



## System, Environment, & Configuration Requirements for *FASTER* Web 6.4

The following document provides environment and system requirements for the *FASTER* Web fleet management system. Different Hardware Configurations are provided based on the number of expected users. This document is broken into three sections: The first addresses system requirements, the second addresses hardware, and the third addresses configuration.

## **MINIMIZING IT STAFF TIME COMMITMENT:**

The implementation of *FASTER* Web requires minimum IT staff time. For example, there is only one environment required for the implementation and that is promoted to become the production environment. This environment is initially the environment where your organization will do testing and experience all training. And upon delivery of the final go-live database, this environment will be promoted to a production environment. This helps assure quality control and makes the go-live less complex.

In addition, *FASTER* stands up its own test environment on our servers. We perform internal testing on your data and any custom deliverables. And after go-live your license agreement permits you to stand up a temporary test environment to test any future upgrades or custom products you would have *FASTER* build.

## **BACKGROUND INFORMATION:**

In order to minimize your IT staff's need to trouble-shoot and to ensure your fleet operations optimum productivity, here is some important background related to the specifications in this document.

*FASTER* Web is a mission critical, database intensive application that is typically used by a broad cross-section of administrative and operations staff. *FASTER* processes a high volume of transactions. And a wider variety of staff will utilize *FASTER*'s robust reporting capabilities than most other database intensive systems. For example, a large city that uses *FASTER* recently reported that 60% of the entire City's transactions go through *FASTER*. Therefore, while we know that IT resources are expensive and must be managed with care, we recommend that you consider carefully that you may want to exceed the minimum specifications noted below.

Each customer's use patterns are somewhat unique based on the number of users, size of database and utilization of different aspects of the system. Therefore, the nature of the demand on the system makes it important that your IT staff fulfills two critical roles:

## **ENSURING ADEQUATE SYSTEM RESOURCES:**

1. This document includes minimum specifications. *FASTER* can make recommendations based on our experience, but ultimately it is essential that your IT staff allocate an environment that has enough headroom (the potential to add resources such as RAM, processors and hard drive space if needed).

This can be achieved by allocating a large enough set of physical servers or by placing *FASTER* Web on a virtual environment that has ample headroom. (*FASTER* does all of its testing using VMWare.) In either case, it is critical that your physical servers or virtual machines have enough head room so that IT staff can increase resources if needed.

2. If you have more than 30-simultaneous users; during the soft go-live, your IT will want to engage in an hour or more of monitoring the environment to determine if enough resources are allocated. And if you have more than 30- simultaneous users, we also strongly recommend that you allocate time during soft go-live to have a similar number of users on the system while your IT staff monitors to determine if there are enough resources. (Note, it is typical that during a soft go-live that Fleet Operations cannot allocate enough users to emulate the use that will occur after go-live. So if you see any maxing out of resources during a soft go-live, this typically means that more resources are needed.)

Be aware that if your environment has too few resources or band-width issues, this will usually be detected during user training the week of go-live. So to avoid an urgent need to increase resources to support training, we recommend that you have ample resources to start with. In addition, upon go-live your IT staff will want to monitor the environment a second time during a time that Fleet Operations designates as a high volume use period to ensure enough resources are allocated.

# SECTION 1: SOFTWARE REQUIREMENTS

## System Requirements

### 1: Application Server Software Requirements

#### Supported Operating Systems

- Windows Server 2008 R2 with SP 1 x64 (64-bit)
  - Note: not recommended for implementing customers
- Windows Server 2012 x64 (64-bit)
- Windows Server 2012 R2 x64 (64-bit)

#### Supported IIS Versions

- IIS 7.5 for Windows Server 2008 R2 SP 1 x64 (64-bit)
  - Note: not recommended for implementing customers
- IIS 8 for Windows Server 2012 x64 (64-bit)
- IIS 8.5 for Windows Server 2012 R2 x64 (64-bit)

#### Additional Requirements

- Microsoft .NET Framework 4.6.1 with all applicable updates.
- Internet/Broadband Access For *FASTER* Remote Connectivity
- Silverlight 5.1 with latest update, used for MotorPool Add-ons

### 2: Database Server Software Requirements

#### Supported Operating Systems

- Windows Server 2008 R2 with SP 1 x64 (64-bit)
  - Note: not recommended for implementing customers
- Windows Server 2012 x64 (64-bit)
- Windows Server 2012 R2 x64 (64-bit)

