NonStop NET/MASTER Tips and Techniques

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Introduction

This is an ongoing column with NonStop NET/MASTER tips and techniques. Each column is also accessible from http://www.greshamsoftwarelabs.com.au/ (Gresham Software Labs). Please send all comments and suggestions to John New at jnew@greshamsoftwarelabs.com.au.

Biography

John New is a technical writer. He has written and updated various Tandem manuals. He currently writes hard-copy, online, and web documents for a variety of software products.

Easy Startup Configuration: Part 3 – Using a Configuration File

This article is written for NonStop NET/MASTER system managers. Part 1 in this series described some aspects of the NonStop NET/MASTER processing environment, then discussed some considerations when starting NonStop NET/MASTER with its default configuration (one dynamic NC process).

Part 2 discussed how to go beyond the default configuration by using embedded process creation hints in the file names used to create NonStop NET/MASTER application processes. To go beyond the default configuration means to start NonStop NET/MASTER with more functionality than one NC process or to start NonStop NET/MASTER without an NC process.

This article discusses how to go beyond the default configuration by using a configuration file to create NonStop NET/MASTER application processes (BK, EM, IS, MS, and NC).

The article discusses the purpose of the NonStop NET/MASTER configuration file, the structure of application process definitions, how to start NonStop NET/MASTER when using a configuration file, and some things you should consider when using a configuration file.

Understanding the NonStop NET/MASTER Configuration File

Using a configuration file when you start NonStop NET/MASTER is optional. If the file is available during startup, the NonStop NET/MASTER control process (NCP) reads the file and uses it to set and change startup parameters. These specify properties such as:

- The location of essential files, for example, the User ID Management Services (UMS) database and NCL procedures

- The availability of certain functions, for example, communication with remote systems

- The attributes of NonStop NET/MASTER processes, including application processes

The PARAM command, followed by an operand, is used to set and change startup parameters. For example, the following command specifies the location and name of the UMS database:

```
PARAM UMSFILE=$DATA.MYSVOL.MYUMS
```

The Structure of an Application Process Definition

Every application process definition in the configuration file consists of a group of PARAM commands. Every PARAM command in the group has a specific operand that defines a certain process attribute.

An application process definition has three parts, usually in the following order:

The name of the program object file used to create the process, for example:

```
PARAM PROCESSOBJECT=$DATA.ZNNM.NMNC
```

Optional attributes such as process class, priority, swap volume, CPUs, and so on, for example:

```
PARAM PROCESSCLASS=NC
PARAM PROCESSPRIORITY=145
PARAM PROCESSSWAPVOL+$SWAP
PARAM PROCESSCPU=(0,1)
```

The type of process, dynamic or static, and the process name, for example:

```
PARAM DYNAMICPROCESS=DNC1
PARAM STATICPROCESS=SEM1
```

The following example shows a complete process definition for a dynamic NC process:

```
PARAM PROCESSOBJECT=$DATA.ZNNM.NMNC
PARAM PROCESSCLASS=NC
PARAM PROCESSPRIORITY=147
PARAM PROCESSSWAPVOL=$DATA1
PARAM PROCESSWEIGHT=10
PARAM DYNAMICPROCESS=DNC1
```

The following example shows a complete process definition for a static EM process:

```
PARAM PROCESSOBJECT=$DATA.ZNNM.NMNC
PARAM PROCESSCLASS=EM
PARAM PROCESSCPU=(0,1)
PARAM PROCESSPRIORITY=145
```

```
PARAM PROCESSSWAPVOL=$DATA1
PARAM DYNAMICPROCESS=SEM1
```

Starting NonStop NET/MASTER

To start NonStop NET/MASTER when using a configuration file, start the NCP by using a TACL command such as the following:

```
RUN NCP /NAME $GNNM, NOWAIT, TERM $OSP, CPU 0/1 MYCONFIG
```

To log on to NonStop NET/MASTER from TACL after the NCP starts all processes, type:

```
NNM $GNNM
```

Using an obey file to start NonStop NET/MASTER is a good idea, but especially when using a configuration file. This is because the name of the configuration file is specified on the run line of the RUN NCP command. You can comment out lines that you do not want to use by using ==. For example:

```
 RUN $DATA.ZNNM.NCP/NOWAIT, PRI 142,NAME $ZNNM,CPU 1/0
 ==N $DATA.ANNM.NCP/NOWAIT, PRI 142,NAME $ANNM,CPU 1/0 CONFIG1
 ==N $DATA.BNNM.NCP/NOWAIT, PRI 142,NAME $BNNM,CPU 1/0 CONFIG2
 ==N $DATA.CNNM.NCP/NOWAIT, PRI 142,NAME $CNNM,CPU 1/1 CONFIG1
 ==N $DATA.DNNM.NCP/NOWAIT, PRI 142,NAME $DNNM,CPU 1/1 CONFIG2
 ==N $DATA.ENNM.NCP/NOWAIT, PRI 145,NAME $ENNM,CPU 1/0 CONFIG1
 ==N $DATA.FNNM.NCP/NOWAIT, PRI 145,NAME $FNNM,CPU 1/0 CONFIG2
```

Considerations

The main advantage of using a configuration file to create application processes is that you can create every application process regardless of class from a single program object file. There is no need to create one object file for each process class. You can rename NMNC0001, perhaps to NMNC, then use the PARAM PROCESSOBJECT and PARAM PROCESSCLASS commands to specify the name of the object file and the process class to create from the object file. Using one object file can reduce resource usage significantly.

You can also specify precise process attributes, such as priority, primary and backup CPUs, process name, and so on, rather than using default values.

When using a configuration file that starts all application processes from the same file, there is likely to be less work to do after upgrading than if you were starting application processes using embedded process creation hints. After an upgrade you need only delete one old file and rename the new NMNC0001 so that it has the same name as the old file. If you use hints and use multiple files for multiple process classes, more work is required to replace every old file with a new file.

Another advantage when using a configuration file is that you can create multiple configuration files specifying different sets of processes so you can start NonStop NET/MASTER in different ways. It is very easy to point to a specific configuration file when you start NonStop NET/MASTER.

It is possible to put comments in a configuration file with a history of changes and notes on how, why, and when the configuration is to be used.

The main disadvantage of using a configuration file is that it takes more effort to initially create application process definitions. However, creating definitions is not hard and can help you to think through the best way to configure NonStop NET/MASTER. A sample configuration file is supplied with NonStop NET/MASTER to make it easier for you to create your own configuration file.

Given that it is not advisable to mix configuration methods (using both embedded process creation hints and a configuration file), you should specify a process definition for every application process created in the configuration file. Specifying the process class is particularly important to ensure that at least one process of each class is created (BK, EM, IS, and MS). If you omit the PROCESSCLASS operand, the NCP uses various factors to determine the process class that is created. It is advisable to explicitly specify the PROCESSCLASS operand, otherwise NonStop NET/MASTER may not start with precisely the application processes you want.

Conclusion

Part 1 in this series briefly described some aspects of the NonStop NET/MASTER processing environment, then discussed some considerations when starting NonStop NET/MASTER with its default configuration. Part 2 discussed how to go beyond the default configuration by using embedded process creation hints in the file names used to create NonStop NET/MASTER application processes.