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PLANNING FOR AND IMPLEMENTING TURNOVER® FOR SVN V100

The TURNOVER® for SVN v100 product provides PC-based version control for Web, Java, and PC development projects. It integrates seamlessly with TURNOVER® for iSeries v100's project system, allowing you to associate repository commits with the TURNOVER® for iSeries v100 tasks that document your change process.

TURNOVER® for SVN v100 support is installed automatically on your iSeries server when you upgrade to or install TURNOVER® for iSeries v100. The client features are installed if you choose the Developer components during a TURNOVER® for iSeries v100 client installation. They are available, but must be configured for use.

Before you can configure TURNOVER® for SVN v100, you must plan your implementation.

PLANNING YOUR TURNOVER® FOR SVN V100 SETUP

Before implementing TURNOVER® for SVN v100, you must determine that your infrastructure is ready for it, and then make some decisions.

TURNOVER® FOR SVN V100 Prerequisites

These topics describe the operating system, PTF, Eclipse, and Apache requirements that your system must meet before you can successfully use TURNOVER® for SVN v100 for version control.

iSeries operating system requirements

TURNOVER® for SVN v100 for OS/400 requires an operating system level of V5R1 or higher.

Important PTF requirements

It is important to make sure, before you start using TURNOVER® for SVN v100, that you have installed the latest PTFs for licensed programs 5722DG1 (Apache) and 5722SS1 Option 30 (QShell).

Eclipse plug-in requirements

If you plan to use the TURNOVER® for SVN v100 software within an Eclipse-based IDE, you must install the IDE before installing TURNOVER® for SVN v100.

To experience the full feature and function of TURNOVER® for SVN v100, you will require an Eclipse 3.x-based IDE such as IBM's Rational Software Development Platform 6.0 and WebSphere Development Studio Client (WDSC) 6.0.

Choosing a service option

TURNOVER® for SVN v100 can use either of two possible repository server options.

One choice is to use **SVNSERVE** – a small, standalone server program that speaks a custom protocol with clients. This is the simplest configuration option.

The other choice is to use Apache, a popular web server. By using the **mod_dav_svn** module, Apache can access a repository and make it available to clients via the WebDAV/DeltaV protocol, which is an extension of HTTP. This is a more advanced configuration option.

Because the purpose of this guide is to get you up and running as quickly as possible, the primary instructions take you directly through the SVNSERVE choice. Instructions for setting up the more advanced Apache server configuration are included for customers desiring to use it. Read *Advanced Configuration: The Apache Option* on page 11 for more information about this service option.

Notes

UNICOM Systems, Inc. endorses neither server option over the other. Each server has its advantages and disadvantages (see **Table 1**). In fact, you can run the different servers in parallel, each accessing your repositories in its own way, and each without hindering the other. Which option you choose depends mostly on what infrastructure is already in place at your company, and how quickly you want to get up and running.

If you start out using the SVNSERVE method, you can always set up and switch to the Apache server method later if you want and, as already noted, you can run both without stepping on any toes.

Following is a brief overview and comparison of the two available TURNOVER® for SVN v100 servers. It is up to you to choose whatever server configuration works best for you and your users.

Feature	Apache with mod_dav_svn service method	SVNSERVE service method
Authentication options	HTTP(S) basic auth, X.509 certificates, LDAP, OS/400 profiles or any other mechanism available to Apache httpd	CRAM-MD5
User account options	Private 'users' file	Private 'users' file
Authorization options	Blanket read/write access, or per-directory access control	Blanket read/write access, or per-directory write access control using hook scripts
Encryption	Via optional SSL	Not available
Interoperability	Partially usable by other WebDAV clients	Not interoperable
Web viewing	Limited built-in support	Not available
Speed	Somewhat slower	Somewhat faster
Initial setup	Somewhat complex	Fairly simple

Table 1: Service Method Comparison

Everything you need to configure either server method is installed as part of the base TURNOVER® for iSeries v100 installation. (For information about how to install or upgrade your machine to TURNOVER® for iSeries v100, please refer to the Getting Started with TURNOVER® for iSeries v100 for the iSeries guide.)

To use TURNOVER® for SVN v100, you will need to configure a server method, a repository, and repository access. The following instruction sets walk you through both methods of setting up a TURNOVER® for SVN v100 server and repository on your iSeries.

Before Continuing…

The instructions in this document assume that TURNOVER® for iSeries v100's Administration client component is installed on the PC, and that a TURNOVER® for iSeries v100 connection has been created. (See the ***Getting Started with the TURNOVER® for iSeries v100 Client Software*** guide for instructions about installing TURNOVER® for iSeries v100 client components and creating a TURNOVER® for iSeries v100 connection.)

Start the TURNOVER® for iSeries v100 client software now.

FASTPATH CONFIGURATION: THE SVNSERVE OPTION

If you plan to use the Apache server method, go to *Advanced Configuration: The Apache Option* on page 11.

SVNSERVE Step Summary:
1) Run the TURNOVER® for SVN v100 Configuration Wizard.
2) Stop and restart TSERVER subsystem to start server instance and autostart jobs.
3) Create a realm for access control.
4) Change the host name in the URL stored in TURNOVER® for SVN v100 default values.
5) Create a repository. (Application Defaults authority required for this.)
6) Subscribe users to your repository (optional).

Step 1: Run the TURNOVER® for SVN v100 Configuration Wizard

TURNOVER® for iSeries v100's Administration component includes a wizard you can run to help you set up TURNOVER® for SVN v100.

A. Launch the wizard: in the TURNOVER® for iSeries v100 Explorer view of your IDE or TURNOVER® for iSeries v100 client, expand the Administration node. Right click TURNOVER® for SVN v100 and choose **TURNOVER® for SVN v100 Configuration Wizard**.
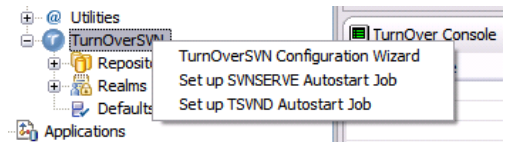
B. On the **Required SVN Configuration** page, set the mandatory configuration options for TURNOVER® for SVN v100. Each field is described below.