#### Supported Database Server

- Microsoft SQL 2012 SP 3 x64 (64-bit) *Enterprise or Business Intelligence* editions\*
- Microsoft SQL 2014 SP 2 x64 (64-bit) *Enterprise or Business Intelligence* editions\*

\*We recommend you do **not** use the Standard edition of Microsoft SQL Server for the reasons stated below but it can be used with *FASTER* Web 6.4:

- 1) *FASTER* has a new Semantic Layer Add-On that will be available in an upcoming release of *FASTER* Web. The Semantic Layer is built in the Microsoft SQL Server Analysis Services (SSAS) Tabular Model which was introduced in Microsoft SQL Server 2012. Microsoft only supports the Tabular Model in the Enterprise and Business Intelligence editions. The Standard edition of MS SQL can be used with *FASTER* Web but you will not be able to deploy the Semantic Layer Add-On.

## Database Server Configuration

- 1) The Common Language Runtime (CLR) setting must be enabled on the Database Server
- 2) By design, Microsoft SQL 2012 SP 2 and Microsoft SQL 2014 will reseed Incremental Identity field's values by 10, or 100 or 1000 whenever the SQL Service is restarted. Since FASTER Web uses incremental identity fields on important data fields, it is recommended you follow Microsoft's instructions on how to preventing reseeding: Microsoft suggests to add "t272" as a start-up parameter in the SQL Server service: <http://social.technet.microsoft.com/wiki/contents/articles/26938.how-can-i-prevent-crash-from-identity-column-value-jump.aspx>

## 3: Reporting Server Software Requirements

### Supported Operating Systems

- Windows Server 2008 R2 with SP 1 x64 (64-bit)
  - Note: not recommended for implementing customers.
- Windows Server 2012 x64 (64-bit)
- Windows Server 2012 R2 x64 (64-bit)

### Supported Reporting Server

- Microsoft SQL 2012 SP 3 x64 (64-bit) Reporting Services
- Microsoft SQL 2014 SP 2 x64 (64-bit) Reporting Services
- Report Users must be properly configured, please see the Report User Configuration addendum below for further instructions.

## 4: Client Requirements

- Intranet/Broadband Access
- Certified Browsers
  - Internet Explorer 11
- Silverlight 5.1 with latest update, used for MotorPool Add-ons
- Display Resolution
  - FASTER Web: 1280 X 1024 or higher
  - Customer Portal: 1280 X 1024 or higher
  - Technician Workstation: 1280 X 1024 (Specifically designed for this resolution and touchscreen)
  - FASTER MotorPool: 1280 X 1024
- MS Report Builder Users only: Different versions of MS SQL have different MS Report Builders. MS Report Builder users should be sure to check the System Requirements for the version of MS Report Builder they will use. Client machines from which MS Report Builder needs to be used must NOT be using "Itanium 64-based computers" as Report Builder cannot be installed on that style of microprocessor.

## SECTION 2: SERVER HARDWARE REQUIREMENTS



The following examples represent possible hardware configurations based on the number of users. For each configuration, these should be considered *minimum* specs for the proper functioning of FASTER Web. Ultimately in some cases, if your Fleet Operations and IT agree to go below these specifications, you can take the risk of reducing the system resources, such as RAM and processing power, but you may find that it will affect the performance of FASTER Web.

## 1: Single Server Configuration (can only be used if you have 10 or fewer users)

This represents a configuration where the Application Server, Database Server, and Reporting Services are installed on the same server.

### Application/Database/Reporting Services Server Hardware:

(These are *minimum* specs. Your use may require more resources.)

**Note: This server must be dedicated to FASTER and cannot be shared.**

- Processor
  - Dual Quad Core processors that are server class. (For example, do not use older model processors such as: Intel Xeon X5450, 2x6 MB Cache, 3.0 GHz, 1333 MHz FSB, which was discontinued in 2010.)
- Memory
  - 16 GB @ 667 MHz (or faster) RAM
- Hard Drive
  - 15K RPM Primary Hard Drive, 80 GB Available Operating Free Space
- Network Connection
  - Gigabit Ethernet Network Adapter (NIC)

## 2: Two Server Configuration

This represents a configuration where the Application Server is on one server while the Database Server and Reporting Services are installed on the second server. Appropriate for sites 10 - 50 users.

### Application Server Hardware:

(These are *minimum* specs. Your use may require significantly more resources.)

