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In today's environment of interconnected computing, security is an increasingly complex concern. While PATHFINDER's security options won't do it all, they can make life at least a little easier. As always, the options are many and space is limited so where do we start? Option "2. Security checkup" is the place! When we were designing the security options, we quickly realized that there were many publications which give you advice and checklists. Our goal was to go beyond this and do the checking for you. The checkup examines close to 50 potential security exposures and when it finds one it prints a relative severity rating

and a recommendation for closing the exposure. There are a few things we can't check so near the end of the report we list some of the more important areas for you to check later. Finally, at the end of the report is a list of statistics concerning the user profiles on your system. This page will tell you at a glance if too many users have *ALLOBJ authority!

The first message you will probably notice on the checkup says "One or more security system values is not the recommend value". This brings us to option "3. Security system values". This report lists all the security related system values (and not just the ones you get from

WRKSYSVAL SYSVAL(*SEC)) with current, prior, shipped, and recommended values. The message on the checkup recaps your score from this report.

Our ratings and recommendations tend to be on the 'more' secure side. If you find that the severity ratings on either of these reports are not appropriate for your environment, you can use your own ratings by changing the severity on the messages in message file H\$SECURITY (for details, ask for technical article #221). When running most of the options, specifying "Use prebuilt data=No" will get you a one time, real time, report. We'll discuss the alternative, using data continued on page 2

Page 1



There are four in just this one view of the Collegiate Range towering over Buena Vista, Colorado where the sun shines 345 days a year.

Security... continued from page 1

which is pre-built by option "1. Manage security data", later in this article.

Of course you have already changed the passwords for all the IBM supplied profiles like QSECOFR, but what about those users looking for something easy to remember who set their passwords to be the same as their profile name? Try running option "11. Password same as profile" periodically. Be sure to read the "warnings" message displayed on the entry panel just so you know what is going on when this option is run.

The three options discussed so far give you the most bang for the least time and effort but don't stop reading yet! Option "4. User profiles" is your one stop source for all the information on profiles. There are 5 reports available and some of the interesting stuff you can learn includes: How many groups does a user belong to and what is the cumulative effect of their special authorities? Which profiles haven't been used or, even worse, haven't changed their password for a period of time? Are initial menus/programs and attention programs consistent within groups? Do some users have "limit capabilities = no" when you thought you had set them all up as "limit capabilities = yes"?

While you're in auditing mode, you'll want to check out options "6. Job descriptions with user", "7. Profiles authority", and "8. Adopting programs". These options list the objects as described by the option name along with the authority information for those objects (we'll discuss authority information in more detail shortly). The job descriptions report can help you verify that only appropriate users can submit jobs which will run under another profile and the profiles report helps you verify that all profiles are well secured. The adopting programs report excludes programs created by user "*IBM" thus making it easier to research potential "back door" programs in IBM supplied libraries.

Another auditing tool is option "9. Authorized objects by user". This option gives you a simple way to determine not only to which objects a user may have authority, but if desired, how that authority is derived. This is accomplished by specifying the level of detail desired, similar to option 5 discussed later. This is a great way to keep track of that part time programmer, or even worse, that consultant.

With all the different avenues to access your AS/400 these days, resource authority is more important than ever. Client Access users or TCP/IP FTP users may never see a menu but still have access to your files. So here's the option that lets you get down to the object authority details. Option "5. Object authority by object" can procontinued on page 4



REASONS TO ATTEND GENERAL TRAINING

- 10. Keep focused; training away from the office will minimize distractions!
- 9. PATHFINDER has over 80 options! Do you know them all???
- 8. You'll commit to memory the telephone number for Technical Services (in case our mailings haven't accomplished this!)
- 7. Impact the bottom line! Every hour spent in training returns two hours in productivity.
- 6. Lunch is on us.
- 5. Learn to share with others. Material is provided to help you share what you have learned about PATHFINDER.
- 4. Meet other PATHFINDER users and learn how they use PATHFINDER.
- 3. Admit it, you want to.
- 2. Match a face to the voice of some of our Technical staff.
- 1. No matter what level of PATHFINDER experience you have, you are guaranteed to walk away with new knowledge.



A graphical interface to object X-ref and network configuration. Installation is easy. Just follow the installation instructions provided in member @readme of file HAWKEYE/-H\$VPFTXT.

