

Hinemos ver.2

User's guide

First Edition

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NTT DATA CORPORATION

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This software was developed in response to the delegation of the second half Open-source-software activity infrastructure improvement enterprise in the 2004 fiscal year of independent administrative agency INFORMATION-TECHNOLOGY PROMOTION AGENCY (IPA).

A theme name is "a development of distributed facilities integrated manager."

<http://www.ipa.go.jp/software/open/2004/result.html>

Trademark

Linux is the registered trademark or trademark in Mr. Linus Torvalds's U.S., and other countries.

In addition, the corporate name and product name which are written in this book are the registered trademark or trademark of each company.

In addition, TM and the ® mark have not written in a regular text.

1. Outline of Hinemos

1.1. System outline

Hinemos is an operation-management tool aiming at managing two or more computers in the image of a simplex computer. Hinemos has a function which can register computer groups for every management purpose, and offers environments where monitoring functions and operations according to management purposes are easily performed by GUI.

Hinemos enables you to do effective operation with less manipulation by using computing groups which are made up by computers that organize service systems with two or more different uses.

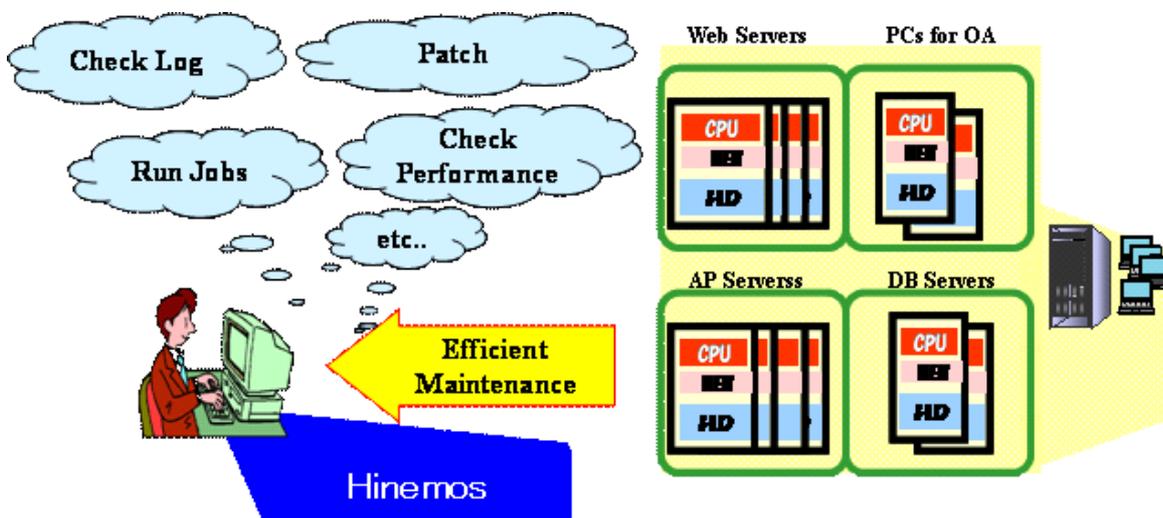


Figure 1-1 Utilization image of this software

1.2. Software foundation used as common platform

Hinemos has realized the operability of integrated management, and grouping of the node used for various uses by the following two functions.

1.2.1. Integrated screen function

It is a function which unifies the operation screen which operators use. Integration of GUI helps display screen handling of various operation managements. Furthermore, the operation screen of various managements is set up for every service system or user by setting up and saving a screen layout (Perspective). As a result, the operability can be improved. Moreover, the simultaneous access by two or more operators is also supported.

1.2.2. Repository function for efficient managements of information and promotion of utilization

This function provides functionsthat unify required information for managing the whole system. It is possible to register the configuration information and the asset management information of nodes into the Repository.

Furthermore, it makes it possible to manage the information by grouping based on arbitrary standpoint. This group is expressed as "Scope" by Hinemos.

According to operators' operation purpose, they can arrange Scopes and Scopes' hierarchy. The repository information set up here can be used from other functions.

e.g.: It is possible to register two or more scopes hierarchically like ["Nippon Building" ⊃ "fourth floor" ⊃ "west floor"] according to the installation locations, and ["head-quarters" ⊃ "business"] according to organization..

1.3. Three functions to realize integrative operation work

1.3.1. Collective run function

It is the function to process by package to two or more nodes by one operation. The category management of the group unit which processes by Package is carried out with a "Scope." So, the work is not complicated even if the number of nodes increases and the increment in the work by the extension of the system is avoidable. If this function is used, emergency like apply of security patches is solvable in a short time.

1.3.2. Monitor management and Performance management function

Monitor management and Performance management functions enable to detect troubles and can acquire a performance information according to scopes. So users can manipulate nodes which exist within the managed system per "Scope" and they can easily check and setup the operation status of a system.

1.3.3. Job management function

This function can automate processes and works which are done repeatedly. So the human cost distributed to finite works can be cut down.

1.4. License

Hinemos is an open source software. It is distributed under the following licenses.

- GNU General Public License

The following softwares are used in Hinemos.

- Repository management function
 - Client
 - JavaVM JRE1.5
 - <http://java.com/ja/download/>

- Eclipse 3.1.1
<http://www.eclipse.org/>
- Manager server
 - JavaVM JRE1.5
<http://java.com/ja/download/>
 - JBoss 4.0.3SP1
<http://www.jboss.org/products/index>
 - OpenLDAP 2.3.20
<http://www.openldap.org/>
- Monitor management function
 - Client
 - JavaVM JRE1.5
<http://java.com/ja/download/>
 - Eclipse 3.1.1
<http://www.eclipse.org/>
 - Manager server
 - JavaVM JRE1.5
<http://java.com/ja/download/>
 - JBoss 4.0.3SP1
<http://www.jboss.org/products/index>
 - syslog-ng 1.6.9
http://www.balabit.com/products/syslog_ng/
 - PostgreSQL 8.1.3
<http://wwwmaster.postgresql.org/>
 - Quartz 1.4.7
<http://www.opensymphony.com/quartz/>
 - The node for management
 - syslog-ng 1.6.9
http://www.balabit.com/products/syslog_ng/
- Performance management function
 - Client
 - JavaVM JRE1.5
<http://java.com/ja/download/>
 - Eclipse 3.1.1
<http://www.eclipse.org/>
 - jfreechart 0.9.21
<http://www.jfree.org/index.php>
 - Manager server
 - JavaVM JRE1.5
<http://java.com/ja/download/>
 - JBoss 4.0.3SP1
<http://www.jboss.org/products/index>
 - PostgreSQL 8.1.3
<http://wwwmaster.postgresql.org/>
 - OpenNMS 1.2.0
<http://www.opennms.org/wiki/>
 - The following sample codes are changed and used.
 - [opennms-1.2.0-1/source/tests/src/org.opennms/test/NamedSnmpVar.java](#)
 - [opennms-1.2.0-1/source/tests/src/org.opennms/test/snmpwalkmv.java](#)
 - The node for management
 - NET-SNMP 5.1.2-11.EL4.6

<http://sourceforge.net/projects/net-snmp>

- Collective run function
 - Client
 - JavaVM JRE1.5
<http://java.com/ja/download/>
 - Eclipse 3.1.1
<http://www.eclipse.org/>
 - Manager server
 - JavaVM JRE1.5
<http://java.com/ja/download/>
 - JBoss 4.0.3SP1
<http://www.jboss.org/products/index>
 - PostgreSQL 8.1.3
<http://wwwmaster.postgresql.org/>

- Job management function
 - Client
 - JavaVM JRE1.5
<http://java.com/ja/download/>
 - Eclipse 3.1.1
<http://www.eclipse.org/>
 - Manager server
 - JavaVM JRE1.5
<http://java.com/ja/download/>
 - JBoss 4.0.3SP1
<http://www.jboss.org/products/index>
 - In addition to a mainframe, the following sample sources are changed and used.
JDBCTypeFactory.java
 - PostgreSQL 8.1.3
<http://wwwmaster.postgresql.org/>
 - Quartz 1.4.7
<http://www.opensymphony.com/quartz/>
 - The node for management
 - JavaVM JRE1.5
<http://java.com/ja/download/>
 - JBoss 4.0.3SP1
<http://www.jboss.org/products/index>

2. Integrated screen function

2.1. Functional outline

The following functions are offered in the integrated screen function.

- It is possible to display various kinds of operation-management screens integrative.
- It is possible to operate the screen of each function by an integrated screen.
- It is possible to customize a screen layout (Perspective).
- It is possible to save and restore the customized screen layout (Perspective).

2.2. Selection of screen layout (Perspective)

Following seven screen layouts are prepared in advance.

- Repository function
- Collective run function
- Monitor management function
- Performance management function
- Job management function
- Accessing function
- Calendar function

Please select a screen layout in the following procedures.

1. Choose [Perspective] -> [Open Perspective] of a menu bar. A selection dialog of perspective is displayed. Perspective means the set of screen compositions in this software.

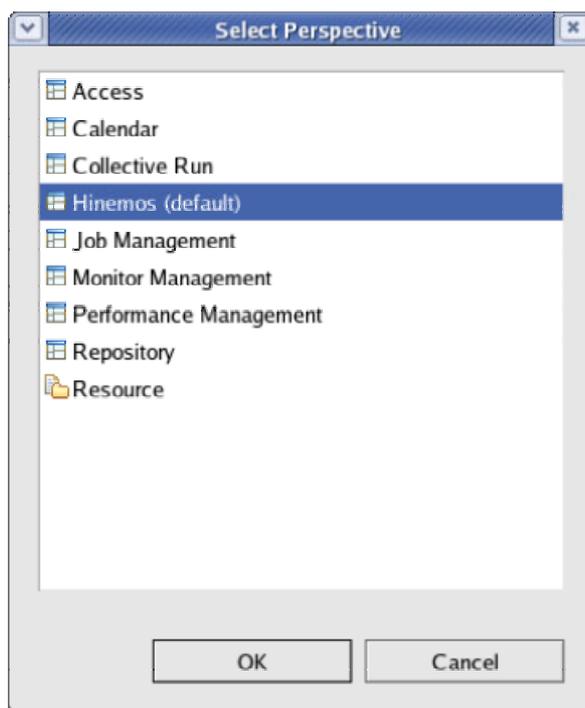


Figure 2-1 Selection dialog

2. Choose a screen layout (Perspective) to display.
3. Click "OK" button.

2.3. Save of your screen layout (Perspective)

The customized screen layout can be saved with a different name. The screen layout which saved with a different name is added to the selection dialog of perspective as one of the choices.

The following procedures can save the customized screen layout with a different name.

1. Choose [Perspective] -> [Save Perspective] of a menu bar. The alias storage dialog of a Perspective is displayed.
2. Set name in the input column of the name of the alias storage dialog of a Perspective.
3. Click "OK" button.

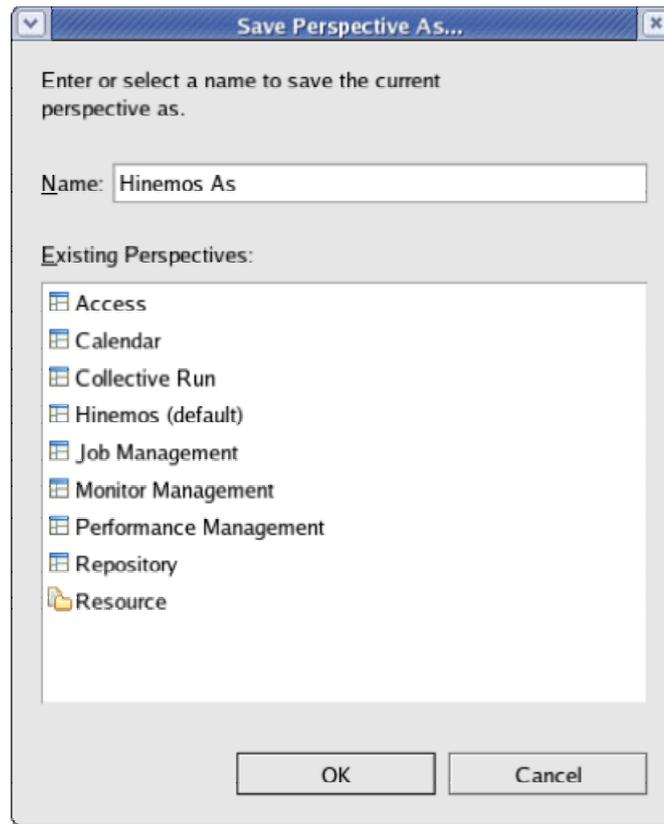


Figure 2-2 Alias storage dialog

3. Accessing function

3.1. Functional outline

This function enables to create, change and delete hinemos users. The authority over each Hinemos function can be set up for every user.

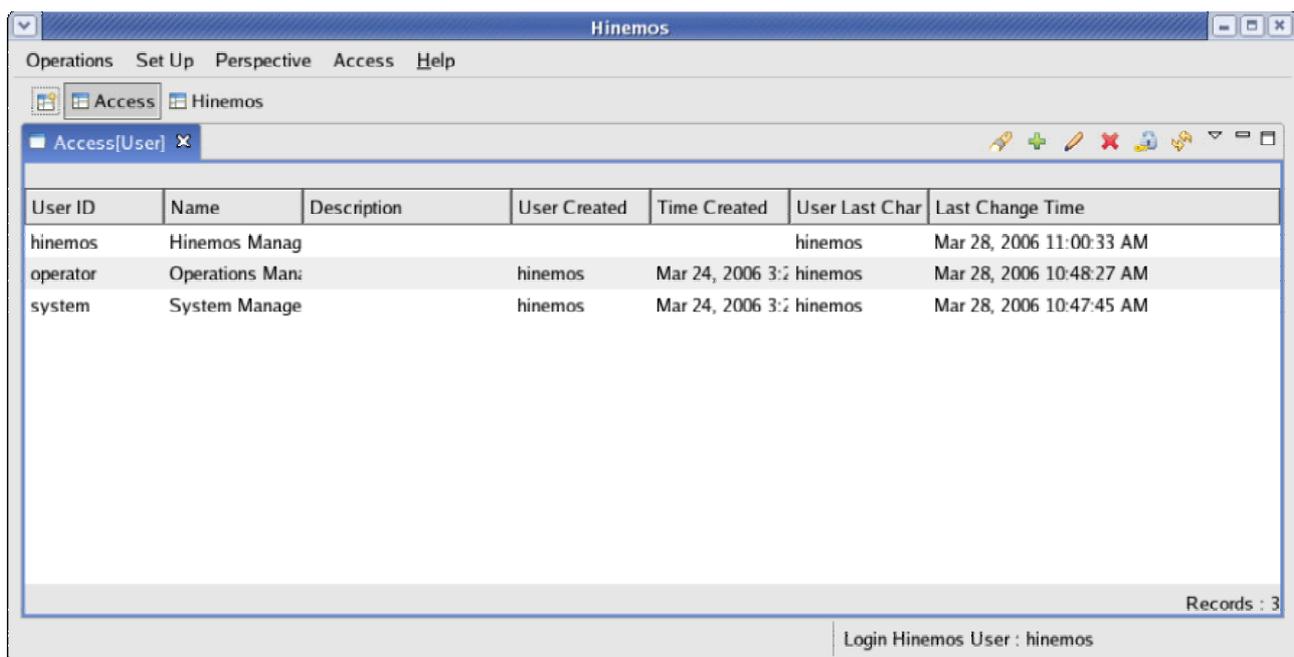
There are three authorities as follows.