**Note: This server must be dedicated to FASTER and cannot be shared.**

- Processor
  - Dual Quad Core processors that are server class. (For example, do not use older model processors such as: Intel Xeon X5450, 2x6 MB Cache, 3.0 GHz, 1333 MHz FSB, which was discontinued in 2010.)
- Memory
  - 16 GB @ 667 MHz (or faster) RAM
- Hard Drive
  - 15K RPM Primary Hard Drive, 80 GB Available Operating Free Space
- Network Connection

- Gigabit Ethernet Network Adapter (NIC)

## Database/Reporting Services Server Hardware

(These are *minimum* specs. Your use may require significantly more resources.)

- Processor
  - Dual Quad Core processors that are server class. (For example, do not use older model processors such as: Intel Xeon X5450, 2x6 MB Cache, 3.0 GHz, 1333 MHz FSB, which was discontinued in 2010.)
- Memory
  - 16 GB @ 667 MHz (or faster) RAM
    - Note:** If you are using a shared database server, it is critical that it have enough RAM. Due to the number of users and the high dependency on *FASTER* for work tasks and reporting, *FASTER* is often the most intensive database on a shared database server. Therefore, for a shared database server, we recommend a minimum of 32 GB RAM or more.
- Hard Drive
  - 15K RPM Primary Hard Drive
- Network Connection
  - Gigabit Ethernet Network Adapter (NIC)

## 3: Three Server Configuration – Basic Enterprise

This represents a configuration where the Application Server, Database Server and Reporting Services are all installed on separate servers. Appropriate for sites 50+ users.

### Application Server Hardware:

(These are *minimum* specs. Your use may require significantly more resources.)

**Note: This server must be dedicated to *FASTER* and cannot be shared.**

- Processor
  - Dual Quad Core processors that are server class. (For example, do not use older model processors such as: Intel Xeon X5450, 2x6 MB Cache, 3.0 GHz, 1333 MHz FSB, which was discontinued in 2010.)
- Memory
  - 16 GB @ 667 MHz (or faster) RAM
- Hard Drive
  - 15K RPM Primary Hard Drive, 80 GB Available Operating Free Space
- Network Connection
  - Gigabit Ethernet Network Adapter (NIC)

### Database Server Hardware:

(These are *minimum* specs. Your use may require significantly more resources.)

- Processor
  - Dual Quad Core processors that are server class. (For example, do not use older model processors such as: Intel Xeon X5450, 2x6 MB Cache, 3.0 GHz, 1333 MHz FSB, which was discontinued in 2010.)



- Memory
  - 16 GB @ 667 MHz (or faster) RAM
 

**Note:** If you are using a shared database server, it is critical that it have enough RAM. Due to the number of users and the high dependency on *FASTER* for work tasks and reporting, *FASTER* is often the most intensive database on a shared database server. Therefore, for a shared database server, we recommend a minimum of 32 GB RAM or more.
- Hard Drive
  - 15K RPM Primary Hard Drive
- Network Connection
  - Gigabit Ethernet Network Adapter (NIC)

### Reporting Services Server Hardware:

(These are *minimum* specs. Your use may require significantly more resources.)

- Processor
  - Dual Quad Core processors that are server class. (For example, do not use older model processors such as: Intel Xeon X5450, 2x6 MB Cache, 3.0 GHz, 1333 MHz FSB, which was discontinued in 2010.)
- Memory
  - 8 GB @ 667 MHz (or faster) RAM
- Hard Drive
  - 15K RPM Primary Hard Drive
- Network Connection
  - Gigabit Ethernet Network Adapter (NIC)
- Optional Scale Out
  - Reporting Server using Scale Out deployment, 2+ servers

## SECTION 3: APPLICATION SERVER ROLE CONFIGURATION

### Windows Server 2012 Role Configuration

#### Server Roles

The Application Server must have the following Server Roles installed:

- Application Server
  - .NET Framework 4.5
  - Distributed Transactions
    - WS-Atomic Transactions
    - Incoming Network Transactions
    - Outgoing Network Transactions
  - Windows Process Activation Service Support
    - HTTP Activation
- File And Storage Services
  - Storage Services

