3. Open Advanced Settings and click '…' button near the Identity name



4. In the window opened specify valid account/password combination





7.4 Fractional Hours Cannot Be Saved

In case you have Team Foundation Server installed in a locale different from “en,” you may find TX Chrono not working with time reports entered in fractional numbers like 2.5 hours and so on. In order to correct this, you need to have both TX Chrono and Team Foundation Server working in the same locale.

By default, TX Chrono uses the same locale which is configured for IIS / workstation. Therefore, we recommend installing Team Foundation Server to the same locale.

However, if you cannot change the Team Foundation Server settings for some reason, you can change it in TX Chrono. Use the following steps to accomplish this:

3. Go to the folder where **TX Chrono** is installed and locate the **web.config** file. Open it in any text editor (Notepad, for instance).
4. Locate the **<globalization>** element and change it to look as follows (add it, if it does not exist):

```
<globalization culture=“Your-Culture” uiCulture=“Your-Culture”/>
```

7.5 Time synchronization from TFS to TX Chrono is slow

After you have changed time in TFS, it generates a notification, which is then processed by TX Chrono. Some TFS versions send this notification with two minutes' delay.

To change the time before the notification will be sent, you can run the following Powershell script:

```
[Reflection.Assembly]::Load("Microsoft.TeamFoundation.Client, Version=10.0.0.0, Culture=neutral, PublicKeyToken=b03f5f7f11d50a3a")

# Modify the TFS configuration server URL as necessary.
$configServer = new-object Microsoft.TeamFoundation.Client.TfsConfigurationServer "http://localhost:8080/tfs/"

# Get the TFS registry service.
$tfsRegService = $configServer.GetService([Microsoft.TeamFoundation.Framework.Client.ITeamFoundationRegistry])

# Set the notification delay to 0 seconds. All collections will use this delay unless they override this value in the collection hive.
$tfsRegService.SetValue("/Service/Integration/Settings/NotificationJobDelay", 0)
```

7.6 TFS to TX Chrono sync doesn't work for a single changed field

Symptoms:

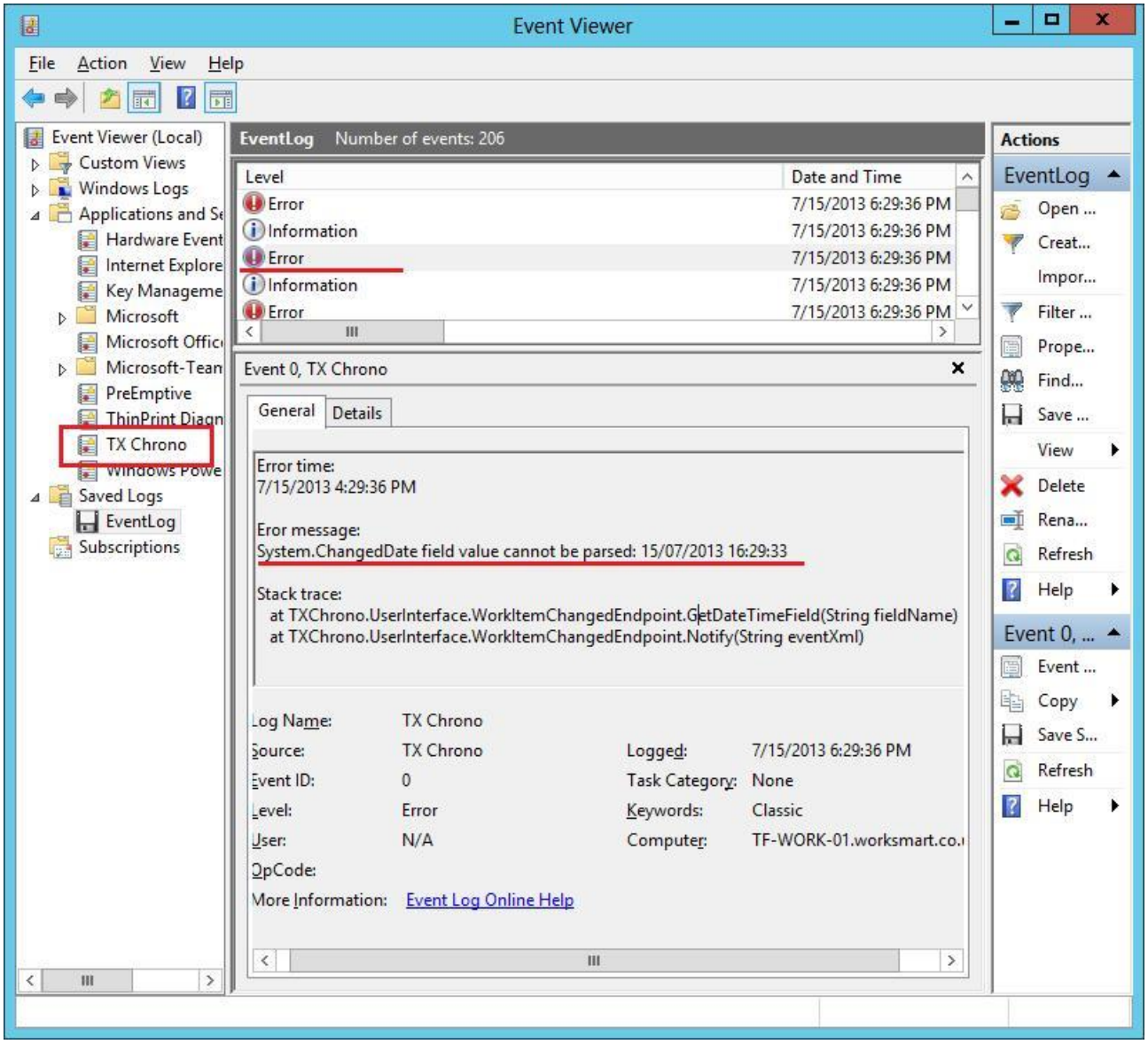
You have Team Foundation Server 2010 SP1. You have e-mail alerts set up. When users change only one field in a Task or a Bug work item (other than the "Steps to Repro" field), the resulting e-mail does not have a Changed Fields section. However, if users change two or more fields, the "Changed Fields" section appears in the e-mail.

This is a known bug in TFS 2010 SP1. To resolve the issue follow the link:

http://support.microsoft.com/kb/2706470

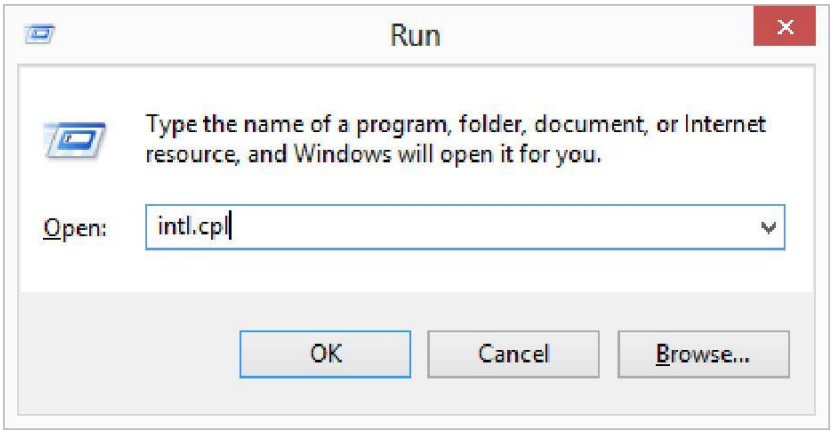
7.7 TFS to TX Chrono sync doesn't work (date time parse error)