SVN IFS Root
Specify the directory on the iSeries IFS where all of your repositories will be created and accessed. This directory is relative to the IFS root folder on your iSeries. If the folder specified does not exist, the wizard creates it automatically.
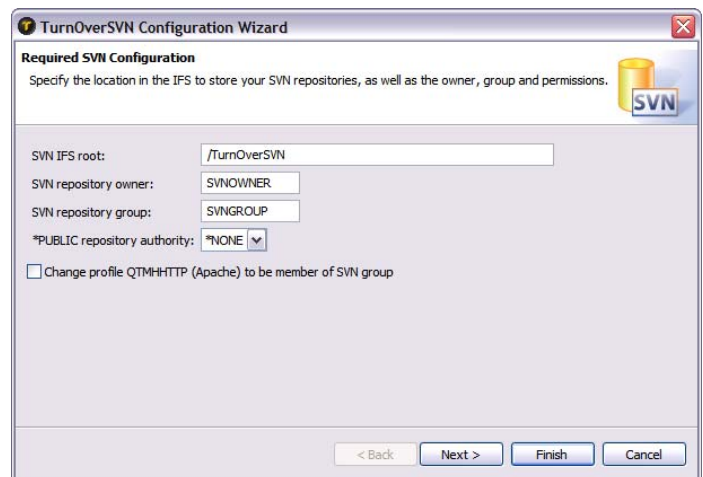
SVN Repository Owner
This is the iSeries user profile you want to assign as the owner for top level repository folders created using the TURNOVER® for iSeries v100 client Administration features. If the user profile you specify does not exist, the wizard creates it automatically.

SVN Repository Group
To ensure that the SVN server jobs have access to your repositories, they need to run under a user

profile that is a member of a group profile that you specify here.

*PUBLIC Repository Authority
Specify the level of repository access granted to all other iSeries users. Valid values are:

*NONE	*PUBLIC has no authority to the repository.
*RWX	*PUBLIC has Read, Write and Execute authority to repositories.
*RW	*PUBLIC has Read and Write authority to repositories.
*RX	*PUBLIC has Read and Execute authority to repositories.
*WX	*PUBLIC has Write and Execute authority to repositories.
*R	*PUBLIC has Read authority to repositories.
*W	*PUBLIC has Write authority to repositories.
*X	*PUBLIC has Execute authority to repositories.

Change Profile QTMHHTTP
For SVNSERVE setup, clear this box if checked. (This setting applies only if you chose the Apache service method.)

Click **Next** to advance to next page of the wizard.

C. On the **SVNSERVE Autostart Job** page, check the **Set up SVNSERVE autostart job** box. This creates an autostart job entry and an associated job description for the SVNSERVE server instance. Additional fields now appear.

Setting up an autostart job for your SVN server is not *required* - you can manually start a server job as part of some other system process using the TSTRSVNSVR command. See *Starting an SVNSERVE Server Instance Manually* on page 21 for more information.

Port Number
The SVNSERVE server operates using an svn:// protocol that is based on TCP/IP and DNS, much like the http:// protocol. The default port for svn:// is 3690.

Job Description and Library
Specify the name of the job description and library to associate with this autostart job entry. The job description must not already exist. Store the job description in your TURNOVER® for iSeries v100 product library –usually SOFTTURN.

Subsystem Name and Library
Specify the name of the subsystem and library where the autostart job should be created. This subsystem must already exist.


Tip

By default, the SVNSERVE job serves repositories out of the location you specify in this Wizard. If you want to override this default behavior, you can manually change the job description that gets created during this process.

Click **Next** to advance to next page of the wizard.

D. The **TSVND Autostart Job** page allows you to configure an autostart job and associated job description for the TSVND server. The TSVND server drives the integration with the TURNOVER® for iSeries v100 project system and sends emails to repository subscribers.

As with the SVNSERVE job, you are not required to set the TSVND job up as an autostart job. You can submit it manually using the TSVND command, if desired.
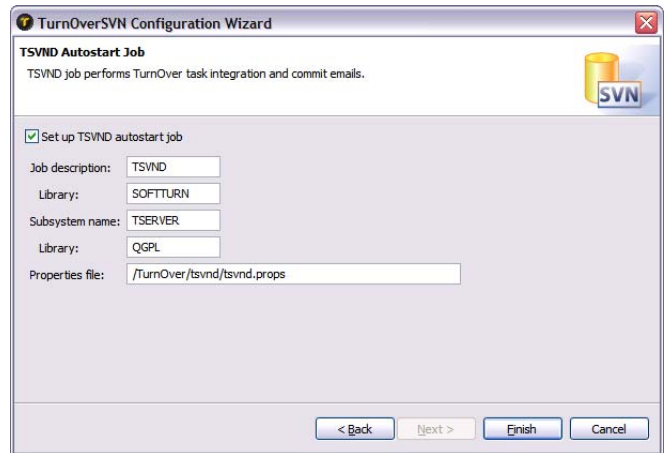
Important!

If you are using TURNOVER® for iSeries v100's project system, we do strongly recommend that you set up this autostart job entry. If you do not set up this job (either by creating an autostart job or by manually submitting a TSVND job), you will not get any TURNOVER® for SVN v100 commit history in the TURNOVER® for iSeries v100 project database or receive any subscription emails.

Job Description and Library
Specify the name of the job description and library to associate with this autostart job entry. The job description must not already exist.

Subsystem Name and Library
Specify the name of the subsystem and library that you want to add the autostart job to. This subsystem must already exist.

Properties file
Specify the name and location of the TSVND properties file. The wizard creates the file.

Step 2: Stop and restart the subsystem in which the SVN server and autostart jobs will run

You must end and restart the subsystem you chose for your SVNSERVE server jobs in order to successfully start a server instance and the autostart jobs.

Important!

If the subsystem you chose is not dedicated to TURNOVER® for SVN v100, **do not restart the subsystem unless you can be sure there are no other jobs running**. For example, if you elected to accept the wizard's default subsystem value and run TURNOVER® for SVN v100 in the TSERVER subsystem created by TURNOVER® for iSeries v100, then you should be aware that this subsystem manages all of the TURNOVER® for iSeries v100 Client Server jobs and may not be available to be restarted.

Step 3: Create a realm for SVNSERVE access control

A. In TurnOver Explorer, right click **Realms** under the TURNOVER® for SVN v100 node in **Administration**. Choose **New SVN Realm**.

