Release Notes

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GREENWave™

ATCLink™

ATC Traffic Controller Software

Announcing GreenWave v3.9 and ATCLink v3.9

Peek is pleased to announce the release of GreenWave™ Version 3.9 embedded traffic controller software, and ATCLink™ Version 3.9 (for Windows), for the ATC family of traffic controllers. Beginning with this release, updates to GreenWave and ATCLink will be released together, and version-numbered alike; the updated versions are compatible. To support the GreenWave version a matching or later version of ATCLink must be on the Windows PC.

GreenWave™ Version 3.9 Release

This release of the GreenWave software is intended for the non-CBD versions of ATC-1000® traffic intersection controllers. This update adds both new and modified features, including true Texas Diamond support, SD card support for Advance Controller Logging, NTCIP Ring status object, TSP in Free, Detector Gap Timing with disconnect during green, and other new features and fixes.

Release Date ..... June 11, 2012

This software is designated ATC Version 3.9, build 1732, and is released for use in all field and production ATC-1000 Traffic Controllers.

ATCLink™ Version 3.9 Release

ATCLink is a Windows software utility for non-CBD ATC controller configuration that allows a user to more easily program a Peek ATC. This is the first updated version of ATCLink, and supports GreenWave v3.9.

Release Date ..... June 11, 2012

This software is designated Version 3.9, build 009 and is released for use as described above.

Contents

p/n 99-545
Revision 7
6/12/2012

Release Notes

GreenWave Version 3.9 Release Notes

This section pertains to the GreenWave software. For ATCLink information, see "ATCLink Version 3.9 Release Notes" (p. 8).

New Features

Version 3.9 of the GreenWave software is the fifth full release of the software for the ATC-1000. It includes added features and capabilities, including:

- Texas Diamond Support
- Time of Day Commands for phase table objects allow phase timing parameter change by time of day.
- Conditional Service during Coordination.
- Preempt Entry Inhibit Trail Green per Preempt Run per Overlap.
- Multiple I/O pins can be assigned to the same function.
- TSP in Free.
- Yellow Warning per phase with output-mapped Warning Output.
- Green Warning per phase.
- SD card support for Advance Controller Logging. The Controller will now detect an SD card and log to it. If no SD card is installed the controller will continue to log as per the existing operation. There is now a status on the top right of the runtime status display to show the status of the SD card:
  - BU = busy mounting.
  - SD = SD card mounted.
  - NC = no card, could not mount.
- Added the New NTCIP Ring status object.
- Detector Gap Timing with disconnect during green

Enhancements, Issues Addressed

Along with new features are many enhancements, and previous issues are addressed. If an enhancement is listed here, it is included in this release. If an issue is listed, it has been fixed or otherwise resolved.

Table 1 – Enhancements Included and Issues Resolved in this Release

Description	Ref
Local Cycle Zero bit in ShortAlarmStatus not complying with NTCIP.	6636
Preempt Status display not showing the Preempt Delay countdown.	6782
C.I.C does not run.	7106
Startup in Yellow and Red not advancing to the correct phases.	7253
Changed user interface to specify Time of Day function #19 (Phase FDW Mode) with the Phase Number and FDW Mode because the screen was not user-friendly.	7288
TOD Aux functions are not available for I/O mapping.	7316
Sequence Status Screen 1.1.8 improvement.	7425
NTCIP ringStatus object not supported.	7475
Database update fails if a function is mapped to more than one input pin.	7483
MS-A,B,C,D detector inputs must be OR'd with Detector BIU inputs.	7517
A Lead/Lag sequence change freezes with Coordination Status "Transfer to Coord".	7544
Preemption not exiting when the Exit Phases run C.N.A. Mode.	7639
A Track Overlap running Trail Green when a Preempt call occurs goes yellow instead of staying green.	7684
TSP Calls after the decision point causes Coordination to drop Free.	7704
During Manual Control and Auto Ped Clear enabled, made Interval Advance require an additional activation during Green/Ped Clear to advance to Yellow/Don't Walk.	7722
Fixed reading the ICC Cabinet Address card.	7782
Non-TSP Phases not reducing the full amount when a TSP call occurs during a positive Cycle Delta.	7819

