NUTIL - *The Navan Utilities*

Version 7 Release 4, Modification 0
July, 2007

Installation Notes

The Navan Utility Library NUTIL is now at Version 7, Release 4, Modification level 0

Please note that copies and Installations of NUTIL prior to Version 7 Release 2 are no longer supported by Navan or its' representatives.

NUTIL Version 7, Release 4 requires the OS/400 Operating System to be at Version 5.4 or greater. If you are upgrading an existing installation of NUTIL, this release *should only* be installed on a copy of NUTIL currently at Version 7.0 or greater.

You can determine the release level of your installed version of NUTIL as follows:

```
ADDLIBLE  LIB(NUTIL)              if necessary
CALL      PGM(NUTIL/NU9000)
```

The display will show the release level of your installed version of NUTIL.

The CD-ROM, tape or savefile supplied contains a complete (replacement) NUTIL library and can be installed automatically. If you already have an old version of NUTIL on your iSeries, your data will be loaded from the old version into your new version, by the installation command. Installation time is dependent upon whether the installation procedure is copying data from an old version of NUTIL, but will normally take between 15 minutes and 1 hour to complete.

Installation is performed as follows:

1. Ensure that no users are using any NUTIL functions. Ensure that SCHEDULER is not currently running. Ensure that Report Distribution is not currently running.

2. Sign on as the System Security Officer QSECOFR, or as a user profile that has *ALLOBJ special authority. This installation MUST be performed by a user with *ALLOBJ authority for the program product to function as designed.

3. If NUTIL is in your library list, remove it:

       RMVLIBLE NUTIL

4. If necessary save a copy of your existing version of the NUTIL library:

       SAVLIB NUTIL...

You are now ready to commence the installation. Before starting you should read the last page of this document, which provides important notes on how the install routine works.

The installation routine can be run by one of the following four methods:

Installing from CD-ROM

5(CD). Load the supplied CD-ROM disk into the iSeries CD drive and install the new version of the NUTIL library using the LODRUN command:

```
LODRUN     DEV(*OPT)
```

The supplied CD can also be used (in the CD-ROM drive of your PC) to extract all NUTIL documentation. Documentation is stored in the \DOCS directory of the CD and can be accessed using the CD-ROM drive of your PC.

Installing from .ISO image file

5(iso). NUTIL can be installed from a supplied .iso image file in one of two ways:

- The image can be used to burn a CD, and then the CD can used to install the product
- The image file can be installed in the system image catalog and installed directly from there.

Please refer to separate documentation relating to the correct processing for these tasks.

Installing from Tape

5(tape). Load the supplied tape onto the tape drive and install the new version of the NUTIL library using the LODRUN command:

```
LODRUN     DEV(TAP01)
```

If you are using a tape device other than TAP01, alter the device parameter in the above command accordingly.

Installing from Savefiles

5(savf). You should have a library called NAVANSAV on your system, which contains the following objects:

QINSTNUTIL	The NUTIL Installation program
NUTILSV	Save file containing the NUTIL library objects
NUDTAARASV	Save file containing the NUTIL data area

Install the new version of the NUTIL library using the installation program:

```
CALL PGM(NAVANSAV/QINSTNUTIL) PARM(*SAVF)
```

A pre-check will be made to ensure the objects specified above exist. If they do not, an error message will be sent and the program will end.

6. The procedure will then install NUTIL. At the completion of the procedure you should receive the message

'Navan Installation procedure completed successfully'

If you do not get this message, the installation procedure was processed incorrectly. You can determine the cause of the error by reviewing the low level messages for the job. If you cannot resolve the problem, you should contact your NUTIL support representative for assistance. You will not be able to continue the installation of this version of NUTIL and you should reinstall your old version of NUTIL.

7. The NUTIL library objects are supplied in compressed form. You should give consideration to decompressing the objects in order to improve user access times. Refer to the CL Reference manual for a discussion of the Decompress Objects (DCPOBJ) command.

8. If you use the Program Generator to create programs for your user applications, you should make sure that your user messages file contains all of the 'run-time' messages used by generated programs. You can do this by using the merge command:

```
MRGMSGF MSGF(NUTIL/RUNMSGF) TOMSGF(userlib/usermsgf)SELECT(*ALL)
```

replacing the 'to message file' parameter entries with your own user message file. You will need to run this MRGMSGF command for each of your user message files.