B. On the **New SVN Realm** panel, supply a name for your realm and then click **Add**.

C. On the **New SVN User** panel, define a user name and password to be used for authentication during repository access requests such as committing.
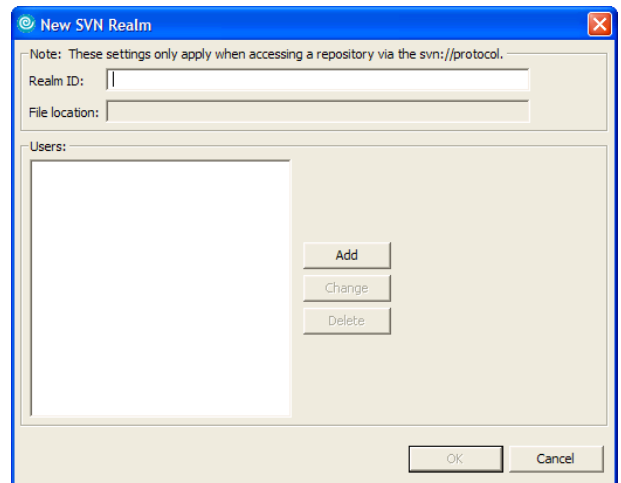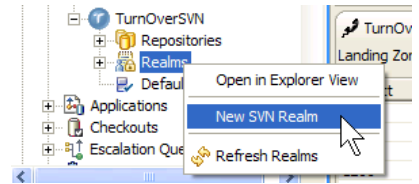
Realm ID

> The Realm ID is the name to be associated with the realm. By default, the Realm ID is suffixed to the file location to determine the name of the password file. The name of the realm would typically be something like "Development," but it can be anything you designate.
> Avoid special characters in Realm IDs.

File location

> This field identifies both the name of the realm password file and the directory in which the password file will be stored, with Realm ID as the file name. TURNOVER® for iSeries v100 constructs this information and fills it in for you.

Users

> This is the list of users who are associated with a realm.
>
> Click the **Add** button to add a user. When adding a user, supply a user name and password.   These can be any values you choose. For security reasons, the password does not appear when typed, nor does it appear in the user list.   Use the **Change** and **Delete** buttons as needed to manage the contents of the user list.
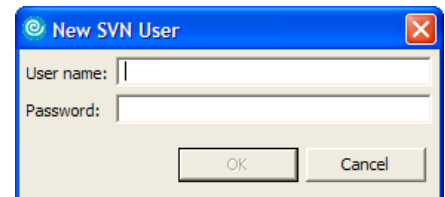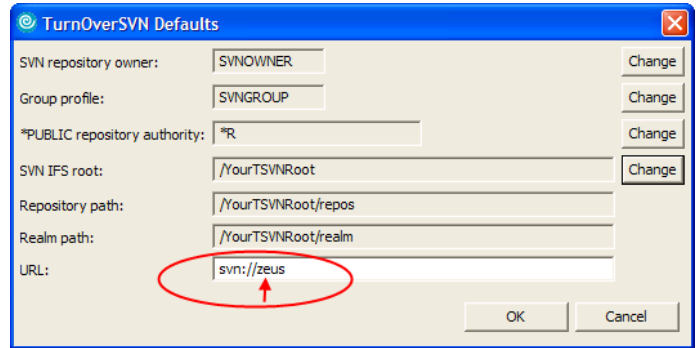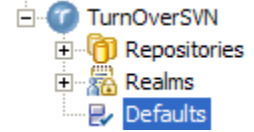

Step 4: Change the host name in the URL stored in the TURNOVER® for SVN v100 defaults

The defaults stored here are used when you run the New Repository Wizard. The first time you open this dialog, the default values that are shipped with TURNOVER® for SVN v100 are used.

A. In TurnOver Explorer, expand the **Administration** node.

B. Expand the **TURNOVER® for SVN v100** node.

C. Double click the **Defaults** node.

D. On the **TURNOVER® for SVN v100 Defaults** panel, adjust the URL parameter by replacing the host name "zeus" with the name or IP address of your iSeries host server. (Retain the "svn://" portion of the value.)

E. To make any additional changes or adjustments to these default values, use the **Change** buttons.
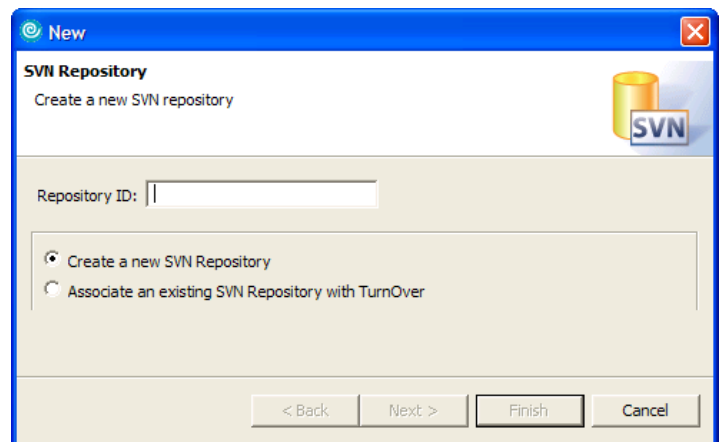
F. Click **OK** to save your changes.

Step 5: Create a repository

Important!

You must have Application Defaults authority in TURNOVER® for iSeries v100 to successfully complete this step.

A. In TurnOver Explorer, right click the **Repositories** node under TURNOVER® for SVN v100 and choose **New SVN Repository** to launch the New SVN Repository Wizard.

B. On the first page of the Wizard, supply a name for your repository, and activate the **Create new SVN Repository** radio button.

The name you supply is used as the highest level folder name.

Avoid special characters and spaces in repository names.

Click **Next**.

C. On the second page, define the information you want to be used in the email header when commit notification emails are sent to the repository subscriber list.

Click **Next**.

D. On the last page, define the level of access that the general public (that is, anonymous users) will have to this repository, as well as the access level for authenticated users. Identify which realm of users should be used for authentication.

Click **Finish** to complete the wizard. Your repository is created in the TURNOVER® for SVN v100 repository folder you specified when you set up your server job.
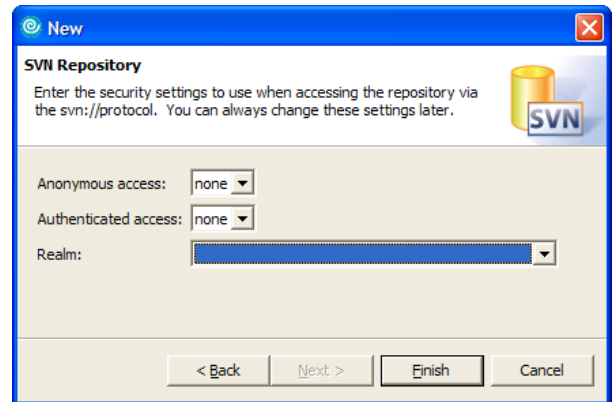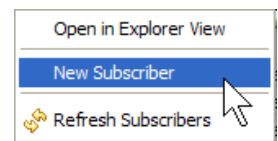
Step 6: Subscribe users (optional)

A subscriber list is optional, and identifies a list of users who want to get notification emails whenever something is committed to the repository.