- Refer authority -- Information can be displayed.
- Set-Up authority -- Setup information can be added and changed.
- Execute authority -- Operations can be performed.

3.2. Screen composition

3.2.1. Access [User] view

It is a view for managing the user of Hinemos. A list of users is displayed. Creation, deletion of users and change of configuration information are executed here.



The screenshot shows the Hinemos application window with the 'Access [User]' view. The window title is 'Hinemos'. The menu bar includes 'Operations', 'Set Up', 'Perspective', 'Access', and 'Help'. The toolbar contains icons for adding, deleting, and refreshing data. The main area displays a table with the following data:

User ID	Name	Description	User Created	Time Created	User Last Char	Last Change Time
hinemos	Hinemos Manag				hinemos	Mar 28, 2006 11:00:33 AM
operator	Operations Man:		hinemos	Mar 24, 2006 3:2	hinemos	Mar 28, 2006 10:48:27 AM
system	System Manage		hinemos	Mar 24, 2006 3:2	hinemos	Mar 28, 2006 10:47:45 AM

At the bottom right of the window, it says 'Records : 3' and 'Login Hinemos User : hinemos'.

Figure 3-1 Accessing function initial screen composition

Table 3-1 Tool bar

Icon	Button name	Description
	Filter	Filter setup of user list is performed.
	Create	User is created.
	Change	User Information is changed.
	Delete	User is deleted.
	Change Password	User's Password is changed.
	Update	The contents of an Access [User] view are updated to the latest.

3.3. Create user

A user is created in the following procedures.

1. Click the "create" button in the Access [User] view. An Access[Create/Change User] dialog opens.

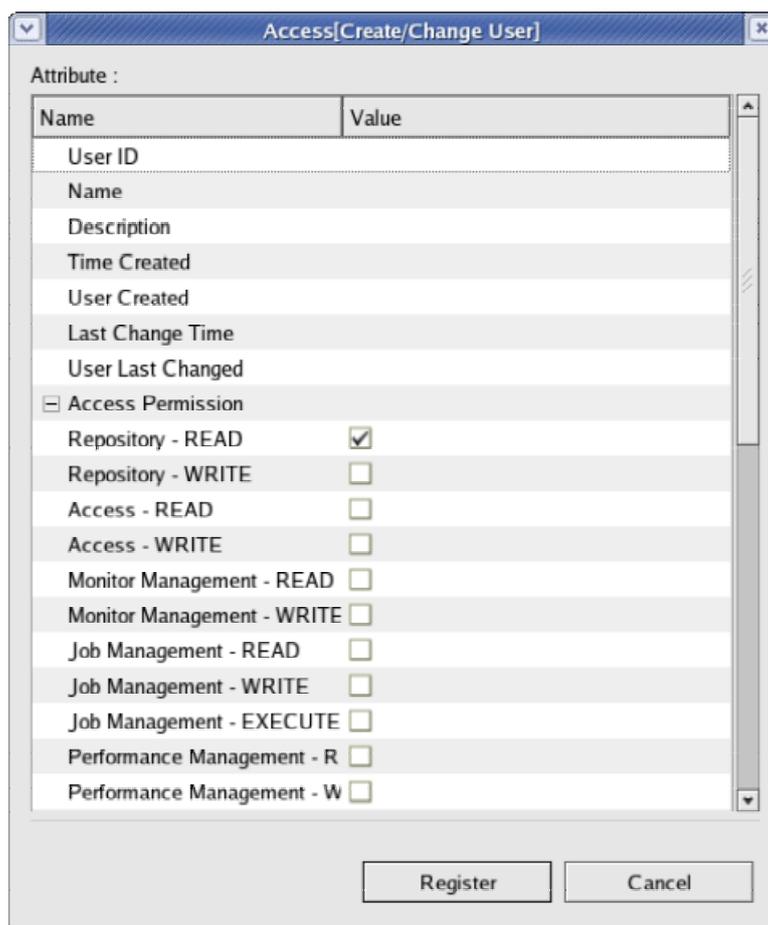


Figure 3-2 Access [Create/Change User] dialog

2. Input attribute information. Click a record on the property table and input attribute value.

User ID is a required item among attribute informations (it is not omissible). Moreover, the User ID should serve as a unique on the system. Duplication register cannot be carried out.

3. A check is put into the authority given to the user who creates among the check boxes of the authority of each function displayed on the Attribute of an Access Permission.
4. Click the "Register" button.. (A dialog is not closed.) A user can be created continuously.

In order to log in by the user who created, it is necessary to set up a Password.

3.4. Change Password

A user's Password is changed in the following procedures.

1. After choosing the user wanted to change from the user list table of the Access [User] view and click the "Change-Password" button. Access [Change User Password] dialog opens.



Figure 3-3 Access [Change User Password] dialog

2. Enter a password into the Password column.
3. Reenter the same password into the Password-Confirmation column.
4. Click "OK" button.

3.5. Change of user configuration information

A user's configuration information is changed in the following procedures.

1. After choosing the user wanted to change from the user list table of the Access [User] view and click the "Change-Password" button. Access [Create/Change User] dialog opens.
2. Edit attribute. Click the record to edit on the property table which shows the list of attributes and input attribute values.
3. Click "change" button.

3.6. Login

In the following procedures, you can log in to Hinemos by the appointed user.

1. Choose [Access] -> [Login] on the menu bar. Access [Login] dialog is displayed.
2. Enter User ID and Password and click "Login" button.

4. Repository function

4.1. Functional outline

A Repository function offers the function to register, change and delete the information of the object managed by Hinemos.

4.1.1. About Repository

It is database which stores the data treated by an integrated management in the form in which the management according to Scope is possible. The information registered into the Repository is used by other functions.

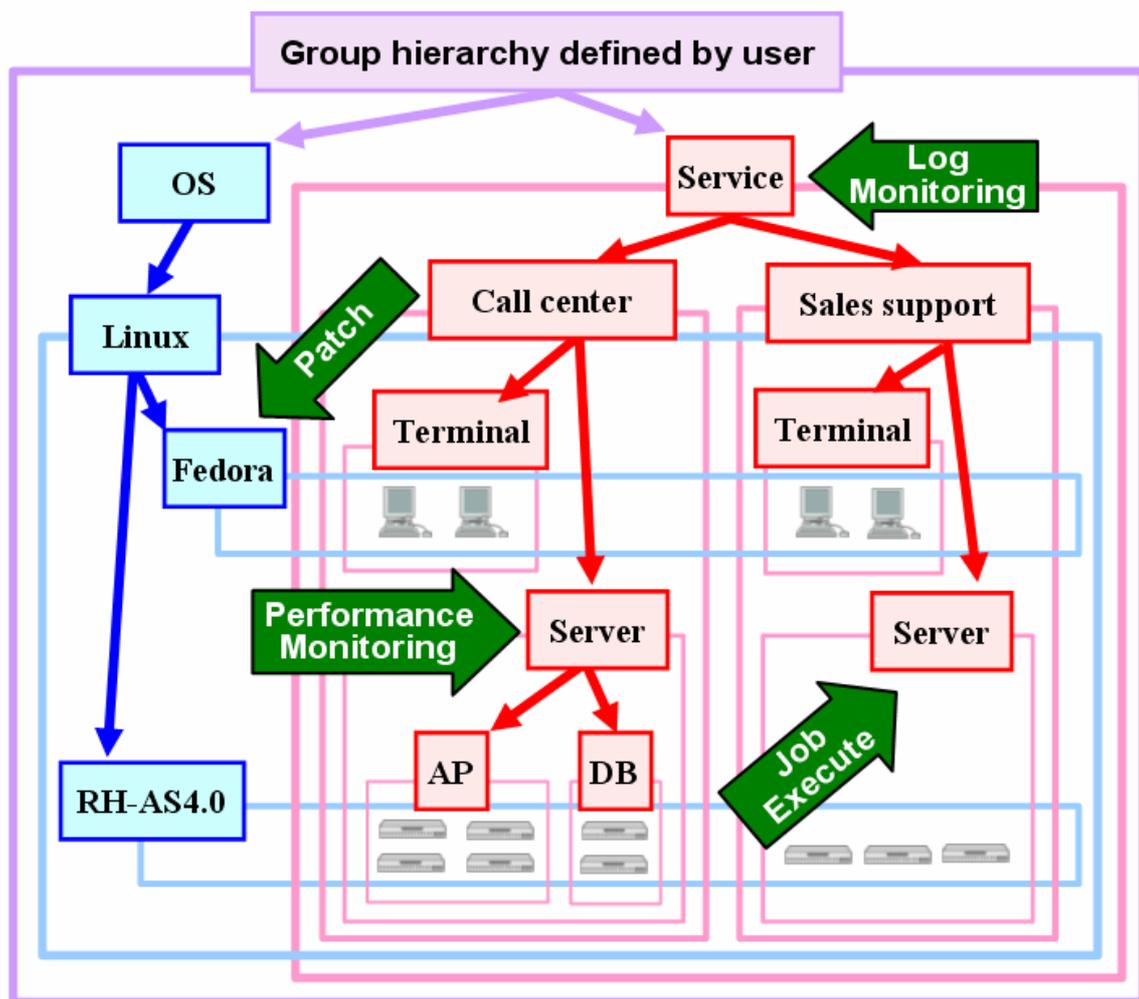


Figure 4-1 Image of a Repository

4.2. Screen composition

4.2.1. Initial screen composition

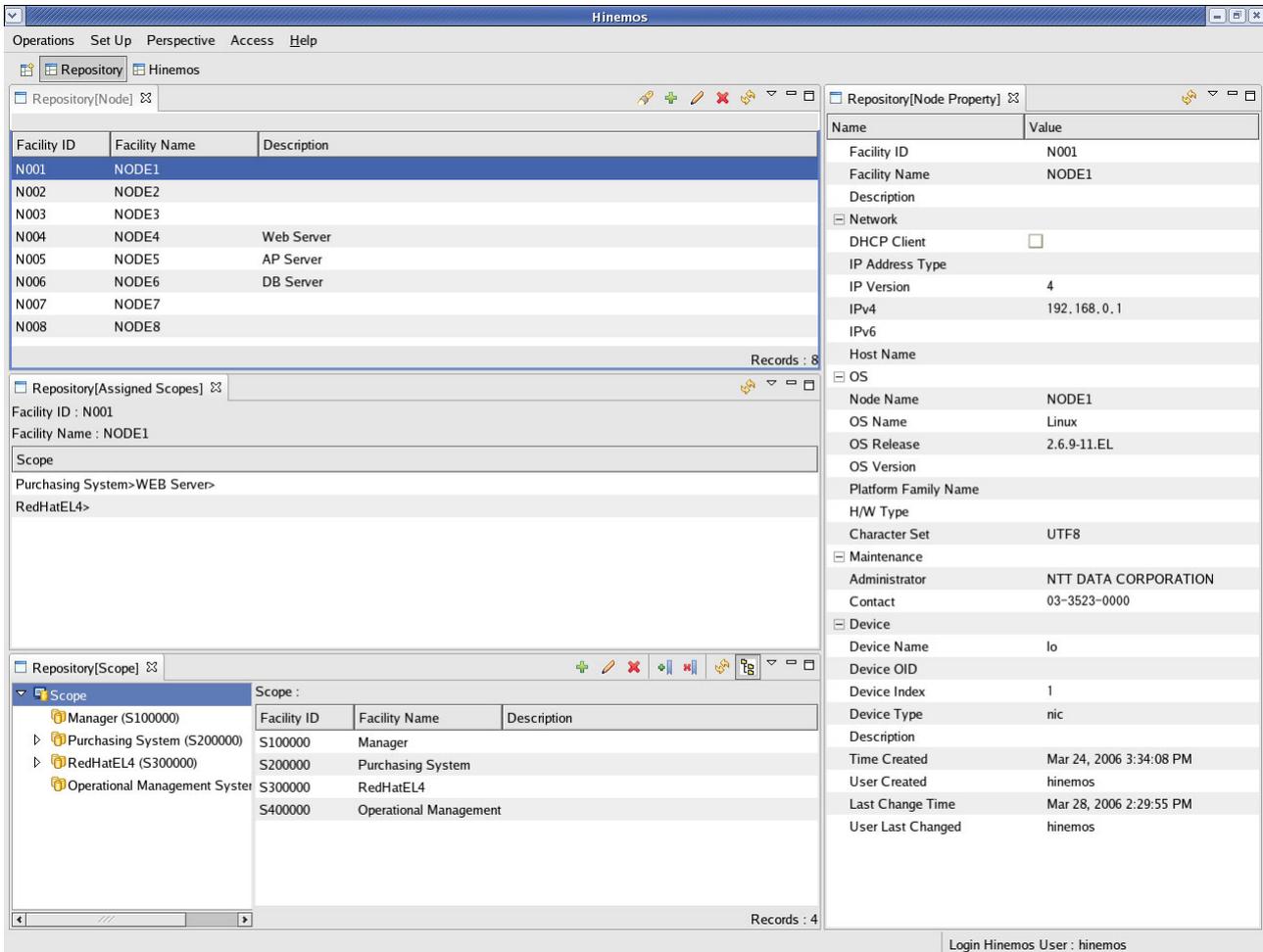


Figure 4-2 Repository-function initial screen composition

4.2.2. Repository [Node] view

It is a view to display about the list of registered nodes. In this view, the registration and deletion of a Node etc. can perform the operations about node information.