Description	Ref
TSP Advance Cancel input activating after the TSP Request input did not make the TSP Phase extend walk.	7820
Advance Daylight Savings Menu 2.4.7's [E] key was not enabling Advanced DST.	7826
A Preempt activating during all phases off and Overlaps running Trail Green, Trail Yellow, or Trail Red, does not advance to correct phases and applies wrong Preempt Entry Yellow and Red Time to the trailing Overlap.	7836
Yellow Warning/Advance Warning logic per phase programmable time.	7845
A Locking Preempt Run with non-zero Delay time was not locking when the Preempt input deactivated during the Delay interval, causing a new Preempt call during the original Delay interval to start a new Delay interval (working the same as when Non-Lock enabled).	7851
Changed Coordination Status display's "Status" from "TSP Idle Pending" to "TSP Done" and from "Transfer" to "Transfer to Coord".	n/a
Fixed Ped Overlap not going Walk to Ped Clearance when activating a ped omit on destination Parent Phase.	n/a
Allow a sequence load at any point in current sequence. Previously was only allowed at an all-red interval.	n/a
Made Runtime Status display change the VEH row from "V" to " " when a Queue or Gap Detector disconnects (and no other detectors are passage-calling the phase).	n/a
Fixed preemptor starting the Track Clear Timer too early if the Track Clear phases are yellow or red clearance when the Preempt call occurs. Cannot start Track Clear Timer until all Track Phases green and all non-Track Phases off and all Track Overlaps green and all non-Track-Overlaps off.	n/a
Changed menu 1.1.8's Loaded Plan and Loaded Seq to Running Pattern and Running Seq.	n/a
Write Phase number next to letters A thru G to improve CG Sequence Diagram readability in phases 9-16.	n/a
Fixed Phase Check outputs being Dark when External Start applied.	n/a
Fixed terminating Flash Entry Phases staggered instead of simultaneously when the Flash Entry Phases turn green at different times.	n/a
Made flash state engine clear internal phase "force to red" and "forced calls" when flash state changes to idle.	n/a
Removed database transaction check for ASC Block/ASC Block Control objects since they are not P2 objects.	n/a
Changed menu 2.2.8.1-2 "SIMULTANEOUS GAP OUT" to "NO SIMULTANEOUS GAP OUT" because putting an "X" disables Simultaneous Gap.	n/a
Fail the database Consistency Check if Track/Dwell Overlap's Track/Dwell Parent Phases are database-disabled.	n/a
Fixed Menu 3.1 Database Utilities outdated Help Menu.	n/a
Menu 2.3.1 PATT TABLE DATA TYPE and SPLT TABLE DATA TYPE Help Menus did not match menu choices.	n/a
Startup in red was not working during a Startup Phase with zero yellow time.	n/a
Fixed Preempt Entry Times Mode setting not changing overlap parameters when preempt call went active.	n/a
Fixed MMU Status Menu 1.4 incorrectly displaying RED, YELLOW, GREEN.	n/a
Fixed the BIU detector mapping to no longer load a default map every time the controller starts up, but instead use what is saved in the database.	n/a
For Advanced CU Logging, prevent loosing controller changes while backing up the past hour's log file.	n/a
Made Interval Advance during Green/Walk not clear vehicle timers, otherwise the phase cannot naturally advance to Green/Steady Don't Walk with detector passage calls extending green.	n/a
Restored multiple check-in/check-out functionality.	n/a
Fixed 3-Phase and 4-Phase Sequence Logic not using the Diamond Detector Logic's new phase calls (only used original phase calls determined before the Detector Logic ran), causing incorrect next phases.	n/a
Update kernel and timing driver to set the kernel crystal time when time sets occur via the timing driver. Fixes tod_set() not affecting file creation / modification times.	n/a
Fixed code so that the TSP feature "Max Requests During Offset Correction" now works if a new TSP call occurs while the TSP phase is on and the TSP State is Idle Pending.	n/a

