



File Checking Program for the  
AGS Data Interchange Format  
version 3

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# REVISION HISTORY

## 30 January 2008 (1.1.023)

1. An incorrect warning message was given if a user-defined field name started with the name of another AGS group (legal as per Rule 23) but that other group was not present in the file. This does not warrant a warning and is confusing. This problem can occur if the ?ICCT group is exported without the CNMT group. The program gave warnings on ?CNMT\_TYPE and ?CNMT\_TTYP. This has been corrected.

## 28 September 2007 (1.1.022)

1. Added support for New Zealand version of the AGS format.

## 05 March 2007 (1.1.021)

1. Changed the color scheme to match gINT version 8. This program will still work inside any version of gINT from version 6. Also, it will still run as a stand-alone program without gINT.
2. The main form can now be maximized and resized. These features can be used to expand the "Progress" text box for better viewing of the checking log without having to open it in a text editor.
3. Better handling of units and abbreviations checking has been added.

## 17 September 2006 (1.1.020)

1. Improved support for checking the data in user-defined groups.
2. Added support for the New South Wales (Australia) RTA (Roads and Traffic Authority) AGS structure.

## 07 October 2005

1. Execution speed is dramatically increased when working with large AGS files.
2. With the Statistics option, the program now also lists all Holes that have no data in the GEOL or SAMP groups.

## 06 March 2005

1. Documentation update only.

## 20 June 2004

1. Added check for PROJ\_ID being the first variable in the PROJ group (Rule 6a).
2. Added check for existence of entries in the ABBR group for all variables that have abbreviations listed in the AGS specification. Error flagged only if there are data for the variables.
3. We believe that with the inclusion of the above two checks this program now accurately checks against all the AGS rules. Please let us know if you find this is not the case.

## **29 February 2004**

1. Added "Show Data Statistics" option.

## **11 January 2004**

1. Allowed selection of the choice of message listings: By scan group, line number, and/or severity.
2. Added line numbers to a number of message classes that originally did not state the line number.

## **16 December 2003**

1. Additional checks were put in place.
2. Better documentation of certain conditions.
3. Added sorting of messages by line number and message severity.
4. Added section on data validation.

## **01 October 2003**

1. Initial release.

## AGS DATA CHECKER

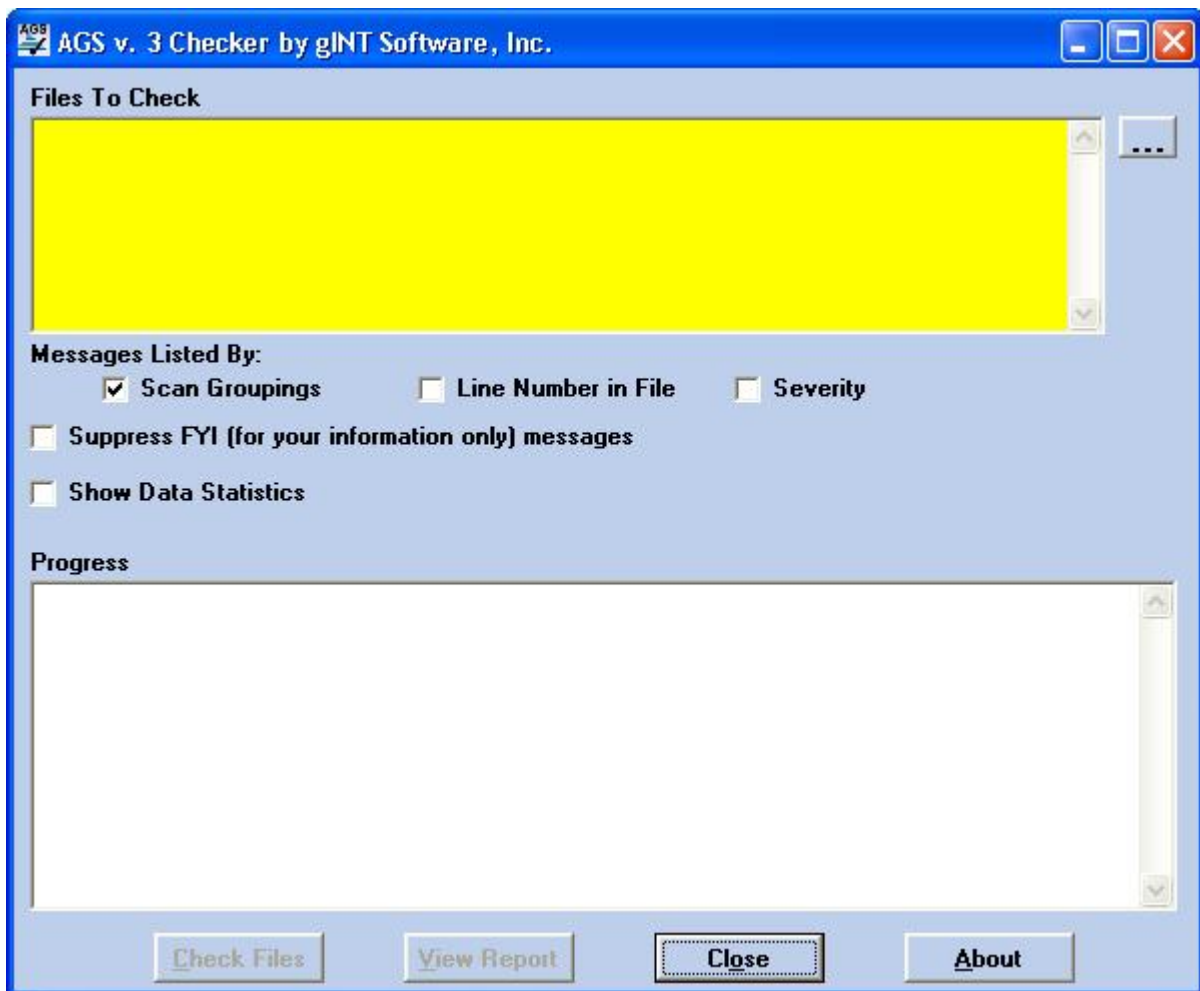
Included with gINT version 6 and later is a program to check AGS version 3 files. It can be accessed within the program in the Input application via:


- File:AGS Files:Check AGS Files
- File:AGS Files:Import from AGS File. Mark the "Check file before import" check box.
- File:AGS Files:Export to AGS File. Mark the "Check file after export" check box.

The checker is a stand-alone program so it can also be accessed outside of gINT by anyone. You do not have to have a gINT license. The file is called AGSChecker.EXE and it is represented on your desktop by the following icon:



Following is the main screen of the AGS Checker program:



Click on the browse button  right of the Files To Check field to select the AGS file or files that you wish to check. If you have files in multiple folders, select all the desired files from one folder and click the Open button in the file browser dialog. Then relaunch the browser and select the desired files from the second folder and click Open. The new files will be appended to the first set. Continue this process to select as many files as desired.

The File To Check text box is editable so you can remove files using the usual text editing tools.

On selecting any file, the Check Files button at the lower left will become enabled. Click on it to initiate the process. Messages will be written to the Progress field. When completed, the View Report button at the bottom of the dialog will become enabled. Click on this button to save the messages to a file and view it. You can also view the messages within the Progress field. Following is a sample message log generated by checking an AGS file:

09/01/2004 9:22:50 AM (2 files)

ERROR = Broke a specified AGS version 3 rule.

WARNING = Condition that could compromise data quality.

FYI = For Your Information only.

Unnecessary or redundant data or missing, non-critical, descriptive data.

\*\*\*\*\*

File: c:\data\ags files\testfile.ags (1 of 2)

Date: 14/10/2003 10:39:24 AM

Size: 7,910 bytes

Number of Lines: 147

SUMMARY: 9 total errors or warnings or informational messages

Parsing Structure and Data 4 errors or warnings or informational messages

ERROR: Line 2 - group headers must begin with an "\*".

ERROR: Line 24 - '\*SAMP\_TIME"\*GEOL\_STAT' - field has internal quote(s).

ERROR: Line 25 - number of units does not match the number of headers.

ERROR: Line 26 - does not have the same number of fields as the number of headers

FYI: Line 122 - No data found in the CNMT group.

Check of the DICT group (Rule 21) 1 error or warning or informational message

WARNING: Line 131 - Variable CLSS\_TVAN in group CLSS has no description in the DICT group.

File codes check (Rule 24) 1 error or warning or informational message

ERROR: There were FILE\_FSET data but no FILE group was found (Rule 24).

FILE\_FSET data in the following lines:

4, 8, 9, 26, 27, 28

Units check (Rule 18b) 1 error or warning or informational message

ERROR: No UNIT group was found

Contaminant Codes Check (Rule 25) 1 error or warning or informational message

FYI: There was a CODE group defined but no CNMT data.

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There are three types of messages that will be generated. An error is generated when some part of the file breaks a specified AGS rule. Parts of the file that generate warnings do not break a rule but should be looked at more closely. The informational messages (FYI) indicate non-critical inconsistencies or unnecessary portions of the file.

The generated messages are shown by different categories of checking, for example, overall structure, data relationships, abbreviations group, etc. These are called the "scan groups". This is the default format for listing messages. You can also list by message severity (errors, then warnings, then FYIs) or by line number in the file. Any one, two, or all three listings can be specified. At least one type must be specified.

Some messages do not have line numbers. They refer to some overall condition. These are placed at the top of the line number sort list.

If there are less than 10 messages in a file, the specified message listings are ignored and the messages are shown by scan group only.

Information only messages can be suppressed by marking the "Suppress FYI messages" check box.

The Show Data Statistics option reports the following:

1. Number of records in each group with data.
2. Groups with no data or standard AGS groups missing from file.
3. Number of holes of each type with total drilling length.
4. Number of samples of each type.
5. Site Geometry: Minimum and maximum for local and national east, north, and ground surface level.
6. Number of Index tests in CLSS group.
7. Holes that have no data in the GEOL group.
8. Holes that have no data in the SAMP group.

