

Microsoft



Microsoft[®] Visual Studio[®] 2010 Licensing

White Paper

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CONTENTS

Introduction	1
Visual Studio 2010 Product Line	2
How to Buy	4
Retail Channels.....	4
Volume Licensing.....	4
Visual Studio 2010 Client Edition and MSDN Subscription Licensing.....	6
Visual Studio 2010 Client Edition-Only Licensing	6
Visual Studio 2010 Client Edition with MSDN Licensing.....	6
Licensing Requirements.....	7
Using MSDN Software	8
Duration and Renewal.....	13
Visual Studio Team Foundation Server 2010 Licensing.....	15
Obtaining Visual Studio Team Foundation Server 2010.....	15
Accessing Team Foundation Server.....	16
Licensing Requirements for Accessing Team Foundation Server Data	16
Client Access Licenses	17
External Connector License	19
Exceptions	20
New Work Items.....	20
Multiplexing and Pooling.....	20
Deployment Options	21
Multi-Server (Two-Tier) Deployment	22
Windows SharePoint Services and Microsoft Office SharePoint Server ..	23
Build Server.....	23
Lab Management.....	25
Load Testing.....	27
IntelliTrace	28
Conclusion	30
For More Information	30
Evaluating Visual Studio 2010 Products.....	30

INTRODUCTION

Microsoft® Visual Studio® 2010 provides a comprehensive, highly flexible set of application lifecycle management (ALM) tools. With the introduction of Visual Studio 2010, Microsoft made significant changes to simplify decision-making for customers and make products more accessible, including:

- Reduction in the number of client products (the Visual Studio IDE) from seven versions to three.
- Changes to MSDN® subscriptions to align with new client products.
- Introduction of new products for software testers and lab management.
- Improvements to licensing terms for Team Foundation Server and load testing

The remainder of this paper provides an overview of the Visual Studio 2010 product line and the licensing requirements for those products in common deployment scenarios. If you're a volume licensing customer for a definitive guide to licensing terms and conditions, see the [Microsoft Licensing Product Use Rights \(PUR\)](#) and applicable licensing agreements. For retail customers the license terms are specified in the End User Licensing Agreement (EULA) included with your product.

VISUAL STUDIO 2010 PRODUCT LINE

The Visual Studio 2010 product line includes a set of client editions for various software development and testing tasks; products for asset management and team collaboration, lab management, load testing, and Web-based access; and licenses for deploying, using, and accessing the software in various ways.

Client Editions

Client editions in the Visual Studio 2010 product line include:

- Microsoft Visual Studio 2010 Ultimate with MSDN
- Microsoft Visual Studio 2010 Premium with MSDN
- Microsoft Visual Studio 2010 Professional with MSDN
- Microsoft Visual Studio Test Professional 2010 with MSDN

This product line offering is licensed according to the Microsoft Developer Tools licensing model for purchases made through Microsoft Volume Licensing programs, or according to the Retail Software License Terms for retail purchases. The specific level of MSDN subscription benefits corresponds to the “Ultimate”, “Premium”, or “Professional” designation in the Visual Studio 2010 product name.

Visual Studio 2010 products can be purchased without an MSDN subscription in certain channels. (See the How to Buy section of this paper for more details).

Server Products

Server products in the Visual Studio 2010 product line include:

- Microsoft Visual Studio Team Foundation Server 2010
- Microsoft Visual Studio Lab Management 2010

Team Foundation Server is licensed according to the Microsoft Server/CAL (Client Access License) licensing model for Volume Licensing and according to the Retail Software License Terms for retail purchases. Lab Management is licensed according to the Microsoft Server/Per-processor licensing model for Volume Licensing, and according to the Retail Software License Terms for retail purchases.

Additional Licenses

Additional licenses that support the Visual Studio 2010 product line include:

- Microsoft Visual Studio Team Foundation Server 2010 CAL
- Microsoft Visual Studio Load Test Virtual User Pack 2010

- Microsoft Visual Studio Team Foundation Server 2010 External Connector License

Additional Software

The Visual Studio 2010 product line includes “additional software,” which is provided with some products or can be installed downloaded and installed separately. Examples include Visual Studio Team Explorer 2010, and Visual Studio Team Agents 2010.

HOW TO BUY

Visual Studio 2010 licenses and MSDN subscriptions can be purchased through retail channels or Microsoft Volume Licensing programs. How the products are purchased determines your license agreement terms and specific product options—for example, whether Visual Studio 2010 client editions can be purchased without a MSDN subscription.

Purchases made directly with Microsoft (either online or over the phone) are considered retail purchases. If software or MSDN subscriptions are purchased from a reseller, those purchases could fall under either retail or Volume Licensing. If you are unsure, contact the reseller or the purchasing department within your organization.

Retail Channels

Small numbers of Visual Studio 2010 client edition or MSDN subscription licenses may be purchased through the retail channel (or from [Microsoft directly](#)). Use rights—that is, how the software can be used—for Microsoft products obtained in these ways is governed by the [Microsoft End User License Agreement \(EULA\)](#).

In retail channels, Visual Studio 2010 Ultimate, Visual Studio 2010 Premium, and Visual Studio Test Professional 2010 are only available *with* an MSDN subscription. Visual Studio 2010 Professional can be licensed *with or without* an MSDN subscription. Other products available through these channels include Visual Studio 2010 Professional with MSDN Embedded and MSDN Operating Systems.

All Visual Studio 2010 server products are available through the retail channel, as are all additional licenses except the Microsoft Visual Studio Load Test Virtual User Pack 2010.

Volume Licensing

Volume licensing of software makes it easier and more affordable to run software on multiple computers within a single purchasing organization. For larger numbers of licenses (5 or more), organizations typically purchase through one of several Microsoft Volume Licensing programs.