Compatibility

Each controller has three subassembly boards - the Front Panel Unit (FPU) board, the Field Input/Output (FIO) board and the Power Supply Unit (PSU) - and each board has its own firmware. For successful operation, the embedded GreenWave software on the controller, and the firmware versions residing on each of the boards, must be compatible. The following table shows compatible firmware versions for recent releases of the GreenWave software (check your versions per instructions below the table):

Note Be sure all corresponding software/firmware applications in use are of compatible versions, in order for the entire controller assembly to operate correctly. If any board-level firmware update(s) are needed, contact Peek Product Support (see p. 11).

Table 2 – Software/Firmware Compatibility Matrix*

GreenWave:	Version 3.5 (Build 421+)	Version 3.6 (Build 526+)	Version 3.6 (Build 555+)	Versions 3.7, 3.8 and 3.9
Linux Kernel	2.6.20.14[1]	2.6.20.14	2.6.20.14	2.6.20.14
Boot Loader version	1.1.4[2]	1.1.4	1.1.4	1.1.4
Main board firmware (MAIN)	1.0.6[3]	1.0.6 (1.0.9)	1.0.9	1.0.11
Field I/O firmware (FIO)	1.0.6	1.0.6 (1.1.0)	1.0.9 (1.1.0)	1.1.2[4]
Power Supply board firmware (PSU)[5]	1.0.3 [1.0.5]	1.0.4 [1.0.5]	1.0.5	1.0.5[6]
I/O Board: TS2 Type 1	Supported	Supported	Supported	Supported
I/O Board: TS2 Type 2 (Version 2)[7]	Supported	Supported	Supported	Not Supported by FIO firmware
I/O Board: TS2 Type 2 (Version 3)[7]	Not supported	Supported	Supported	Supported
I/O Board: HMC-1000	Not supported	Not supported	Not supported	Supported
I/O Board: LMD 40	Not supported	Not supported	Not supported	Not Supported
D Module: Traconex	Not supported	Not supported	Supported	Supported
D Module: LMD9200	Not supported	Not supported	Supported	Supported
D Module: Closed Loop	Not supported	Not supported	Supported	Supported
D Module: Multisonix 820A	Not supported	Not supported	Supported	Supported

***To check ATC version(s):** Power up the ATC (when safe to do so) and navigate to the Revision Information screens:

Main Menu > 1. Status > 5. **Revisions** for the software (GreenWave) version, Linux Kernel, and Boot Loader information

***-MNU > 6.REVISION INFO** for the board level firmware information.

[1] The displayed Linux Kernel versions reflect the open source version that was used as the baseline. Changes made are indicated by the version release date (rather than the version number itself) as displayed on the ATC revision information screen. During the indicated generations of GreenWave firmware, there were no edits to the kernel version delivered with the ATC controllers that impacted any of the I/O or D Module versions, nor impacted the operation of GreenWave. Impacts on some functions, such as support for external modems, did change during this period because of Kernel release versions, but those will be covered in a separate tech note.

[2] Boot Loader versions reflect the open source version U-Boot software that was used as the baseline. Changes made are indicated by the version release date (rather than the version number itself) as displayed on the ATC revision information screen. During the indicated generations of GreenWave firmware, there were no edits to the boot loader delivered with the ATC controllers that impacted any of the I/O or D Module versions, nor impacted the operation of GreenWave.

[3] MAIN and FIO firmware under GreenWave 401 and below cannot be updated via the USB port. Factory update required for those versions.

[4] If used with the TS2 Type 2 I/O board, this FIO firmware requires the version 3 hardware.

[5] The power supply board cannot be updated via the USB port. PSU firmware updates can only be performed at the factory.

[6] PSU firmware can only be updated at the factory. Version 1.0.4 firmware will function correctly; it just does not support some of the voltage status reporting items in the ATC utilities menu.