A. In TurnOver Explorer, expand **Repositories**; then expand your repository.

B. Right click **Subscriptions** and choose **New Subscriber**.

C. On the **New Subscriber** panel, supply an email address for a user to whom notification emails should be sent.

D. Click **OK**. (Repeat this step for any additional users you want to add.)

Tip

If your mail server supports "groups," it is convenient to subscribe the appropriate groups, and use your mail server configuration to manage the email recipients.

TURNOVER® for SVN v100 is now configured to serve repositories using a standalone SVNSERVE server instance.

You must supply the developers in your company with URL information before they can begin using the repositories. Read ***About Repository URLs*** on page 20, and make sure they have a copy of the ***Getting Started with TURNOVER® for iSeries v100 Client Software*** guide for reference.

ADVANCED CONFIGURATION: THE APACHE OPTION

If you are not an iSeries Administrator, you will need to work closely with one to configure portions of this option.

Apache Step Summary:
1) Configure and start an Apache server instance.
2) Run the TURNOVER® for SVN v100 Configuration Wizard.
3) Stop and restart the subsystem were the TSVND job will run.
4) Change the host name of the URL stored in the TURNOVER® for SVN v100 default.
5) Create a repository (requires TURNOVER® for iSeries v100 Application Defaults authority).
6) Subscribe users to your repository (optional).

Step 1: Configure and start an Apache server instance

The Apache HTTP Server is a "heavy duty" network server that TURNOVER® for SVN v100 can leverage. Via a custom module, httpd makes TURNOVER® for SVN v100 repositories available to clients via the WebDAV/DeltaV protocol, which is an extension to HTTP 1.1 (see http://www.webdav.org/ for more information.) This protocol adds version control capabilities to the HTTP protocol that is the core of the World Wide Web. The result is a standardized, robust system that is conveniently packaged as part of the Apache 2.0 software, is supported by numerous operating systems and third-party products, and doesn't require network administrators to open up yet another custom port.

Much of the following discussion includes references to Apache configuration directives. While some examples are given of the use of these directives, describing them in full is outside the scope of this document. IBM maintains some excellent documentation that is publicly available on their website:

http://www-1.ibm.com/servers/eserver/iseries/software/http/

For example, you will find a general reference for the configuration directives is located at:

http://publib.boulder.ibm.com/infocenter/iseries/v5r3/ic2924/info/rzaie/rzaiedirective.htm

Also, as you change your Apache setup, it is possible that somewhere along the way a mistake will be made. If you are not already familiar with Apache's logging subsystem, you should become aware of it. Your httpd.conf file contains directives that specify the on-disk locations of the access and error logs generated by Apache (the CustomLog and ErrorLog directives, respectively). TURNOVER® for SVN v100's mod_dav_svn uses Apache's error logging interface as well. You can always browse the contents of those files for information that might reveal the source of a problem that is not clearly noticeable otherwise.

The following sections of this chapter outline the basics of what is required to configure the TURNOVER® for SVN v100 WebDAV plug-in for the Apache web server. For a more in-depth discussion of using TURNOVER® for SVN v100 with httpd and the Apache Web Server, read Chapter 6 of the Subversion Book: Version Control with Subversion (available at http://svnbook.red-bean.com/).

Creating an Apache server instance

Use the IBM Web Administration for iSeries tool to create a new HTTP server instance (powered by Apache). You can skip this step if you want to add it to an existing server instance.

Editing the Apache configuration file

You can do this in the web-based administration utility, or directly in the IFS. Most, but not all, of this configuration can be defined using the GUI, but it is easier to just show the configuration file and let you edit it. People familiar with the related areas in the web-based user interface can certainly use that tool.

Following are some example configurations. Use these, combined with the Subversion Book, to get the general idea. This should be enough information to set up any possible configuration. Keep in mind that one of the primary reasons to use Apache is that you get all of the power and options that it provides. It's important to realize that, while our example does not reflect use of SSL or Kerberos or any of a number of other options, those are all just Apache features that you are free to take advantage of in your setup.

Important!

Two of the main features in TURNOVER® for SVN v100 1.2 are support for locking and DAV Auto-versioning. Adding these features required using a few more of the functions in Apache's mod_dav. Because there was a problem in the way this module was delivered on some platforms (including OS/400), some of the functions in mod_dav were not being publicly exported so that they can be called.

This means that the OS/400 mod_dav *SRVPGM from IBM is missing some of the procedure exports that TURNOVER® for SVN v100 needs. IBM is going to issue a PTF to resolve this problem, but it did not get released in time for this release.

To work around this problem, we are including our own mod_dav *SRVPGM compiled from the Apache source code. This means that when you edit your Apache configuration file, you need to comment out the LoadModule for IBM's *SRVPGM and instead add a LoadModule for the one that we provide.

Warning

Whenever you edit the configuration in the browser-based Apache configuration tool, IBM's code will see that you are using DAV but are missing their LoadModule, so it will add it back in for you! This means you have to remember to edit your configuration when you are done, to remove their LoadModule.

