Tech Note 256
Using Network Application Development (NAD) with InTouch

Topic#: 001032
Created: May 10, 2002

This *Tech Note* outlines specific features of NAD.

Summary

Network Application Development or NAD is an InTouch feature that allows automatic notification of changes to an InTouch application and automatic distribution of those files across multiple PCs.

This Tech Note provides documentation on using NAD that is not included in the InTouch User's Guide. Please refer to Chapter 3 for details on Network Application Development.

Introduction

NAD is, in simple terms, an automated way to distribute applications. One node, called the Master NAD node, is a *central repository for InTouch applications.* It is the source of the application files for all other NAD Client nodes, which get a local copy of the application files. Any node can be the Master NAD (even with no Wonderware software installed.) It is not necessary to do any major configuration on that node (read note in the next section). To configure a node to be a NAD Client all that has to be done is to find the application in the Master NAD, enable NAD, and specify the local directory to store the application files.

It is important to make clear that NAD is architecture independent. In other words, NAD can be used with applications designed to be stand-alone (no communication with other InTouch nodes), Master/Slave applications, or a completely distributed architecture with a Tag Server and Clients with no local tag dictionary but using remote references to the server.

What the application does or how it communicates with other nodes is irrelevant to NAD; all NAD does is to copy the files to other nodes and updates them when the application changes. The next sections explain how NAD works and some things that should be taken into account when using NAD.

Enabling NAD

It is very simple to enable NAD to distribute an InTouch application. NAD is configured on the InTouch Client nodes by finding the application on the Master NAD Node, checking a box to enable NAD, selecting the local directory to copy the application files, and defining how the node will respond to changes in the application.

Figure 1 shows The InTouch *Application Manager* (InTouch.exe). The *Tools* menu option has a "*Find Applications*" option that allows a search for the application stored in a shared folder in the Master NAD node.
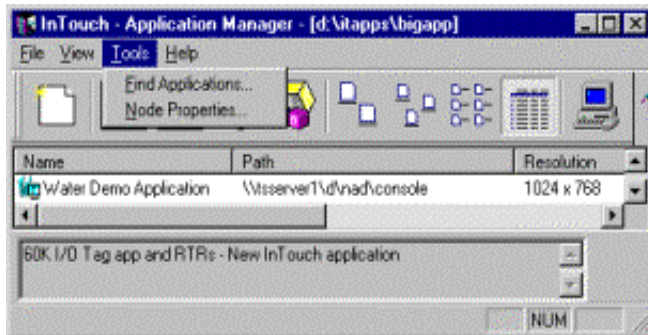

Figure 1. Tools / Find Applications

Figure 2 shows the dialog box that allows NAD to be enabled. To open the dialog box, run InTouch and select *Tools/Note Properties.*
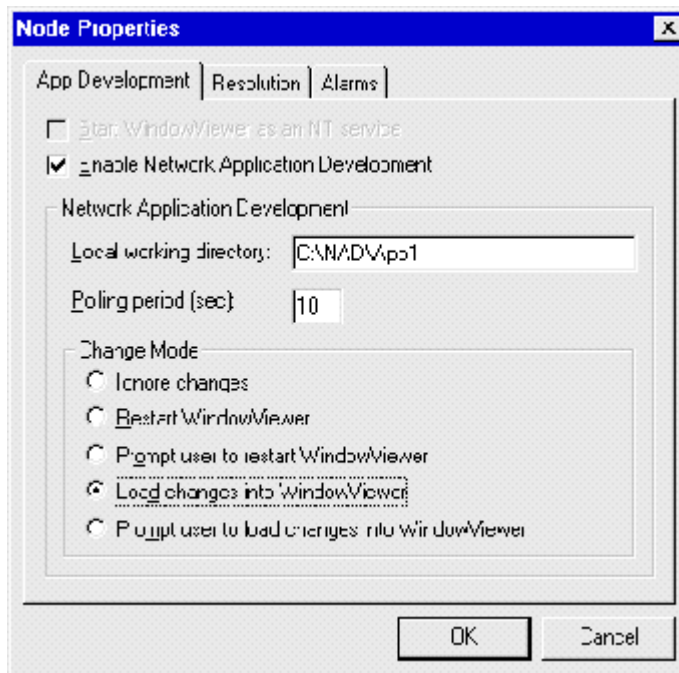

Figure 2. NAD Properties for InTouch 7.1

NAD Properties

Here's what the NAD properties do:

Enable Network Application Development ("Update local application when WindowViewer starts" in InTouch 7.0) enables the node to be a client. When this box is checked, no applications can be edited in Window Maker

Local Working Directory Provides a path on the local drive where the application files are copied.

