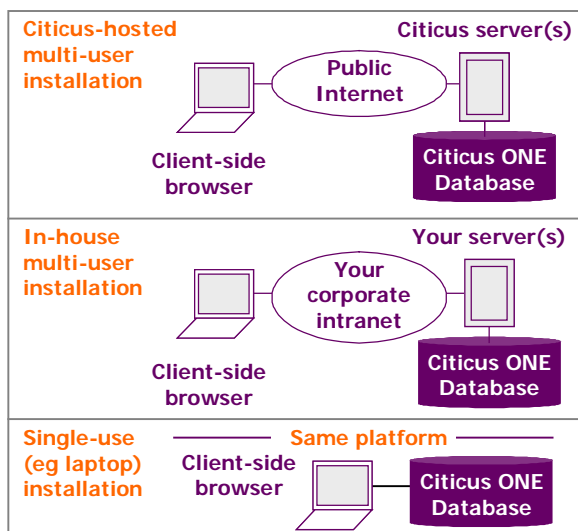


Citicus ONE Release 3.4 technicalities

Deployment options

Citicus™ ONE is designed to run on one or more servers with users gaining access to its capabilities using their browsers via their corporate intranet or the Internet. Its three main deployment options are illustrated below.



Citcus-hosted multi-user installations

Customers of our **basic hosted service** are allocated a dedicated application environment with a distinct web site and database, running on a shared server. This enables strict separation between customers.

For each customer, three implementations are maintained: one for 'live' running (ie to support operational deployment); a second for training /demonstrations and a third for inspecting upgrades.

These implementations are protected as follows:

- they run on servers located in a major data centre with excellent physical security, resilient power and fast, reliable Internet connectivity
- 24x7 end-to-end application and server monitoring
- data is backed-up within a well-organised back-up cycle (back-ups are taken daily and stored off-site)
- servers are updated promptly with Microsoft® service packs and critical updates
- servers are protected by hardware-based firewalls
- communications are protected with SSL supporting 128-bit encryption
- continuity arrangements are capable of restoring service within 24 hours should our servers be unavailable
- in other respects we aim to comply with the Information Security Forum's Standard of good practice.

A **premium hosted service** is also available to meet specific hosting requirements such as VPN access, directory integration and transaction performance monitoring. These run on dedicated equipment.

In-house multi-user installations

Citicus ONE's tiered architecture means that it can be installed on a server or servers connected to your corporate intranet in a way that suits your enterprise's IT infrastructure.

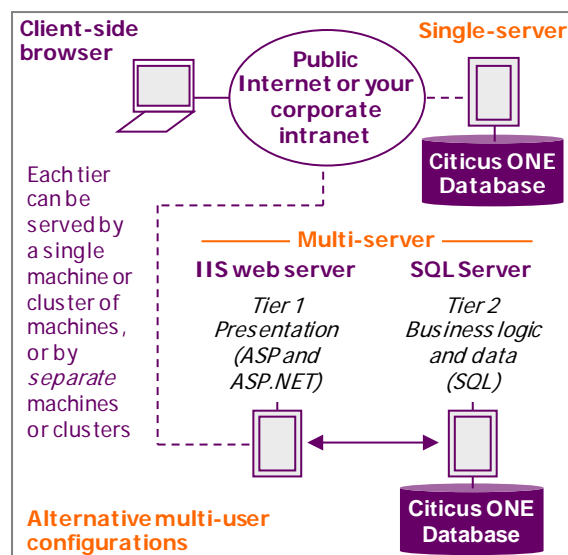
The **Citicus ONE** application has two tiers:

- **Tier 1: Presentation**, written as Microsoft® Active Server Pages (ASP.NET with some legacy ASP), presented by Microsoft Internet Information Services (IIS) in HTML
- **Tier 2: Business logic and data** maintained by a Microsoft SQL Server® database.

Note : Some JScript™ is employed in Tier 1 but no Java™ applet, ActiveX® control or similar is downloaded to users' machines.