Example One: Basic Configuration/iSeries Profile Authentication

Following is a sample Apache configuration file. Additions that are relevant to TURNOVER® for SVN v100 are shaded, and are marked with opening and closing comments. Wherever necessary, replace the TURNOVER® for iSeries v100 product library SOFTTURN with your TURNOVER® for iSeries v100 product library name, if different. (Comment lines start with #.)

```
# TURNOVER® for SVN v100 modification block - START
# Comment out IBM's dav_module
# LoadModule dav_module /QSYS.LIB/QHTTPSVR.LIB/QZSRDAV.SRVPGM
# and replace it with ours
LoadModule dav_module /QSYS.LIB/SOFTTURN.LIB/MOD_DAV.SRVPGM
LoadModule dav_svn_module /QSYS.LIB/SOFTTURN.LIB/MOD_DAVSVN.SRVPGM
# TURNOVER® for SVN v100 modification block - END
Listen *:8888
DocumentRoot /www/svnbasic/htdocs
Options -ExecCGI -FollowSymLinks -SymLinksIfOwnerMatch -Includes -IncludesNoExec -Indexes -MultiViews
LogFormat "%h %l %u %t \"%r\" %>s %b \"%{Referer}i\" \"%{User-Agent}i\" combined
LogFormat "%{Cookie}n \"%r\" %t" cookie
LogFormat "%{User-agent}i" agent
LogFormat "%{Referer}i -> %U" referer
LogFormat "%h %l %u %t \"%r\" %>s %b" common
CustomLog logs/access_log combined
LogMaint logs/access_log 7 0
LogMaint logs/error_log 7 0
SetEnvIf "User-Agent" "Mozilla/2" nokeepalive
SetEnvIf "User-Agent" "JDK/1\.0" force-response-1.0
SetEnvIf "User-Agent" "Java/1\.0" force-response-1.0
SetEnvIf "User-Agent" "RealPlayer 4\.0" force-response-1.0
SetEnvIf "User-Agent" "MSIE 4\.0b2;" nokeepalive
SetEnvIf "User-Agent" "MSIE 4\.0b2;" force-response-1.0
AddType application/xml .xsl
<Directory />
   Order Deny,Allow
   Deny From all
</Directory>
<Directory /www/svnbasic/htdocs>
   Order Allow,Deny
   Allow From all
</Directory>
# TURNOVER® for SVN v100 modification block - START
<Location /repos>
   Order Allow,Deny
   Allow From all
   Dav svn
   SVNParentPath /TURNOVER® for SVN v100/repos
   SVNPathAuthz off
   Require valid-user
   PasswdFile %%SYSTEM%%
   AuthType Basic
   AuthName TURNOVER® for SVN v100
</Location>
# TURNOVER® for SVN v100 modification block - END
```

This would be accessed with a URL like this:

http://hostname:8888/repos/ReposName/

The top part of the configuration file loads Apache modules. Specify these in the order shown. The first module is IBM's mod_dav which provides the core WebDAV protocol support. The second module is TURNOVER® for SVN v100's WebDAV provider, mod_dav_svn.

The only other thing you need to add is a location directive. The example uses a value of /repos, but you can use anything you want. Any URL that starts with /repos will be routed and handled by TURNOVER® for SVN v100. The first value after /repos would be the name of your repository.

Example Two: Advanced Configuration/LDAP Authentication

This example adds a few new wrinkles. It adds a second TURNOVER® for SVN v100 module, mod_authz_svn, which adds fine-grained permissions to the repository. In the first example, if you got past the Apache authentication, then you had read/write permission to the repository. In this example, we will be able to fine-tune the access you have to the repository.

As with the previous example, additions that are relevant to TURNOVER® for SVN v100 are highlighted using opening and closing comments.

```
LoadModule ibm_ldap_module /QSYS.LIB/QHTTPSVR.LIB/QZSRVLDAP.SRVPGM
# TURNOVER® for SVN v100 modification block - START
# Comment out IBM's dav_module
# LoadModule dav_module /QSYS.LIB/QHTTPSVR.LIB/QZSRDAV.SRVPGM
# and replace it with ours
LoadModule dav_module /QSYS.LIB/SOFTTURN.LIB/MOD_DAV.SRVPGM
LoadModule dav_svn_module /QSYS.LIB/SOFTTURN.LIB/MOD_DAVSVN.SRVPGM
LoadModule authz_svn_module /QSYS.LIB/SOFTTURN.LIB/MOD_AUTSVN.SRVPGM
# TURNOVER® for SVN v100 modification block - END
Listen *:8888
DocumentRoot /www/svnbasic/htdocs
Options -ExecCGI -FollowSymLinks -SymLinksIfOwnerMatch -Includes -IncludesNoExec -Indexes -MultiViews
LogFormat "%h %l %u %t \"%r\" %>s %b \"%{Referer}i\" \"%{User-Agent}i\" combined
LogFormat "%{Cookie}n \"%r\" %t" cookie
LogFormat "%{User-agent}i" agent
LogFormat "%{Referer}i -> %U" referer
LogFormat "%h %l %u %t \"%r\" %>s %b" common
CustomLog logs/access_log combined
LogMaint logs/access_log 7 0
LogMaint logs/error_log 7 0
SetEnvIf "User-Agent" "Mozilla/2" nokeepalive
SetEnvIf "User-Agent" "JDK/1\.0" force-response-1.0
SetEnvIf "User-Agent" "Java/1\.0" force-response-1.0
SetEnvIf "User-Agent" "RealPlayer 4\.0" force-response-1.0
SetEnvIf "User-Agent" "MSIE 4\.0b2;" nokeepalive
SetEnvIf "User-Agent" "MSIE 4\.0b2;" force-response-1.0
AddType application/xml .xsl
<Directory />
   Order Deny,Allow
   Deny From all
</Directory>
<Directory /www/svnbasic/htdocs>
   Order Allow,Deny
   Allow From all
</Directory>
# TURNOVER® for SVN v100 modification block - START
<Location /repos>
   Order Allow,Deny
   Allow From all
```

```
   Dav svn
   SVNParentPath /TURNOVER® for SVN v100/repos
   Require valid-user
   PasswdFile %%LDAP%%
   AuthType Basic
   AuthName TURNOVER® for SVN v100
   LDAPConfigFile /www/your_ldap_config_file.ldap
   SVNAutoversioning on
   AuthzSVNAccessFile /TURNOVER® for SVN v100/repos/auth.conf
</Location>
# TURNOVER® for SVN v100 modification block - END
```

As with the first example, the repository would be accessed with a URL like this:

http://hostname:8888/repos/ReposName/

Most of the changes in this example are just to add the LDAP configuration, and this is just standard Apache stuff, not specific to TURNOVER® for SVN v100. However, note that we also loaded a new module for the mod_authz_svn support and added a line to our location directive to point to a configuration file (be sure that the file has an ASCII (819) or UTF-8 (1208) CCSID).