Post Install Procedures

There are no specific post-install procedures required for this release of NUTIL.

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Summary of enhancements/changes

General

General compatibility with i5/OS (OS/400) V5R4 has now been tested. This release of NUTIL is certified operationally compatible with V5R4 of i5/OS.

It is highly recommended that this release of NUTIL be installed *prior to* installing i5/OS V5R4 (or higher). Certain functions within older releases of NUTIL will not work on a system with the V5R4 operating system installed.

V7R4 NUTIL Security Additions

Additional spool and job control has been defined in NUTIL V7R4, in order to allow an installation to lockdown certain aspects of the product.

Spool file processing

All NUTIL spool file commands now require the user to have *SPLCTL authority. This includes Report Distribution and Spool File Archiving, as well as utility commands such as CLNSPLF (Cleanse spool files).

Scheduler

All NUTIL Scheduler "User Interface" commands now require the user to have *JOBCTL authority.

Additional control is also defined within Scheduler, to ensure a user is authorised to manipulate individual jobs. The control for this is based on the job description that is defined on the scheduler job definition – if a user attempts to access (or use) a specific Scheduler job a check will be made to ensure the user has operational rights available to the job description defined on the job. If not, access to that job will be denied.

The following Scheduler commands will check the user's operational authority to the job description before allowing any manipulation or use of a selected job definition.

WRKSTDJOB	Work with Standard Job
WRKSCHJOB	Work with Scheduled Jobs
FRCSCHJOB	Force job on to Job Schedule
SBMSCHJOB	Submit Non-Standard Job on to Job Schedule

Note that this change only affects the Scheduler User Interface – it does not affect the Scheduler Interrogator job that runs in the Scheduler subsystem, nor the way that it processes jobs in the job schedule.

Effect of new security measures on existing Job Scheduling

As shipped, all NUTIL pre-defined Scheduler jobs are normally run by QSYSOPR, using the NUTIL/SCHEDULER Job Description. For these jobs the product will continue to run as before if QSYSOPR has the same authorities as shipped by IBM. For all other standard jobs it is essential that you perform an analysis to ensure they will still function as expected.

For each standard job defined, you should make sure that the user profile specified on the job description has sufficient rights to perform the job. A new program, SCHVFYAUT, has been included with this release and this will print a list of all standard jobs defined, along with user profile information related to each job. You can run the program from the command line, or via menu UTLSCH option 43.

Job Scheduler

The "test for submit" function, performed after job maintenance, has been corrected to take the start/end dates in to consideration when determining if the job should be submitted to the current job schedule.

Start of day processing was intermittently returning *CLX status for jobs terminating just after midnight.

STRSCH command now allows RESET(*OLD), so that only job scheduling information prior to today is removed from the current job schedule. It is now recommended that, if you have the STRSCH command in your QSTRUP system startup procedure, you use the RESET(*OLD) parameter in this instance.

Corrections made to STRSCH so that, if RESET(*NO) is requested, the job schedule is not cleansed prior to startup.

Security additions now require a user to have *JOBCTL special authority before being allowed to use any command that manipulates the job schedule.

The VFYSCHEXT command now allows a subset of jobs to be selected, based on the Reporting Group ID.

The Scheduler Calendar is now extended to include the definition of a Time Range Availability window. Where defined on a date, normal scheduling will only occur within the time range specified. For the Job Schedule load at the start of a new day, any jobs that fall outside that time availability range will be submitted in *HLD (held) status.

Program Generator

New shells added: PDWIN (popup information display window), PRT_SQL (print with SQL record selection), PRTDTAARA (print data area), SELWIN (popup record selection window, with key positioning), WRKINQ ("Work with" Inquiry panel), WRKPNLRRN ("Work with" maintenance panel, using RRN access).

OPM source shells altered to include OPTION(*SRCDBG) in the compiler directive. This ensures correct function when using the IBM Graphical Debugger.

*ILE shells can now optionally generate EVAL free-format statements instead of using older *OPM opcodes (MOVE, Z-ADD, Z-SUB, etc)

Field prefixes can now be applied as an overlay (in the same way as previous releases of NUTIL) or appended to the original field name.

Job Log Management

The NUTIL/WRKJOBLOG command is now renamed to NWRKJOBLOG, to avoid a potential naming conflict with the new i5/OS V5R4 WRKJOBLOG IBM command.