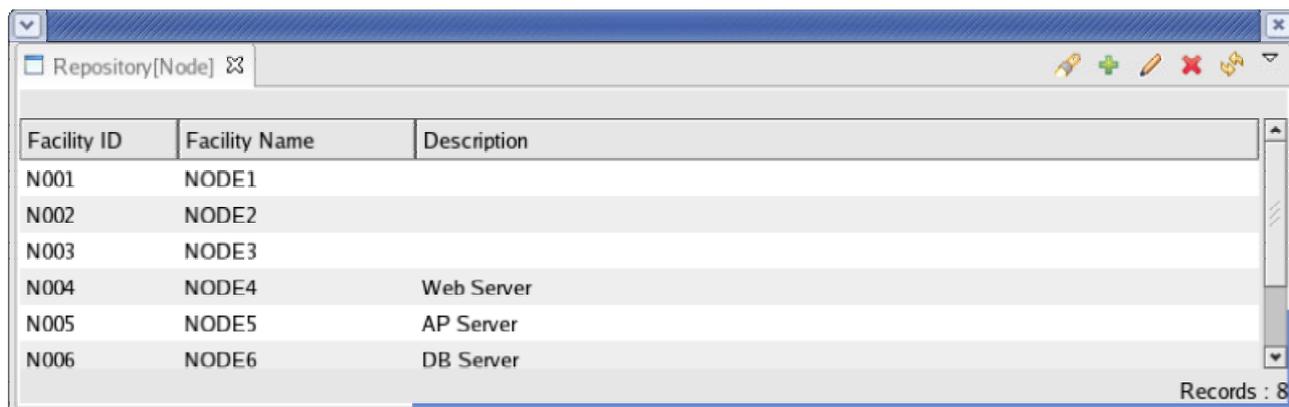


Figure 4-3 Repository [Node] view

Table 4-1 Tool bar

Icon	Button name	Description
	Filter	Filter setup of node information list is performed.
	Create	Node information is created.
	Change	Node information is changed.
	Delete	Node information is deleted.
	Update	The contents of a Repository [Node] view are updated to the latest thing.

4.2.3. Repository [Node-Property] view

This is a view to display the contents of a registered node. This view shows the node's Information chosen with the Repository [Node] view.

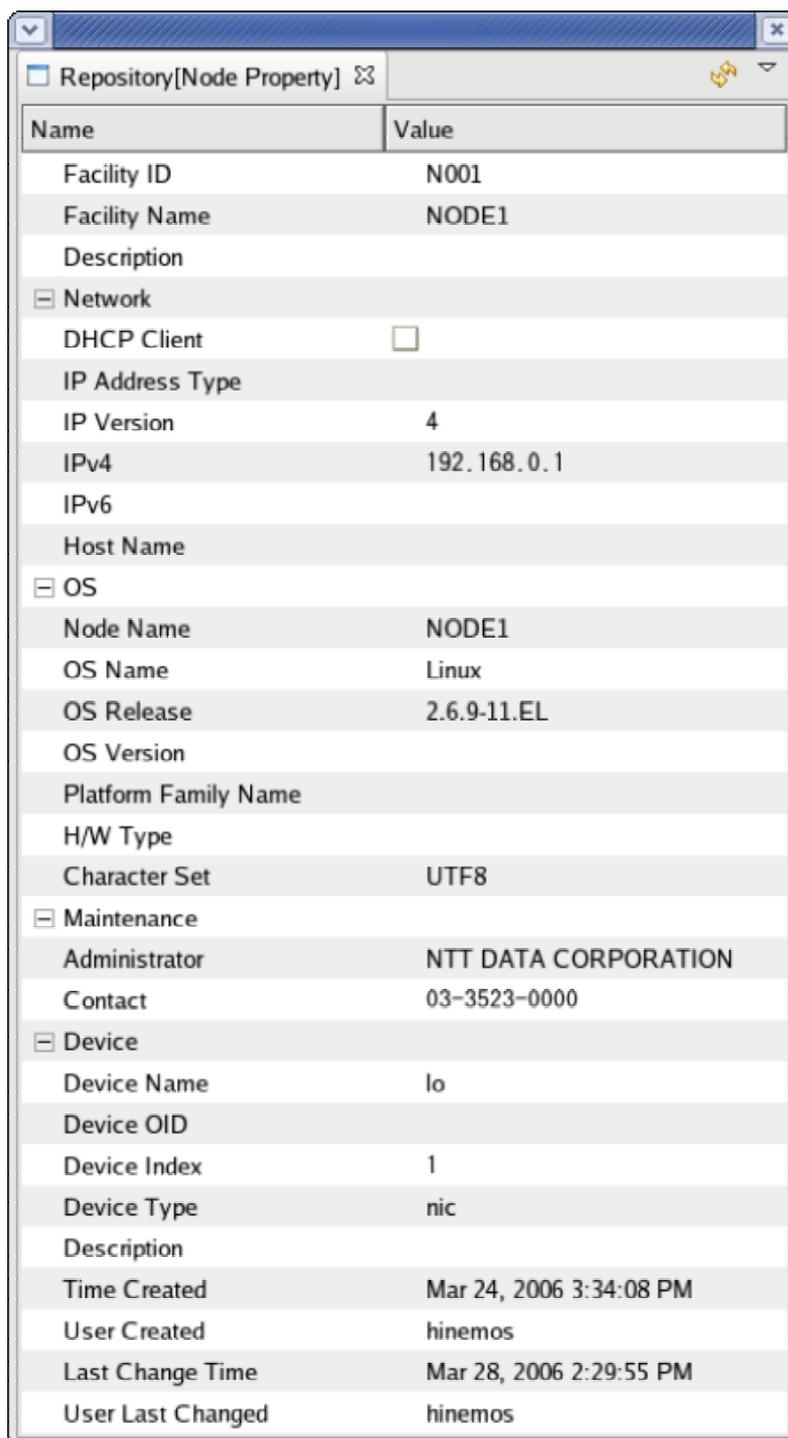


Figure 4-4 Repository [Node-Property] view

Table 4-2 Tool bar

Icon	Button name	Description
	Update	The contents of Repository [Node-Property] view are updated to the

		latest thing.
--	--	---------------

4.2.4. Repository [Assigned-Scopes] view

This view shows the list of relations between scopes and nodes. The assigned status chosen in the Repository [Node] view is displayed.

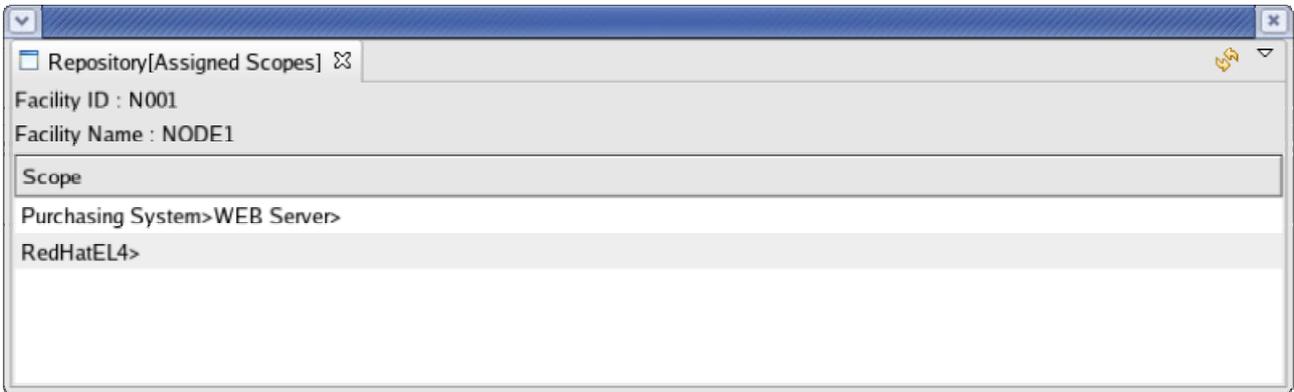


Figure 4-5 Repository [Assigned-Scopes] view

Table 4-3 Tool bar

Icon	Button name	Description
	Update	The contents of Repository [Assigned-Scopes] view are updated to the latest thing.

4.2.5. Repository [Scope] view

This view displays about the information of the registered scopes. In this view, the registration and deletion of a Scope, the assignment of nodes to a scope, etc. can be operated.

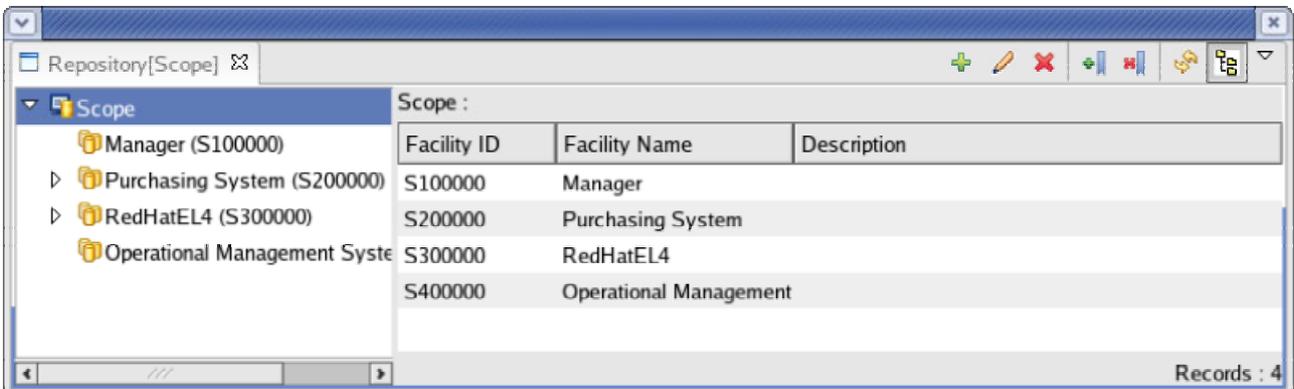


Figure 4-6 Repository [Scope] view

Table 4-4 Tool bar

Icon	Button name	Description
	Create	Scope is created.
	Change	Attribute information of Scope is changed.
	Delete	Scope is deleted.
	Allocation	Node is assigned to Scope.
	Release	Assignment of node currently assigned to the Scope is canceled.
	Update	The contents of Repository [Scope] view is updated to the latest thing.
	Show Scope Tree Pane	It can choose to display / un-display of the Scope tree pane

4.3. Creation procedure of scope tree

A Scope tree is created in the following procedures.

1. Register of node information
2. Create of scope (scope tree)
3. Assignment of nodes to the scope

On a scope, one or more low-rank scopes can be created, and trees with a hierarchy structure can be created.

By registering one or more nodes into a scope, grouping of the nodes can be treated collectively. Moreover, it is also possible to assign one node to two or more scopes.

4.4. Create, change, and delete of node

4.4.1. Create of node information

Node information is referred from all the functions. When the node information have fault, Hinemos doesn't work right. Please set up them carefully.

Node information is registered into Repository in the following procedures.

1. Click the "create" button of a Repository [Node] view. Repository [Create/Change-Node] dialog opens.

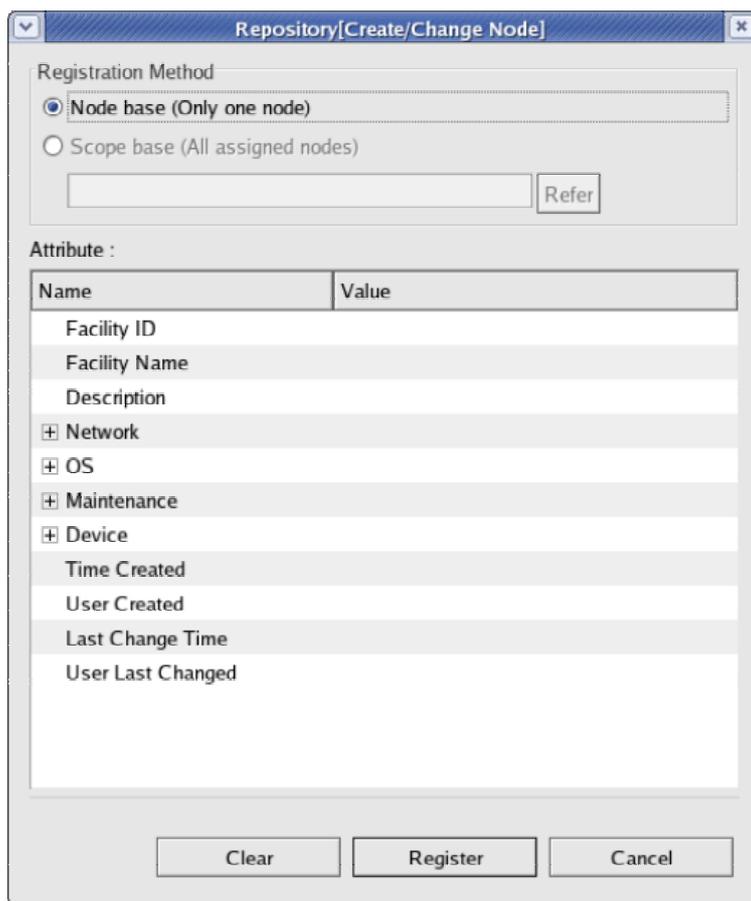


Figure 4-7 Repository [Create/Change-Node] dialog

2. Input attribute information. Click a record where to enter on the Property table which displays the list of attributes and input attribute value.
 A Facility ID and a Facility Name are required items among Attribute informations (they are not omissible). Moreover, a Facility ID should serve as a unique on a system.
 Refer to the contents of table 3-5 Node information for the item which can be registered, and its contents.
3. Click the “Register” button. The node information inputted now is registered.

Table 4-5 The contents of Node information

Name	Value	Remark
Facility ID	Text	Duplication is impossible.
Facility Name	Text	
Description	Text	
Network		
DHCP Client		Intact in the present version.
The Type of an IP Address		Intact in the present version.

IP Version		Intact in the present version.
IPv4	Text	Refer to the Value here for the IP Address of the Node used by other functions.
IPv6		Intact in the present version.
Host Name	Text	Two or more Registers are possible.
OS		
Node Name	Text	The Host Name of an Object machine is inputted. It uses by a Log monitoring function.
OS Name	Text	
OS Release	Text	
OS Version	Text	
Platform Family Name	Text	
H--W Type	Text	
Character Set	Text	
Maintenance		
Administrator	Text	
Contact	Text	
Device		Two or more Registers are possible. It uses by achievement information collection of a Performance management function.
Device Name	Text	
Device OID		Intact in the present version.
Device Index	Digit value	The index of a Device information acquirable by NET-SNMP.
Device Type	Text	"disk" or "nic" is inputted.
Description	Text	
Time created	Text	
User Created	Text	
Modification time	Text	
Update user of last	Text	

4.5. Confirm property information

Choose the node which you want to check its property information from a node list table in the Repository [Node] view. The selected property information and selected assigned status of the node are displayed on the Repository [Node-Property] view and Repository [Assigned-Scopes] view, respectively.

When the setting of node information is changed and the change is not reflected, click the "Update" button of each view please.

4.6. Create, change, and delete of scope

4.6.1. Create of scope

Scope can be created to Repository in the following procedures.

1. Chosen the parent scope of the scope to create from the scope tree of Repository [Scope] view. A Scope is created under the scope chosen here, and it becomes a hierarchy structure.
2. Click the "create" button of the Repository [Scope] view. Repository [Create/Change

Scope] dialog opens.

3. Input attribute information. Click the record which to input on the property table which displays the list of attributes, and input attribute value.

Facility ID and Facility Name are required items among Attribute informations (they are not omissible). Moreover, Facility ID must be a unique on the system.