Use rights for software licenses and MSDN subscriptions purchased through a Volume Licensing Program are governed by the Volume Licensing Program Agreement under which the licenses are acquired together with the [Microsoft Licensing Product Use Rights \(PUR\)](#). (Windows Embedded operating system products are always governed by the in-product EULA, even when obtained through Volume Licensing programs.)

Visual Studio 2010 client edition products and MSDN subscriptions can be licensed through the various Microsoft Volume Licensing Programs in the following ways:

- **Open Value.** All Visual Studio 2010 client edition products licensed in the Open Value program *can only be licensed with an MSDN subscription.*
- **Open License.** All Visual Studio 2010 client edition products *can be licensed with or without an MSDN subscription.*
- **Select.** All Visual Studio 2010 client edition products *can be licensed with or without an MSDN subscription.*
- **Enterprise Agreement.** All Visual Studio 2010 client edition products licensed in the Enterprise Agreement program *can only be licensed with an MSDN subscription.* (The MSDN Operating Systems subscription is not available through an Enterprise Agreement.)

All Visual Studio 2010 server products are available through all Volume Licensing programs, as are all additional licenses.

More information on Volume Licensing and the above programs can be found at: www.microsoft.com/licensing.

VISUAL STUDIO 2010 CLIENT EDITION AND MSDN SUBSCRIPTION LICENSING

All Visual Studio 2010 client editions (Ultimate, Premium, Professional, and Test Professional) and other software provided under MSDN subscriptions are licensed on a per-user basis—that is, each licensed user may install and use the software on as many devices as they wish for purposes of designing, developing, testing, and demonstrating applications. Each additional person who uses the software on those devices must have his or her own product license and/or MSDN subscription.

Visual Studio 2010 Client Edition-Only Licensing

Visual Studio 2010 products can be purchased without an MSDN subscription in certain channels. (See the How to Buy section of this paper for more details). The user can install and use the Visual Studio client software on as many devices as they like. However, the products are licensed on a per-user basis—that is, only the licensed user can use the software.

Visual Studio 2010 Client Edition with MSDN Licensing

Customers are required to license every copy of every Microsoft product they deploy, including all physical and virtual instances. As such, licensing a development and test environment can be expensive—and challenging to manage as new servers are set up and others are torn down. MSDN subscriptions provide a convenient and cost effective blanket licensing mechanism for development and test environments, with limited overhead and a convenient “per head” acquisition model.

Licensed per person, MSDN subscriptions are assets that are acquired by an organization, assigned to team members, and enable those team members to deploy and use specified Microsoft software on any number of devices and/or virtual machines for purposes of design, development, test, and demonstration. The specific Microsoft software covered (and other benefits provided) under an MSDN subscription depend on which specific MSDN subscription is licensed.

As long as every person “touching” that software has an appropriate MSDN subscription, no additional licensing or reporting is required. When a team member leaves the team, the MSDN subscription is reclaimed and can be assigned to someone else (with the caveat that MSDN subscription licenses can only be reassigned at most once every 90 days in Microsoft Volume Licensing programs).

There are also many other benefits to MSDN subscriptions, including:

- the ability to readily download any software covered by the subscription, including past, present, and pre-release products

- complimentary access to certain Microsoft Office applications for both solution development and day-to-day use
- priority support through MSDN Forums
- technical support to help resolve difficult technical challenges

More information on MSDN subscriptions can be found at:

<http://msdn.microsoft.com/subscriptions>

Licensing Requirements

When Visual Studio 2010 client editions are licensed with MSDN subscriptions, all of the following requirements apply to both the Visual Studio client software and software downloaded from MSDN for development and test purposes—collectively called the “MSDN software” in the remainder of this section.

Per-User Licensing

Each member of the development team that will use (install, configure, or access) the MSDN software must have his or her own MSDN subscription. In no circumstances can two individuals share the same license.

Example 1: A development team consists of 6 software developers, 1 architect/developer, 3 testers, and 1 configuration/support person. The team is building an in-house Web-based accounting system, and wants to use MSDN software to setup a test environment running Windows Server 2008 and Microsoft SQL Server 2008. If all 11 team members will be “touching” the test environment, then each will require an MSDN subscription.

Example 2: An organization has two development teams—one based in Seattle and the other in Singapore. Because of the time difference, the two teams are never working at the same time. However, this does not mean that MSDN subscription licenses can be shared. Each team member in each location must have his or her own MSDN subscription license.

Example 3: A member of a development team is taking a sabbatical for a month and will not be using his or her MSDN subscription license during that time. Because an MSDN subscription license can only be reassigned from one individual to another at most every 90 days, the temporary replacement team member cannot use the MSDN subscription license assigned to the person on sabbatical. Instead, the replacement must have his or her own license.

Assigning MSDN Subscription Licenses to External Contractors

If an organization hires external contractors to work within their development team, then the contractors must have appropriate MSDN subscription licenses for any MSDN software that they will be using.

Example: An external contractor is to work temporarily within an organization's development team. Each development team member in the organization has a Visual Studio Premium with MSDN subscription. If the contractor has a Premium subscription too then, like the existing team members, the contractor can use the software in the development environment. If the contractor does not have an MSDN Subscription license, or has an MSDN Subscription at a lower level that does not cover all of the software they will be using, then either:

- The contractor must obtain an appropriate (higher-level) MSDN Subscription license.
- The organization must assign one of their spare (unallocated) MSDN Subscription licenses to the contractor for the duration of the contract.

Using MSDN Software

Software obtained through an MSDN subscription may be used *only* for the purposes of design, development, test, and demonstration. MSDN software may not be used in a production environments, which require regular, non-MSDN licenses for the software being used—for example, a software license and client access licenses (CALs) for Windows Server 2008.

A production environment is defined as an environment that is accessed by end-users of an application (such as an Internet Web site) and that is used for purposes other than acceptance-testing of that application (*See Acceptance-Testing below*). Some other scenarios that constitute production environments include:

- Environments that connect to a production database.
- Environments that support disaster-recovery or backup for a production environment.
- Environments that are used for production at least some of the time, such a server that is rotated into production during peak periods of activity.