- Web Server (IIS)
  - Web Server
    - Common HTTP Features
      - Default Document
      - Directory Browsing
      - HTTP Errors
      - Static Content
      - HTTP Redirection
    - Health and Diagnostics
      - HTTP Logging
    - Performance
      - Static Content Compression
    - Security
      - Request Filtering
      - Basic Authentication
      - Windows Authentication
    - Application Development
      - .NET Extensibility 3.5
      - .NET Extensibility 4.5
      - Application Initialization
      - ASP
      - ASP.NET 4.5
      - ISAPI Extensions
      - ISAPI Filters
    - Management Tools
      - IIS Management Console
      - IIS 6 Management Compatibility
        - IIS 6 Meta Base Compatibility
        - IIS 6 Management Console
        - IIS 6 Scripting Tools
        - IIS 6 WMI Compatibility
      - IIS Management Scripts and Tools
      - Management Services

## Features

The Application Server must have the following Features installed:

- .NET Framework 3.5 Features
  - .NET Framework 3.5
  - HTTP Activation
- .NET Framework 4.5 Features
  - .NET Framework 4.5
  - ASP.NET 4.5
  - WCF Services



- HTTP Activation
  - TCP Port Sharing
- User Interfaces and Infrastructure
  - Graphical Management Tools and Infrastructure
  - Server Graphical Shell
- Windows PowerShell
  - Windows PowerShell 3.0
  - Windows PowerShell 2.0
  - Windows PowerShell ISE
- Windows Process Activation Service
  - Process Model
  - .NET Environment 3.5
  - Configuration APIs
- WoW64 Support

## Windows Server 2008 R2 SP 1 Role Configuration

### Application Server Configuration Requirements

#### Roles Services: Application Server

Under Server Manager>Roles>Application Server, the following Role Services must be installed:

- .NET Framework 3.5.1
- Web Server IIS Support
- Windows Process Activation Service
  - HTTP Activation
- Distributed Transactions
  - Incoming Remote Transactions
  - Outgoing Remote Transactions
  - WS-Atomic Transactions

#### Roles Services: Web Server (this refers to the Application Server)

Under Server Manager>Roles>Web Server (IIS), the following Role Services must be installed:

- Web Server
  - Common HTTP Features
    - Static Content
    - Default Document
    - Directory Browsing
    - HTTP Errors
    - HTTP Redirection
  - Application Development

- ASP .NET
- .NET Extensibility
- ASP
- ISAPI Extensions
- ISAPI Filters
- Security
  - Basic Authentication
  - Windows Authentication
- Performance
  - Static Content Compression
  - Dynamic Content Compression
- Management Tools
  - IIS Management Console
  - IIS Management Scripts and Tools
  - Management Service
  - IIS 6 Management Compatibility
    - IIS 6 Metabase Compatibility
    - IIS 6 WMI Compatibility
    - IIS 6 Scripting Tools

# APPENDIX A: REPORT USER CONFIGURATION

This section includes step-by-step information about configuring reports user.

