

LAB 10 – HEALTH MONITOR

HEALTH MONITOR VS. HEALTH CENTER

The Health Monitor is a background process (on Windows it is called db2fmp) that collects health indicator parameters. The Health Center is a GUI tool that displays alerts and warnings and allows you to configure values of the health indicator parameters, alerts, and corrective scripts.

A. START HEALTH MONITORING

To start monitoring the health of a DB2 system, we just need to update the HEALTH_MON dbm configuration parameter to “on”.

The DB2FMP process takes a minimum of 5 minute after activation of a database to start collecting information. To avoid the wait of 5 minutes for health indicators collections to begin, we made sure the HEALTH_MON parameter was turned on in an earlier lab from script:

```
C:\POT\07 BACKUP\Backup07001.CMD
```

The command syntax we used to turn health monitoring is:

```
C:\>DB2 UPDATE DBM CFG USING HEALTH_MON ON
```

1. Since this has already been done, you do not need to run the above command but you can check if the health monitoring is turned on or not by a line command:

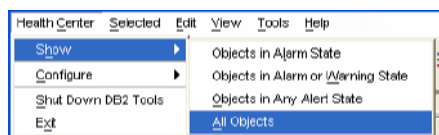
```
C:\POT\10 Health>DB2 GET DBM CFG | FINDSTR /C:"HEALTH_MON"
```

The output of above command should look like this:

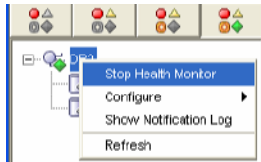
```
Monitor health of instance and databases (HEALTH_MON) = ON
```

2. You can also find out if it is turned on by using the Health Center GUI. Start Health Center GUI by running “db2hc” command from your DB2 command window.

- Click on Menu item - Health Center ⇒ Show ⇒ All Objects.



- Right click on instance name in left pane window. If health monitoring has already started, you will see “Stop Health Monitor”.



B. TABLE SPACE ALERT

The health monitoring is a continuous process running in the background. To demonstrate database alerts, we will run command `Health10001`. This creates two DMS table spaces to hold a table and index. This script inserts records in the table so that data and index table spaces fill up more than 90% in order to trigger an alert.

While the first part of this script runs rather quickly, it will allow itself to sleep for 10 minutes so that an alert can show up in the Health Center. The Health Monitor polls results at an interval of 10 minutes to get health indicator parameters for the table spaces.

1. Open DB2 command window in directory `C:\POT\10 Health`, start the following command:

```
C:\POT\10 Health>Health10001
```

The above script will take 10 minutes to complete. After you run the above script, please move on to next section and we will check table spaces alerts later on using the Health Center GUI.

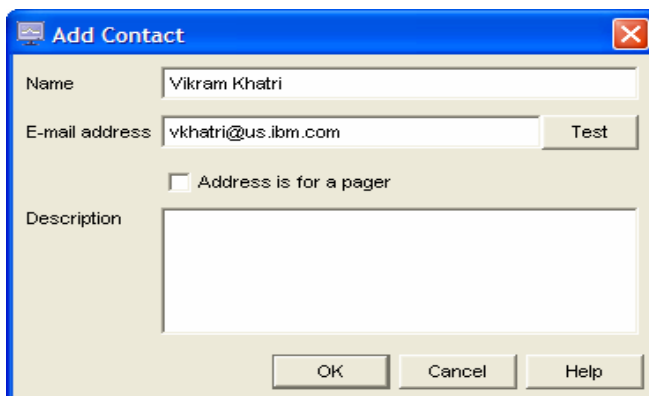
C. SET ALERT NOTIFICATIONS

We can set-up the SMTP server name so that DB2 can send alert notifications through an email or a pager. Please note that setting up the SMTP server name is no way connected to health monitoring.

1. Click on Health Center ⇒ Configure ⇒ Alert Notification
2. You will see a dialog window named “Configure Health Alert Notification.” Select the instance’ name from the first dropdown. For our practice session, select DB2 instance name.
3. After you select the instance name, you will notice that “Manage Contacts” button is now enabled. Click on this button.
4. You will see another dialog window called “Contacts”. Click on “SMTP Server” button and specify SMTP server name.