Each team member must have an MSDN subscription that covers all the software that they will use, or be licensed to access that software in some other way. Specifics of which Microsoft software is covered under different MSDN subscriptions are provided at msdn.microsoft.com/subscriptions.

Example: A development team is working on a Web-based accounting system that uses Windows Server, SQL Server, Exchange Server, and Office SharePoint Server—not all of which are covered under every MSDN subscription license. Developers must have Visual Studio 2010 Premium (or Ultimate) with MSDN to cover all the software being used. (Developers using Visual Studio 2010 Professional with MSDN would only have rights to Windows Server and SQL Server.)

Multiple Devices

Any team member can install and use MSDN software on as many devices as they like. However, each user of that MSDN software must have an appropriate MSDN subscription license.

Example: A developer with an MSDN subscription uses MSDN software at work during the day, but occasionally needs to develop at home as well, using a different computer. From a licensing perspective, there is no difference between a PC at work and a home PC; the home PC is just another device on which the developer is entitled use the MSDN software.

However, the restrictions for the MSDN software running on the developer's home PC remain the same as in the work environment: the MSDN software installed on the home PC must only be used for design, development and testing purposes; and only other users with an appropriate MSDN subscription can use the software.

Virtual Environments

If a physical machine running one or more virtual machines is used entirely for development and test, then the operating system used on the physical host system can be MSDN software. However, if the physical machine or any of the VMs hosted on that physical system are used for production purposes or assigned a production license, then both the operating system within the VM and the operating system for the physical host must be licensed separately. The same holds true for other software used on the system—for example, Microsoft SQL Server obtained as MSDN software can only be used to support design, development, test, and demonstration scenarios.

Previous, Prerelease and Trial Versions of Software

MSDN subscriptions include access to previous, current, prerelease and trial versions of Microsoft software products. No differentiation is made between

these versions; if the software is made available as part of the user's MSDN subscription, then it can be installed and used on any number of devices.

However, prerelease and trial versions of software provided via MSDN are subject to the terms of the in-product EULA.

Perpetual User Rights

Some MSDN subscriptions provide perpetual use rights that allow subscribers to continue using certain software products obtained through an active subscription after the subscription has expired. However, subscribers are *not* entitled to updates for that software after the subscription has expired, nor do they continue to have access to software or product keys through MSDN Subscriber Downloads or other subscription services that are a benefit of having an active subscription. If a subscriber's subscription expires, any MSDN software requiring new MSDN product keys to keep it active/running will stop working. If a MSDN subscription is transferred or sold, any perpetual use rights are transferred to the new party and the seller can no longer use the software.

Generally, MSDN subscriptions that do *not* provide perpetual user rights include:

- MSDN subscriptions purchased through Enterprise Agreement Subscription, Open Value Subscription, or other "subscription" Volume Licensing programs
- MSDN subscriptions offered through the Microsoft Partner Network including the Empower for ISVs program

In the above cases, subscribers can no longer use *any* software provided through the MSDN subscription after it expires.

Demonstration Using Terminal Services

MSDN subscriptions permit the use of the Windows Server Terminal Services or Remote Desktop Services to support up to 200 simultaneous, anonymous users for purposes of demonstrating applications. These anonymous users do not need an MSDN subscription license.

User Acceptance Testing

At the end of a software development project, end users (or team members acting as proxies for end users) typically review an application and determine whether it meets the necessary criteria for release—a process sometimes called user acceptance testing or UAT. MSDN software may be accessed by end users who do not have MSDN subscriptions for purposes of acceptance-

testing, provided that the use of the software otherwise complies with all MSDN licensing terms.

Under MSDN subscription licenses, user acceptance testing must not use live production data. If a *copy* of any live production data is used, then that copy of the data must be discarded after the testing is complete and cannot be incorporated back into the live production data.

Distribution of MSDN Software as Part of an Installation Image

Physical or virtual machine images provide a quick and convenient way to set up client or server machines. However, when MSDN software is used to create images and the MSDN subscription through which that software is licensed was purchased through a retail channel, then those installation images cannot be distributed to others. This restriction holds true even if the target users that will install and/or use the image also have appropriate MSDN subscriptions for the MSDN software contained within the installation image. These users can, of course, download the software from MSDN directly and create their own installation image.

If the MSDN subscription was obtained by an organization through a Volume Licensing program, then the installation image may be distributed amongst users licensed for the appropriate MSDN subscription level within the same organization only. Redistribution of MSDN software to third-parties is not allowed in any form, including physical and virtual machine images, DVD and ISO files.

Example: Company A subcontracts with Company B. Part of the work involves creating an image for installing machines in a test server environment. Because individuals from Company B cannot distribute Microsoft software to individuals in Company A the only options for Company B to “distribute” the resulting image back to Company A are:

- Company A assigns spare (unallocated) MSDN subscription licenses to the individuals in Company B that will be creating the image. This enables the software to be transferred within the same organization (and thus is not a distribution of Microsoft software to a 3rd party), *OR*
- Company B provides instructions for building the image to Company A, which then builds the image internally.

Distribution of Microsoft Software Components within an Application

Some software included with Visual Studio 2010 client editions and/or MSDN subscriptions (such as the Microsoft .NET Framework) can be distributed.

Components of software products covered by MSDN subscriptions that can be distributed (either within an application or as separate files) without royalty are identified in the REDIST.TXT file associated with the product. Components that can be distributed to non-Microsoft platforms are identified in the OTHER-DIST.TXT file associated with the product. Code identified as distributable that has the extension .lib cannot be directly distributed; it must be linked into the application. However, the resulting output can be distributed.