[7] TS2 Type 2 boards shipped prior to 9/27/2010 were version 2. TS2 Type 2 boards shipped on 9/27/2010 or later are version 3.

Delivery Methods

This software can be delivered to the controller by loading the software file on a USB jump drive which is then plugged into the USB port on the front of the controller.

For either of these methods, the name of the file to use to send the update to the controller is:

Software	File name
3.9.1732	natc_v009R1732.wfi

Procedures to update an ATC to the new software/firmware are described below.

Installing the Software

Although updates to the software can be performed in the field, it is highly recommended that software updates only be performed on the test bench. When a software update is performed, the intersection must spend a short period in Flash mode until the traffic engine can successfully restart with the new configuration in place. With these facts in mind, the following methods can be used to update the software on a Peek ATC-1000 controller.

Caution

ATC-1000 beta test units were shipped with a standard complement of 16MB of SDRAM. This is insufficient for GreenWave v3.7 and higher software. Installing the latest software on this older hardware can result in the controller becoming inoperable. Before starting the upgrade, verify that the Part Number/Serial Number label that is attached to the top of the controller (placed in the front right corner) does NOT show this text:

PART NO: ATC1000 BETA

If you see that text at the top of the label, you have a beta test unit of the controller and you **MUST NOT INSTALL the v3.9 software**.

Backup the Database before Updating

Before converting your controller to Version 3.9 from a previous version of the software, you must back up your controller's database, either to USB drive, to ATC-Link or into IQ Central. To back up the database to a USB drive, simply plug the USB device into the port on the front of the controller during normal operation and use the USB Device menu to choose option 2. DATABASE->USB. If you plan to back up the database using ATC-Link or IQ Central, connect to the controller the way you normally do with these software packages and retrieve the current database settings from the device (refer to the user manuals for more information – see "Additional Documentation," p. 7).

The v3.9 update will significantly modify the data structures in the ATC database. This will overwrite the current values stored in the database. You will need to restore these database values from the USB drive backup, or from the ATC-Link or IQ Central backup made before the software update. This can be done setting the Cabinet Address field to its proper value (**MM > 2 > 1 > 5 > 3**) and then loading the backup database back into the controller (USB Device menu: **1.USB->DATABASE**.) This will restore all of the controller's prior settings into an updated database structure. Again, during the restore, if there are any problems restoring particular blocks of the database, the controller will report the error on the screen and also add a message to the Controller Message Log.

Caution

If your controller is currently running GreenWave v3.6 or earlier, please contact Peek Product Support to request assistance before attempting the update. The update of the database from earlier versions of GreenWave will require extra steps to complete successfully.

Update Using a USB Drive

Follow these steps to update the controller software using a USB drive.

Note Updates can be performed using either a .bin or a .wfi software file. However, all major releases (such as this one) require update by .wfi file. A .bin file update takes about 1 minute to complete once the file is loaded into the controller. A .wfi file update can require up to five minutes to complete, since it provides a more comprehensive update of the controller's software and program environment. Please keep this in mind when performing updates on field hardware.

1. Copy the software update file to the USB drive from a PC. The drive must have the prescribed ATC directory structure for the USB boot loader on the controller to see the update file. This means the file will need to be stored in this location on the drive:
   \ATC_LINUX\USTC_firmware*<softwarefile>*
2. Take the USB drive to the controller (do not plug in the USB drive until so instructed – step 8, below.)
3. Press **MNU** on the controller keypad to enter the menu system.
4. Press **3** to enter the System Maintenance menu
5. Press **3** to enter Diagnostics Mode

Important Proceeding past this point will **require** the intersection to be placed in Flash mode before it can again resume normal operation.