NWRKJOBLOG now allows select option 7=PDF, which allows you to create a .pdf file for a selected joblog.

The LODJLOG command is now tolerant of the control files being locked by another process. A new "Ignore System Logs" parameter on the command allows you to bypass the processing of System-based logs (one that is either created by user QSYS, or created by a job that has *SYS as its job accounting code).

Security additions now require a user to have *SPLCTL special authority before being allowed to use the NWRKJOBLOG command.

RptDist Report Distribution

Security additions now require a user to have *SPLCTL special authority before being allowed to use the NWRKSPLCTL command.

SplArc Spool File archiving

Security additions now require a user to have *SPLCTL special authority before being allowed to use the NWRKSPLARC command.

Utility Commands

All Callable modules are now prototyped. Refer source file NUTIL/PROTOTYPES.

New Callable modules @RTVEMLADR (Retrieve SMTP email address), @RTVRC (Retrieve current record count) and @RTVRL (Retrieve record length) added. Incorporated in to service program.

NCVTRPGSRC and NUPDRPGSRC now (optionally) convert OPM "Move" type Operation Codes to their equivalent Eval Operation Code.

The NCVTSPLSTM character control has been altered to ensure correct operation with all European character sets.

NCVTDBFCSV command enhanced. New parameter TRIM allows the control of whether character fields have trailing blanks trimmed or not. Command now allows for FLDSEP(*CARAT), to allow the use of the "^" sign as a field delimiter

NCVTDBFXML (Convert database file to XML file) command added.

NCVTDBFSLK (Convert database file to SLK file) command added.

NOFF command altered to allow user to define connection type (to determine whether connection should be dropped).

NRPLSTR command can now selectively scan based on source member attribute, in a similar way to NSCNSTR.

NVFYLNK command added, to provide a means to verify existence of an IFS stream file.

NWDSCRTOBJ (Object creation via WDSc) command added.

XRef (Cross Reference)

Programs corrected to allow for V5R4 database extensions.

Installation Notes

If you already have NUTIL on your iSeries, the installation routine will automatically copy the data from your old copy of the product into the new version during installation. It does this by renaming your existing library (it places an @ character - Hex '7C' - at the end of the library name) and then copying from that renamed library into the new version. A problem may occur during installation if the library rename fails. To ensure this does not happen, please make sure you do not have any of the following library name on your system prior to starting the installation:

> NUTIL@

> (note: the @ character is country/language dependent and may be different on your machine. If you retrieve the source for the install program you can see what the rename character is for your country)

If you have any of these library names on your system, please delete the library before starting product installation.

If you already have NUTIL on your machine, to reduce the installation time for the new version please run the RGZ_NUTIL standard job in Scheduler before starting the install. This will remove redundant/obsolete data from the NUTIL database. The largest 'data copying' steps are to copy the Cross Reference database and the Job Log database. If you don't really need the data in these files you can speed up the install by clearing the files before installing the new version of NUTIL:

Joblogs -	Clear JLPINDX and JLPJLDT
Cross Ref -	Clear NXRFA, B, C, D, E, F, G, H, I, X

We strongly suggest that you only install NUTIL on your system when it is in a restricted state (using the ENDSYS command). This then ensures that the install will not fail due to users or jobs accessing NUTIL functions. Ending the system to a restricted state means that only the controlling subsystem QCTL will be active and you must perform the install from the system console.

Once the library has been restored, data will be copied from your old (renamed) copy of NUTIL into the new version. At the completion of the data copy, a set of jobs will be submitted to decompress the shell template files (the DCP_* jobs) and at the end of all processing a job will be submitted to delete the old version of the libraries (the DLT_* jobs). Please ensure that these submitted jobs all complete normally as well.

If you already have NUTIL on your machine, please review the standard NAVAN jobs that are supplied in the Job Scheduler with the new version of NUTIL (a copy of the standard jobs report is printed during the installation process) and check that your existing jobs are compatible with them. Use the WRKSTDJOB command to make any adjustments to your jobs. Changes to your standard jobs must be made manually.

The use of undocumented interfaces to access NUTIL objects is not recommended by Navan. Any user-defined links or accesses to any object in the NUTIL program product should be reviewed for reliability after any NUTIL program product upgrade has been applied to your system. Navan accepts no responsibility for local processes accessing NUTIL objects via undocumented interfaces.