You may also:

- Modify and distribute source code and objects for code marked as “sample” or “Code Snippet”.
- Distribute the unmodified output of Microsoft Merge Modules for use with an application’s .msi file.
- Distribute the MDAC_TYP.EXE file containing core data access components (such as the Microsoft SQL Server OLE DB provider and ODBC driver).
- Distribute the object version of C++ libraries (Microsoft Foundation Classes, Active Template Libraries, and C runtimes).

For a complete list of components that can be distributed and the restrictions that apply, see Distributable Code in the Universal License Terms section of the [Microsoft Licensing Product Use Rights \(PUR\)](#) or the Distributable Code section of the [Microsoft End User License Agreement \(EULA\)](#) for MSDN subscriptions.

Product Keys and Installation Software

MSDN subscribers can use any installation software as long as that software is from an authorized source (such as MSDN Subscriber Downloads, Volume License Service Center, or official Microsoft DVDs) and the software product is covered under the user’s MSDN subscription license. For example, an MSDN subscriber could choose to use his organization’s Volume Licensing media for installing Windows in a test lab, which may be more convenient due to the Volume Licensing build of the software having higher activation limits than the build made available through MSDN Subscriber Downloads.

Team Foundation Server CALs (Client Access Licenses)

Most MSDN subscriptions (specifically Visual Studio Ultimate with MSDN, Visual Studio Premium with MSDN, Visual Studio Professional with MSDN, and Visual Studio Test Professional with MSDN) include one Visual Studio Team Foundation Server 2010 CAL (Client Access License), which is required to enter or modify data in Visual Studio Team Foundation Server 2010.

More information on Team Foundation Server CALs is provided later in this paper, under the section on Visual Studio Team Foundation Server 2010.

Team Foundation Server and SQL Server Restricted-Use Licenses

These same MSDN Subscriptions also provide a license to deploy one instance of Visual Studio Team Foundation Server 2010 into production on one device, as well as a limited-use license to use Microsoft SQL Server 2008 Standard Edition only in support of that deployment.

More information on the SQL Server 2008 Standard Edition restricted use license is provided later in this paper under the section on Visual Studio Team Foundation Server 2010.

Duration and Renewal

MSDN subscriptions that are due to expire can be renewed cost effectively. Renewal pricing is considerably lower than purchasing a new MSDN Subscription because the customer only pays for the ongoing right to receive new versions of the software, reissuance of product keys plus other expiring MSDN services, and not the new license for the Visual Studio client edition product, which the customer already has.

Retail Renewals

Retail MSDN Subscriptions must be renewed annually. The renewal grace period—that is, the period from when the MSDN subscription expires to the point where the customer loses the option to renew at the renewal price—is 30 days for Retail Licenses.

Volume Licensing Renewals

MSDN subscriptions purchased under most Volume Licensing Programs are valid until the Volume License Agreement or Enrollment terminates. However, the Select Plus Agreement (which does not expire) is an exception. Purchases under Select Plus last for 3 years from the date of purchase and there are also options for aligning the subscription term end date with an Agreement anniversary date.

For all Volume Licensing Programs, MSDN subscription must be renewed by renewing Software Assurance before the current MSDN subscription expires.

Step-up Licenses

Step-up Licenses enable organizations to upgrade to higher level Visual Studio 2010 client edition products with MSDN. Step-up Licenses are available for products purchased through all channels *except* retail and Open License.

Step-up options include:

- Upgrading from MSDN Operating Systems to Visual Studio 2010 Professional with MSDN.
- Upgrading from Visual Studio 2010 Professional with MSDN or Visual Studio 2010 Professional with MSDN Embedded to Visual Studio 2010 Premium with MSDN.
- Upgrading from Visual Studio 2010 Premium with MSDN or Visual Studio Test Professional 2010 with MSDN to Visual Studio 2010 Ultimate with MSDN.

The cost of a Step-up License depends on when it is acquired. For example, a Step-up License that is acquired during the second year of a three-year agreement will cost more than a Step-up License that is acquired during the third year of the agreement.

A Step-up License can be acquired at any time; however, the price is the same for any point in time within a given year of an agreement. For example, a Step-up License that is acquired four months into the second year of a three-year agreement will cost the same as a Step-up License that is acquired at the beginning of the agreement's second year. This is a function of how Microsoft Volume Licensing works rather than anything specific to MSDN subscriptions.

Note: Open License customers who are not eligible for Step-Up Licenses within that program can still take advantage of Step-Up Licenses by renewing within Open Value and immediately buying Step-Up Licenses.

Renewing Down

Customers may “renew down” from a Visual Studio client edition with MSDN to a lower-level Visual Studio client edition with MSDN—effectively trading one license for another. In doing so, the customer forfeits all perpetual use rights associated with the old Visual Studio product and must immediately discontinue using it. The customer also forfeits any perpetual use rights associated with other MSDN software that is not covered under the new MSDN subscription, and must immediately discontinue using that MSDN software.

Example: An organization has been using Visual Studio Team System 2008 Development Edition with MSDN Premium. The organization decides to renew down to Visual Studio 2008 Professional with MSDN Premium because they know that Microsoft will upgrade them from Visual Studio 2008 Professional with MSDN Premium to Visual Studio 2010 Premium with MSDN when the product launches. When the organization renews down, it must immediately discontinue using and uninstall Development Edition—and thus can no longer use Development Edition features such as code coverage, code metrics, profiling, and database unit testing.

VISUAL STUDIO TEAM FOUNDATION SERVER 2010 LICENSING

Microsoft Visual Studio Team Foundation Server 2010 is the backbone of Microsoft's Application Lifecycle Management (ALM) solution, providing core services such as version control, work item tracking, reporting, and automated builds. Through its deep integration with Visual Studio 2010 client editions, Team Foundation Server helps organizations communicate and collaborate more effectively throughout the process of designing, building, testing, and deploying software—ultimately leading to increased productivity and team output, improved quality, and greater visibility into the application lifecycle.