6. Verify that you wish to enter Diagnostics Mode by pressing the **NXT** button.
7. Choose option **7** to enter the Update Firmware (Software) screen

```
        DIAGNOSTICS MENU

1. INPUTS/OUTPUTS TEST
2. COMMS
3. MEMORY TEST (RAM, SRAM, FLASH)
4. TIME TEST (RTC)
5. USB (WRITE?READ)
6. SD CARD TEST
7. UPDATE FIRMWARE
```

Figure 1 – Diagnostics Menu Screen

8. Plug the USB drive into the USB port on the front of the traffic controller.
9. After a few seconds, the display will switch to a list of the software/firmware files on the drive.

```
Select FW File:
  natc_v005R106.bin
  natc_v005R125.bin
  natc_v005R050.bin
  natc_v005R152.wfi
  natc_v006R526.bin
  natc_v007R1315.wfi
  natc_v008R1315.wfi
  natc_v009R1732.wfi
```

GreenWave v3.9 update file (note that typically either .bin or .wfi files can be used for an ATC controller software update, however a .wfi file provides a more complete install, including OS updates. This GreenWave v3.9 update **requires** using the .wfi file for the update)

Figure 2 – Choose the version to load from the USB drive

10. Use the green up and down arrow keys on the controller keypad to move the arrow cursor ('>') on the list, until it points to the firmware you wish to load.

11. Press the **ENT** button to select the file. When the software/firmware is done loading, the screen will ask you to remove power and restore it, so that the controller can restart and load the selected program.
12. The controller will start up as usual and go to the Run Time Status Screen 1.1.1. The database will be set to all zero an-+d default values.
13. Reenter the Cabinet Address **(MM->2->1->5->3).**
14. Reinstall the database from the previously loaded USB.

Note You can update controller software / firmware using the update feature in ATCLink, rather than the USB procedure above, although doing so is more involved. Refer to the ATCLink Operating Manual, or contact Peek Technical Support for information (see "Additional Guidance," p. 11).

Installing an FSK Modem

GreenWave v3.7, v3.8 and v3.9 support an FSK modem installed in the modem port of the controller. The ATC-1000 controller will accept a Peek FSK (DSP) modem in this slot for packet data transfers over twisted pair copper. To install an FSK modem into an ATC controller, follow the steps in the Peek FSK Modem Operating Manual (p/n: 81-1371).

Additional Documentation

These documents provide useful information about ATC-1000 controllers and other related products:

Table 3 – Additional documentation

Document	Part Number
ATC-1000 Operating Manual	*81-1285*
IQ Central Operating Manual	*81-1105*
IQ Central Release Notes	*99-427*
IQ Central Administrator's Guide	*81-1317*
ATC Link Operating Manual	*81-1366*
FSK Modem Operating Manual	81-1371

Additional information is also available at the Peek Traffic website, www.peektraffic.com. Or contact Peek Traffic Customer Service or Product Support (see p. 11).

ATCLink Version 3.9 Release Notes

This section pertains to the ATCLink software. For GreenWave information, see "GreenWave Version 3.9 Release Notes" (p.2).

Product Requirements

The ATCLink Version 3.9.009 software requires a Windows compatible computer running Windows 2000, Windows XP (Professional versions), or Windows 7 Professional. ATC Link is not approved for operation under Windows Vista, nor is it approved for use with 64-bit versions of these operating systems.

Product Compatibility

The operation of the software also requires a communications path to the Peek ATC-family traffic controller you plan to manage, either via a direct Serial connection or an Ethernet connection. The operator can opt to work in an 'offline' mode, meaning that no live connection is made to a controller, if he or she is working on a controller database in memory, or when exporting controller programming to a USB thumb-drive. However, most other operations within the software utility require an active connection to a powered traffic controller. The software will assume, by default, that a connection to a controller is desired, so it will attempt to make such a connection unless you tell it, during each session within the software, that you do not wish to connect to a controller.

Table 4 – ATC Link Workstation Requirements

	Minimum	Ideal
Processor	Intel P4 or equivalent, or better	Intel P4 or equivalent, or better
Processor Clock speed	1.2 GHz	2.0 GHz+
RAM	512 MB	1 GB+
Free Disk Space	150 MB	2 GB+

The ATC controller being managed should have version 3.7 or higher of the GREENWave™ firmware installed to be compatible with ATCLink Version 3.9.