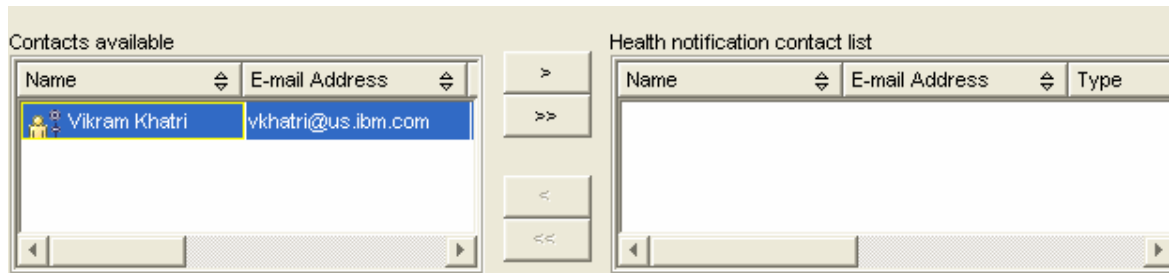
Note: You can ask your network administrator to find out the name of the SMTP server. You can leave this field blank for our exercise as we want to see the alerts in Health Center GUI. We do not want to get alerts through email for our exercise.

5. Click on “Add Contact” button from the “Contacts” window and add your name and email address.



The screenshot shows a standard Windows-style dialog box titled "Add Contact". It has a blue title bar with a close button (X) on the right. The main area is light gray. It contains three input fields: "Name" with the text "Vikram Khatri", "E-mail address" with the text "vkhatri@us.ibm.com", and a "Test" button to the right of the email field. Below the email field is a checkbox labeled "Address is for a pager" which is currently unchecked. There is a large text area for "Description" which is empty. At the bottom of the dialog are three buttons: "OK", "Cancel", and "Help".

6. After you are done adding contacts, close this window by clicking on the “Close” button. The control will return to the “Configure Health Alert Notification” dialog window. You will see the names of the contacts on left hand pane of the window.



7. Select the names of the contacts in the left hand side pane and click on the “>” button to assign this contact to the health notification contact list. Press OK button to return to the health center GUI.

You can manage contacts through DB2 command line using scripts. Please review an example script “C:\POT\10 HEALTH\Health10100.DDL” on how to add contacts and groups and add them to health notification contact list.

D. HEALTH INDICATOR CONFIGURATIONS

There is virtually no configuration required for monitoring the health of a DB2 system except to start the health monitoring. Once started, it does its job automatically.

You can change the default configuration for health indicator parameters to modify warning and alarm levels. You can specify corrective DB2 or OS scripts to run when an alert is issued. For example, you can set up a DB2 script to add containers to a table space if its utilization exceeds 90%.

1. Click on Health Center ⇒ Configure ⇒ Health Indicator Settings

Note: You will see “Health Indicator Configuration Launchpad” dialog window. It has buttons for “Instance Settings,” “Global Settings,” and “Object Settings.” You can specify settings at any level. The order of precedence of settings is from “Object” to “Global” and finally “Instance”.

2. Click on the “Global Settings” button. A dialog window of the “Global Health Indicator Configuration” will show up.
3. Select the instance’ name and object type as “Table space”.

- Right click on Table Space Utilization to edit the default values of the health indicator parameters. You can optionally add a corrective DB2 or OS script to kick in if an alert happens.

Instance: DB2
Object type: Table space

Current health indicator settings

Health Indicator	Default	Evaluate	Warning	Alarm	Unit	Sensitivity	Action	Short name
Table Space Storage								
Table Space Operational State	Yes	Yes				0 Disabled		ts.ts_op_st...
Table Space Utilization	Yes	Yes	80	90	%	0 Disabled		ts.ts_util

[Edit...](#)

- Click on “Edit” button. You will be taken to a dialog window “Configure Health Indicator.” Through this window, you can edit warning and alarm levels, sensitivity or disable evaluation of the parameter entirely. You can also enable actions on either warning or alarm or all alert states.

DB2 - Table space

Health indicator: Table Space Utilization (ts.ts_util) [Tell Me More](#)

Select the Evaluate check box to enable evaluation on the health indicator specified above. Clearing this check box will disable evaluation.