Microsoft licenses Team Foundation Server under the Server/Client Access License (CAL) licensing model—that is, organizations must have a license for each running instance of Team Foundation Server and, with certain exceptions, a Team Foundation Server 2010 CAL for each user or device that accesses Team Foundation Server.

Obtaining Visual Studio Team Foundation Server 2010

Visual Studio Team Foundation Server 2010 can be obtained in three ways:

- **MSDN.** Users with a MSDN Subscription (specifically, Visual Studio Ultimate with MSDN, Visual Studio Premium with MSDN, Visual Studio Professional with MSDN, and Visual Studio Test Professional with MSDN) can download and deploy one instance of Team Foundation Server 2010 on one device—with similar rights to prior versions of Team Foundation Server and new versions of Team Foundation Server that are released during the duration of the MSDN Subscription. This is applicable to MSDN subscriptions purchased in retail or Volume Licensing. With limited exceptions, each user or device that accesses an instance of the server software must have a CAL. (*See Client Access License Requirements below for more information, including exceptions when a CAL is not required.*)
- **Volume Licensing.** Team Foundation Server is offered through all Microsoft Volume Licensing programs, with or without Software Assurance. With limited exceptions, each user or device that accesses an instance of the server software must have a CAL (*See Client Access License Requirements below for more information, including exceptions when a CAL is not required*). This Volume Licensing SKU also includes a restricted-use license to deploy SQL Server 2008 Standard Edition in support of Team Foundation Server.
- **Retail.** In retail channels, a version of Team Foundation Server 2010 is offered that includes a license to deploy a single instance of Team Foundation Server on one server, and allows up to five named users to

connect to that same instance of the software without requiring a Team Foundation Server 2010 CAL.

- Team Foundation Server—regardless of the acquisition channel—includes a restricted-use license to deploy SQL Server 2008 Standard Edition in support of Team Foundation Server.

Accessing Team Foundation Server

The Team Foundation Server 2010 data can be accessed in several ways, including:

- **Visual Studio Team Explorer 2010**, which is included with Visual Studio 2010 Ultimate, Visual Studio 2010 Premium, and Visual Studio Test Professional 2010, and can be installed for Visual Studio 2010 Professional. Team Explorer also can be installed as a standalone client. As additional software, you may install Team Explorer on as many physical devices as you like; however, you must have a CAL to access the server software.
- **Visual Studio Team Web Access 2010**, which is a browser-based version of the Team Explorer client. CAL requirements for accessing Team Foundation Server using Visual Studio Team Web Access are the same as when accessing Team Foundation Server using Team Explorer.
- **Microsoft Office Excel® or Microsoft Office Project**, which can access Team Foundation Server using add-ins for those programs that are provided with Team Explorer.
- **Microsoft Expression Blend™ 3**, which can access Team Foundation Server without requiring Team Explorer.
- **Programmatically**, as enabled through the Team Foundation Server 2010 application programming interfaces (APIs) or by other means.

Licensing Requirements for Accessing Team Foundation Server Data

With certain exceptions (see Exceptions below), an appropriate license is required to access Team Foundation Server data. These licenses can be in the form of:

- A **Client Access License (CAL)**, which enables a single user or device within an organization to access all instances of Team Foundation Server running within that same organization.

- An **External Connector License**, which permits any number of *external* users to access one specified instance of Team Foundation Server running within an organization.

Each of these licenses—including when they are required and when they are not—are described in greater detail in the remainder of this section.

Client Access Licenses

A CAL entitles one user or device to access any number of licensed instances of Team Foundation Server running within an organization.

A CAL is required for users (or devices) who:

- Directly write data to Team Foundation Server.
- Indirectly write data to Team Foundation Server through another software application or device (see *Multiplexing* below).

A CAL is not required for users who:

- Access Team Foundation Server only for purposes of entering new work items (see *New Work Items* below).
- Receive Team Foundation Server reports through e-mail and do not directly or indirectly access the server to refresh, create, or update data.
- View static data that has been manually distributed outside of Team Foundation Server.

In addition, a Team Foundation Server CAL is not required for:

- Any device running a licensed copy of Team Foundation Server or an agent included with Team Foundation Server.
- Up to two devices or users that only access Team Foundation Server for purposes of system administration.
- Up to five designated users when Team Foundation Server is purchased through a retail channel (as described above under *Obtaining Visual Studio Team Foundation Server 2010*.)
- Interacting with a server running Team Foundation Server, but not interacting with Team Foundation Server itself or its data.

Obtaining a CAL

Visual Studio 2010 Ultimate with MSDN, Visual Studio 2010 Premium with MSDN, Visual Studio 2010 Professional with MSDN, and Visual Studio Test Professional 2010 with MSDN include a Visual Studio Team Foundation Server 2010 User CAL. You may purchase additional CALs as required.

User CALs and Device CALs

Organizations may choose to purchase *User CALs* or *Device CALs*, or a combination of both. User CALs may be appropriate when one user accesses Team Foundation Server from multiple devices or locations; device CALs are typically used when multiple individuals share a single device to access Team Foundation Server. Although a Device CAL permits multiple users on a single device, it may only be used by a single user at a time.

Example: A training facility that is teaching Team Foundation Server to a group of classes needs to license Team Foundation Server. The teaching facility should purchase a Device CAL for each computer in their classroom. In this case, any number of students can use these machines, as each Device CAL allows any number of users to access the server software from a single device.

External Users

A CAL is tied to a user or device *and* an organization—that is, one CAL entitles a single user or device within an organization to access one or more instances of Team Foundation Server within that same organization. This defines a typical *internal* user or device. However, the same CAL does not entitle that user or device to access instances of Team Foundation Server outside of the organization that owns the aforementioned CALs.

If an organization wants to provide external users with access to Team Foundation Server, then the first organization must purchase CALs or an External Connector License to cover those users. External users are defined as users that are not employees of the organization or its affiliates, nor are they employees of the organization's or its affiliates' *onsite* contractors or agents. A CAL is not required for external users to create new work items. (See *New Work Items* topics below for additional information.)