Enhancements, Issues Addressed

There are enhancements included and issues addressed in ATCLink Version 3.9. If an enhancement is listed in this table, it is included in this release. If an issue is listed, it has been fixed or otherwise resolved.

Table 5 – Enhancements included and issues resolved and in ATCLink Version 3.9

Description	Ref
Flat File Import, rejects OSAM and 820A	7882
Guaranteed Passage Values Grayed-out, but programmable in ATC	7884
Global Configuration Objects Do Not UpLoad (GET)	7888
I/O Mapping Cabinet Types do not match ATC Link Cabinets	7889
I/O Mapping Det BIU tab does not permit assignment of values	7890
Conflict Monitor Logging is incorrect	7891
Additional IODs, NY Requirements - removed	7893

Installing the Software

This following procedure describes how to install ATCLink Version 3.9 software.

1. Verify that the operating system is at Windows 2000, Windows XP or Windows 7 (32-bit Professional level versions, not home or media center versions, and not 64-bit), with the latest service packs and security updates from Microsoft installed (ATCLink Version 3.9 is not compatible with Windows Vista).
2. If this is a new installation of either ATCLink on this computer, and you plan to connect to a controller using a serial connection, you will need to configure the Windows operating system with its add-on SNMP service (the SNMP Service is not required for Ethernet communications to the ATC controllers). To add this service to your version of Windows, you will need the Windows installation disk(s). These are the steps to install the SNMP service:
   a.) Go to the **Start** menu and choose **Settings>Control Panel>Add/Remove programs**. When the window appears, choose the **Add/Remove Windows Components** button on the left side of the window.
   b.) Scroll down, highlight the **Management and monitoring tools** item, and press the **Details** button.

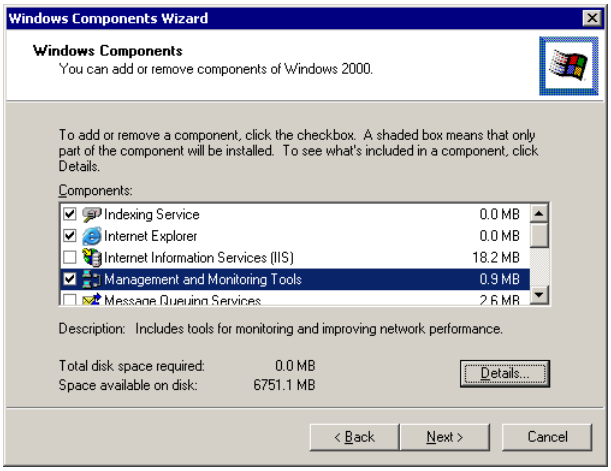

Figure 3 – Windows Component wizard window - Management and Monitoring Tools

   c.) Check the **Simple Network Management Protocol** option, and then press **OK**.
   d.) Insert the Windows CD, if requested.
   e.) After the installation is complete, we will need to configure the SNMP Service for operation with ATCLink. Go to the **Start** menu again, and choose **Start>Settings>Control Panel>Administrative Tools>Services.**

f.) Scroll down and right-mouse click on **SNMP Service**, and choose **Properties**.