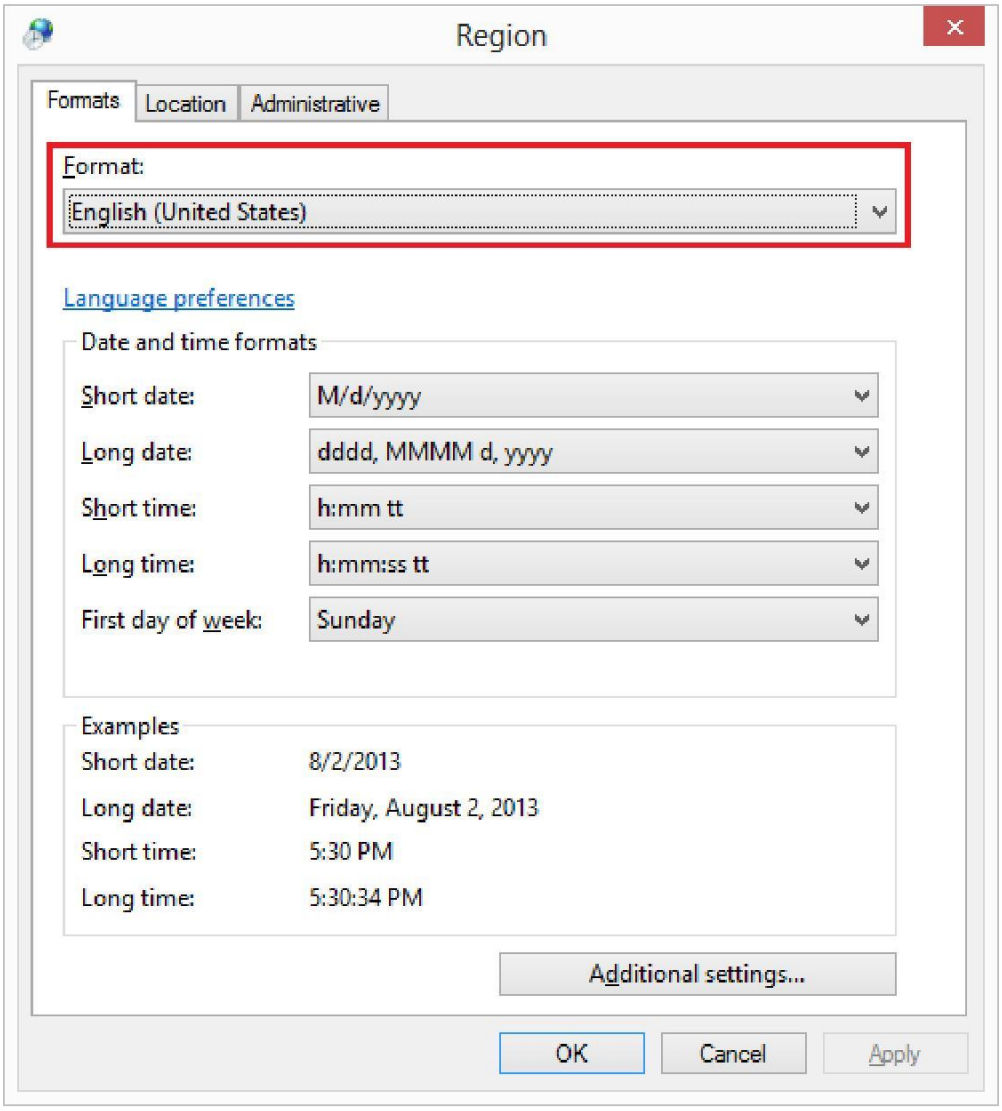
If TFS to TX Chrono synchronization doesn't work and there is the following error in the event log:



Then you can try to explicitly specify your TFS locale (Settings -> Other):

To get know your server locale you can follow the steps:

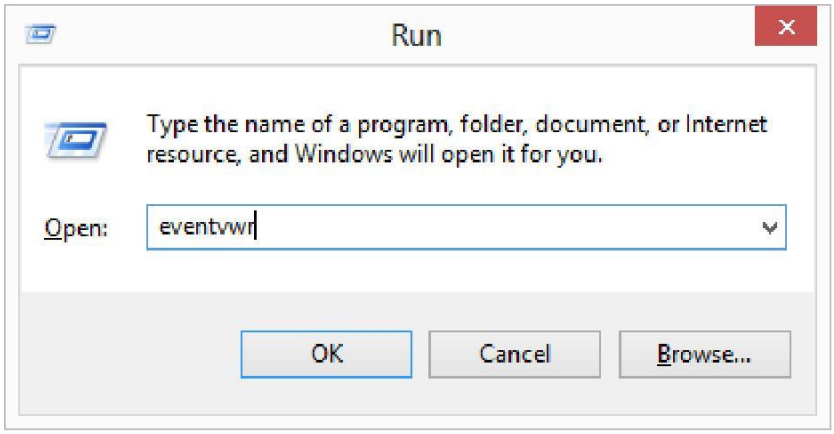


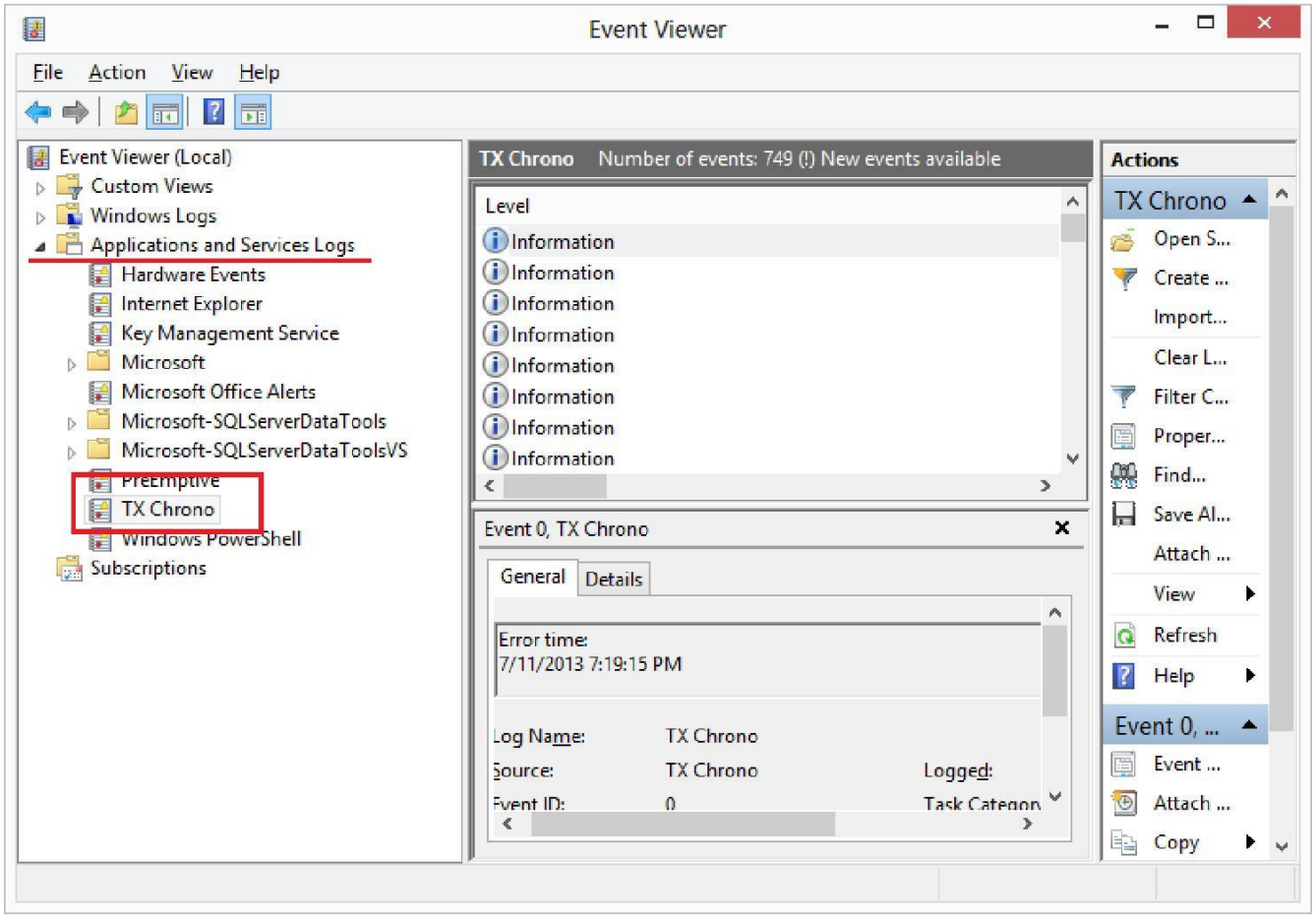


Here is list of .Net supported locales: http://msdn.microsoft.com/