4. Click the "Register" button.. The Scope inputted now is registered.

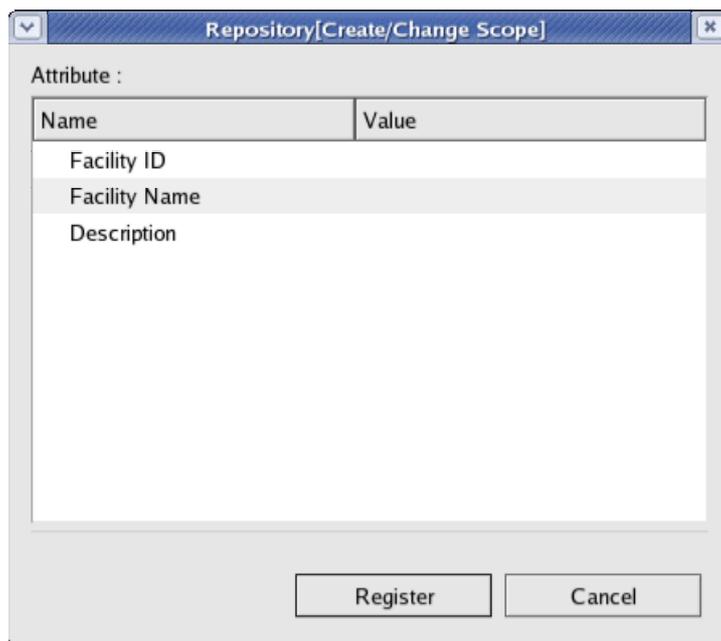


Figure 4-11 Repository [Create/Change Scope]

5. Common function – Notice setup –

5.1. Functional outline

In threshold surveillance of the monitoring function (syslog-ng monitoring, Hinemos Job Agent monitoring, ping monitoring, process monitoring, SNMP monitoring, SQL monitoring), Job Management and Performance Management, the generated Event can be notified to Monitor management function.

Method of notification can be set up and saved in notice function (it is like the template which defined the notice method referred to when each function notifies).

In the case of notifying to Monitor Management function by each function, the notice method is chosen by setting of the registered Notification ID.

5.2. Register of Notice setup

Notice setup can be registered in the following procedures.

1. Choose [Operations] -> [Common] -> [Notification [List]] from the menu bar. A Notification[List] dialog is displayed.

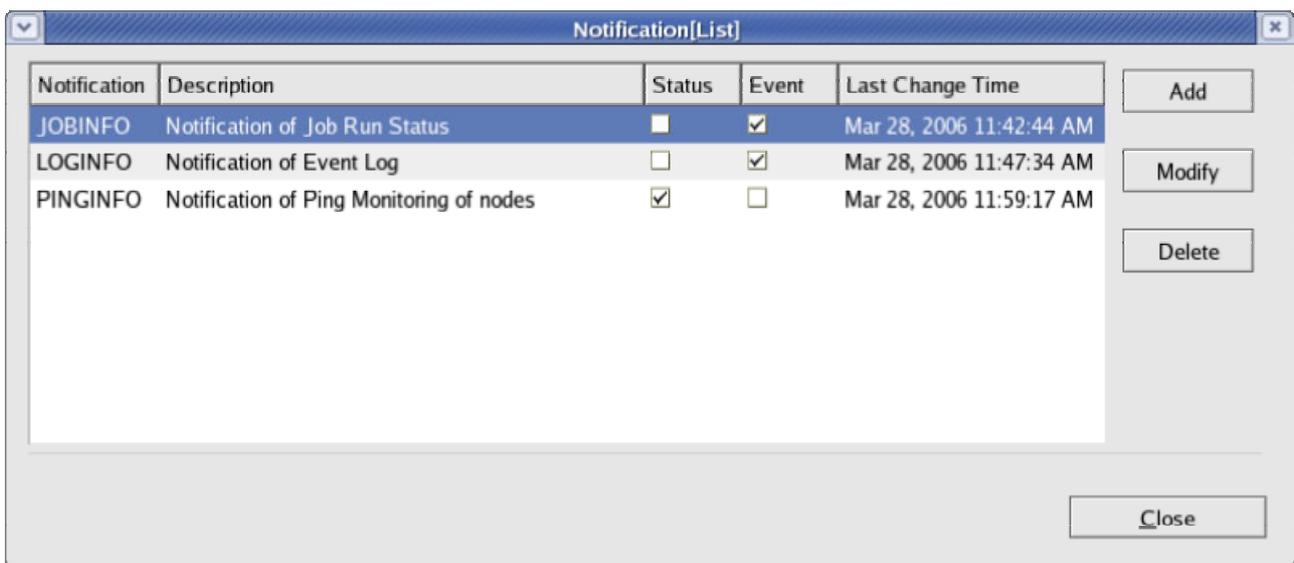


Figure 5-1 Notification [List] dialog

2. Click "add" button. Notification [Create/Change] dialog opens.

Figure 5-2 Notification [Create/Change] dialog

3. Notification ID is set up. In the function to use Notice setup, a notice method is chosen by specifying this ID.
4. Input the Description column.
5. Set up Status Notification.

Status Notification :

When you perform Status Notification, please put a check into the check box.

Duration of Status information :

Choose Duration of Status Information.

Treatment after duration progress :

The information on the Status which passed over duration can be processed by the following two methods.

- Delete an information.

If it passes over duration, it will be deleted from the Monitor [Status] view.

- Transpose to the message which means that it is not updated.

If it passes over duration, it will transpose to the message which means that the contents in the Status information display have not updated. It is possible in that case to also change the priority. Please choose the priority to change.

6. Event Notification is set up.

The following set ups can be performed to the priority of Notification, Warning, Critical, and Unknown, respectively.

Notification :

Put a check into the priority which performs Event Notification.

Status (Notification) :

When performing Event Notification, it can be chosen whether it notifies by "Unconfirmed", or it notifies by "Confirmed". Even if the event notified by "Confirmed", it is not displayed on a Monitor [Event] view. (It can be displayed by setting the "Filter" of the Monitor [Event] view which displays confirmed events).

Suppress :

Put a check in the case of setting up Suppress. Suppress process is carried out by the setting of the "Suppression Interval" set up in the follows.

Status (Suppress) :

When the Suppress process of the event notification is carried out, it can be chosen whether it notifies by "Confirmed", or it is abandoned.

Mail :

Put a check in the case of performing transmitting mail.

Mail address :

Input mail address. When you specify two or more mail addresses, please divide and input by a semicolon.

Control of the number of Notification times at the time of event duplication :

You can specify a control when the same event occurs.

The control is chosen from following three methods as the control interval.

- Don't suppress

Suppress is not performed, also when an event overlaps.

- Suppress by time interval <:minute:>

It is not notified even if the same event occurs within the appointed period after performing an event notification once. Please input suppress period into the text box per minute<:s:>.

- Suppress by counter

After it performs an event notification once, even if the same event occurs, it is not notified

between the appointed number of times. Please input the number of times of suppress into the text box.

5.3. Change of Notice setting

1. Click the "change" button after choosing a change target in the Notification [List] dialog. Notification [Create/Change] dialog opens.
2. Click "OK" button after editing the contents of setting (refer to the foregoing section for the procedure of set up).

5.4. Delete of Notice setup

Click the "Delete" button after choosing the change target in the Notification [List] dialog.

6. Common function – Calendar setup –

6.1. Functional outline

The period when jobs work can be set up, saved and referred to.

A busy period can be set up by the following two methods.

1. Execution time can be set up per Weekday as execute rule.
2. Additional time specified settings can be set up as execute exception to what was set up per Weekday.

Setting about Operating and non-operating days can be set up.

6.2. Screen composition

6.2.1. Initial screen composition

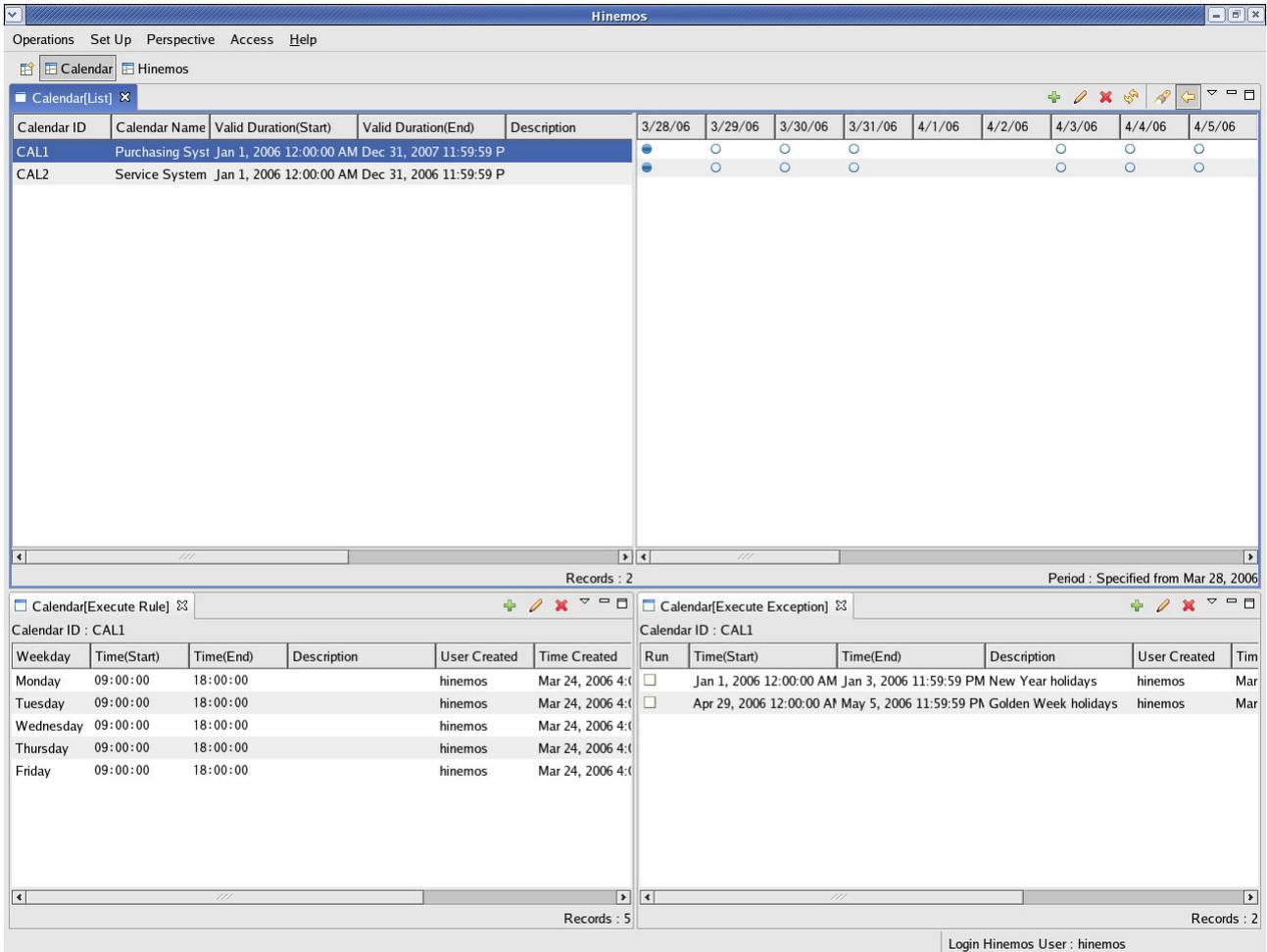


Figure 6-1 Calendar function initial screen composition

6.2.2. Calendar [List] view

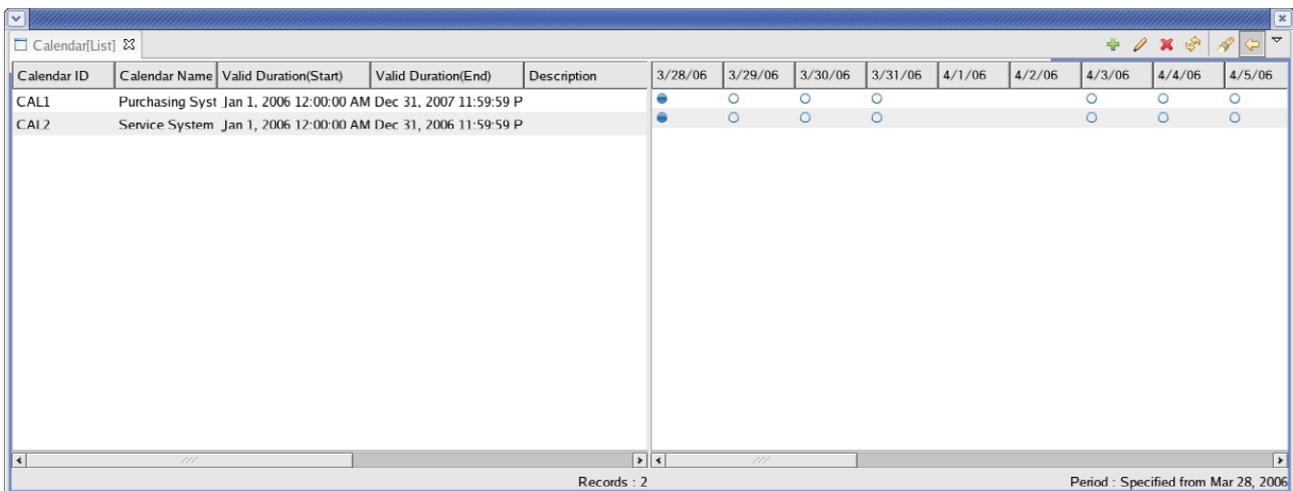
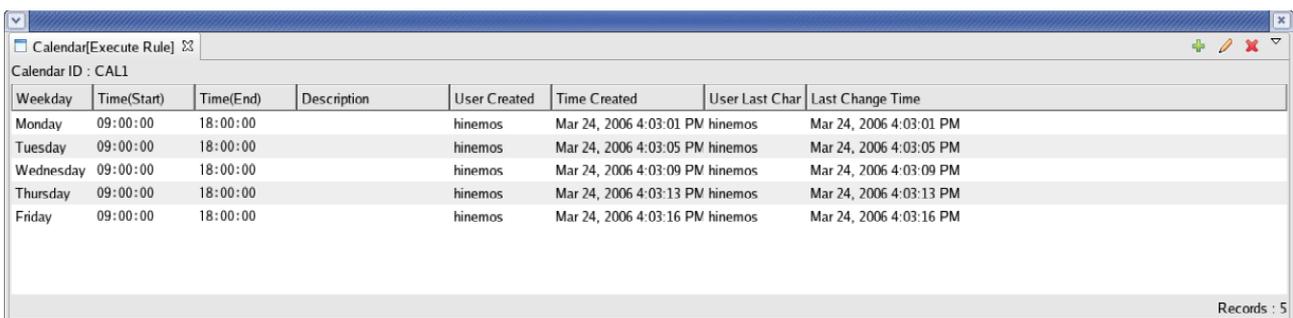