Example: Company A hires an external consultant, who works offsite and already has a Team Foundation Server CAL to access Team Foundation Server running within his own organization (Company B). For the project the consultant is working on at Company A, all of the project assets are maintained using Team Foundation Server running at Company A. Because the consultant's CAL to access Team Foundation Server is tied to Company B, it cannot be used to access Team Foundation Server running within Company A. Instead, Company A must purchase an additional CAL to cover access to its Team Foundation Server implementation for the consultant who works for Company B.

Rights to Team Foundation Server 2010 CALs under Software Assurance

If you have a Visual Studio Team System 2008 Team Foundation Server CAL that is under Software Assurance as of the availability of Visual Studio Team Foundation Server 2010 in Volume Licensing, then you are entitled to a Visual Studio Team Foundation Server 2010 CAL; otherwise, you are required to purchase a Visual Studio Team Foundation Server 2010 CAL to access Visual Studio Team Foundation Server 2010.

CAL Version Implications

Team Foundation Server CALs provide access to earlier versions of Team Foundation Server but not to later versions; to access later versions of Team Foundation Server, you must obtain new licenses or be covered under Software Assurance at the time the new version of Team Foundation Server is released, as discussed above.

For example, a Visual Studio Team Foundation Server 2010 CAL entitles a user or device to access data in Visual Studio 2005 Team Foundation Server, Visual Studio Team System 2008 Team Foundation Server, and Visual Studio Team Foundation Server 2010. A Visual Studio Team System 2008 Team Foundation Server CAL enables the user or device to access data in Visual Studio 2005 Team Foundation Server and Visual Studio Team System 2008 Team Foundation Server, but does not cover access to data in Visual Studio Team Foundation Server 2010.

External Connector License

An **External Connector License** allows any number of *external users* to access and use one licensed instance of Team Foundation Server running within an organization. External users are defined as users that are not employees of the organization or its affiliates, nor are they employees of the organization's or its affiliates' onsite contractors or agents. An External Connector License is not required for external users to create new work items. (See *New Work Items* topics below for additional information.)

Example: Company A hires an off-shore agency (Company B) to assist with software development, and Company B has 200 developers working on the project. All of the project assets are maintained using Team Foundation Server within Company A. Rather than Company A obtaining 200 CALs to cover Company B's 200 developers, Company A buys an External Connector License, which enables an unlimited number of external users to access a single instance of Team Foundation Server.

Exceptions

The following provides additional information on when a CAL or External Connector License is not required.

New Work Items

A user does not need a CAL or External Connector License to create new work items or to update work items that same user has created for purposes of clarification—for example, clarifying the original entry, changing work item fields, or making annotations. However, a CAL is required when one user modifies a work item created by another user.

(Note: This waiver only applies to Team Foundation Server 2005 when customers have exercised downgrade rights from a newer version.)

Example: In a call center, technicians field calls from customers. Issues that arise from these calls sometimes need to be investigated by the development team. To facilitate seamless collaboration between the call center technicians and software developers, the technicians enter a work item into Team Foundation Server to track those issues. If the call center technicians are only entering issues or clarifying issues they originally entered, CALs are not required.

If the call center technicians are entering or modifying other Team Foundation Server data, CALs are required. Because call centers typically have large staffs that work on multiple shifts, the cost of purchasing a User CAL for each technician may be cost-prohibitive. In this case, companies may want to consider purchasing Device CALs for each shared PC and having all call center technicians access Team Foundation Server through the licensed devices. Alternatively, the company could identify a select group of technicians (such as only second-line support technicians), obtain User CALs for those individuals, and have them be responsible entering and updating data in Team Foundation Server.

Multiplexing and Pooling

Hardware and software that reduce the number of users or devices that directly access Team Foundation Server (sometimes referred to as “multiplexing” or “pooling”) do not reduce the number of Team Foundation Server CALs that are required. End users or devices that accesses Team Foundation Server in any way—other than the *New Work Items* exception noted above—are required to have the appropriate licenses, regardless of whether they are using a direct or indirect connection to the software.

Example 1: An organization implements an intranet Web site that connects to Team Foundation Server in a way that enables users to add work items, resolve bugs, or trigger builds through the Web site. Even though only one device (the Web server) is directly connecting to Team Foundation Server, each person *who uses the Web site to access Team Foundation Server* for purposes other than creating new work items must have a CAL or be covered under an External Connector License. (A device CAL may not be used for the Web server because the Device CAL only supports one user logged-into the specified device at any given time.) A CAL is not required for accessing a second Web site that runs on the same physical Web server but does not access Team Foundation Server.

Example 2: Multiple people simultaneously remote into a server running Terminal Services to access a development environment. Even though those multiple users are “sharing” one device, each user must have a CAL or be covered under an External Connector License. (A device CAL may not be used because the Device CAL only supports one user logged-into the specified device at any given time.)

Deployment Options

Companies can take advantage of the inherent flexibility and scalability of Team Foundation Server to support development teams of all sizes. For example, Team Foundation Server can be deployed on a desktop system, on a single server, or in a dual-tier configuration. Regardless of which approach is used, Team Foundation Server requires an operating system and a database, each of which have their own licensing implications.

In general:

- **Operating system.** Team Foundation Server 2010 can run on Windows 7, Windows Vista, Windows Server 2008, or Windows Server 2003. The operating system must be licensed separately, and, for Windows Server-based deployments, if you license Windows Server on a Server/CAL basis, each user or device that accesses Team Foundation Server data (on a read or write basis) must also have a Windows Server CAL.
- **Database.** Team Foundation Server 2010 uses Microsoft SQL Server 2008 as its data repository—and includes a restricted-use license to deploy SQL Server 2008 Standard Edition along with Team Foundation Server. However, SQL Server 2008 Standard Edition *must be deployed on the same devices as Team Foundation Server and can only be used to support Team Foundation Server—not for any other purposes*. Similarly, the use of SQL Server Reporting Services (now an optional component with Team Foundation Server 2010) is covered under the restricted-use license, with the same restrictions. The Team Foundation Server 2010 installation package also includes a copy of SQL Server 2008 Express Edition, which can be used instead of SQL Server 2008 Standard Edition.