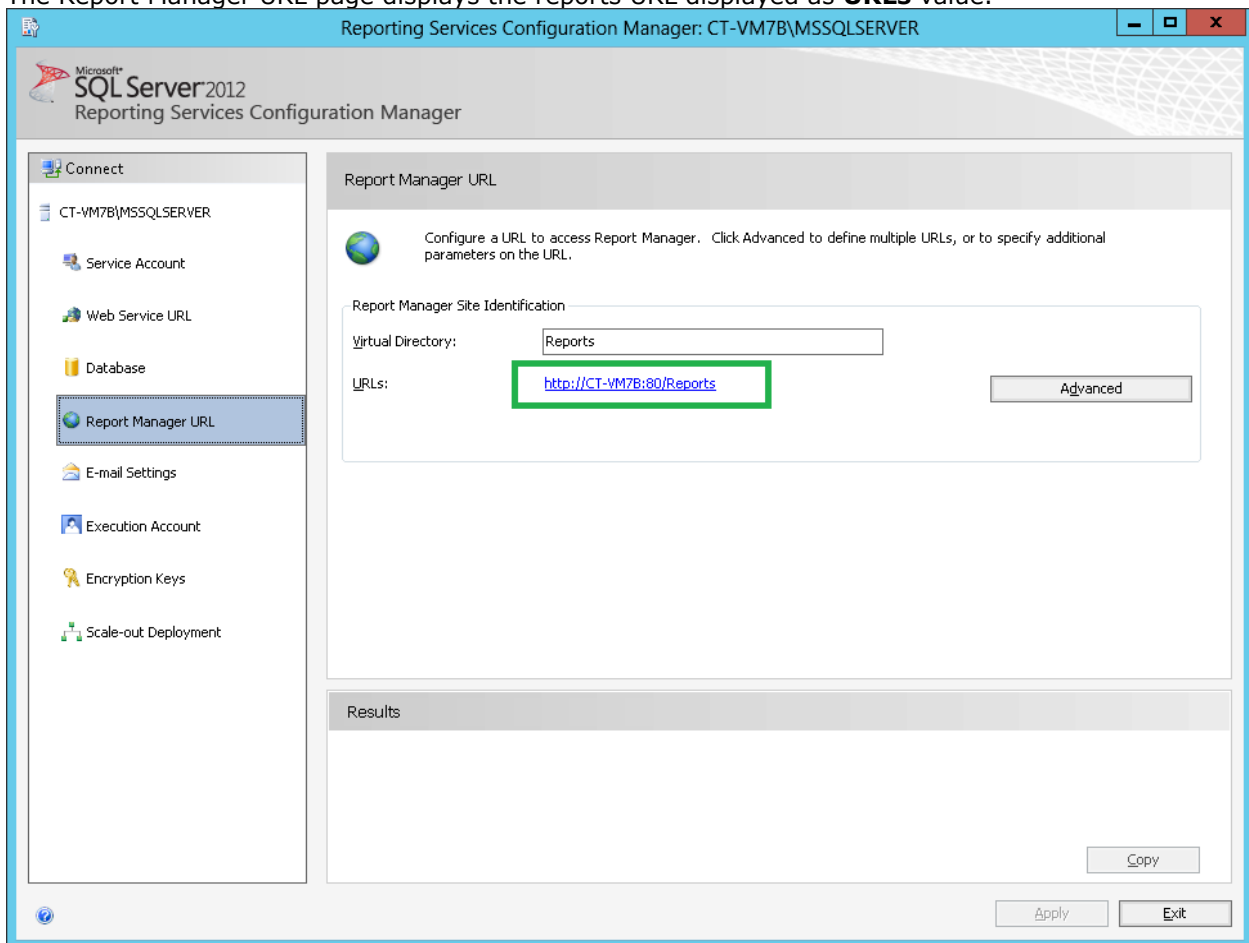
## Report User Selection or Creation

The Report User must be an Active Directory user or a user local to the server SSRS is installed upon. This user does not require any rights in active directory or the local server, just a user name and password. The user will have rights granted during configuration on the Reports Server and are limited to SSRS.

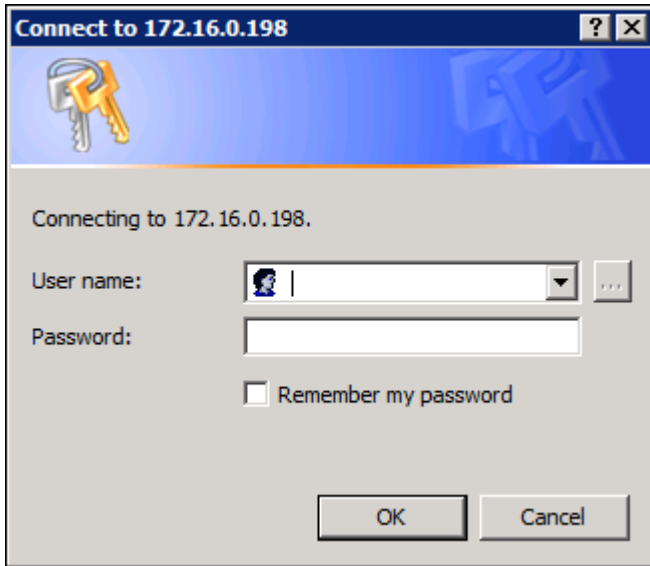
## Locating and accessing reports server (SSRS) URL

1. To find Reports URL, go to **Reporting Services Configuration Manager** on the reporting server on which you want to deploy the reports.
2. Click **Report Manager URL** in the left navigation pane.

The Report Manager URL page displays the reports URL displayed as **URLs** value.