en-us/library/system.globalization.cultureinfo(v=vs.71).aspx

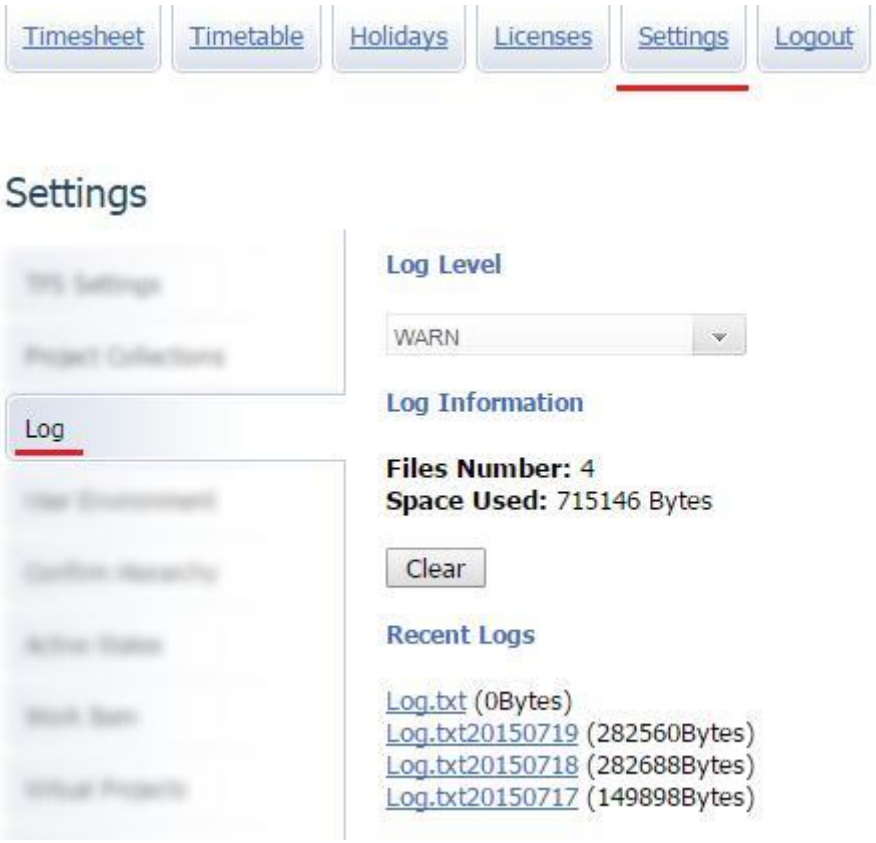
7.8 View Logs

TX Chrono application event log:

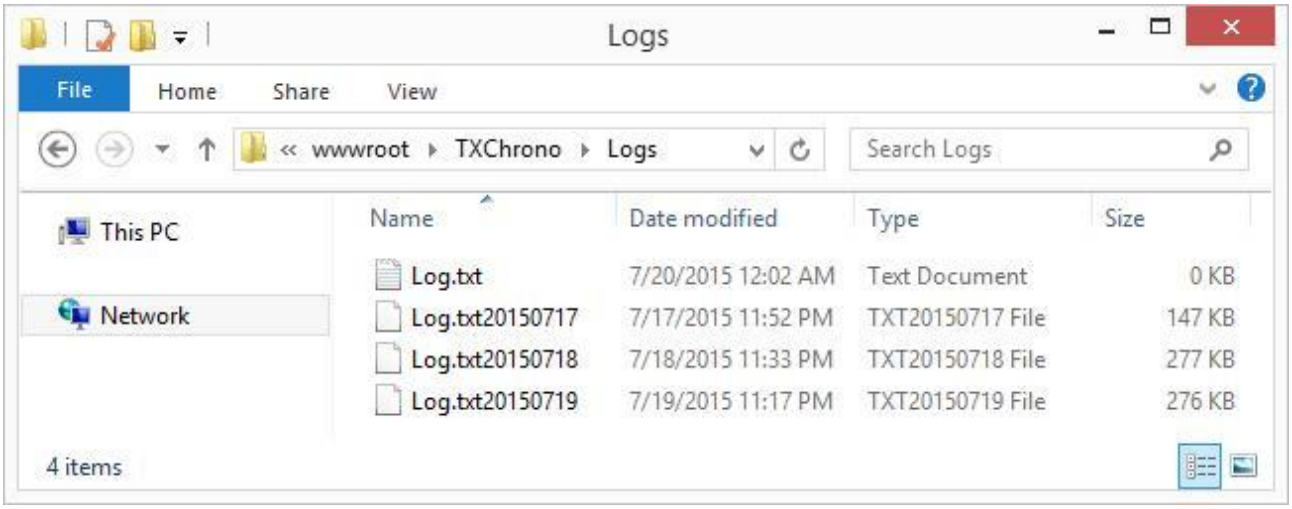

Run
Type the name of a program, folder, document, or Internet resource, and Windows will open it for you.
Open:
eventvwr
OK
Cancel
Browse...


Event Viewer
File Action View Help
Event Viewer (Local)
Custom Views
Windows Logs
Applications and Services Logs
Hardware Events
Internet Explorer
Key Management Service
Microsoft
Microsoft Office Alerts
Microsoft-SQLServerDataTools
Microsoft-SQLServerDataToolsVS
PreEmptive
TX Chrono
Windows PowerShell
Subscriptions
TX Chrono Number of events: 749 (!) New events available
Level
Information
Information
Information
Information
Information
Information
Information
Information
Event 0, TX Chrono
General Details
Error time:
7/11/2013 7:19:15 PM
Log Name: TX Chrono
Source: TX Chrono
Logged:
Event ID: 0
Actions
TX Chrono
Open S...
Create ...
Import...
Clear L...
Filter C...
Proper...
Find...
Save Al...
Attach ...
View
Refresh
Help
Event 0, ...
Event ...
Attach ...
Copy

Log Manager:

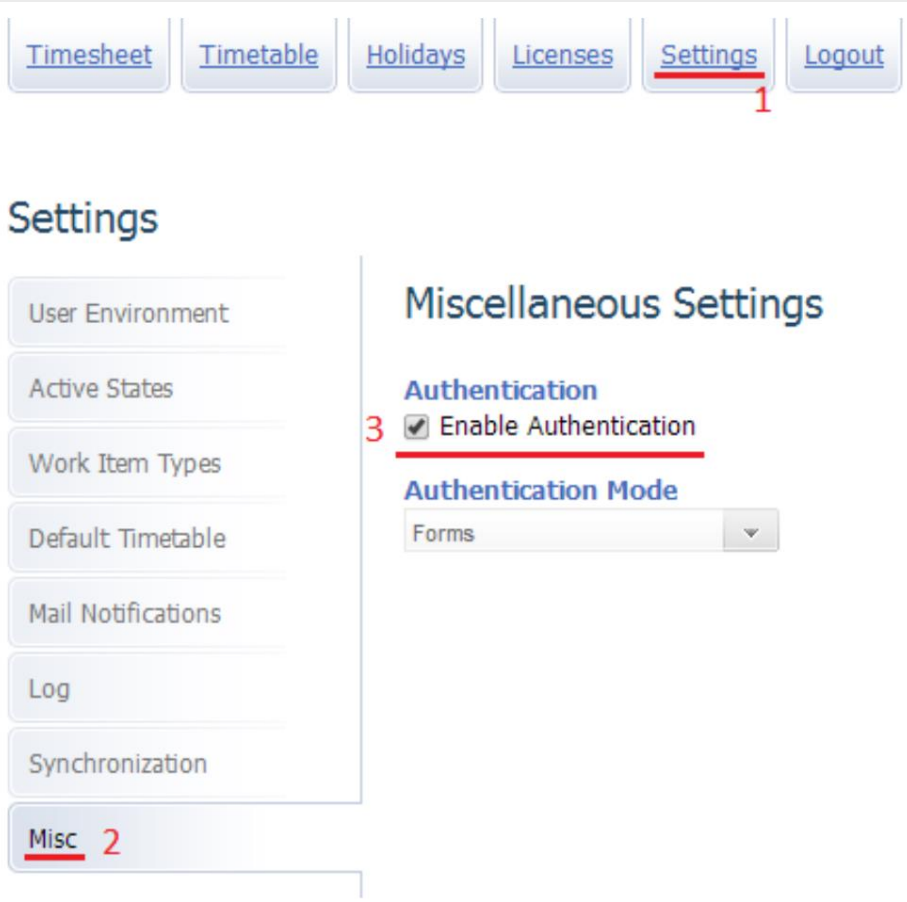


TX Chrono log files in C:\inetpub\wwwroot\TXChrono\Logs:

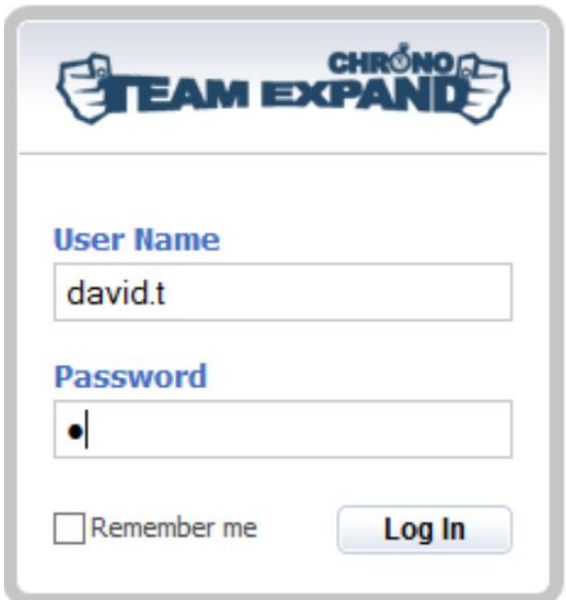


7.9 Login as Different User

Sometimes there is a need to login as different user (to put hours instead of employee on sick leave, to check if some particular employee has all required privileges, to check if confirmation hierarchy works as expected and so on). For such cases, there is possibility to temporary turn off authentication. To turn off authentication you can navigate to the **Settings -> Miscellaneous** page:



Once authentication is disabled, you will be able to login to TX Chrono as any user by passing set of random symbols as a password:



7.10 TX Chrono Works Incorrectly

In case you installed TX Chrono and it does not work or has a deficiency you cannot find a workaround for, please tell us about it: support@teamexpand.com

However, before sending us a bug report, please think about possible details that could speed up development team investigating your issue:

- Why do you think it is a deficiency? What is the expected result?
- What is the version of TFS you use? What is the project template? Were there any modifications in the template?
- How to reproduce the bug? Are there any steps to reproduce that always lead to the bug?
- What errors were reported to the event logs? Try looking at the TX Chrono event log.
- Any other relevant information: browser version, project, work item, etc.
- Give us a screen shot: a picture is worth a thousand words.

Together, we will build a better product!