Editions of SQL Server 2008 higher than Standard Edition must always be licensed separately.

Multi-Server (Two-Tier) Deployment

You can deploy Team Foundation Server 2010 in a dual-tier configuration, where one tier hosts Team Foundation Server and the other tier hosts the SQL Server 2008 back-end. Licensing requirements for each tier are as follows.

Application Tier

Windows Server and Team Foundation Server licenses are required for the application tier. You must have a Windows Server license for each physical and/or virtual operating system instance on which the software will run. The use of SQL Server Reporting Services on the application tier is covered under the aforementioned restricted-use license for SQL Server 2008 Standard Edition. If SQL Server Reporting Services is installed on a system other than the Team Foundation Server application tier, an additional SQL Server license is required.

When deployed in a dual-tier environment, you can increase reliability by maintaining a second application-tier server in a warm or cold standby mode. In warm standby mode, the failover machine is running but a system administrator manually activates the failover functionality. In a cold standby setup, the failover system is usually off until an administrator turns it on and activates its failover functionality.

In both warm and cold standby scenarios, dedicated Windows Server and Team Foundation Server licenses are required for the standby server. (Organizations considering warm or cold standby scenarios may want to consider a load-balanced application tier instead, with both servers in an active role by default.)

Data Tier

In a dual-tier configuration, Windows Server and a SQL Server 2008 Standard Edition (or higher) licenses are required for the data tier and both must be obtained separately. (The restricted-use SQL Server 2008 Standard Edition license may not be used on the data tier because Team Foundation Server is not running on the server.)

You can increase the availability of Team Foundation Server in a dual-tier configuration by using SQL Server clustering on the data tier—in this case comprised of two servers. Supported in SQL Server 2008 Standard Edition and higher, clustering provides high availability by combining several physical SQL Server instances into one virtual instance. In a clustered, two-server data tier

configuration, Windows Server and SQL Server 2008 licenses are required for each server but no *additional* Team Foundation Server CALs are required.

Windows SharePoint Services and Microsoft Office SharePoint Server

Visual Studio Team Portal (a SharePoint site that is created along with each new Team Project) uses Windows SharePoint Services, the use of which is covered under a Windows Server license.

As an alternative, organizations may choose to host Team Portals on Microsoft Office SharePoint Server 2007, which must be licensed separately and cannot be the software provided through MSDN for development and test purposes. If an organization chooses to implement this scenario *and* take advantage of Excel Services, an Office SharePoint Server 2007 eCAL is also required.

Build Server

Build automation functionality in Team Foundation Server enables the software to run automated builds on the same server or a separate system, along with the ability to run quality or performance tests as part of the build process. Implementing a “build server” is accomplished using Visual Studio Team Agents 2010, which is included with Team Foundation Server 2010. As “additional software, Team Agents can be deployed without additional licensing. If the build server is separate than the one running Team Foundation Server, no Team Foundation Server CAL is required for the build server.

CAL Requirements for Builds

Users who merely execute and review builds are only required to have a Team Foundation Server CAL; however, users who author tests or other types of validation and include them as part of a build must be licensed for the appropriate Visual Studio 2010 client edition. Table 1 describes licensing implications for some common tasks related to defining and running builds.

Team Member Actions	Licensing Implications
Developer checks-in source code, initiates a build, and/or reviews results of a build.	Team Foundation Server CAL required.
Developer defines a build to include unit tests.	Visual Studio 2010 Professional, Premium, or Ultimate is required.
Developer defines a build to include any of: <ul style="list-style-type: none"> • Code coverage • Code analysis • Coded UI, generic, and database unit tests 	Visual Studio 2010 Premium or Ultimate is required.
Developer defines a build to include any of: <ul style="list-style-type: none"> • Architectural tests (e.g. Layer diagram validation) • Web testing • Load testing 	Visual Studio 2010 Ultimate is required.

Table 1. Example Build Licensing Implications

LAB MANAGEMENT

Microsoft Visual Studio Lab Management 2010 (which also requires Microsoft Test Manager 2010, the test case management and lab management client tool available in Visual Studio 2010 Ultimate and Visual Studio Test Professional 2010) enables teams to rapidly provision virtual lab environments for test execution and build automation. Lab Management is licensed on a per-processor basis—for example, an organization with five quad-processor host machines in its lab, using all of the processors for its lab, would require 20 Lab Management licenses—one for each processor—in addition to the requisite Windows Server 2008 R2 licenses required by the physical host machines.

The license for Windows Server 2008 R2 specifies a number of Virtual Image Use Rights for each edition, indicating how many Operating System Environments (OSE's)—physical and virtual—may use a single Windows Server license. Windows Server 2008 R2 Standard Edition, for example, allows for the host plus one (1) virtual OSE to use one Windows Server license. For development and test deployments, only the host machine is required to have a production license of Windows Server. The hosted virtual OSEs may use MSDN software. There is no licensing limit to the number of development and test OSEs that can be run on a single Windows Server instance.

For more information on the Virtual Image Use Rights supported by various editions of Windows Server, see:

<http://www.microsoft.com/windowsserver2008/en/us/r2-compare-specs.aspx>.

For more information on Windows Server 2008 R2 licensing, see:

http://download.microsoft.com/download/e/e/c/eecf5d44-9a88-43d8-afdb-d2ab82be035c/R2_License_Guide-ONLINE.pdf.

Lab Management uses Microsoft System Center Virtual Machine Manager 2008 R2, a restricted-use license for which is included with Lab Management for use in development and test deployments.