Figure 6-2 Calendar [List] view

Table 6-1 Tool bar

Icon	Button name	Description
	Create	Create calendar information
	Change	Change calendar information
	Delete	Delete calendar information
	Update	Update the contents of a Calendar [List] view to the latest
	Filter	Set up the display beginning date of the schedule list on the left-hand side of Calendar [List] view and update the contents
	Show Schedule	Choose display / un-displaying of schedule list

6.2.3. Calendar [Execute-Rule] view



Weekday	Time(Start)	Time(End)	Description	User Created	Time Created	User Last Char	Last Change Time
Monday	09:00:00	18:00:00		hinemos	Mar 24, 2006 4:03:01 PM	hinemos	Mar 24, 2006 4:03:01 PM
Tuesday	09:00:00	18:00:00		hinemos	Mar 24, 2006 4:03:05 PM	hinemos	Mar 24, 2006 4:03:05 PM
Wednesday	09:00:00	18:00:00		hinemos	Mar 24, 2006 4:03:09 PM	hinemos	Mar 24, 2006 4:03:09 PM
Thursday	09:00:00	18:00:00		hinemos	Mar 24, 2006 4:03:13 PM	hinemos	Mar 24, 2006 4:03:13 PM
Friday	09:00:00	18:00:00		hinemos	Mar 24, 2006 4:03:16 PM	hinemos	Mar 24, 2006 4:03:16 PM

Figure 6-3 Calendar [Execute-Rule] view

Table 6-2 Tool bar

Icon	Button name	Description
	Create	Create execute rule information
	Change	Change execute rule information
	Delete	Delete execute rule information

6.2.4. Calendar [Execute-Exception] view

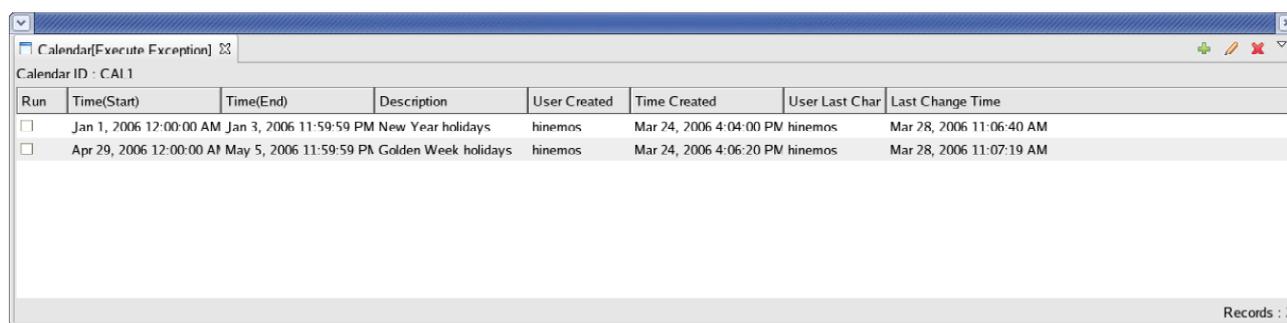


Figure 6-4 Calendar[Execute-Exception] view

Table 6-3 Tool bar

Icon	Button name	Description
	Create	Create execute exception information
	Change	Change execute exception information
	Delete	Delete execute exception information

6.3. Create calendar

6.3.1. Register calendar

1. Click the “create” button. on the Calendar [List] view. Calendar[Create/Change Calendar] dialog is displayed.

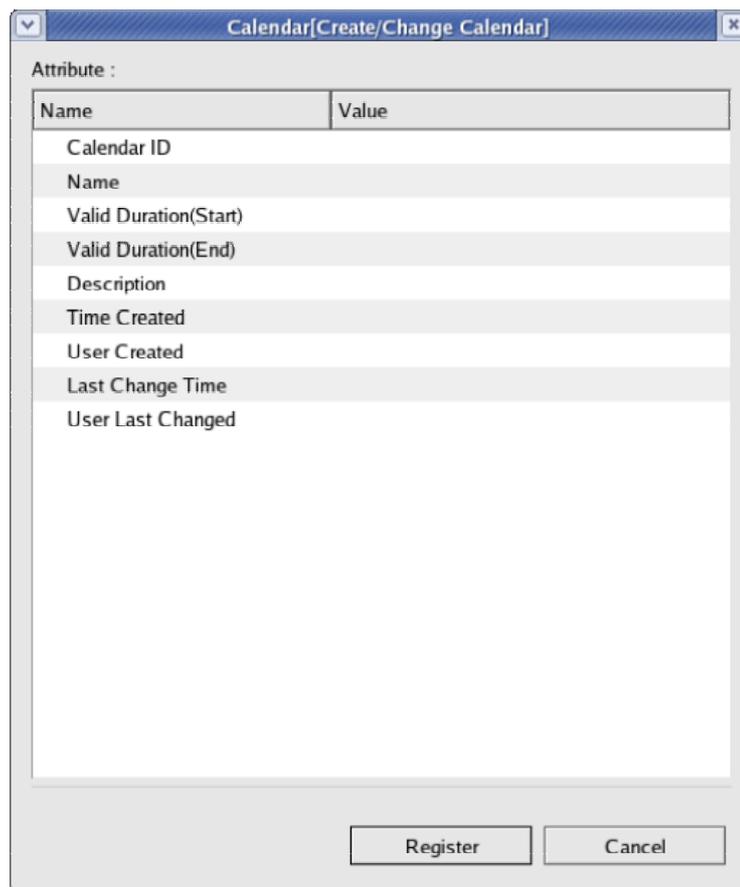


Figure 6-5 Calendar [Create/Change Calendar] dialog

2. Set up the articles of the property table. You can input a Valid Duration (Start) and Valid Duration (End) on this time dialog. Click a button beside an input column and Time dialog opens. Please make a choice of date. You can choose time by combo boxes. The setting of calendar is effective during the period set up here.

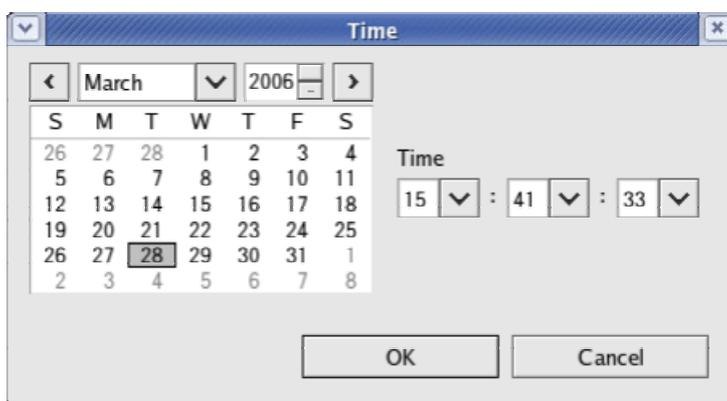


Figure 6-6 Time dialog

3. Push "Register" button. Since the Calendar [Create/Change Calendar] dialog is not closed, you can register continuously two or more calendars.
4. Click "Cancel" button if you want to finish the register of calendar.

6.4. Set up execute rule

6.4.1. Register execute rule information

1. Choose a calendar to set up from a Calendar [List] view. The present setting is displayed on the Calendar [Execute-Rule] view.

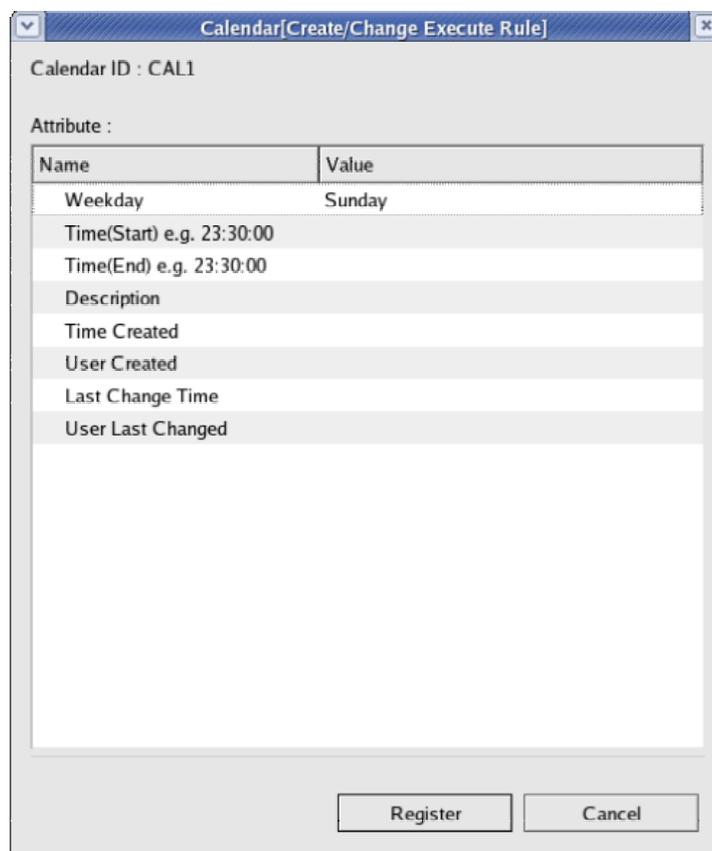


Figure 6-7 Calendar [Create/Change Execute Rule] dialog

2. Click the "create" button on the Calendar [Execute Rule] view. Calendar [Create/Change Execute Rule] dialog is displayed.
3. Input weekdays to set up, and periods of time of the weekdays (although two or more periods of time can also be set up at the same Weekday, the periods of time which contain duplicate periods cannot be registered).
4. Click "Register" button. Since the Calendar [Create/Change Execute Rule] dialog is not closed, you

can register continuously two or more settings.

5. Click "Cancel" button if you want to finish the register of execute rule set up.

6.5. Set up execute exception

You can set up more detailed calendar setting by setting up exceptional information to a execute rule.

You can set up specified period to operation or non-operation period based on the execute rule by setting up execute exception information

6.5.1. Register execute exception information

1. Select the calendar to set up from a Calendar [List] view. The present setting is displayed on the Calendar [Execute Exception] view.

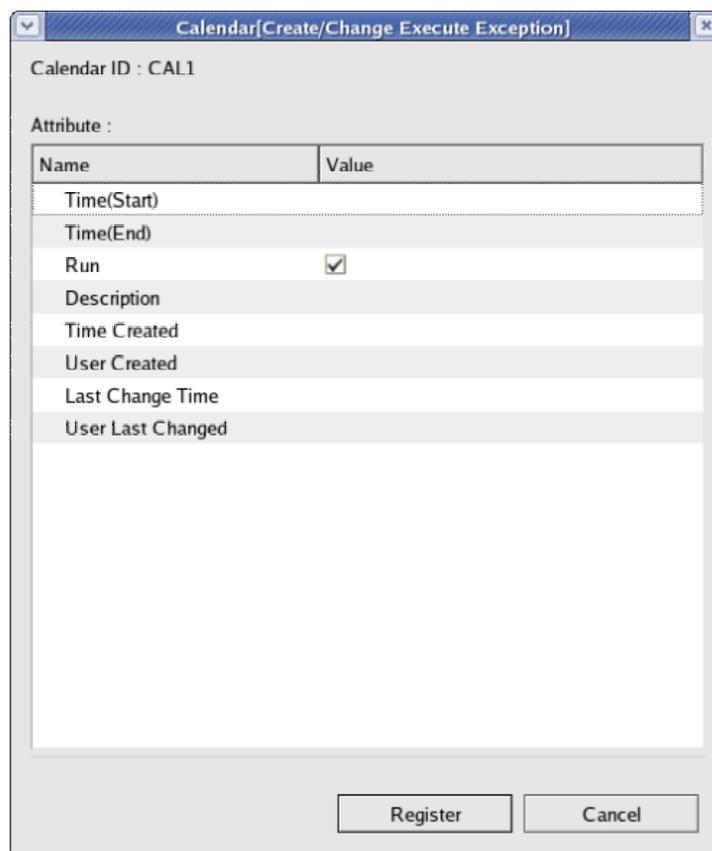


Figure 6-8 Calendar [Create/Change Execute Exception] dialog

2. Click the "create" button of Calendar [Execute Exception] view. Calendar [Create/Change Execute Exception] dialog is displayed.
3. Set up the period to register as an exception. Time dialog will be displayed when you click a button displayed on the input column of Time (Start) and Time (End). Please set up Time.

4. Check the check box of the execution column if you want to make the setting period into an operation period. If you want to make the setting period into a non-operation period, remove the check of the check box. (Even if it is an operation period set by execution regulations, the period specified as the non-operation period here does not work.)
5. Click "Register" button. Since the Calendar [Create/Change Execute Exception] dialog is not closed, you can register continuously two or more settings.
6. Click "Cancel" button if you want to finish the register of execute exception information.

7. Collective run function

7.1. Functional outline

This is the function to process by package to two or more nodes by one operation.

You can execute a process by the operation on the GUI screen. By specifying a scope, it can execute by package to all the nodes registered into the scope.

The following Processes can be performed per scope.