To follow is an example of an AuthZ configuration file:

```
[groups]
java-developers = ed, ray, paul
web-designers = susan, tim, george
developers = ed, ray, paul, susan
managers  = mark, mary, joe
build = mark, steve


[web:/]
@web-designers = rw
@developers = r
@managers = r
@build = r

[web:/tags]
@web-designers = r
@developers = r
@build = rw

[plugins:/]
@java-developers = rw
@developers = r
mark = r

[plugins:/tags]
@java-developers = r
@developers = r
mark = rw

[dev:/]
@developers  = rw
* = r
```

The first part of the file lets you define [groups]. The username comes from what the user authenticates to Apache with, but there is no way in Apache to access any underlying groups, such as in an LDAP directory. So you have to make your own groups in this file.

You then just have sections for repository locations. They take the format:

```
[repos_name:/path]
username1 =
username2 = r
username3 = rw
@groupname = rw
```

You can have as many of these as you need to define all of the permissions you want. A blank value denies that user any authority to the repository.

Important

Username matching is case-sensitive and if you use the iSeries user profiles, your usernames will be all UPPERCASE.

Starting the Apache server

Once you have your configuration in place, you should be able to just start your server instance using the following command:

STRTCPSVR SERVER(*HTTP) HTTPSVR(instance_name)

One advantage of the Apache server is that you get some basic web-based browsing of your repository for free. Try opening your web browser to one of your repository URL's:

http://svn.collab.net/repos/svn/

Your browser should display the head revision of the repository you specified in the address and present a list of files and folders for you to navigate.

Step 2: Run the TURNOVER® for SVN v100 Configuration Wizard

When setting up the Apache service option, you run the TURNOVER® for SVN v100 Configuration Wizard to modify the QTMHHTTP user profile and set up the TSVND job for project system integration.

A. Launch the wizard: in the TurnOver Explorer view of your IDE or TURNOVER® for iSeries v100 client, expand the Administration node. Right click TURNOVER® for SVN v100 and choose **TURNOVER® for SVN v100 Configuration Wizard**.
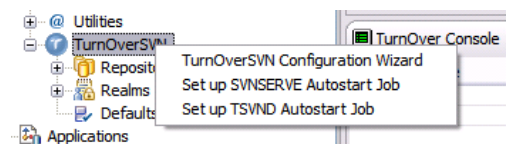
B. On the **Required SVN Configuration** page, set the mandatory configuration options for TURNOVER® for SVN v100.

Most likely, you can accept the defaults for everything except the check box. (The other fields are described on page 5.)

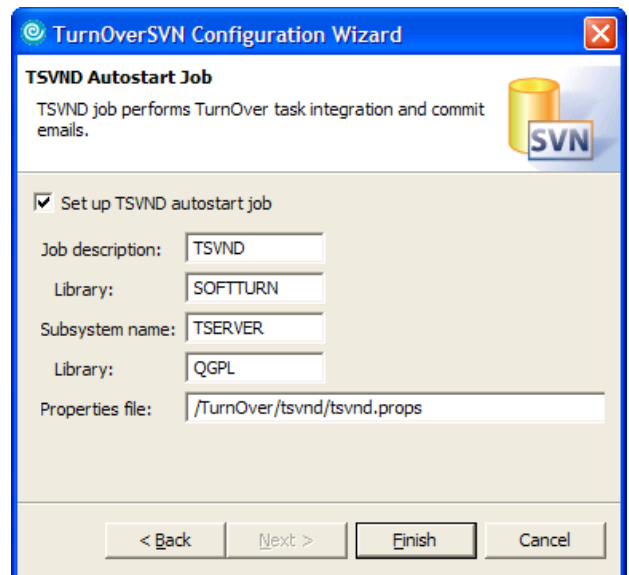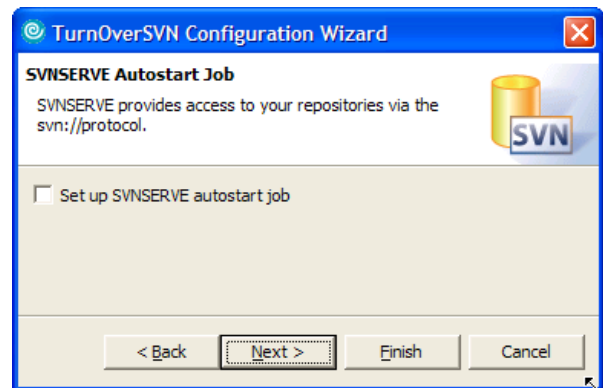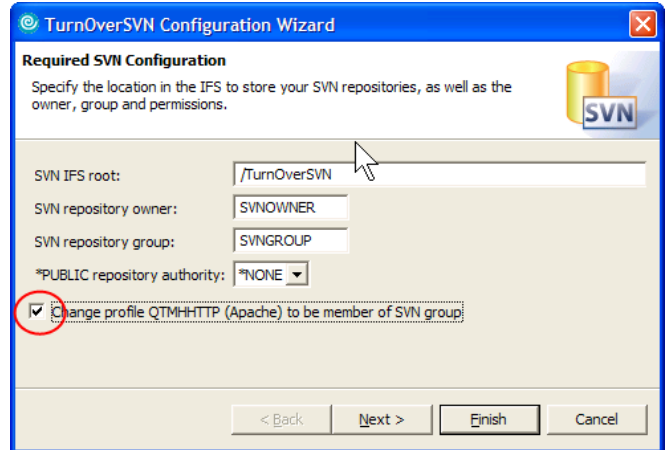Check the box labeled **Change profile QTMHHTTP (Apache) to be member of SVN group**.

Click **Next** to advance to next page of the wizard.

C. Skip the **SVNSERVE Autostart Job** page; it does not apply to the Apache setup.

Click **Next** to advance to next page of the wizard.

D. The **TSVND Autostart Job** page allows you to configure an autostart job and associated job description for the TSVND server. The TSVND server drives the integration with the TURNOVER® for iSeries v100 project system and sends emails to repository subscribers.

You are not required to set the TSVND job up as an autostart job. You can submit it manually using the TSVND command, if desired.

Important!

If you are using TURNOVER® for iSeries v100's project system, we do strongly recommend that you set up this autostart job entry. If you do not set up this job (either by creating an autostart job or by manually submitting a TSVND job), you will not get any TURNOVER® for SVN v100 commit history in the TURNOVER® for iSeries v100 project database or receive any subscription emails.

You can most likely accept the defaults (the values you see may vary slightly from those shown here). The fields on this panel are described on page 7.

Click **Finish** to proceed.

Step 3: Stop and restart the subsystem in which the TSVND job will run

You <u>must</u> end and restart the subsystem you chose for your TSVND job in order to successfully start the autostart job.

Important!

