

Frequently Asked Questions (May 12, 2010)

Program Installation Problems

Error "The WinTR-55 main window does not display, but the program icon appears on the task bar"

During some prior run, WinTR-55 was "minimized" by the user, then "closed" via the right-mouse-click context menu 'Close' option. To recover from this condition, right-click the icon, and select 'Maximize', filling the screen display with the main window. Then exit the program normally. The window should appear normally the next time WinTR-55 is run. Future releases of WinTR-55 will correct this problem.

Error "Couldn't Find Installable ISAM"

WinTR-55 uses the DAO & ODBC to access the NRCS storm database. On your PC, the ISAM DLL's that are necessary for reading the database are either missing, old or are corrupted. Download and install the latest Microsoft Data Access Components (MDAC). Click MDAC - <http://msdn.microsoft.com/en-us/data/aa937729.aspx> to download MDAC from the Microsoft website. If your MDAC version is correct and you continue to see this error, check your machine's 'Regional Settings' from the Windows Control Panel. Make sure that the character used for the numeric decimal point is, in fact the decimal point. PC's in Europe and other international locations occasionally are set to use the comma as the decimal point character.

Error "The TR20 output file cannot be located ..."

This error occurs when WinTR-55 is run in a networked environment with 'roaming profiles' used to locate a user's application data folder on a remote server rather than the local machine. To correct this problem, you must create a network map to the profile (for example, Z:\), then change the path in the registry HKCU\Software\Microsoft\Windows\CurrentVersion\Explorer\UserShellFolders\AppData to the newly mapped drive "Z:\".

Program Limitations

What is the minimum acceptable drainage area for the program?

The program does not have a drainage area minimum, however, size input should be governed by a minimum time of concentration (T_c) of 0.1 hours for a single sub-area. Any single sub-area with a drainage area of less than one acre should be carefully checked for reasonable values.

Is there any way to increase the number of sub areas?

No. The program was developed for small watersheds, so the number of sub areas was limited to 10. For watersheds with more than 10 sub areas, use WinTR-20 software.

Why is WinTR-55 limited to 25 square miles of drainage area?

The development team felt that modeling watersheds larger than 25 square miles could easily require more than 10 sub areas and possibly require more complex routing than WinTR-55 can provide. Again, WinTR-20 would be a better model for watersheds exceeding this limit.

Is there any way to increase the sheet flow length beyond 100 feet?

No. After much discussion and research, the development team felt that sheet flow greater than 100' was very unusual in natural watersheds. For more information on the subject read W.H. Merkel's "References on Time of Concentration with Respect to Sheet Flow" as posted in Technical References and H&H Papers on Various Topics, in the USDA-NRCS West National Technology Support Center website:

http://www.wsi.nrcs.usda.gov/products/W2Q/H&H/Tools_Models/WinTR55.html

Does WinTR-55 have the capability to calculate detention volumes?

WinTR-55 computes detention volume for each storm and structure configuration, however, the program no longer estimates the detention volume required. WinTR-55 computes peak flow (PF), storage volume (SV), and maximum stage (STG) on the Structure Output Table.

What is the recommended procedure for modeling storm sewers in WinTR-55?

WinTR-55 was not specifically designed to model storm sewers, so no instructions are included in the manual. To model storm sewers as open channels, the user must determine an equivalent trapezoidal channel and verify that the storm sewer is flowing under open channel flow conditions and not under pressure flow conditions. The user must determine the appropriateness of all assumptions. Other hydrologic models better address storm sewers.

Will WinTR-55 run old TR-55 DOS-based input files?

No. The input file formats are not compatible. The old TR-55 uses tables and graphs out of the 1986 Manual in a spreadsheet format. WinTR-55 creates a WinTR-20 input data file and then runs the WinTR-20 computational routine.

What's the difference between WinTR-20 and WinTR-55?