- Installation of RPM package
- Startup and Stop of application
- Reboot and Stop of Node
- Create new, Change and Delete OS account
- Make Directory
- Copy File

7.2. Screen composition

7.2.1. Initial screen composition

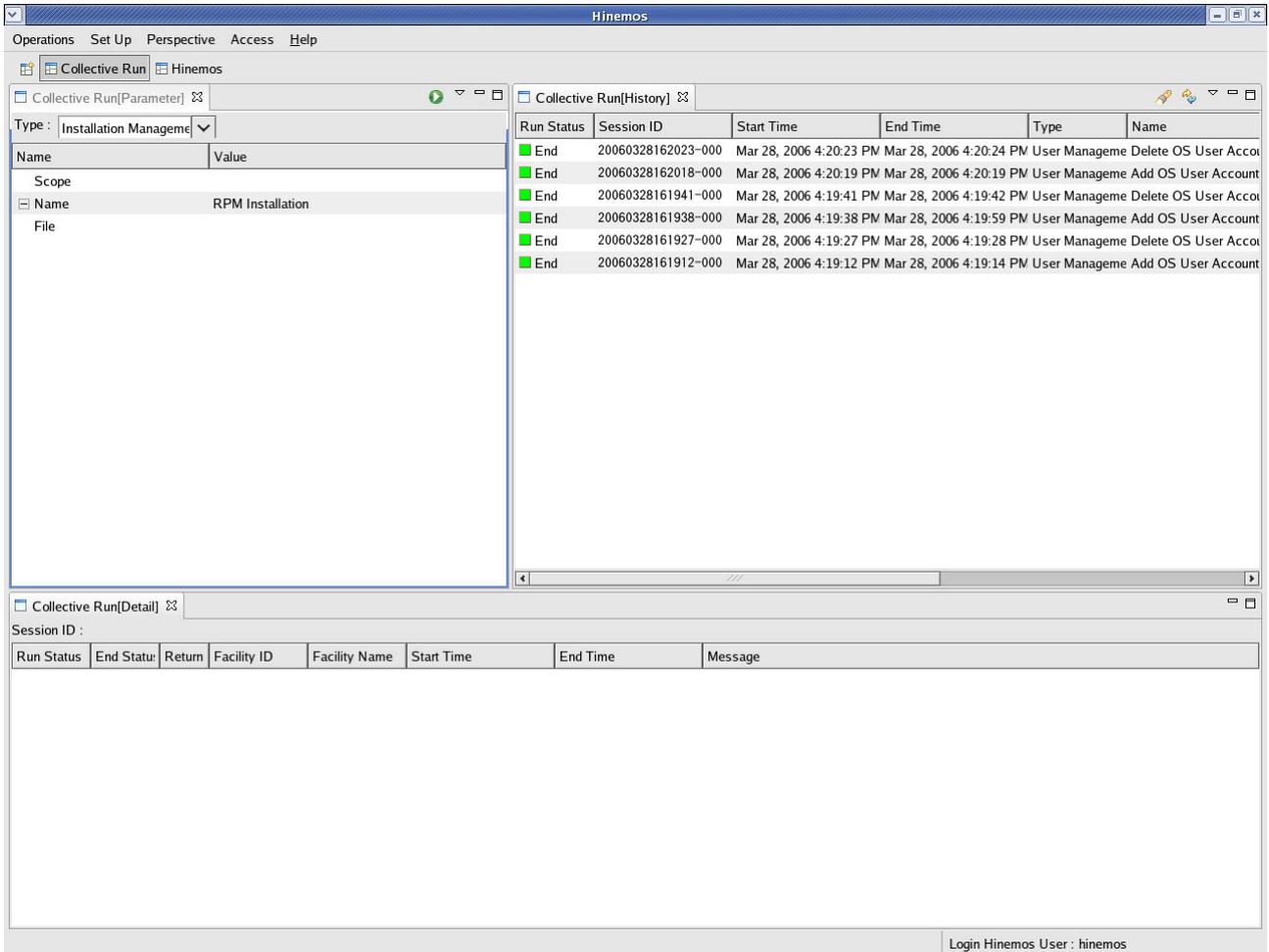


Figure 7-1 Collective run function initial screen composition

7.2.2. Collective run [Parameter] view

This is a view where to select an Operation to perform and to set up a parameter executed by Collective run function.

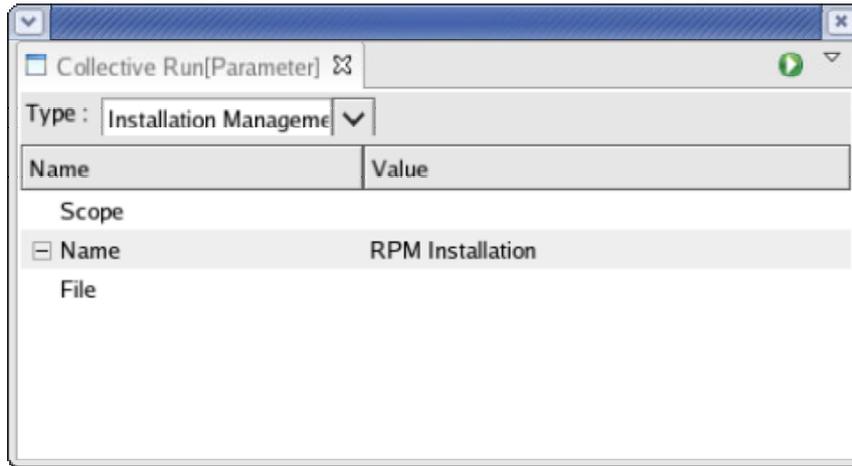


Figure 7-2 Collective Run [Parameter] view

Table 7-1 Tool bar

Icon	Button name	Description
	Run	Execute the process which set up within the view

7.2.3. Collective run [History] view

This view displays results executed by Collective run function. The results are shown in a list table. When a result is chosen from the list, details for every node about execution results will be displayed on Collective Run [Detail] view.

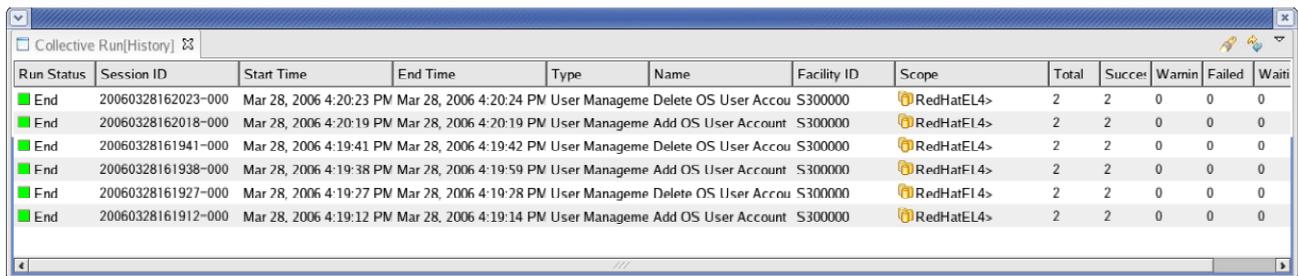


Figure 7-3 Collective run [History] view

Table 7-2 Tool bar

Icon	Button name	Description
	Filter	Set up the Filter setting of the run result list.
	Update	Update the information on the table to the latest information.

7.2.4. Collective Run [Detail] view

This view displays the run result for every node of the operations performed by Collective Run function.

Run Status	End Status	Return	Facility ID	Facility Name	Start Time	End Time	Message
End	Normal	0	N002	NODE2	Mar 28, 2006 4:20:19 PM	Mar 28, 2006 4:20:19 PM	<pre> /usr/sbin/useradd -s /bin/bash Changing password for user . New password: BAD PASSWORD: it is too short Retype new password: passwd: all authentication tokens updated successfully. </pre>
End	Normal	0	N003	NODE3	Mar 28, 2006 4:20:19 PM	Mar 28, 2006 4:20:19 PM	<pre> /usr/sbin/useradd -s /bin/bash Changing password for user . New UNIX password: BAD PASSWORD: it is too short Retype new UNIX password: passwd: all authentication tokens updated successfully. </pre>

Figure 7-4 Collective Run [Detail] view

7.3. Procedure of Collective Run

Collective run function has functions of Installation Management, Start/Stop Management, User Management, and File System Management. You can execute these operations in common procedure. Here, the procedure is explained.

The operation procedure of Collective run function is roughly shown as follows.

1. Choose the management function to perform from the list of classification selection combo box in the Collective Run [Parameter] view. Parameters about the selected function to be set up are displayed on the Property table.
2. Choose the scope to operate. Click the column of record value of the table property "Scope". Since a button appears at the right end of the column, click it. Scope selection dialog opens and you can choose a scope in this dialog.
3. Choose an operation to perform. Click the column of record value of the table property "Name". An Operation to perform is chosen from a combo box.
4. Set parameters. Input values into the value column of table property. Select set value from a combo box list about the items which are chosen from candidate values. The item which is input directly by text has text boxes.
5. Click "Run" button on the Collective Run [Parameter] view.
6. "Confirmed" dialog is opened. Click "OK" button after checking the contents.
7. Process is performed and the status of running is displayed on the Collective Run [History] view.

7.4. Installation Management

7.4.1. RPM-package Collective installation

Installation Management offers the function that can collectively install RPM package software into all nodes contained by the specified scope.

1. Put RPM package file (***.rpm File) on a FTP server set to the file transfers of Hinemos. Set the RPM package file so that it can be read by the FTP user which Hinemos uses. (Refer to the Installation manual for the set up of FTP server user.)
2. Choose "Installation Management" from the classification selection combo box list of a Collective Run [Parameter] view.
3. Specify the scope of install target. Click the "Value" column of the table property "Scope" record. Since a button appears in the left end of the column, click it and "Select-Scope" dialog opens.

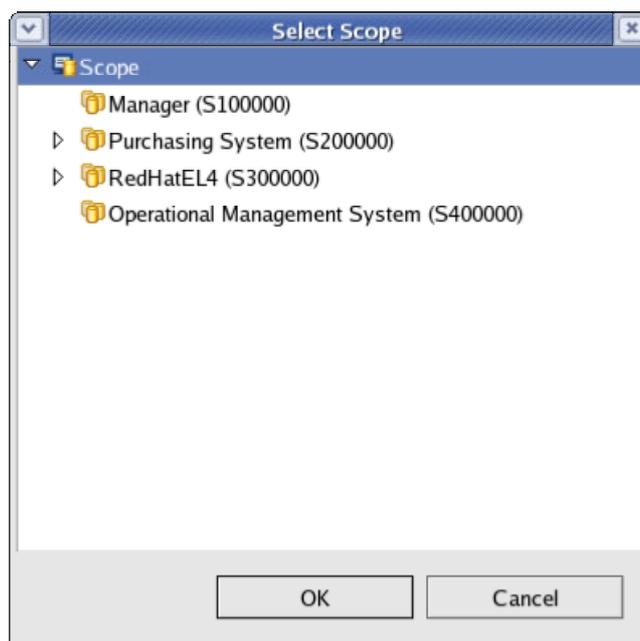
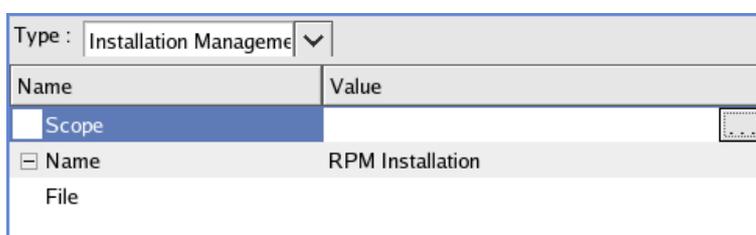


Figure 7-5 Scope selection dialog

4. Click "OK" button after choosing a scope for installation from a scope tree. The selected scope name was inputted to the Value of table property "Scope".
5. Input the RPM package file to install and the path (path on a FTP server) of the place on which the target RPM package file is put.

6. Click the "Run" button in Collective Run [Parameter] view. "Confirmed" dialog opens.

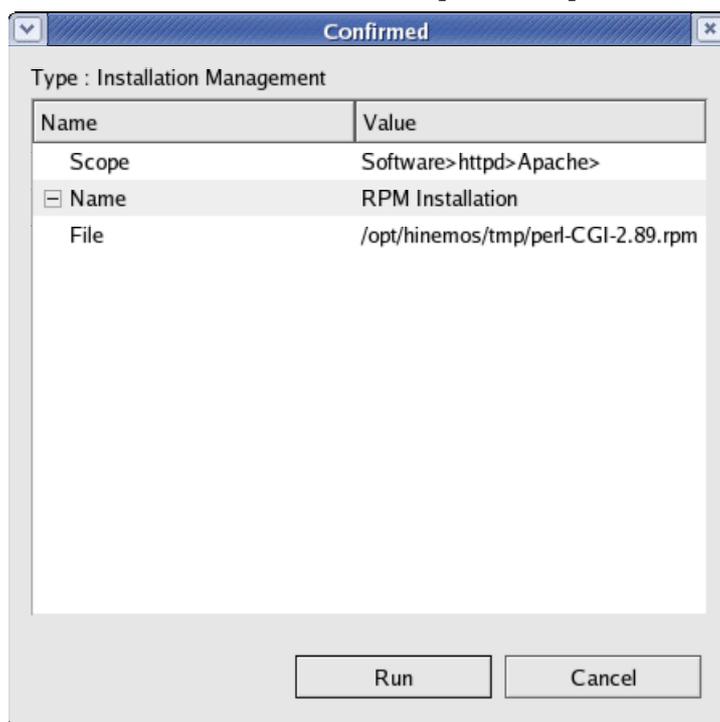


Figure 7-6 Check dialog

7. Click the "Run" button after checking the scope and file name of the RPM package for installation being set up correctly.
Click "Cancel" button when you want to cancel a Collective installation.

7.5. History display of Collective Run

The history of the performed operations is displayed on the Collective Run [History] view. When you choose an operation from the History list, the executed situation for every node of the chosen operations on the Collective Run [Detail] view will be displayed.

8. Monitor management function

8.1. Functional outline

This is a function that can monitor logs about systems and applications and status about surveillance object nodes.

You can display a list of log information specified as monitoring logs according to scopes by this function.

The following functions are offered as main functions.

- List display of log information and status information

This is a function to display lists of log information and status information for every scope. Priority of a scope is defined by the highest priority among monitoring logs of the nodes belonging to the scope.

According to the priority, the total number of monitoring logs is displayed.

Monitoring logs can be narrowed down by filtering conditions specified attribute items.

Monitoring logs have a flag which means whether the operator have checked the log or not. You can hide the confirmed monitoring log information from a list by performing "Confirmed".

- Drill-down display

This is a function to low level log information according to the hierarchy structure of scopes by drill down. The hierarchy structure about scopes is displayed on the screen.

- Notice function

This is a mail notificatiuon function based on the priority of monitoring log information.