Page 2 Alexandress all stands and stand and st



Hawkeye Information Systems offers one-day, lecture-style, technical seminars to enrich your knowledge of PATHFINDER.

COLORADO-BASED TRAINING

Conducted in Denver, these classes give a comprehensive overview of PATHFINDER's functionality for a complete understanding of its full potential. The fee includes airfare, hotel, ground transportation, and two meals. Colorado activity/vacation information available upon request. Fee: \$750 (contiguous US).

March 12	March 26	
April 9	April 16	April 30
May 7	May 14	May 21
June 4	June 11	June 29

REGIONAL SEMINARS

Like the Colorado-based Training, these seminars provide a complete overview of all that PATHFINDER has to offer. These classes are conducted all over the United States. Fee: \$250.

Dallas, TX..... March 16 Tulsa, OK..... March 18 Indianapolis, IN... April 20 Buffalo, NY April 22 Lansing, MI May 25 Atlanta, GA May 27 Long Island, NY... June 15 Philadelphia, PA .. June 17

ADVANCED TRAINING

This half-day training is designed especially for the experienced PATHFINDER User. Advanced instruction is given on selected PATHFINDER functions. Discussions include effective use of these features, as well as how to apply these solutions to your environment. Fee: \$175.

Dallas, TX	. March 17
Tulsa, OK	. March 19
Indianapolis, IN	. April 21
Buffalo, NY	. April 23
Lansing, MI	. May 26
Atlanta, GA	. May 28
Long Island, NY	June 16
Philadelphia, PA .	June 18

We are available to help you with your plans to attend PATHFINDER seminars. Contact us by PHONE (970) 498-9000 FAX (970) 498-9096; E-MAIL: info@hawkinfo.com; or send a Hawk/Net message.



Security... continued from page 2

vide you enough detail to make you dizzy, but then again, it can just list objects with no detail at all. This is the same information provided for options 6, 7, 8, and 9 discussed earlier, so pay attention. Figure 1 shows the results of DSPOBJAUT for file SECTEST. Looks familiar but it doesn't tell the whole story. Figure 2 shows the report from option 5 with DETAIL(*BASIC). Information from many sources is gathered on this report. Here are some of the highlights:

We can find the same four users listed here as in figure 1 but this report tells you what *PUB-LIC authority is instead of directing you to the authorization list.

- User ADKINS has *ALL authority which is the sum of the authorities of the multiple groups she belongs to.
- User ADKINS can grant authority to this object to other users because she belongs to the group which owns the object.
- User ADKINS can grant authority to this object to other users because she belongs to the group which owns the authorization list.

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- User BBB1 has *ALL authority because the single group he belongs to has this authority on the authorization list.
- User QPGMR has *ALL authority from the authorization list and it is a group profile.

Now we know who is authorized to this object, but we still don't know everything. If we rerun the report with DETAIL(*FULL) the whole picture emerges, see Figure 3. For example, to remove all authority from ADKINS so that she will only have the authority that *PUBLIC has, we must do the following:

Figure 2

- Remove her from group RLEROUX which has *ALLOBJ authority. This also removes her private authority derived from the group, her authorization list authority derived from the group, her ability to grant authority to the object derived from the group, and her ability to grant authority to the object derived from the group owning the authorization list.
- Remove her from group which **OSECOFR** has *ALLOBJ authority.
- Remove her from group **QPGMR** which removes her authorization list authority derived from the group.

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As you get a better handle on your security, you may not want quite this much information. The entry panel has options to omit certain groups of users, regardless of which level of detail you specified. For example, you may know that only a few users have *ALLOBJ authority and that none of them are groups. In this case, you could specify "Include *ALLOBJ users=No" so that these users are never printed on the reports. You can also omit "group members", "authorization list users" and "grant authority".

The last reporting option to discuss is "10. Authority differences". This is where you get pro-active instead of re-active. Many times it is possible to define an object with "model" authorities. For example, you create a file and spend lots of time getting the authorities to that file just right. Then you want all other files in that application to have exactly the same authorities, which can be fairly simply accomplished using your first file as the reference object on the GRTOBJAUT command. Now, you want to make sure that all those authorities stay that way, so just run option 10. Tell it which files to check and which file to use as the reference object and the report prints only the authority differences. Run this report on a regular basis and you can be reasonably assured that your original "model" authorities remain in effect throughout the application.