The About button at the lower right gives program version, copyright, and gINT Software contact information.

## REFERENTIAL INTEGRITY OF DATA IN USER-DEFINED GROUPS

The checker automatically checks to ensure that there are no "orphan" records, that is, child records without corresponding parents. For example, a SAMP record with a HOLE\_ID of "BH-6" when "BH-6" does not exist in the HOLE group. These checks ensure "referential integrity".

For referential integrity to be checked the program needs to know the relationships between the groups, that is, it must know the parent group of each child group. For example, the HOLE group is the parent of the SAMP group and therefore each record in the SAMP group must have a corresponding record in the HOLE group.

For the AGS groups listed in the AGS documentation for 3.1 (including "?" groups), the program knows these relationships. For other user-defined groups, the program relies on the definition of those groups in the DICT group of the file. If the file is created with the AGS 3.1 structure, the ?DICT\_PGRP variable holds the name of the user-defined group's parent. If this is missing, or the file is AGS 3.0 without this variable, the program determines the possible group or groups that could be a parent of each user-defined group.

It is possible that multiple groups could be the parent of a user-defined group. In this case, the program puts up the following dialog and you must tell the program the parent group:



In this example, the group “?XXXX” did not have its parent listed in the DICT group. This group has the same key structure as all AGS lab testing groups. Therefore, the parent could be SAMP (the parent of all lab testing groups) or any of the “general” lab testing groups. The former would be a one-to-many relationship (potentially many ?XXXX records for each SAMP parent record) and the latter would be a one-to-one relationship (a maximum of one ?XXXX record for each parent record). The one-to-many relationship list in the above example has only the SAMP group, the one-to-one list has many options.

To specify the appropriate parent, select it from the appropriate list and make sure the option button right of the list is marked. Then click the OK button.

If there are only one-to-many or only one-to-one parents, you will only see one of the lists above and the option buttons will not be shown since there is only one choice.

If the program is able to narrow down the possible parents to just one group, you will not see the above dialog and the checking will proceed automatically.

## SUPPORT FOR THE RTA AGS STRUCTURE

The Roads and Traffic Authority of New South Wales (Australia) has a formal variant of the AGS 3.1 structure. If the PROJ\_AGS field in the PROJ table has the string “ RTA ” embedded in it (currently the official version is “3.1 RTA 1.0”), the checker has the following behavior different from a non-RTA file:

1. Rule 24 (File names shall not contain more than 8 characters in the main body and not more than 3 characters in the extension.) is ignored, that is, long file names will not be flagged as errors in an RTA file.
2. The parent table of all standard AGS lab testing groups, except GRAD is CLSS, not SAMP. These groups are CBRG, CMPG, CNMT, CONG, MCVG, PTST, RELD, ROCK, SHBG, SUCT, TNPC, and TRIG.
3. The parent table of the AGS GRAD group is ?GRAG, not SAMP.
4. The ?STCI group does not have HOLE\_ID as the first variable and this is not flagged as an error (Rule 6a) for this group only.

## SUPPORT FOR THE NEW ZEALAND AGS STRUCTURE

New Zealand has a formal variant of the AGS 3.1 structure. If the PROJ\_AGS field in the PROJ table has the string " NZ" embedded in it (currently the official version is "3.2 NZ"), the checker has the following behavior different from a non-RTA file:

1. Rule 24 (File names shall not contain more than 8 characters in the main body and not more than 3 characters in the extension.) is ignored, that is, long file names will not be flagged as errors in an NZ file.
2. The parent table of all standard AGS lab testing groups is CLSS, not SAMP. These groups are CBRG, CMPG, CNMT, CONG, MCVG, PTST, RELD, SHBG, SUCT, TNPC, and TRIG.

## DATA VALIDATION

This program can only check compliance with the AGS structure and some aspects of internal consistency. It does not have data rules beyond those of the AGS. If you have gINT you can implement three types of your own data rules. These will be enforced during the import process and data that break them will be documented on the import log shown at the end of the import process.

The first type of data rules you can implement in gINT is the data type. You can set the type of fields to text (up to 255 characters), memo (up to 64KB characters), various numeric types, date/time, etc. If a field is specified as a number and the data contains text, that data will not be imported and a descriptive message will be added to the import log. This capability is available in all Windows versions of the program (version 4 and later).

If you have gINT version 6 or later you can also set minimum and maximum values for numeric fields using the "Field Rules" property of fields. If a maximum of 100 is specified and the source file has values above 100, those data will not be imported and the errors will be logged.

Also with gINT version 6 or later is the ability to write VBA-like (Visual Basic for Applications) code associated with any or all tables in your target database. These allow you to write complex database rules that not only validate the data but can also perform calculations to generate reduced data of any type, for example, friction ratio from static cone tip resistance and side friction or corrected SPT N values from the blow counts, depth, water level, and any other relevant factors. These rules are executed whether the data are typed into the gINT Input screens or imported. Within gINT see the "gINT Rules" book in Help:Contents for details.