8.2. Screen composition

8.2.1. Initial screen composition

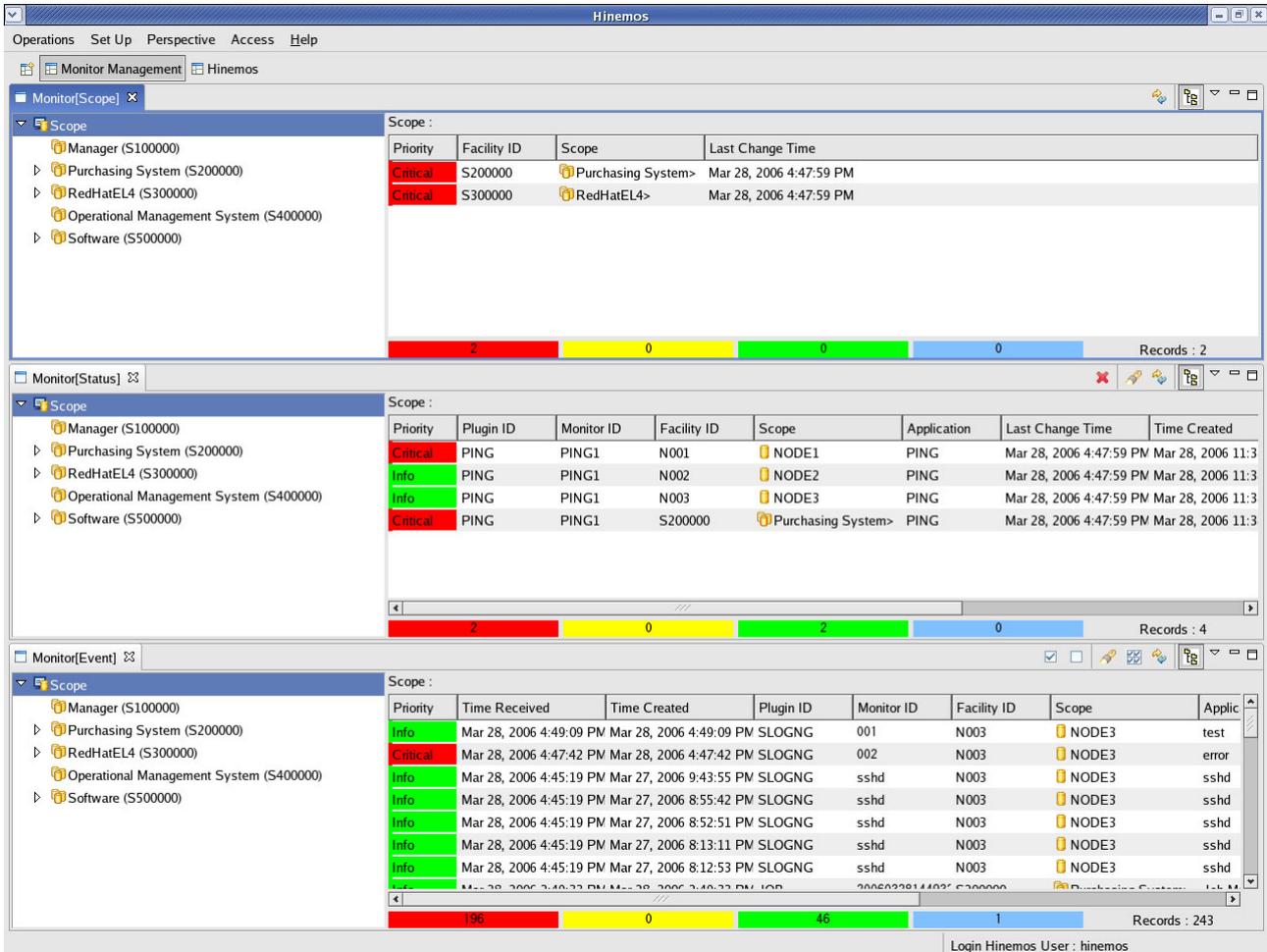


Figure 8-1 Initial screen composition

8.2.2. Monitor [Scope] view

This view displays about state of the scopes. Information displayed here are the representation of the log status information for every scope.

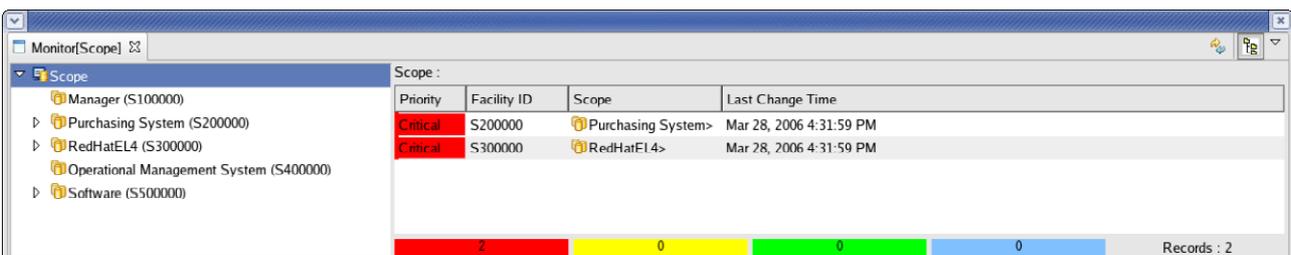


Figure 8-2 Monitor [Scope] view

Table 8-1 Tool bar

Icon	Button name	Description
	Update	Update the contents of the table to the latest information.
	Show Scope Tree Pane	Choose whether display or hide the scope tree.

8.2.3. Monitor [Status] view

This view displays the present states of scopes.

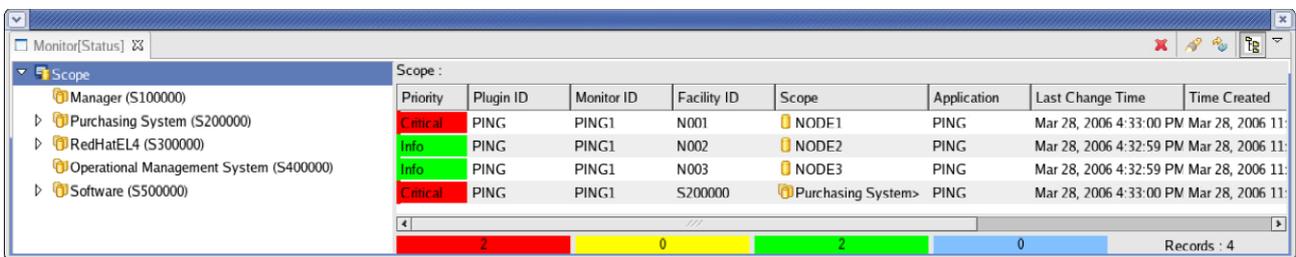


Figure 8-3 Monitor [Status] view

Table 8-2 Tool bar

Icon	Button name	Description
	Delete	Delete the status.
	Filter	Execute filter processing of a status list.
	Update	Update the contents of the table to the latest information.
	Show Scope Tree Pane	Choose to display or hide the scope tree.

8.2.4. Monitor [Event] view

This view displays the collected log information.

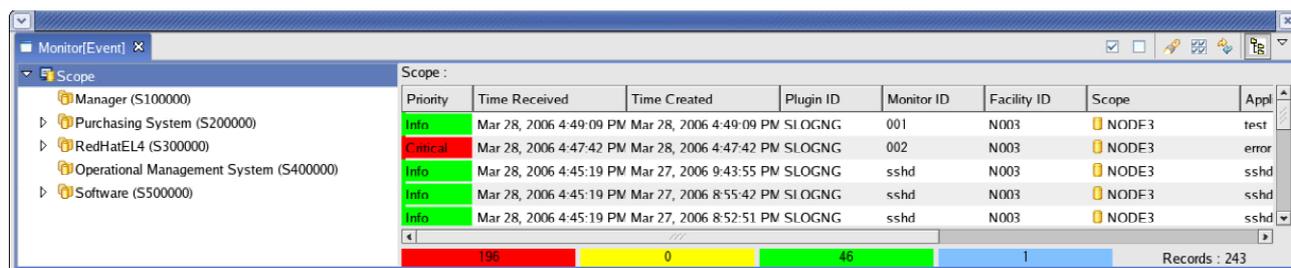


Figure 8-4 Monitor [Event] view

Table 8-3 Tool bar

Icon	Button name	Description
	Confirmed	Confirm event.
	returns to Unconfirmed.	Return the "Confirmed" event status to "Unconfirmed" status.
	Filter	Execute filter processing of a event list.
	Confirm All	Confirm all events applicable to conditions collectively.
	Update	Update the contents of the table to the latest information.
	Show Scope Tree Pane	Choose to display or hide the scope tree.

8.3. Scope monitoring

Monitor [Scope] view displays the representation of the log status and event information for every scope. This view displays the status about selected scope in a left-hand side tree pane and the highest priority among the list of right-hand side among the status event information of the scope and the below scopes.

The status event information outputted follows the following rules.

- The highest priority in the status event output.
- The latest status event output when there were two or more status event outputs of the same priority.

Priorities have the following four steps.

- Critical -- displayed in red.
- Warning -- displayed in yellow.
- Notification -- displayed in green.
- Unknown -- displayed in light-blue.

8.4. Status Monitor

Notification information from a monitoring function is displayed as status information of each scope by list. Only the latest statuses are always displayed. That is different from event monitoring. Status notifications are distinguished by the Plugin ID and Monitor ID. Present status will be updated by a new notification when both the Plugin ID and Monitor ID of the new notification are corresponding to those of the present status.

8.4.1. Filter processing of status

1. Click the "Filter" button of Monitor [Status] view. Monitor [Filter-Status] dialog opens.

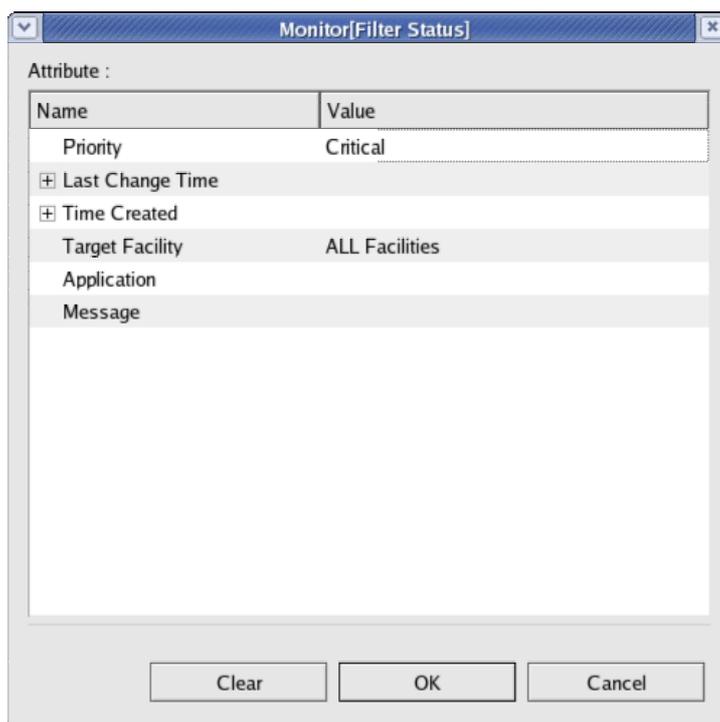


Figure 8-5 Monitor [Filter-Status] dialog

2. Set up conditions to narrow down from the following items. Please make it a blank about the item which is not included in conditions (please push "Clear" button to return the filter setting to initial condition).

Priority :

Add a priority condition of notifications to Narrowing-down conditions. You can choose it from a combo box.

Modification time :

Add a modification time of notifications to Narrowing-down conditions. Choose a date in a time dialog opened by clicking a button beside an input column. You can choose time from combo box.es.

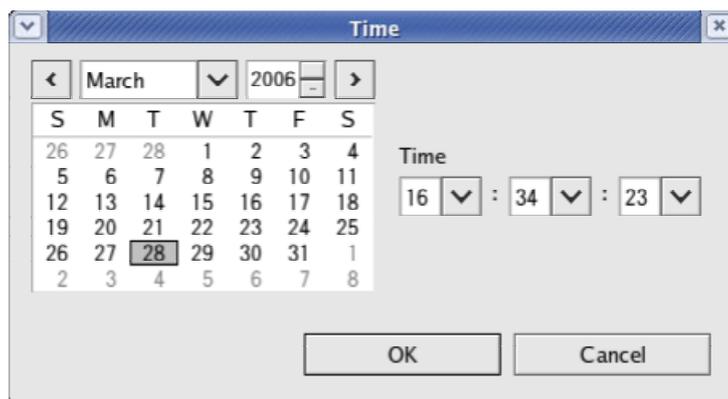


Figure 8-6 Time dialog

Time Created :

Add a created time of notifications to Narrowing-down conditions. Choose a date in a time dialog opened by clicking a button beside an input column. You can choose time from combo box.es.

Target Facility :

You can choose the facility (Scopes and Nodes) to display from the following.

- ALL Facilities -- Set the nodes of the all facilities and the chosen scope itself to displaying objects.
- Sub-scope Facilities Only -- Set the chosen scope itself, scopes and nodes just contained by the chosen scope.

Application :

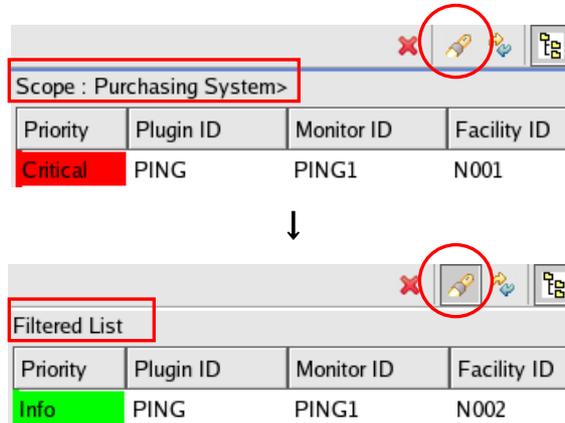
Add an application which generate notifications to Narrowing-down conditions. Please input the application name into an input column in text. Notifications which include the input character string here become output object.

Message :

Add an notification message to Narrowing-down conditions. Please input the message into an input column in text. Notifications which include the input character string here become output object.

3. Click "OK" button. Monitor [Filter-Status] dialog is closed. Only the notifications which fulfill the set up conditions come to be displayed on a Monitor [Status] view.

A display of the column as which the Scope was described turns to "Filtered List" expression, and the "Filter" icon changes to pushed status.



8.4.2. Release of Filter

Click the "Filter" button (currently pushed in status) of Monitor [Status] view.

8.5. Log information Monitor

8.5.1. Check of event

Click the "Confirmed" button after choosing notification to be confirmed from the event list of Monitor [Event] view.

8.6. Syslog-ng Monitor

This is a function which notifies logs of syslog-ng as events through a filtering process.

Filter setting sets up notice methods of the event at the time of matching it to the Pattern match conditions.

Select [Operations] -> [Monitor management] -> [syslog-ng [List]] of the menu bar, and a syslog-ng [List] dialog will opened.

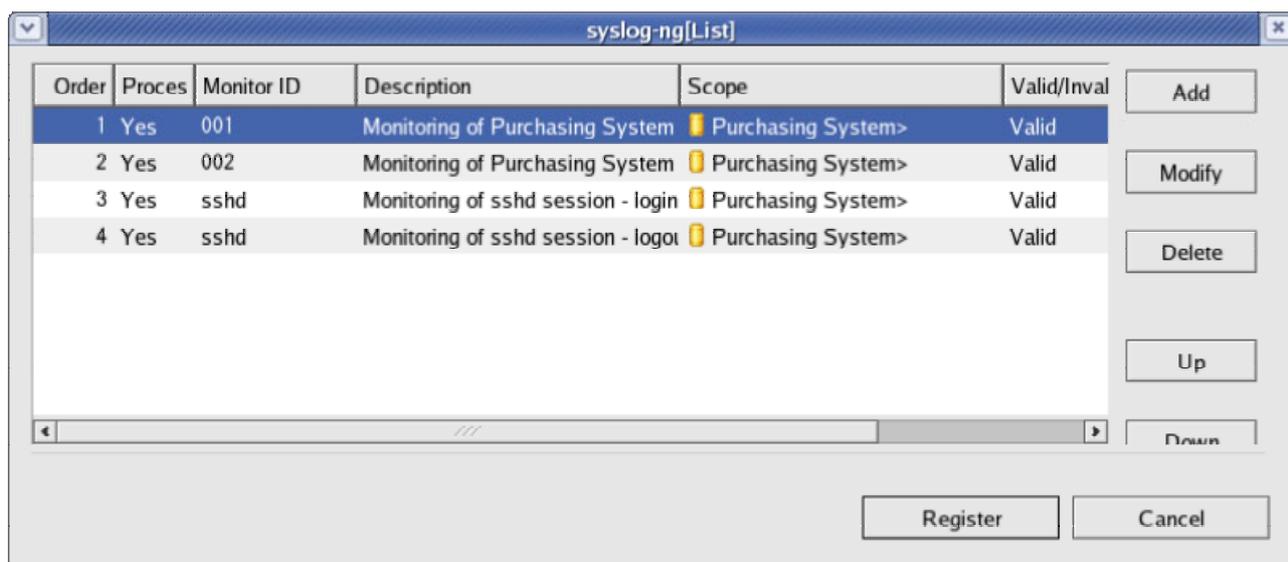


Figure 8-7 syslog-ng[List] dialog

- Matching processing of Filter

Hinemos compares logs with filters in descending order.