WinTR-55 still has some built-in limits that assume a less complex watershed. For example, WinTR55 will only accept 10 sub-watersheds, WinTR-20 will handle many more. WinTR-55 assumes a trapezoidal-shaped channel reach and 2-point stage-storage curve for a reservoir. WinTR-20 will accept a channel rating curve and a detailed stage-storage-outflow rating curve. WinTR-55 doesn't handle diversions, but WinTR-20 does.

How does WinTR-55 calculate full pipe flow for a structure with a pipe outlet?

The WinTR-55 Team chose to approximate full-pipe flow with the 'short-tube approximation' method, as the program was designed to be a quick method and designed to work with a minimum of input values. The method essentially uses the pipe diameter and the head on the pipe as described in the User Guide (permanent pool elevation to outlet invert plus ½ diameter). This estimation of head, coupled with a slightly different orifice flow coefficient (0.6 instead of 0.8) essentially cancel each other out and the result is a higher discharge estimation for one type of pipe material versus a slightly lower discharge estimation for another. The pipe materials checked were reinforced concrete and corrugated metal. It should also be remembered that this is an approximation used in the routing routine and that the final design should be done elsewhere.

Hydrographs and Runoff

Are peak discharges calculated using regression equations?

No. The 1986 DOS version of TR-55 used regression equations to determine peak discharges, however, WinTR-55 is actually an input/output interface which runs WinTR-20 (a recently developed windows version of TR-20) in the background to generate, route, and add hydrographs.

How can I change the time interval of an output hydrograph?

The user has no control over the time increment of the output hydrograph. The delta t is generally 6 percent of the Tc.

Is there a way to determine the runoff depth in inches from WinTR-55?

Yes. The user may view the runoff depth in watershed inches on the "TR-20 Printed Page File" report. After a successful run (one with no errors) on the file display window, select "View" then "TR-20 Printed Page File".

How do I view the hydrograph flow values in a table form, instead in a plot?

From the file display window (after a successful run), select "View", then "TR-20 Printed Page File"

Runoff Curve Numbers (RCN)

What do I do if I get RCN's below 40?

Use another procedure to determine runoff (1986 version pg.2-11)

What RCN's do I use for wetlands and water?

For wetland areas that contribute to runoff volume, use a RCN of 78 for those areas with no standing water. For wetlands with standing water, use a 98 for the area covered with standing water, (ponds, lakes and reservoirs) in computing a weighted RCN.

Do residential RCN's include roads?

The impervious percentage includes the buildings, driveways, and half the road right-of-way for lot frontage.

Manning's Roughness Coefficient

The roughness value for overland flow in Chapter 3 of TR-55 (1986) of 0.17 for cultivated soils with residue cover >20% seems high. Shouldn't it be 0.017?

Actually, these larger roughness values should be expected for overland flow as stated in E.T. Engman's Roughness Coefficients for Routing Surface Runoff, 1986. Journal of Irrigation and Drainage Engineering 112 (1):39-53. The coefficient is actually an 'effective' roughness coefficient that includes effects of raindrop impact, channelization of flow, and obstacles to the flow such as litter, crop ridges, rocks, roughness from tillage, frictional drag from the surface and the erosion and transport of sediment, etc. The article gives recommended values for various types of cover.

Hydrologic Soil Groups (HSG)

Is there a list of HSGs in WinTR-55?

No. The previous version of TR-55 had an appendix listing HSGs, however, the WinTR-55 development team decided not to hard-code this list into the program as soil series may be dropped, renamed, or reclassified and maintenance of such a list becomes quite cumbersome. State Soil Scientists recommend using <http://soildatamart.nrcs.usda.gov/> (After State, county soil survey area and map unit are chosen the hydrologic soil group is in report "RUSLE2 Related Attributes" or report for "Water Features"). For additional questions or assistance, a list of links to NRCS State Soil Scientists can be found at: <http://soildatamart.nrcs.usda.gov/Contacts.aspx>