Example: An organization is running Team Foundation Server and wants to deploy Lab Management to five dual-processor systems in its lab, each of which is running Windows Server 2008 R2 Standard Edition as the physical operating system environment (POSE). Because Lab Management is licensed per-processor, the organization will need 10 licenses—one for each processor used for lab hosting. However, because the organization is hosting only test virtual operating system environments (VOSE) on these servers they may install MSDN software on each VOSE (the POSE is still required to have a license for Windows Server 2008 R2).

They may run as many simultaneous VOSEs in the lab as needed, as long as those VOSEs are running on the 10 aforementioned licensed processors, and used only for development/test purposes. The organization also needs to license Visual Studio Test Professional 2010 or Visual Studio 2010 Ultimate, both of which include Microsoft Test Manager 2010—the client interface for configuring the lab environments.

LOAD TESTING

With Visual Studio 2010 Ultimate, users can perform local load-test runs that simulate up to 250 users. The load is driven by the same system on which the IDE is installed, with that system running both the test controller and test agent.

As an alternative, organizations can take advantage of Visual Studio Load Test Virtual User Pack 2010. In this scenario, the maximum number of simultaneous users is limited only by the number of Visual Studio Load Test Virtual User Pack 2010 licenses that the organization purchases, with each Virtual User Pack 2010 license permitting the simulation of up to 1,000 users.

Note: When using Visual Studio Load Test Virtual User Pack 2010, the most common scenario is to deploy the test controller on one system and one or more test agents on additional systems. The test controller and test agent are both included in Team Agents 2010 and are thus considered “additional software,” and may be deployed without additional licensing requirements to as many machines as necessary.

Example: An organization wants to perform a load test that simulates 5,000 simultaneous users. To do this, the organization deploys a test controller and as many test agents as desired. The organization must have five Visual Studio Load Test Virtual User Pack 2010 licenses, each of which enables 1,000 virtual users. The organization also will need Visual Studio 2010 Ultimate to create, edit, and manage the Web tests and load scenarios.

INTELLITRACE

IntelliTrace™, a new capability in Visual Studio 2010, enables the recording and playback of application execution to help facilitate debugging. This is accomplished by deploying the IntelliTrace diagnostic data adapter (DDA) to the target system as part of the Visual Studio Test Agent, or by deploying the IntelliTrace.exe command-line utility. IntelliTrace files created using either means can be opened and debugged using Visual Studio Ultimate.

- To deploy and capture data for debugging purposes using the IntelliTrace DDA, the user must be licensed for Visual Studio Ultimate or Visual Studio Test Professional.
- To deploy and capture data for debugging purposes using IntelliTrace.exe, the user must be licensed for Visual Studio Ultimate.
- To debug data captured by either tool, the user must be licensed for Visual Studio Ultimate.

IntelliTrace files *may* be shared among two or more companies as long as all users capturing and debugging IntelliTrace files are licensed with either Visual Studio 2010 Ultimate or Visual Studio Test Professional 2010, depending on the activities they are performing. For example, a company can share IntelliTrace files with an external development consultant. Similarly, a company can use an external company for testing purposes and debug IntelliTrace files provided by that vendor.

The IntelliTrace diagnostic data adapter (DDA) and/or IntelliTrace.exe can be used for test and debugging purposes:

- As part of an interactive test or debugging session.
- As part of an automated test or debugging-data collection session that is authored by a licensed user and triggered by the same or another licensed user.

The IntelliTrace DDA and/or IntelliTrace.exe cannot be used:

- On a device or server in a production environment.
- For purposes of system or application monitoring.
- In non-interactive scenarios other than as part of an automated test or debugging-data collection session.

Example 1: Finding a defect in a test environment

Company A is building a Web application. All the developers are licensed for Visual Studio 2010 Ultimate with MSDN, and the testers are licensed with Visual Studio Test Professional 2010 with MSDN. During a test run a defect is discovered in the test environment that is difficult to reproduce in a development environment. The test machines have previously been configured with the Visual Studio Test Agent 2010, which includes the IntelliTrace DDA. The tester uses the Microsoft Test Manager to execute the test case with the IntelliTrace diagnostic data adapter (DDA) enabled. When the defect is encountered, the tester files a new bug, with the IntelliTrace files from each of the test machines is automatically attached to the bug. When a developer opens the bug using Visual Studio Ultimate, he or she can open the IntelliTrace files and step through the execution.

Example 2: Working with an external consultant

In Example 1, Company A uses an external consultant to help with development. If the external consultant is licensed for Visual Studio Ultimate, he or she can open and debug the IntelliTrace files provided by Company A.

Example 3: Working with an external test vendor

In Example 1, Company A uses Company B as an outsourced test vendor. The two companies can work together using IntelliTrace as long as all developers at Company A and all testers at company B are licensed appropriately.

CONCLUSION

Microsoft Visual Studio 2010 provides a comprehensive, highly flexible set of application lifecycle management (ALM) tools. Similarly, the licensing terms for Visual Studio 2010 are designed to help with flexibility in deployment for organizations and development teams of all shapes and sizes.

This document attempts to provide an overview of the Visual Studio 2010 product line and the licensing requirements for those products in common deployment scenarios. For a definitive guide to licensing terms and conditions, see the [Microsoft Licensing Product Use Rights \(PUR\)](#) and applicable licensing agreements.

For More Information

For more information on Visual Studio 2010, go to:

www.microsoft.com/visualstudio

For more information MSDN Subscriptions, go to:

msdn.microsoft.com/subscriptions

For more information on Product Use Rights, go to:

www.microsoftvolumelicensing.com/userights

Evaluating Visual Studio 2010 Products

90-day trial versions of Visual Studio 2010 client and server software can be downloaded at www.microsoft.com/visualstudio. Microsoft Volume Licensing customers can download, install, and evaluate any of the Visual Studio 2010 products for 60-days before requiring a license.