



How To: Web Farm

Checkbox Survey Web Farm Guide	
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1 Introduction

To support high-load and high-available environments, Checkbox® can be configured to run in a multiple sever web farm or load balanced environment. In its out-of-the-box configuration, Checkbox runs as a standalone installation on a single server.

This document describes how to configure Checkbox to properly run in a web farm. Since the methods, hardware, and software used to create web farms varies, it is beyond the scope of this document to describe the steps necessary to configure your web farm servers, load-balancers, etc.

Licensing Note:

Checkbox may be installed on any number of servers in a web farm environment. Each server must have a copy of your Checkbox license in its /bin folder.

WEB FARM AND LOAD BALANCED ENVIRONMENTS ARE ONLY SUPPORTED WITH A CHECKBOX ENTERPRISE LICENSE.

2 Server Requirements

Before you set begin to set up the Checkbox Messaging service, please make sure that you have a supported version installed. The messaging service will only work with Checkbox 6.0 or higher. If you have an earlier version of Checkbox you will need to either upgrade or patch your installation for it to work properly.

The Checkbox Messaging Service does not have to be installed on the same server as the Web Application, or the Database, however the Messaging Service does need to be on a server with access to the database.

Component	Minimum Requirements
Operating System	Window 2008, and Windows 2008 R2 Server or higher.
Web Server	IIS 7.0 or higher_with AT LEAST 4 GB RAM._At least 8 GB RAM recommended.
Database	Microsoft SQL Server 2008, 2012, 2014. SQL Server Express Editions also supported.
Browser	Internet Explorer 9.0 or higher; Google Chrome; Firefox; Safari
Privileges	Administrator access to Web Server and Database Server required for installation.
Disk Space	1GB for application installation and base database; Overall database size depends number of surveys, users, and responses.
ASP.NET	Version 4.5 or higher
Web Farm Config.	Remote session state storage mechanism & Remote caching provider

3 Web Farm Instructions

Please review all instructions prior to starting the installation process. If you have any questions about the installation or web farm setup process, please contact Checkbox Support. You can access the online helpdesk through the following URL:

<http://www.checkbox.com/login>

Please review the standard Installation Instructions before proceeding with a web farm installation.

Please Note:

Examples given in the instructions below assume that Checkbox is to be installed on a web farm consisting of two servers (server1 and server2) and that the web farm URL for Checkbox is:

<http://survey.mycompany.com/Checkbox>.

3.1 Setup the Web Farm

Setup the web farm and verify that it is working properly. It is imperative that the web farm be functioning properly and able to handle transition of users from server1 to server2 prior to installing Checkbox.

3.2 Create a Database

Create the SQL database that will be accessed by each installation of Checkbox. Instructions for creating the database can be found in Step 8 of the standard Installation Instructions.

3.3 Install Checkbox Survey

On each server in the web farm, install Checkbox following the standard Installation Instructions, noting the following exceptions:

➤To access the web-based installer (Step 12), browse to <http://MachineName/Folder/Install/Default.aspx> where MachineName is the name of the individual web farm server (e.g. server1, server2, etc.) and Folder is the virtual folder created in IIS.

➤When prompted for the Application URL and Application Root, the input fields will be pre-populated with <http://MachineName> and /Folder respectively. Change these values to match the URL used to access Checkbox through the web farm. e.g. <http://survey.mycompany.com> and /Checkbox.

➤On the second and subsequent installations, you will be presented with a warning that a Checkbox database has been detected. Choose the default option to Use this database as it is, preserving existing data.

3.4 Configure ASP.NET Session State Management

All servers in the web farm must use the same session state mode for Checkbox to work properly.

The following Microsoft Knowledge Base article describes the options available for ASP.NET session state management:

➤ <http://msdn.microsoft.com/en-us/library/ms178586.aspx>

Checkbox Survey currently supports StateServer, SQLServer, DynamoDB session state modes for sharing session state between servers in a web farm. Examples in the link provided above will demonstrate how to configure the application to work with each supported mechanism.

3.5 Synchronize Validation Keys

ASP.NET hashes the ViewState to help prevent tampering. The key used to hash the ViewState is automatically generated by the web server for each ASP.NET application. In a Web Farm, a server auto generated key will not work because a web page can be posted back to a different server than the one that generated the page, resulting in ViewState validation errors. To prevent these errors, a <machineKey /> section should be added to the <system.web /> section of the web.config.

```
<machineKey
  validationKey="[VALIDATION_KEY]"
  decryptionKey="[DECRYPTION_KEY]"
  validation="[VALIDATION]"
  decryption="[DECRYPTION]"
/>
```

PLEASE NOTE THAT THE MACHINE KEY SECTION FOR EACH CHECKBOX INSTALLATION IN THE WEB FARM MUST BE IDENTICAL.

To generate the validation and encryption keys to use on your systems, you contact Checkbox Support for assistance, or utilize the build in machine key generators that exist within IIS7 and above.

3.6 Save the Viewstate in the Checkbox Database

If you are using non-sticky sessions, then the user can be redirected to another server when in the middle of a survey, or when generating a report. In order to make sure that the current ViewState is not lost, you will need to add a setting into the Checkbox database to store the ViewState in the database itself. This can be achieved by running the following script in the Checkbox database:

```
EXEC ckbx_sp_Install_UpSertSetting  
    'PersistViewStateToDb', 'True'  
GO
```

3.7 External Data Caching

In order to support the robust caching system of Checkbox, application cache data must be stored remotely. This prevents data integrity issues such as server1 having an invalid cache store due to updates provided to the server2 interface. An external caching server is required by Checkbox in order to be hosted on a load balanced environment. As of Checkbox 6.6 the application supports Memcached and Elasticache (using Memcached). Note that in order to use Elasticache you must use Amazon EC2.

Note that Checkbox Support can not assist with installing or managing memcached. This guide will only instruct you how to configure the application to use memcached.

To enable memcached cache in the application the survey administrator should do the following.

1. Open the file at [Root]\Config\MemcachedCache.xml and update the file with the server:port and any additional configuration options for your memcached server. Making any changes to this configuration file in the future will require that the website be restarted in IIS.
2. Open the web.config file at the root of the Checkbox application and locate the checkboxCacheConfiguration node.

```
<checkboxCacheConfiguration filePath="Cache.xml" configDataType="Prezza.Framework.Caching.Configuration.CacheConfiguration,Prezza.Framework" />
```

This should be changed to:

```
<checkboxCacheConfiguration filePath="MemcachedCache.xml"  
    configDataType="Prezza.Framework.Caching.Configuration.MemcachedCacheConfiguration,Prezza.Framework" />
```

If you have any issues with performance of the application, they are most likely due to invalid configuration of Memcached. The default limits for Memcached are extremely low and should be raised significantly.