Figure 3

Back at the beginning, we mentioned option "1. Manage security data" and the "Use prebuilt data" option on the entry panels. As with all good information, it takes time and machine resources to gather it. When you specify "Use pre-built data=No", the reports generated will take longer and use more resources because the information is being gathered real-time. In many cases, having real-time information is neither needed nor desirable. If you will be running many reports, conducting a periodic internal security audit, or accommodating an external auditor, it is better to query an existing database rather than building one for every report. In this case run option 1 to build the database. You must have *ALLOBJ and *SECADM authority to run this option but you can authorize other users to query the database by using F10 from the entry panel. Thus that auditor can run all the reports he wants without having excessive authority and without using too much processing time. Another way to use the database is as a baseline. If an object's authority, a system value, continued on page 8



So, You've Just Inherited PATHFINDER

(Note: If the person responsible for maintaining PATHFINDER doesn't receive their own copy of this newsletter, please share this with them. Or let us know, we will mail them one.)

Now what? Maybe you've been a casual user relying on Object/Field Where Used or the Network Configuration Flow Chart. Or maybe you are completely new to PATHFINDER and it's benefits. In any case, you are now faced with understanding the build processes and implementing a strategy for keeping the PATHFINDER Object and Field cross references (Xrefs) up-to-date.

Due to the flexibility designed into the X-ref build, you may find the process a bit complex at first. There are a number of resources you can utilize. Your primary resource is Hawkeye Technical Services. We can explain the in's and out's of the build and refresh processes so you'll understand in short order.

As you begin the task of managing PATHFINDER cross reference, there are some questions that you may need to ask. Here are some resources to help with answers. To get any of the Tips & Techniques Articles mentioned below, circle the desired articles on the enclosed postcard. Or to discuss any PATHFINDER topic, just contact Hawkeye Technical Services by PHONE: (970) 498-9000; FAX: (970) 498-9096; E-MAIL: info@hawkinfo.com, or send a Hawk/Net Message.

What PATHFINDER release level is on your system?

The current release level is displayed in the upper right corner of each PATHFINDER menu. To start the PATHFINDER main menu enter the command HAWKEYE/HAWKEYE. Hawkeye Technical Services can tell you what the latest release level is.

What libraries have been cross referenced in the past?

X-ref history information will be very helpful. The technical article, "PATHFINDER X-ref History Tells All" will describe how to find and use X-ref history. This facility can tell you when the X-ref was built, what was included and when it was "refreshed".

What libraries need to be cross referenced?

... and within those libraries are there "multiple environments" identified by multiple sets of objects by the same names?

The technical article, "The Importance of Setup Values" includes a discussion of what libraries to include in the X-ref, how to appropriately arrange the list of objects and how to handle "multiple environments".

How often should the X-ref be refreshed?

It is very important to refresh the X-ref regularly so that the information is current and reliable. The refresh doesn't have to document every object so it is much faster than the original build. The refresh updates the Xref for only the objects that have been changed, added or deleted since the last refresh. Many shops are able to refresh nightly, while others refresh only on the weekends. In either case, the best approach is to schedule the refresh job to execute regularly without user intervention. Methods for accomplishing this are discussed in the technical article "Up-to-date Effortlessly".

Where is the source for the application programs?

Has the source for program objects been moved since the programs were created?

If the source has been moved since creation, PATHFINDER will need a Source List to find the source for your program objects. "The Importance of Setup Values" article, mentioned previously, describes the Source list. Also, DDM (Distributed Data Management) can be used to provide access to source located on another system.

Is source in standard (Source Entry Utility) format?

... and does it use only standard RPG "/COPY" or COBOL Copybooks for copy members?

If source has been compressed, stored in some nonstandard format, or a precompile process is required to create a single standard source member, the Source API will be necessary. Appendix C in the Reference Manual will get you started.

Does the application code use variable called programs?

... as a coding technique?

If so, you may want to read about the Build Value for evaluating variable calls in the build/refresh. The discussion of the Build Values in the "Setup" section of the Reference Manual should help.

Does your shop utilize a job scheduler?

... such as Help Systems' Robot or AS/400 job schedule entries?