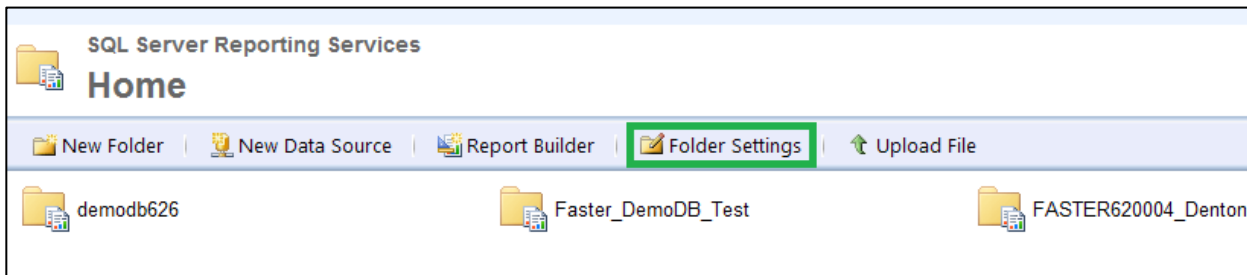
3. In the Internet Explorer, open the ReportsUrl located in step 3.
4. When prompted, provide login credentials of the user who is 'Administrator' on Report server.



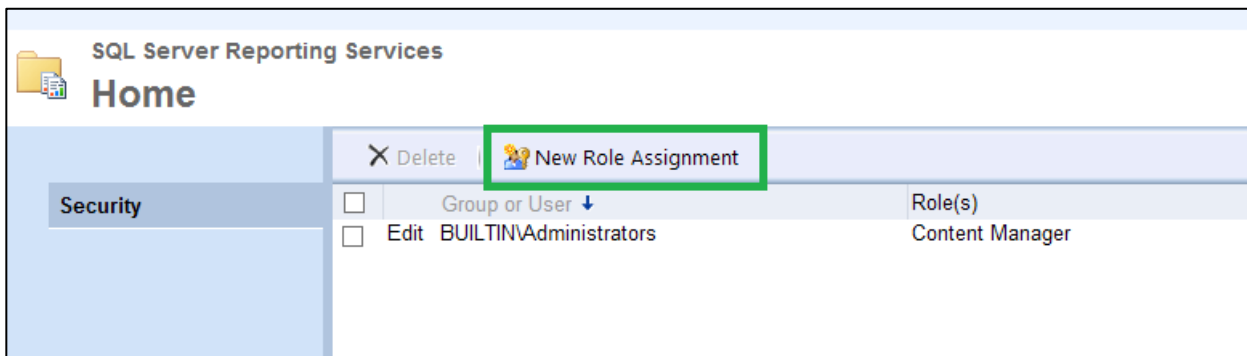
The Reports Manager page of the Reports Server (SSRS) is displayed.

### Assigning appropriate roles to the reports folder

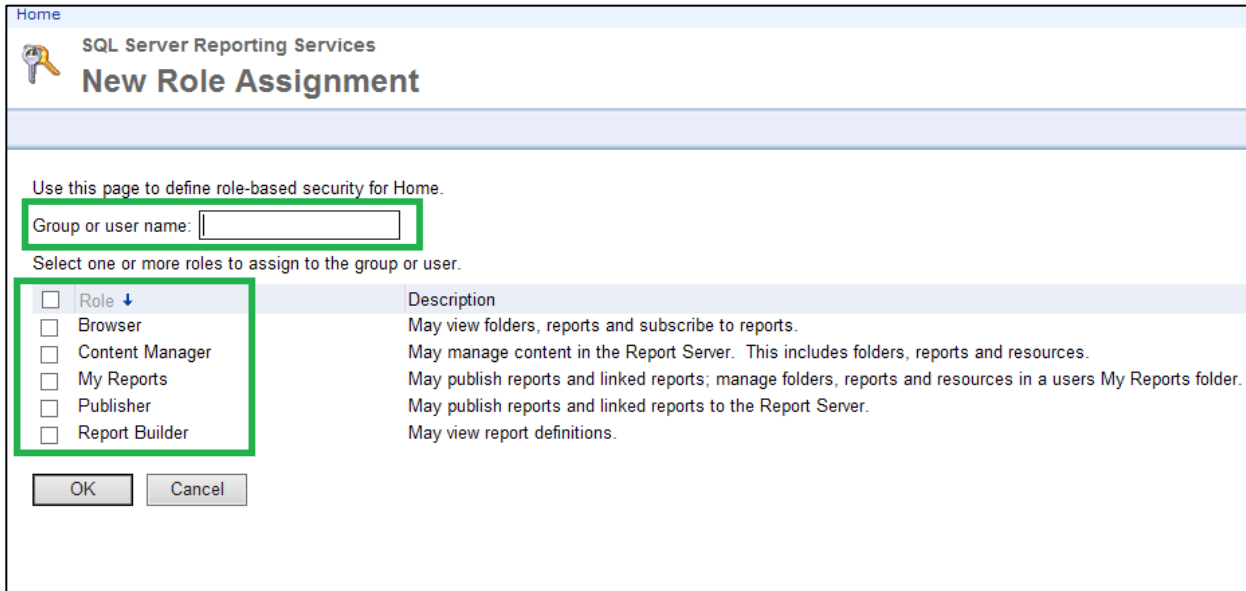
1. On the **Home** page of Reporting Server Reporting Services, go to **Folder Settings**.