If you chose a subsystem that is not dedicated to TURNOVER® for SVN v100, **do not restart the subsystem unless you can be sure there are no other jobs running**. For example, if you elected to accept the wizard's default subsystem value and run TURNOVER® for SVN v100 in the TSERVER subsystem created by TURNOVER® for iSeries v100, then you should be aware that this subsystem manages other jobs, and may not be available for immediate restart.

Step 4: Change the host name of the URL stored in the TURNOVER® for SVN v100 defaults

A. In TurnOver Explorer, expand the **Administration** node.

B. Expand the **TURNOVER® for SVN v100** node.

C. Double click the **Defaults** node.

D. On the **TURNOVER® for SVN v100 Defaults** panel, adjust the URL parameter by replacing the "svn://" with "http://" and the sample host name "zeus" with the name or IP address of your iSeries host server.

E. Make any additional changes or adjustments to these default values using the **Change** buttons.

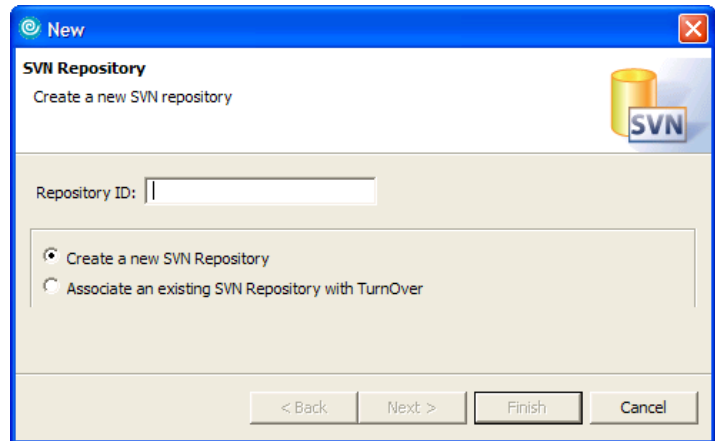F. Click **OK** to save your changes.

Step 5: Create a repository

Important!

You must have Application Defaults authority in TURNOVER® for iSeries v100 to successfully complete this step.

A. In TurnOver Explorer, right click the **Repositories** node under TURNOVER® for SVN v100 and choose **New SVN Repository** to launch the New SVN Repository Wizard.

B. On the first page of the Wizard, supply a name for your repository, and activate the **Create new SVN Repository** radio button.

The name you supply is used as the highest level folder name.

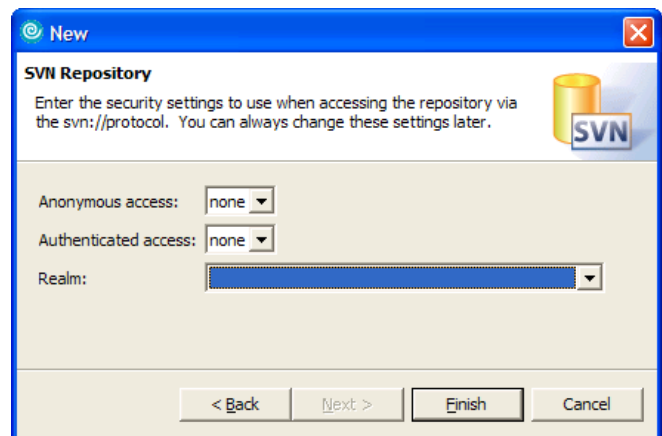**Avoid special characters and spaces in repository names.**

Click **Next**.

C. On the second page, define the information you want to be used in the email header when commit notification emails are sent to the repository subscriber list.
Click **Next**.

D. The third page (shown on the next page) is optional when setting up for Apache, because the Apache method does not use realms for authentication. Although the values on this page apply to the SVNSERVE method, you can set them even if you are using Apache, if you want. That way, if the SVNSERVE service method also happens to be set up and someone defines a repository location using the svn:// protocol, some level of access control will be in place.

E. Click **Finish** to complete the wizard. Your repository is created in the TURNOVER® for SVN v100 repository folder you specified when you set up your server job.

Step 6: Subscribe users (optional)

The tasks for doing this are identical to the steps described under Step 6) of the SVNSERVE setup instructions on page 10.

TURNOVER® for SVN v100 is now configured to serve repositories using an Apache server instance. The new repository is now ready for use by the developers in your company.

ABOUT REPOSITORY URLS

The developers in your company access repositories by creating repository locations in the TURNOVER® for SVN v100 Repository Browsing perspective of their TURNOVER® for iSeries v100 Client or Eclipse-based IDE, and then checking project folders out from there. You must supply them with the correct repository URL information to use for defining these connections based on what you have set up for repository serving.

If you have configured both server options at your company, then either protocol can be used to access any repository. The URL people specify in the location definitions they create is what determines which access method gets used. If they define a repository location and supply a repository URL that uses the svn:// protocol, then their repository access requests are served using SVNSERVE. If their repository location definition uses a URL with the http:// or https:// protocol, then their repository access requests are served using the Apache-based HTTP server.

Supply your developers with the repository URL from the **Info** page of its **Properties** dialog in TURNOVER® for iSeries v100's Administration subsystem. Refer them to the information in Chapter 3 of the *Getting Started with TURNOVER® for iSeries v100's Client Software* document to help them begin using TURNOVER® for SVN v100's PC-based version control with their development projects.
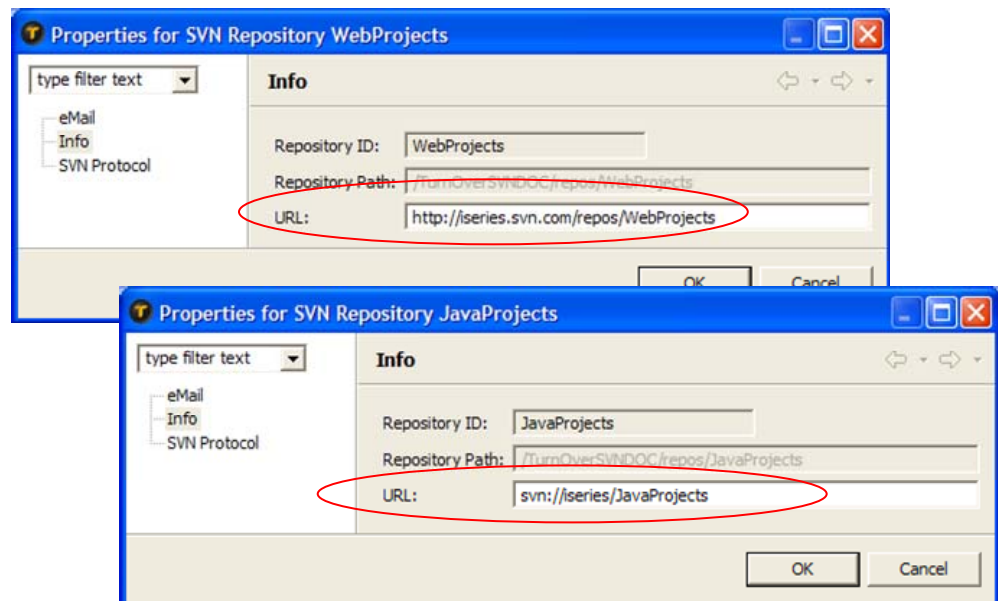
ADVANCED TOPICS