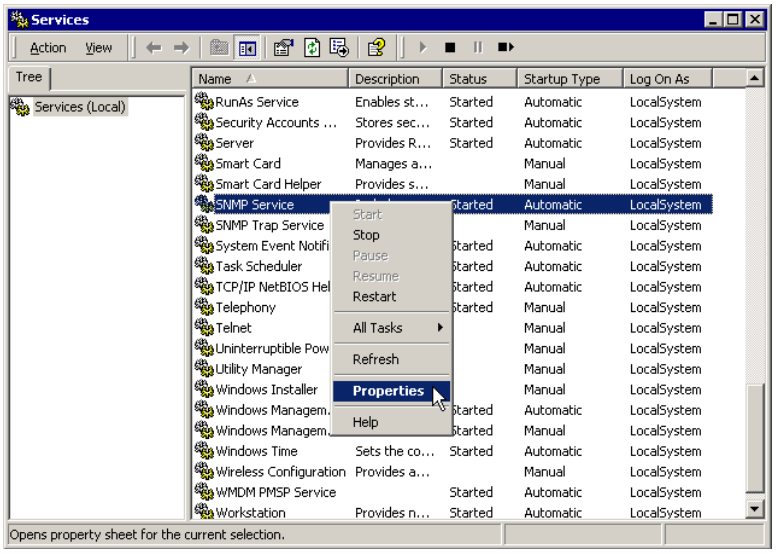

Figure 4 – Opening the SNMP Service > Properties window

g.) Select **Properties**.

h.) Select the **Security** tab.

i.) Make sure "public" appears in the Community field, with READ CREATE in the corresponding rights field. If not, then either edit the existing field or add a new one to create a "public" listing in the Community field. The Community name is case sensitive, so be sure to use the lower-case "public", not "PUBLIC" or "Public".

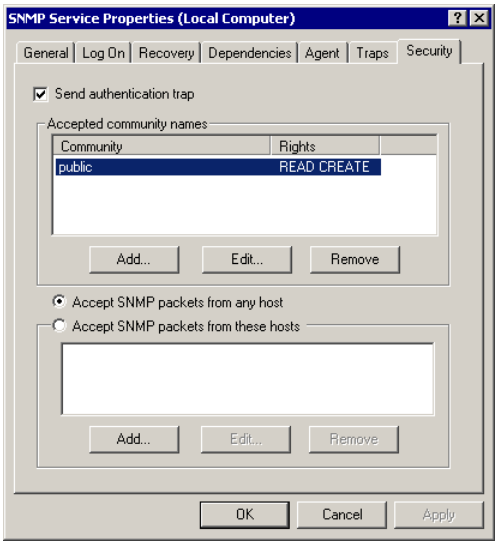

Figure 5 – Defining the SNMP Service 'community' value

3. Insert the ATCLink Version 3.9 Installation CD into the CD-ROM drive of the computer.
4. If autorun is working on this drive, the Install CD interface should appear automatically. If 'autoplay' is not configured for this CD-ROM drive on this computer, open a Windows Explorer window and navigate to the drive. Locate the **setup.exe** file and double-click it. This will open the application installer.
5. Follow the on-screen directions.
6. When the installation is complete, click the **Finish** button.
7. Go into the Windows Start menu and choose **Programs > Peek Traffic > ATCLink**
8. When the application opens, you will be asked for a user name and password.
   - The default account user name is **USTC_ADMINISTRATOR** for both fields (the fields are case sensitive, and the default password must be in all capitals).
9. When you get into the application, as a security precaution, you should create a new Administrator level user account and password, and remove the default user account. These actions can be performed using the commands on the **Login** menu.

That completes the installation of ATCLink Version 3.9.

Additional Guidance

For more guidance on the configuration and usage of ATCLink Version 3.9, refer to the following documents and contacts.

Documentation

These additional documents provide useful information for the operation of ATCLink Version 3.9, and many of the hardware often used in conjunction with ATCLink Version 3.9.

Table 6 — Additional documentation for ATCLink Version 3.9

Document	Part Number
ATCLink Operating Manual	81-1366
ATC Controller Operating Manual	81-1285
IQ Link Operating Manual	81-1202
IQ Link Release Notes	99-490

Product Support

This contact information will connect you with the technical support staff of Peek Traffic Corporation, should you require additional help concerning either GreenWave Version 3.9 or ATCLink Version 3.9.

Peek Traffic Corporation - Customer Service Center

2906 Corporate Way
Palmetto, FL 34221
toll free in the U.S.: (800) 245-7660, Extensions 1288, 1289, or 1239
tel: (941) 845-1200, Extensions 1288, 1289, or 1239
fax: (941) 845-1504
email: tech.support@peektraffic.com
web: www.peektraffic.com