2. On the reports folder security page, click **New Role Assignment**.



3. In the **Group or user name** box, type the group or username.



4. Select the desired roles, and then click **OK**.
5. Repeat the step 3 and 4 for 'Report Viewer User' that will be used to view the reports and for the user whose credentials will be used to deploy the reports.

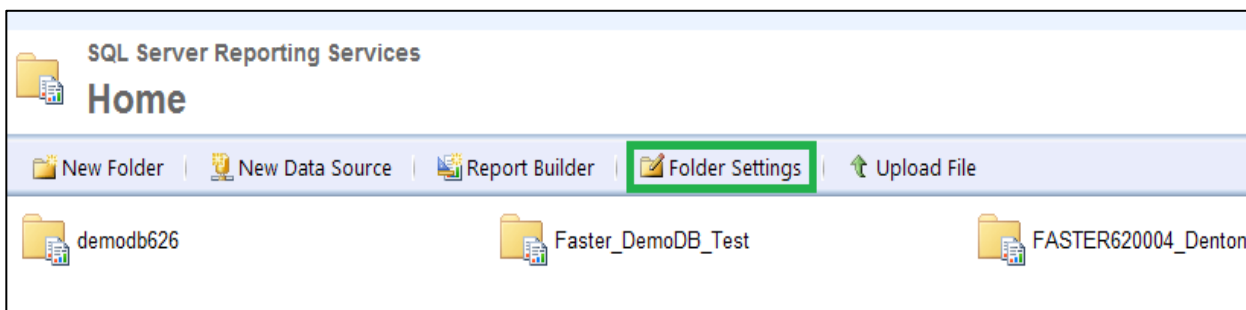
**Report Viewer User** must have at least the **Browser** role assigned. The user who deploys the reports must have at least **Content Manager** Role assigned.

## Report Builder Role Configuration

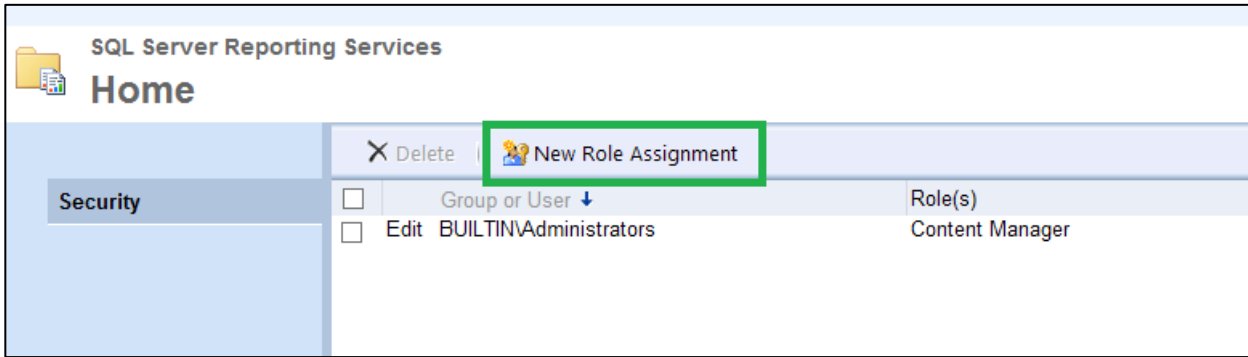
FASTER Web provides an in-product functionality for users to access the **MS Report Builder**. It is recommended to assign the SSRS built-in **Report Builder** role to individuals who will be using the **MS Report Builder**, alternately you can also create a group of all users who will be using the **MS Report Builder** and that group can have **Report Builder** role assigned. We recommend you to use groups over individual for this purpose as it would be easy to maintain a single group and it will save time in future whenever there is a need of assigning the role to new users.

To assign the **Report Builder** role, please follow below steps.