Starting an SVNSERVE Server Instance Manually

The TURNOVER® for SVN v100 standalone server runs as a batch job in a subsystem of your choice. If you chose not to create an autostart job for your server during the TURNOVER® for SVN v100 Configuration Wizard, then you can start the server manually by submitting a call to the TSTRSVNSVR command.

```
SBMJOB CMD(SOFTTURNE/TSTRSVNSVR PATH(['Repository Path']))
JOB(SVNSERVE) ALWMLTTHD(*YES)
```

The PATH parameter is the path to your repository or repository root folder, relative to the IFS root. If you accepted the defaults when setting-up TURNOVER® for SVN v100 using the configuration wizard, you would specify **/TurnOverSVN/repos** for this value.

All the other parameters can usually be left at their default values. If you have multiple SVNSERVE jobs running, you should change the PATH parameter to point to the specific repository directory and change the PATHTYPE parameter to *REPOS. You should also change the PORT parameter, because only one server job can listen on a given port at a time.

Warnings

1. The user profile associated with the server job ***must be enrolled in the group profile*** that is specified in the TURNOVER® for SVN v100 configuration defaults.

2. When submitting the job manually, set the ALWMLTTHD parameter to *YES, because SVNSERVE is a multi-threaded process.

Changing TURNOVER® for SVN v100 Defaults

TURNOVER® for SVN v100 defaults are created when you run the Configuration Wizard. They establish a set of default values that should be used by the wizards that create a new repository or realm. This screen allows you to review and optionally change some of the default values.

An example of when you might need to change a default value is when you are initially setting up TURNOVER® for SVN v100, and need to point the host computer referenced in the URL to your iSeries computer.
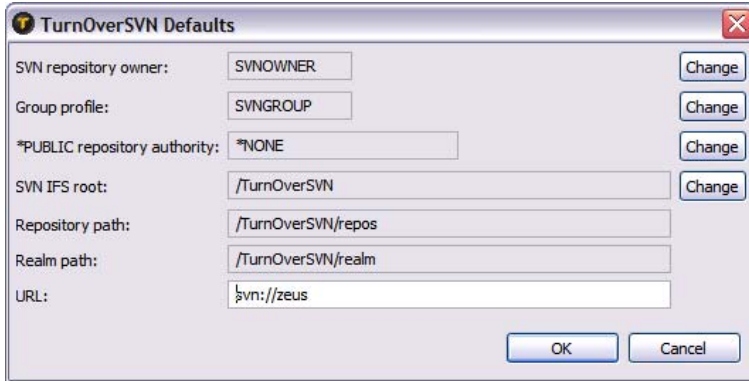
To change the values that are not enabled, use the **Change** buttons.

SVN Repository Owner

This is the iSeries user profile you want to assign as the owner for top level repository folders created using TURNOVER® for iSeries v100 Administrator.

SVN Repository Group

To ensure that the SVN server jobs have access to your repositories, they need to run under a user profile that is a member of the group profile specified here.

*PUBLIC Repository Authority

This is the level of repository access granted to all other iSeries users.

SVN IFS Root

This is the directory on the iSeries IFS where all new repositories will be created and accessed. This directory is relative to the IFS root folder on your iSeries.

Repository path

This is the default repository path to be associated with new repositories created using the TURNOVER® for iSeries v100 Administrator. The path specified is relative to the root directory on the IFS.

Realm path

This path specifies the default file location to be associated with new realms created using the TURNOVER® for iSeries v100 Administrator. The path specified is relative to the root directory on the IFS.

URL

A URL is required in order to tell TURNOVER® for SVN v100 where to access a repository. Specify the default URL to be used when creating a new repository. The value of the URL will depend on which of the two possible servers you are going to use. The value will be something like:

svn://servername:port

or

http://servername:port/context

In either case, the port is optional and is needed only if you are not using the default port for the given protocol. In the case of the http:// and https:// protocols, the value of "context" depends on how you have configured your Apache server instance. Typically, it will be a value of `svn` or `repos`.

Configuring multiple SVNSERVE instances for multiple TURNOVER® for iSeries v100 environments

If necessary, you can set up multiple instances of a TURNOVER® for SVN v100 repository server to serve repositories to additional TURNOVER® for iSeries v100 environments. You can rerun the TURNOVER® for SVN v100 Configuration Wizard to accomplish this, but you should first understand the following issues:

Port number. Each SVNSERVE instance on the same iSeries server or partition must have a unique port number. The default port number assigned by the TURNOVER® for SVN v100 configuration wizard to the first instance it creates is 3690; for subsequent instances, you can assign port numbers 3691, 3692 and so on.

Autostart job entries and job descriptions. Each SVNSERVE instance must have its own set of SVNSERVE and TSVND port monitoring jobs. One method of handling this is to append a single digit number to the end of the job name that corresponds to the last digit of the port number.

Repository root. Each TURNOVER® for iSeries v100 environment should likely have its own repository, so after rerunning the TURNOVER® for SVN v100 Configuration Wizard, edit the PATH parameter of the TSTRSVNSVR command in resulting SVNSERVEx job description to serve the environment's repository from the appropriate location.

Whenever you want to create a new repository or realm for that environment, you should adjust the TURNOVER® for SVN v100 defaults to agree with the settings associated with that server instance.

We recommend that you consult with UNICOM Systems, Inc. Technical Support before setting up additional TURNOVER® for SVN v100 repository servers.

If you have any questions about the information in this document, please contact a UNICOM Systems, Inc. Technical Support Representative via phone, fax, or email at the locations shown above.