Polling period is the frequency in which NAD Clients will poll the MASTER NAD directory to see if the application has changed. A flag is set to signal NAD clients that the application has changed, and what the clients do when they see the flag depends on the Change Mode setting.

Change Mode tells the NAD clients how to handle changes. The first three options, although worded and sorted differently, are similar in InTouch 7.0 and 7.1. The client nodes can either ignore the changes, notify the operator that the application has changed, or update the local copy of the application with the changes and restart WindowViewer automatically. The two new options provided in InTouch 7.1 (*Load changes into WindowViewer* or *Prompt user to load changes into WindowViewer*) allow the changes to be loaded into WindowViewer without shutting it down (Dynamic NAD).

How does NAD work?

On the Master NAD application:

When a developer makes and saves changes to an InTouch Master NAD application, a system tag called $ApplicationVersion is incremented. That in turn enables the Special/Notify Clients menu option in WindowMaker. Notify Clients does sets a flag in the application directory (a 0-byte file called appchngd.fsm is created or updated), signaling to the NAD clients that the application has changed.

On the Clients application:

When WindowViewer starts in a node configured for NAD, it will copy certain files from the master application to the local working directory. At the specified polling period, View checks the date and time of the APPCHNGD.FSM file in the master application to determine if changes have occurred. If changes are detected, WindowViewer will handle the message by setting the $ApplicationChanged system tag to TRUE and checking the change mode. Depending on the change mode, View will either ignore changes, update, restart, or prompt the user.

Important Considerations When Using NAD

- **NAD and WindowViewer as a service are mutually exclusive in InTouch 7.1 or later.** If an InTouch application has to run as a service, then NAD is not an option on that machine. InTouch 7.0 allowed NAD Clients to configure View as a service but it is NOT RECOMMENDED. For example, View may hang while shutting down or not get updates from the Master NAD node.

- **Select a local application after disabling NAD.** When disabling NAD, always make sure that InTouch is started and a local application is selected before starting WindowViewer. If you disable NAD on a NAD client and immediately start WindowViewer, the client machine will run the application directly off the master NAD node (instead of a local copy). This can cause system crashes if the network is down or the NAD master node is shut down.

- **Some changes may require WindowViewer to be restarted, even with Dynamic NAD.** It is recommended to shut down and restart View for changes to tags, alarm groups, access names, asynchronous quick functions, or any other change to the application that would normally require WindowViewer not to be running if the app was being edited in a single node while View is running. The reason is because once updated files are copied from the Master NAD node to the local NAD directory in the client, Windows Messages are posted so that WindowViewer dynamically loads the modified files from the local working directory. These window messages are the same messages that WindowMaker sends to WindowViewer when an application is edited locally.

- **NAD Clients may stop getting notifications from Master NAD node.** When a NAD client is configured either for "Prompt User to Restart WindowViewer" or "Prompt User to Load changes" and when user responds "NO" to the prompt for the client notifications made by the server, that NAD client will not receive any further notifications from the server. In this scenario, different customers may have different requirements; consequently, it was decided to keep that behavior as the default one with the option to change it. If a user defines the "ContinueNADNotification" flag and sets its value to 1 in the "intouch.ini" file on the server, clients will still poll the server even if the user responds "NO" to the prompt. Thus clients will keep receiving update notifications from the server. The flag "ContinueNADNotification" in "intouch.ini" file only applies when a client is configured for "Prompt User to Restart WindowViewer" or "Prompt User to Load changes.