If so, you may benefit from special API's available to document these systems. Help Systems provides the command RBTBLDHAWK, an interface to document the Robot job scheduler. PATHFINDER customers to call Hawkeye and say the magic word "fourteener" will be eligible to win a free PATHFINDER Colorado-Based Training Trip. And, the API program H\$APISCDE in HAWK-EYE/QCLSRC1 allows you to add to the Object X-ref any objects referenced by IBM job schedule entries.

What is the security level on your AS/400?

Check the system values (DSP-SYSVAL) called QSECURITY and QAUDLVL. If QSECURI-TY=40 > higher or QAUDLVL=*PGMFAIL then PATHFINDER cannot execute many of its Machine Instruction (MI) programs. These MI programs can get information from your system much faster than conventional IBM outfiles and API's can. The implication is that no information will be lost, but it will take many PATHFINDER functions longer to execute. This includes the X-ref build job as well as the real-time options in the package. To eliminate the impact to PATHFINDER, reduce security to QSECURI-TY=30 and QAUDLVL to anything but *PGMFAIL if possible.

How long will the X-ref build take to execute?

The rule to apply is: 1 to 2 hours per 1000 RPG or COBOL programs. PATHFINDER also documents CLP, DFU, ORY, *MENU and other objects but this average tends to hold true. And, the Object X-ref and Field X-ref are built and refreshed separately, therefore, each will be subject to this average. Keep in mind that the refresh will be much faster than the original build because it will only be updating the X-ref for the objects that have changed since the last refresh.

After the X-ref builds have completed, be sure to read through the reports that are produced. The help text for the build/refresh reports can be turned on to aid in interpreting them the first time. To turn on

help text for PATHFINDER reports, use the "F18=Defaults" function and set the "Print help text on reports" flag to "Y" (YES). The build/refresh reports will contain information about problems encountered that may cause the X-ref to be less accurate. You may find that the setup values need to be adjusted and the build executed again. When you are satisfied that everything was documented successfully, refer to the discussion of the Xref refresh in the "Up-to-date Effortlessly" document. The refresh will allow you to keep the X-ref up-to-date without aving to rerun the X-ref build. Summary of additional reading: **Tips & Techniques articles** #205 "Up-to-date Effortlessly" #214 "The Importance of Setup Values"

#214 "The Importance of Setup Values"
#217 "PATHFINDER X-ref History Tells All"
Reference Manual
Set Up section







Got USAGE?



In the last issue, the "Magic Word" was **Baaaa**. The names selected from the many users who called in are . . .

Brent Adams Lincoln Public Schools Allen Reaves JPS Converter & Industrial Corp.

Congratulations both of you! Our winners get a free trip to Colorado and participation in a PATHFINDER Training Class or they may choose a Regional Seminar in their area.

Of course there is another magic word somewhere in the text of this newsletter. Find it, give us a call and say the magic word. You too will be eligible to win a PATHFINDER Training trip to Colorado. **Security...** continued from page 5 a user profile, or other security settings seem to have mysteriously changed, you can check the database to verify whether a change did indeed take place.

For those of you managing multiple systems, it is important to note that option "1. Manage security data" has built in options for sending and receiving "Security sets" and it is available in PATHFINDER Lite. What this means for you is that you can build security databases, called "Security sets", on multiple systems, gather all these sets on your local system, and then run reports for all systems from that one local system. This is a great feature when it comes time for that security audit! On the remote systems, just specify "OUTPUT=*TOUS-RID" to have the security set automatically sent to your local User ID. When the job is done, go to option 1, press "F8=Work with sets", press "F6=Network files", and receive the file. You may now run reports against this set either by selecting it at the "work with" panel or by specifying the set name on the entry panel of any of the reporting options. When you

Denise Heidrick is the newest member at Hawkeye. Coming from a retail management background, Denise says it's nice to finally put her business education to use. Although most of you won't hear from Denise, she plays a key role in the daily functions of the company. As part of her many duties, Denise makes sure you receive your postcards, newsletters and packages.

Denise enjoys spending her spare time with her four-year-old son, Christopher. She also enjoys creating unique photo albums loaded with pictures of the time she and Christopher enjoy together.

prefer a tape, just specify "OUT-PUT=*SAVF" on the remote system, create and send the tape, then use "F14=Restore set" from the work with panel. Other options exist to save, send, and delete security sets after they are created.

Now that you know about these options, give them a try! We think there's lots of good information in there! And as always, if you have any questions give us a call.