1. On the **Home** page of Reporting Server Reporting Services, go to **Folder Settings**.

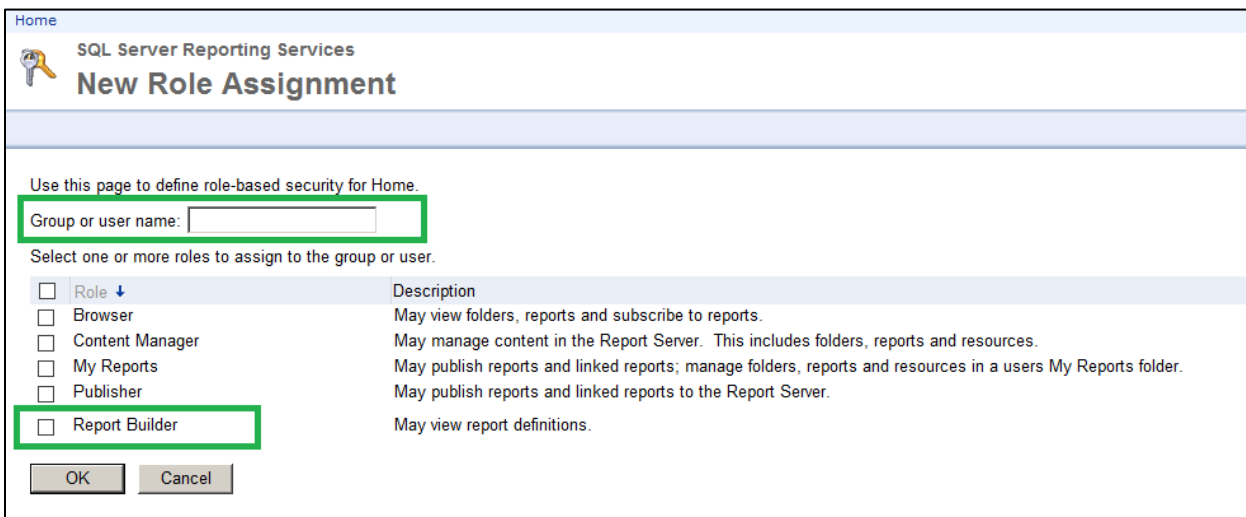


2. On the reports folder security page, click **New Role Assignment**.



3. In the **Group or user name** box, type the group or username.

4. Select the **Report Builder** role, and then click **OK**.

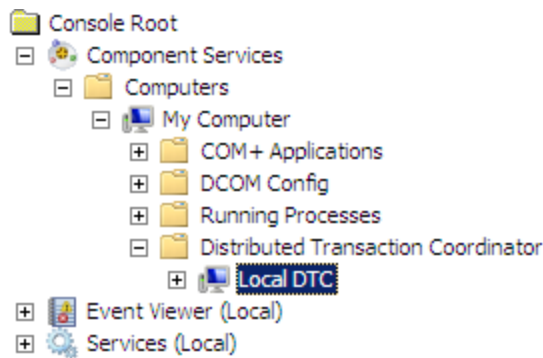


# APPENDIX B: MSDTC CONFIGURATION FOR KEYPER KEY BOX INTEGRATION

For the Key Box integration, MSDTC (Microsoft Distributed Transaction Coordinator) must be enabled on the Keyper Application server and the Keyper Database server. This section includes step-by-step information about configuring MSDTC. These steps must be followed on both the Keyper Application server and Keyper Database server if they are on different machines.

## Steps to Enable MSDTC

1. Start a **Command Prompt** as an administrator and enter "**dcomcnfg**" or "**comexp.msc**" to open **Component Services**.
2. In the console tree, expand **Component Services**, expand **Computers**, expand **My Computer**, and then expand **Distributed Transaction Coordinator**.



3. Right click **Local DTC**, and click **Properties** to display the **Local DTC Properties** dialog box.
4. Click the **Security** tab.
5. In the **Security Settings** section, enable the **Network DTC Access** as suggested in Snap below.

Tracing Logging Security

Security Settings

Network DTC Access

Client and Administration

Allow Remote Clients  Allow Remote Administration

Transaction Manager Communication

Allow Inbound  Allow Outbound

Mutual Authentication Required

Incoming Caller Authentication Required

No Authentication Required

Enable XA Transactions  Enable SNA LU 6.2 Transactions

DTC Logon Account

Account:

Password:

Confirm password:

Learn more about [setting these properties](#).