- **NAD does not copy all files from the Master NAD application.** By design, there is a number of files and extensions that are not copied, including: History files (lgh, idx) Compiled windows (wvw) Backup files (dbk,cbk, hbk,kbk,lbk,nbk,obk,tbk,wbk,xbk) Retentive files (retentiv.x,retentiv.d,retentiv.a,retentiv.s, retentiv.h,retentiv.t) WindowMaker settings (wm.ini) Alarm Group definitions (group.def) ActiveX controls index (itocx.cfg) See the Undocumented NAD settings below for a way to override the default files that are copied from a Master NAD node.

- **NAD clients cannot edit or configure users.** By design, WindowViewer running a NAD client application prevents the password file in the local working directory from being edited. The idea is to have the password file in the local working directory always synchronized with the password file in the Master NAD application. If View is running in the Master NAD node, it is possible to use script functions to manually distribute the file that holds the users information (password.bin) to client nodes. Another option is to use the **Password.bin** script function library from the Knowledge Base . The library includes functions like PwdUserEdit(), PwdUserAdd(), or PwdUserDelete().

- **NAD clients can manually handle changes using script functions.** $ApplicationChanged provides an indication when a master application has changed. This tagname could be used to cause a message to appear telling the operator that the master application has changed. It is also possible to use the $ApplicationChanged system tagname in a data change script to build a node update notification script. This script could include launching your own dialog boxes or closing down certain processes. The ReloadWindowViewer function can be used with $ApplicationChanged to determine when a NAD update has occurred and then provide an update of the View node. When using

the Notify clients command, the operator may want to delay the update until a later time. This function can be placed in a Touch Pushbutton Action QuickScript. Therefore, an operator can perform a dynamic update of WindowViewer when it is more convenient.

- **NAD is recommended for sessions running Terminal Services for InTouch.** Terminal Services for InTouch runs on Windows 2000 Server machines with Terminal Services enabled. Each session attempting to run an application that is already running in another session or the console can be configured to run as a NAD client. There is no need to "Find applications" because the hard drives are local and available to all sessions. For the NAD Local Working Directory select a unique directory for each session or use the client's home directory (C:\Local Documents and Settings\). For additional details please refer to the Deployment Guide and User's Guide for Terminal Services for InTouch.

Undocumented NAD Settings

The following are previously undocumented switches that can be added to the [InTouch] section of the win.ini file.

- *ViewNADExcludedExtensions. List of file extensions to exclude from the NAD copy process. The default extensions excluded from the copy process is shown; you can add or remove extensions by setting this switch in the win.ini file:*
  ViewNADExcludedExtensions ="wvw,dat,lgh,idx,log,lok,fsm,stg,dbk,cbk, hbk,kbk,lbk,nbk,obk,tbk,wbk,xbk,$$$"

- *ViewNADExcludeFiles. List of files to exclude from the NAD copy process. The list of default files excluded by NAD is shown; you can add or remove extensions by setting this switch in the win.ini file:*
  ViewNADExcludeFiles = "retentiv.x,retentiv.d,retentiv.a,retentiv.s, retentiv.h,retentiv.t,wm.ini,db.ini,linkdefs.ini,tbox.ini,group.def,itocx.cfg"

- *ViewNADCopyAllFiles=1. When set to one, this flag will force all files to be copied to the local NAD directory when WindowViewer is started or restarted (excluded extensions are still excluded). When set to zero, only changed files are copied:*
  ViewNADCopyAllFiles = 0

- *ViewNADDebug=0 This is a flag to enable debug messages during application update; WWLOGGER can display detailed messages about which files are being copied, excluded, or removed during the NAD directory update. 0 will not show any messages and 1 will show them.*

- *ViewNADVerifyFiles=0 This setting determines whether or not NAD files should be verified after they are copied to the local NAD directory. If the files are not identical the copy/verify process will be repeated up to the number of times specified in the ViewNADCopyfileRetryCount entry. Expected Results The files will not be verified after the copy. Setting the flag to one will enable file verification.*

- *ViewNADCopyfileRetryCount=3. This flag sets the number of times that NAD tries to copy a single file if ViewNADVerifyFiles is set. WindowViewer should attempt to copy the files X number of times, and then report a failure to copy.*

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For technical support questions, send an e-mail to support@wonderware.com