

New Features in NOC Beta Version 3.1.5

This section describes the new features, enhancements and corrections that apply to the Beta Version 3.1.5 of the Natural Optimizer Compiler.

Note:

Natural objects cataloged with the Natural Optimizer Compiler Version 2.3 or above can be executed under Natural Version 3.1. or above.

Natural objects cataloged with the Beta Version 3.1.5 of the Natural Optimizer Compiler can be executed under Natural Version 3.1.2 or above. However, Software AG strongly recommends that you migrate these environments to Natural Version 3.1.6 as soon as possible.

- **Compact Coding**
More compact code is generated by the replacement of instruction sequences used for alignment-sensitive hardware.
- **NODBG**
The NODBG option is also effective when INDEX, RANGE or OVFLW options are specified. Code compiled with these options executes faster. See also the section Performance Considerations.
- **EXAMINE**
The EXAMINE statement is optimized for certain clauses. See What is Compiled and What is Not in the section Using the Optimizer Compiler.
- **Improved Coding for Constants**
Better code is generated when constants are involved, for example, MOVE 'A' to #A(A1) results in MVI #A,C'A'.
- **Variable Caching**
A technique for caching variables has been implemented to speed up program execution. See Variable Caching in the section Performance Considerations.
- **New Options**
Additional options are provided to give more control over how code is generated:
 - CACHE
Switches variable caching on or off.
 - SIGNCHCK
Forces signs to be checked on packed and numeric fields.
 - DIGTCHCK
Forces digits to be checked on packed and numeric fields.
 - TRCACHE
Puts a trace of the cache into output generated by the PGEN option.
 - TRBASES
Puts a trace of base register allocation into the output generated by the PGEN option.

See the section Optimizer Options.

● **Revised Options**

- NOSGNTR=ON

Only applies to packed data.

- NOSGNTR=OFF

The COMPOPT compiler option PSIGNF=OFF is applied at compile time.

Therefore, the effect of the NOSGNTR option under NOC Version 3.1 is not the same as under NOC Version 2.3, causing different signs if NOSGNTR=OFF depending on the settings of the PSIGNF Compiler option. The example below illustrates the difference:

```

DEFINE DATA LOCAL
1 N(N3)
1 P(P3)
END-DEFINE
*
OPTIONS MCG=ON
RESET N P
ADD 1 TO N
ADD 1 TO P
WRITE N(EM=HHH) P(EM=HH)
*
OPTIONS MCG=NOSGNTR
RESET N P
ADD 1 TO N
ADD 1 TO P
WRITE N(EM=HHH) P(EM=HH)
*
END
    
```

Output:

	PSIGNF=ON	PSIGNF=OFF
NOC23 SM1 and SM2	F0F0F1 001F F0F0C1 001C	F0F0F1 001F F0F0F1 001C
NOC23 SM3 and above	F0F0F1 001F F0F0F1 001C	F0F0F1 001F F0F0F1 001C
NOC31 SM4	F0F0F1 001F F0F0F1 001C	F0F0F1 001C F0F0F1 001C

See also Influence of other Natural Parameters in the section Optimizer Options.

● **NOCSTAT**

The NOCSTAT command has been enhanced to show statistics of non-optimized programs. See NOCSTAT Command in the section Using the Optimizer Compiler.

● **NOCSHOW**

The NOCSHOW utility has minor changes, such as:

In batch, the whole PGEN list is output without stopping. Online, the listing is modifiable so that terminal escape codes can be entered, for example, \$\$ or << or %+.

Online, when searching, the line containing the desired text is placed at the top of the screen and the cursor is placed at the beginning of the text.