**Procedure for Installing TSTool on Riverside File Servers - DRAFT**

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**Outcome**

Update the TSTool software version on Riverside’s Windows and Linux file servers so to allow common access without having to install the software on local computers.

**Interactions and Dependencies**

Riverside technical staff has documented a number or standard procedures, and these procedures may depend on a specific TSTool version. It should be possible to continue supporting older technical procedures with each new version of TSTool based on staff input.

**Background**

To facilitate access to the TSTool software by anyone at Riverside, TSTool was installed on the Granby server in the following location: W:\Program Files\RTi\TSTool. This assumes that W: is used as the drive for this server. Users can then run the Windows version of TSTool by running the bin\TSTool.exe program. The path to the software can be added to the PATH environment variable and users can define a shortcut to the executable to run . To simplify configuration, the following convention was used to name TSTool installations, under the W:\Program Files\RTi folder:

* TSTool – most recent official release
* TSTool-beta – most recent beta release
* TSTool-prev – previous official release (“TSTool” folder from previous version)

This allows users to have some flexibility in picking versions and guard against negative impacts of updates. In contrast, running the CDSS TSTool installer on an individual machine installs the software in a folder with name like C:\Program Files\CDSS\TSTool-Version, where Version corresponds to the software version. The versioned approach is necessary to allow modelers to freeze the tools used with a specific project (this can be an issue) as well as allowing new versions to be distributed and tested without interfering with older installations. However, in most cases, users can move to the new versions with few issues.

On Linux (guanella server), TSTool is installed in /opt/RTi/TSTool-Version. Access to the latest version is via a symbolic link /opt/bin/tstool, which points to the latest /opt/RTi/TSTool-Version/bin/tstool. Additional symbolic links for tstool-beta, tstool-prev, and tstool-version also have been defined.

In each case, there is a balance between providing a straightforward configuration to allow the computer to find and run the software, and providing some ability to choose a specific version of the software. In general, users should use the most recent software that has passed acceptance tests, except when an older version is needed for a project, or a beta version is being tested to evaluate new features.

A staging website has been created to facilitate release of CDSS software and provides TSTool software downloads:

https://sites.google.com/site/cdssstaging/tstool/download

This site provides information about installing and configuring TSTool, including turning off the HydroBase login if HydroBase is not needed. Users can install the software onto individual machines. The same installer is used to install on a server, with some extra steps. The following sections document the steps for a server installation at Riverside.

**Windows Installation/Update Procedure**

Determine if update is necessary:

1. Question: Should updates occur whenever a new TSTool release is made or only when an identified new feature is added (e.g., from project work or review of release notes)?
2. After determining that a release is needed, contact ?who? to request an update on the server).

Perform pre-release acceptance testing:

1. Testing within development process [TSTool developer]:
   1. TSTool developers run the TSTool regression tests as part of the development cycle
   2. When a release milestone is reached and TSTool passes tests, an installer is built and made available on the CDSS staging site. Depending on ongoing work, the version may be a beta or official release.
2. Designated TSTool users within Riverside run acceptance tests to confirm that the software will meet staff/project needs [Need to identify]:
   1. This procedure needs to be defined – need someone to say it is OK to update TSTool on the server
   2. A point person or persons for check-off needs to be identified (perhaps coordinated through water resources group meetings?)
   3. Tests identified in this procedure can be incorporated in standard tests (1) so that additional subsequent testing is minimized or avoided altogether – see the Quality Control chapter of the TSTool documentation

Install on server (if any of the following steps performed on a folder are problematic due to permissions, etc., it may be necessary to perform steps on the sub-folders and files) [TSTool server installer]:

1. Download the installer from the CDSS staging site.
2. Install TSTool on a local computer (this can be removed later if not needed), accepting the defaults, except:
   1. For HydroBase configuration (last step of installation), indicate that the HydroBase server is “local,Lonetree\CDSS”. This will allow TSTool users to access HydroBase running on Riverside’s servers (so they don’t need to install HydroBase on individual computers)
3. **The following steps may need to be performed outside normal business hours because people who run the server TSTool can lock files. If necessary, send out an email and/or look at the TSTool log files to see who is using the software.**
4. Rename previous release on server :
   1. If not a beta release:
      1. Delete the W:\Program Files\RTi\TSTool-prev folder.
      2. Copy the W:\Program Files\RTi\TSTool folder to W:\Program Files\RTi\TSTool-prev.
   2. If a beta release:
      1. Can rename the beta folder (if want a backup) or delete
5. Copy files from local machine to server:
   1. If not beta:
      1. Copy the C:\Program Files\RTi\TSTool-Version folder to W:\Program Files\RTi\TSTool
   2. If beta:
      1. Copy the C:\Program Files\RTi\TSTool-Version folder to W:\Program Files\RTi\TSTool-beta
6. Verify TSTool configuration:
   1. It is possible that various datastores had been configured previously. It is also possible that the new TSTool includes new datastore configurations (e.g., new web services). Consequently, the TSTool configuration files from the previous installation should be copied to the new installation and/or the new configuration files should be updated as appropriate (may need more specifics here as to which databases should be accessible):
      1. system/TSTool.cfg
      2. system/datastore configuration files

Configure local computers [individual software user?]:

1. If desired, add path to desired TSTool to PATH environment variable.
2. If desired, create short-cut to TSTool for desktop:
   1. Need to put a shortcut file somewhere that people can copy and document here.

Perform post-installation acceptance testing:

1. The server version of TSTool should be run with the same tests used in the pre-release acceptance testing.
2. If acceptance tests fail, it is possible to roll-back to the previous version. However, given that TSTool passed pre-release tests, it is likely that a server installation issue needs to be resolved.
3. Other issues that are identified through TSTool will need to be addressed through the development process, including defining new tests that can be used in future releases.

**Linux Installation/Update Procedure**

Determine if update is necessary:

1. Question: Should updates occur whenever a new TSTool release is made or only when an identified new feature is added (e.g., from project work or review of release notes)?
2. After determining that a release is needed, contact ?who? to request an update on the server).

Perform pre-release acceptance testing:

1. It is recommended that pre-release acceptance testing occur on Windows given that Windows currently is the primary development platform.
2. Testing on Linux should have occurred prior to building the Linux zip file.

Install on server (guanella):

1. Download the Linux installer (gzip file) from the CDSS staging site, for example, saving to the /tmp folder.
2. Log in as someone with permissions to modify files in /opt/RTi (swdev group).
3. Change folders to /opt/RTi.
4. Unzip the TSTool files, for example:
   1. tar –xzvf TSTool\_CDSS\_10.10.00beta\_Setup\_Linux.tar.gz
5. Make sure that the logs folder is writeable by all.
6. Update symbolic links in /opt/bin:
   1. Remove the symbolic link /opt/bin/tstool
   2. Create link to new version: ln –s /opt/RTi/TSTool-Version/bin/tstool tstool
   3. Create similar links using version number if desired, for example to facilitate access to the previous release
7. Verify TSTool configuration:
   1. It is possible that various datastores previously had been configured. It is also possible that the new TSTool includes new datastore configurations (e.g., new web services). Consequently, the TSTool configuration files from the previous installation should be copied to the new installation and/or the new configuration files should be updated as appropriate (may need more specifics here as to which databases should be accessible:
      1. system/TSTool.cfg
      2. system/datastore configuration files
8. Remove old TSTool versions:
   1. If old TSTool versions are no longer needed, remove the installing folder (under /opt/RTi) and symbolic links (under /opt/bin). The dates on files in the logs folder can be used to evaluate activity. It may be necessary to consult users to determine if an older version is needed (perhaps need a standard for a README/DO\_NOT\_DELETE file that indicates this?).

Configure user accounts [individual software user]:

1. If desired, add /opt/bin to PATH environment variable in shell startup files

Perform post-installation acceptance testing:

1. The server version of TSTool should be run with the same tests used in the pre-release acceptance testing.
2. If acceptance tests fail, it is possible to roll-back to the previous version by adjusting symbolic links. However, given that TSTool passed pre-release tests, it is likely that a server installation issue needs to be resolved by working with developers.
3. Other issues that are identified through TSTool will need to be addressed through the development process, including defining new tests that can be used in future releases.