☒ Evaluate

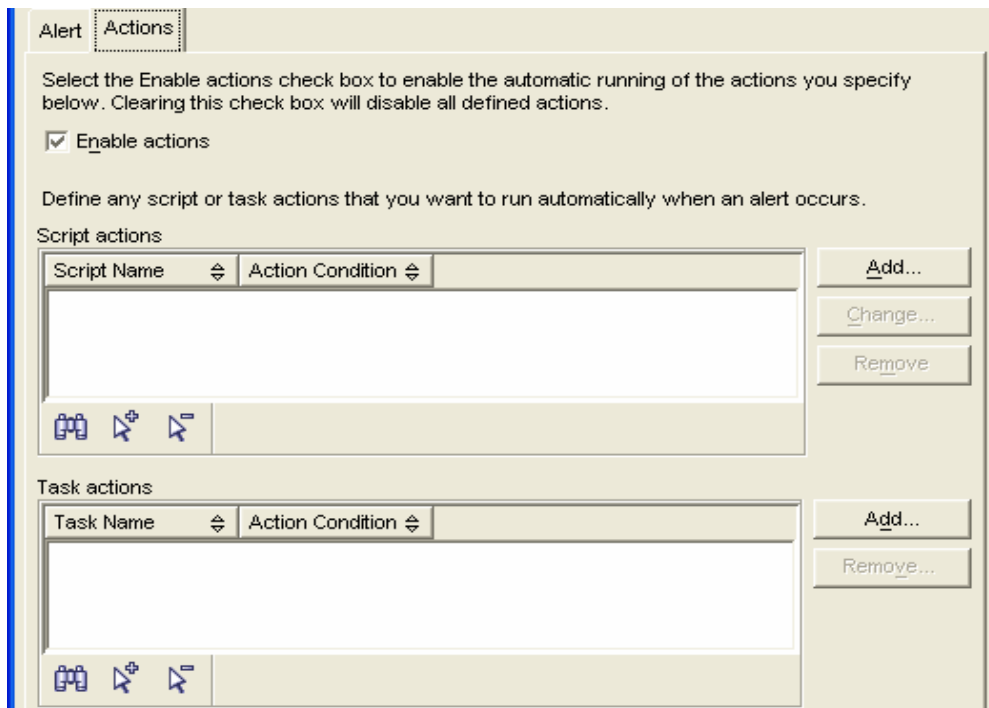
Alert Actions

Warning threshold: 80 %

Alarm threshold: 90 %

Sensitivity for generating alerts is the amount of time by which a threshold-based health indicator must exceed its threshold, or the amount of time that a state-based health indicator must be in a non-normal state before an alert is generated. This can be used to prevent generating alerts for temporary spikes of alertable value.

Sensitivity: 0 Minutes



Alert **Actions**

Select the Enable actions check box to enable the automatic running of the actions you specify below. Clearing this check box will disable all defined actions.

☒ **Enable actions**

Define any script or task actions that you want to run automatically when an alert occurs.

Script actions

Script Name	Action Condition

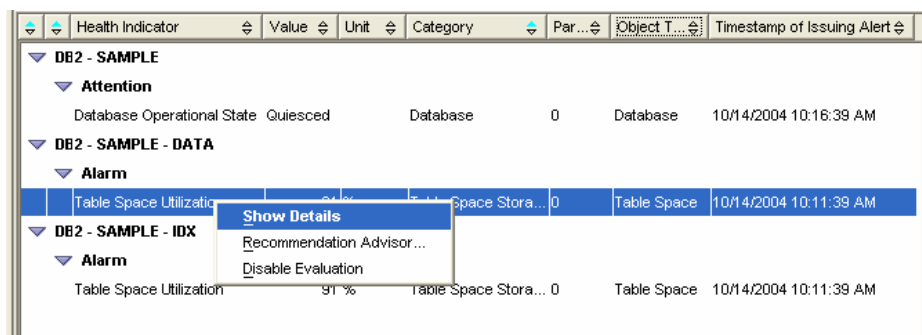
Task actions

Task Name	Action Condition

Buttons: Add..., Change..., Remove, Add..., Remove...

E. CHECK ALERTS IN HEALTH CENTER GUI

Earlier, we had you run `Health10001` command to generate table space alerts. If this script is finished, you should see alerts in your health center GUI. If it still does not show up, wait a couple of minutes for it show up. You will see a screen similar to the one shown as below:



Health Indicator	Value	Unit	Category	Par...	Object T...	Timestamp of Issuing Alert
DB2 - SAMPLE						
Attention						
Database Operational State	Quiesced		Database	0	Database	10/14/2004 10:16:39 AM
DB2 - SAMPLE - DATA						
Alarm						
Table Space Utilization	91 %		Table Space Stora...	0	Table Space	10/14/2004 10:11:39 AM
DB2 - SAMPLE - IDX						
Alarm						
Table Space Utilization	91 %		Table Space Stora...	0	Table Space	10/14/2004 10:11:39 AM

Context menu options: Show Details, Recommendation Advisor..., Disable Evaluation

You may notice three alerts in the health center. Two of them relate to the table space utilization exceeding 90%. The other alert indicates that the database is in quiesced state.

1. Right click on the table space utilization alert
2. Launch the “Recommendation Advisor” to suggest the remedial measures for an alert. Depending upon the type of alert, the “Recommendation Advisor” suggests remedial measures to correct the problem.