These can be configured so that they all run on the same machine or cluster of machines or so that each tier is served by a separate machine or cluster.

These options are illustrated below.



Single-user installations

Laptop installations can be useful for running risk workshops and training courses and for demonstrating **Citicus ONE** in rooms with no network connection (although note there is no integration provided between a desktop and server-based installation of **Citicus ONE**).

In such installations, both the client-side browser and server-side application run on the same machine.

Client-side software requirement

Citicus ONE is optimized for use via Microsoft Internet Explorer Versions 7, 8 and 9 or Mozilla Firefox 11. To see results at their best, Adobe® Reader® 6.0 or later is required, obtainable free from Adobe Systems, Inc. Custodians and local co-ordinators also require Microsoft Excel® 2007 or equivalent to use **Citicus ONE's** import and export facilities.

Users who wish to view Japanese characters presented by **Citicus ONE** will additionally need to configure both Acrobat Reader to support the required fonts.

Server-side software requirements

Citicus ONE Release 3.4 runs under the following Microsoft operating systems. Citicus recommends that Microsoft's latest service packs and critical updates are applied in each case.

Windows Server 2003 R2

Microsoft IIS
 Microsoft .NET Framework 2 and .NET Framework 4
 Microsoft SQL Server 2005

Windows Server 2008

Microsoft IIS
 Microsoft .NET Framework 4
 Microsoft SQL Server 2008, or Microsoft SQL Server 2008 R2

Windows Server 2008 R2

Microsoft IIS
 Microsoft .NET Framework 4
 Microsoft SQL Server 2008, or Microsoft SQL Server 2008 R2

Microsoft Windows 7 (32- or 64-bit)

Microsoft IIS
 Microsoft .NET Framework 4
 Microsoft SQL Server Express Edition with Advanced Tools (available free from Microsoft).

Required disk space

Citicus ONE requires two areas of disk space. First, there is the area required by the **CiticusONE** folder in the Windows **Program Files** directory (or equivalent).

For **Citicus ONE** Release 3.4, this amounts to 1.6 Gb for the first instance plus a further 250 Mb for each additional instance.

Secondly, there is the disk space is required for the SQL Server database maintained by **Citicus ONE**.

This requires a minimum of 560 Mb. Its actual size is determined by the:

- number of evaluations completed
- length of each basis of evaluation employed
- attached documents saved within the database
- number and size of database snapshots taken
- space devoted to the system's audit log.

As a guide, a database supporting 100 evaluations requires around 500 Mb on disk; and one supporting 2,500 requires around 800 Mb.

Server-side hardware requirements

Hardware requirements for **Citicus ONE** are set out below. See *Installation Guide* for full details.

Recommended single-server configuration

One or more multi-core CPUs running at 2.0 GHz or faster
 16Gb RAM
 RAID 10 hard drives

Recommended multi-server configuration

| | |
|------------------------------|--|
| Tier 1 IIS Web server | One or more multi-core CPUs running at 2.0 GHz or faster |
| | 4Gb RAM |
| | RAID 1 hard drives |
| Tier 2 SQL server | One or more multi-core CPUs running at 2.0 GHz or faster |
| | 16Gb RAM |
| | RAID 10 hard drives |

Recommended desktop/laptop configuration

A multi-core CPU running at 2.00 GHz or faster
 4Gb RAM

User administration and authentication

Citicus ONE implements a role-based access model.

All aspects of user authentication and administration can be carried out by the application, along with assignment of users' individual roles. Four other methods of user administration and authentication are supported, namely:

- **Windows integrated authentication:** whereby users are authenticated by their Windows domains.
- **LDAP directory authentication and/or administration:** whereby user administration and/or authentication is conducted **in conjunction with an external directory** (eg Active Directory) via LDAP.
- **CA SiteMinder:** whereby users are authenticated by SiteMinder.
- **Simplified sign-on:** where users gain access via a portal (e.g. a SharePoint portal).

Data import, export and exchange

Data can be imported and/or exported in the form of XML spreadsheets, and exchanged with other applications on-line via a defined web service.

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