- Add a Filter setup

1. Click "additional" button. [Create/Change-Filter] dialog opens.
2. Set up the following items.

Monitor ID:

Input in text. It is used as an ID for identifying the notification which monitoring setting generated.

Description:

Input the description of filter setting intext.

Scope:

Input the target scope. Click "Refer" button and Scope selection dialog opens. Please choose an object scope from the Scope tree of the dialog.

Pattern Matching Expression:

Input with regular expression. Logs which match the regular expression specified here are processing object.

Don't process if matched/Process if matched:

Specify whether logs which matched the specified Pattern match conditions are notified (as an Event Notification, Mail Notification) or not.

3. Set up notice contents. Please input the following items.

Notification ID:

Specify Notification ID of the notice setting used as notice methods.

Application:

Input an application name in text which generates notifications.

Priority:

Choose the Priority of the published notification.

Message ID:

Input ID set as each message in text. It is used as an ID for identifying which message was notified.

Message:

Input the message which indicates by a log in text.

4. Specify whether this setting is valid or not. That can be set up by the following check boxes.

Make this setting valid:

It will become effective if a check is put in.

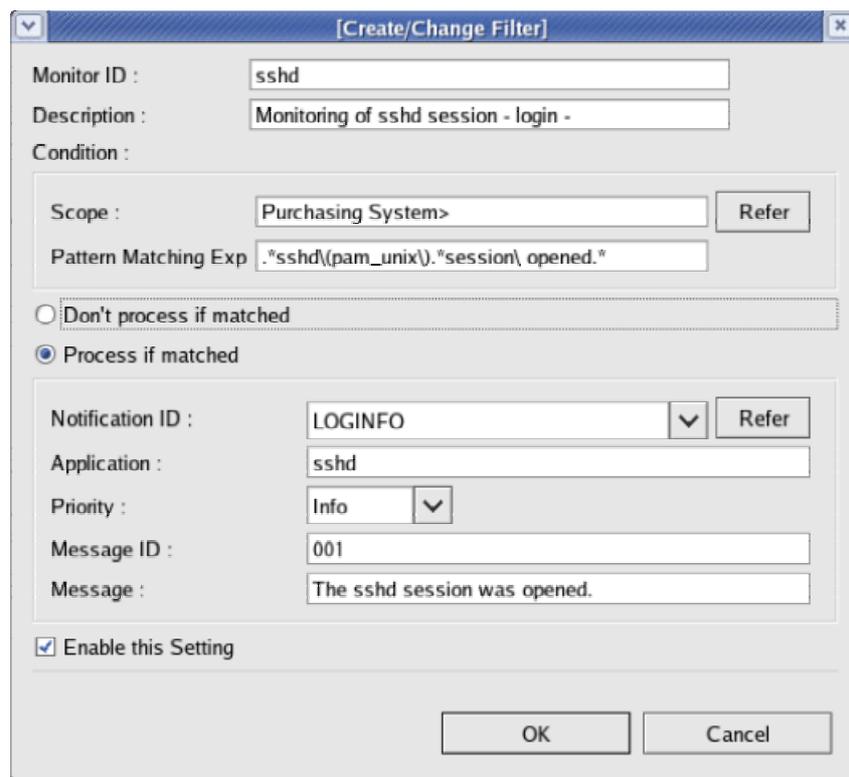


Figure 8-8 syslog-ng [Create/Change-Filter] dialog

5. Click "OK" button. The setting newly created here is added to the setting list.

8.7. Hinemos Job Agent monitoring

This is a function which supervises and notifies the condition of the Job agent of Hinemos.

Choose [Operations] -> [Monitor Management] -> [Hinemos Job Agent [List]] from a menu bar to set up, and Hinemos Job Agent [List] dialog is opened.

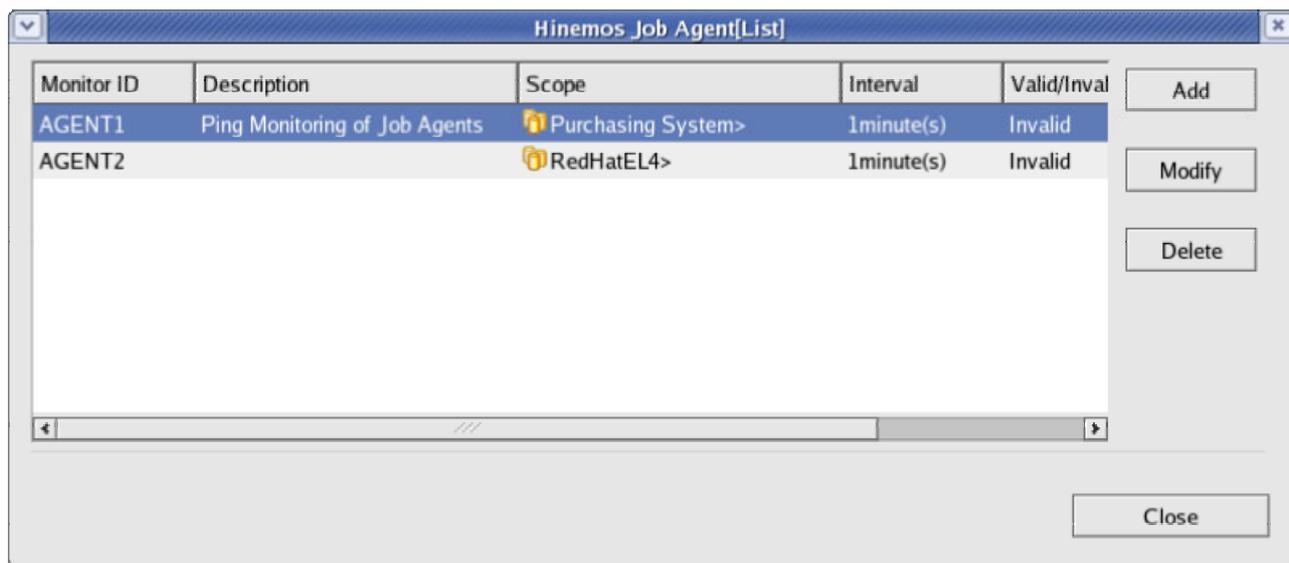


Figure 8-9 Hinemos Job Agent [List] dialog

8.8. Ping monitoring

This is a function which can monitor the life-and-death status of the nodes by ping.

Monitor ID :

Description :

Scope : Refer

Condition :

Interval : 1min

Check Settings :

Number of times : 1count

Interval : 1sec

Time out(msec) : 1000

Unit :

Node

Scope

Scopes and Nodes

Node Level Priority :

When successfully get value :

Priority	Packet loss	Time(msec)
Info :	<input type="text"/> Under	<input type="text"/> Under
Warning :	<input type="text"/> Under	<input type="text"/> Under
Critical :	(Other than Info or Wa	

When failed to get value : Unkn

Notification :

Notification ID : Refer

Application :

Enable this Setting

OK Cancel

Figure 8-10 Ping[Create/Change] dialog

8.9. Process Monitor

This is a function that can monitor the number of the processes about specified managed objects by SNMP polling.

Process[Create/Change]

Monitor ID :

Description :

Scope : Refer

Condition :

Interval : 1min

Check Settings :

Command :

Command Line Arguments

Unit :

Node

Scope

Scopes and Nodes

Node Level Priority :

When successfully get value :

Priority	Lower Threshold		Upper Threshold
Info :	<input type="text"/>	Over	<input type="text"/> Under
Warning :	<input type="text"/>	Over	<input type="text"/> Under
Critical :	(Other than Info or Wa		

When failed to get value : Unkn

Notification :

Notification ID : Refer

Application :

Enable this Setting

OK Cancel

Figure 8-11 Process[Create/Change] dialog

8.10. SNMP Monitor

This is a function which can judge numerical thresholds from values acquired by SNMP polling.

The image shows a dialog box titled "SNMP[Create/Change]". It contains several sections for configuration:

- Monitor ID :** A text input field.
- Description :** A text input field.
- Scope :** A text input field with a "Refer" button to its right.
- Condition :**
 - Interval :** A dropdown menu showing "1min".
 - Check Settings :** A sub-dialog containing:
 - Community Name :** A text input field.
 - OID :** A text input field.
 - Calculation Method :** A dropdown menu showing "Calculate Differ".
- Unit :** A group box with three radio buttons:
 - Node
 - Scope
 - Scopes and Nodes
- Node Level Priority :**
 - When successfully get value :**

Priority	Lower Threshold	Upper Threshold
Info :	<input type="text"/> Over	<input type="text"/> Under
Warning :	<input type="text"/> Over	<input type="text"/> Under
Critical :	(Other than Info or Wa	
 - When failed to get value :** A dropdown menu showing "Unkn".
- Notification :**
 - Notification ID :** A dropdown menu with a "Refer" button to its right.
 - Application :** A text input field.
- Enable this Setting

At the bottom right, there are "OK" and "Cancel" buttons.

Figure 8-12 SNMP[Create/Change] dialog

8.11. SQL Monitor

This is a function which can judge threshold about the executed result (numerical value) of appointed SQL Statement to DBMS (the SQL Statement must be described that a numerical value is returned).

Figure 8-13 SQL[Create/Change] dialog

Table 8-4 Verified RDBMS

RDBMS	JDBC driver	Version
PostgreSQL 8.1.3	8.1-405 JDBC 3	

9. Performance management function

9.1. Functional outline

The following functions are offered in Performance management function.

- Real-time performance graphical representation

This is a function which can collect performance information and draw the graph at a real time.

- Collecting recorded performance information

This is a function which can collect performance information for a fixed term and accumulate it. The accumulated collected data can be drawn to graphs and exported to file.

- Threshold surveillance

This is a function that executes performance monitoring by setting up thresholds to performance information.

Graphical representations are possible for performance information according to a scope.

The following performance informations can be collected and graphed.

- CPU information
- Memory information
- Disk information
- Network information

9.2. Screen composition

9.2.1. Initial screen composition

The screen composition of performance management function consists of the following views.

- Real-time graph
- Collected data
- Record graph

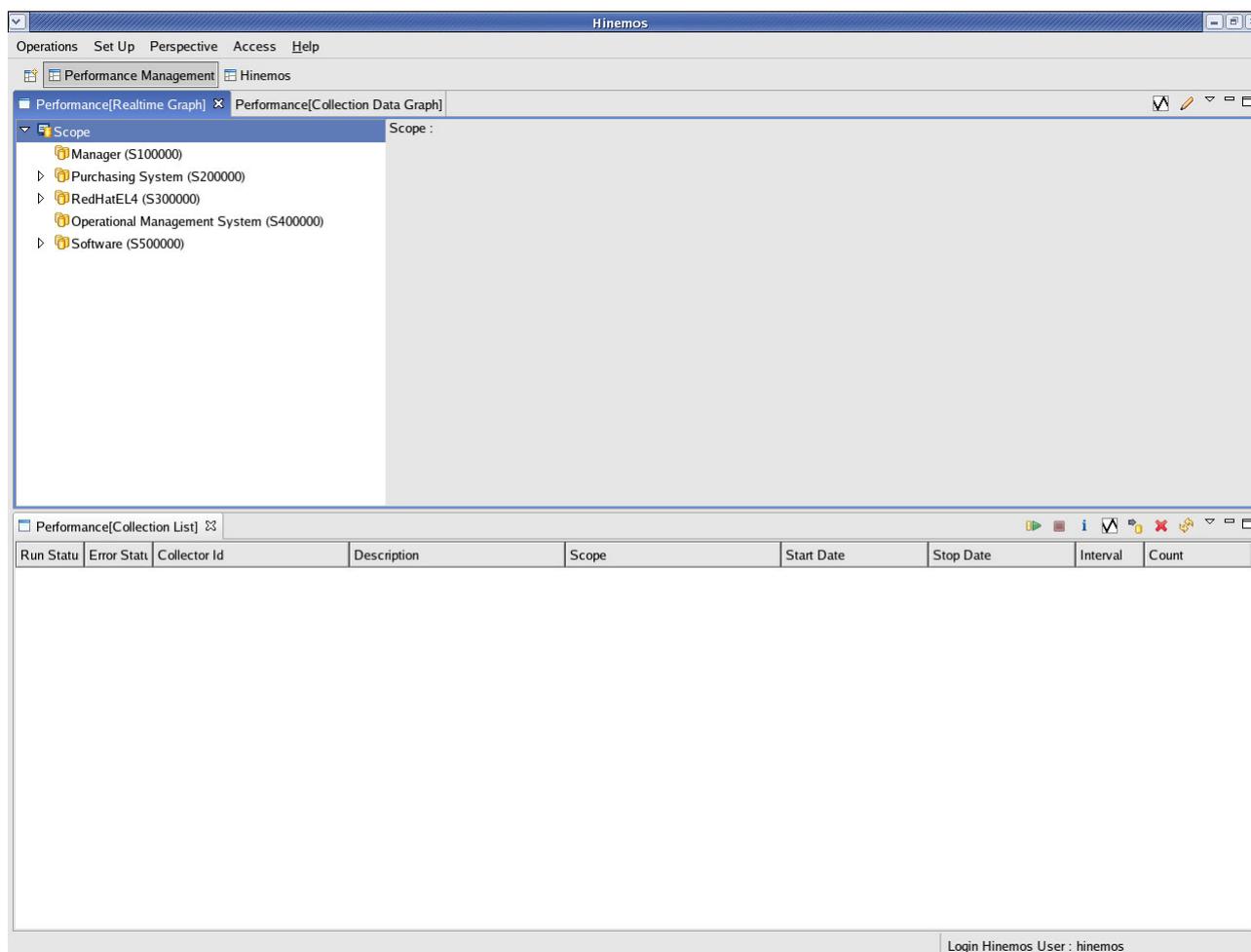


Figure 9-1 Initial screen composition

9.2.2. Performance [Realtime Graph] view

This view displays real-time-performance graphs.

The value-in-performance graph of the selected scope by a left-hand side scope tree is displayed on a right-hand side.

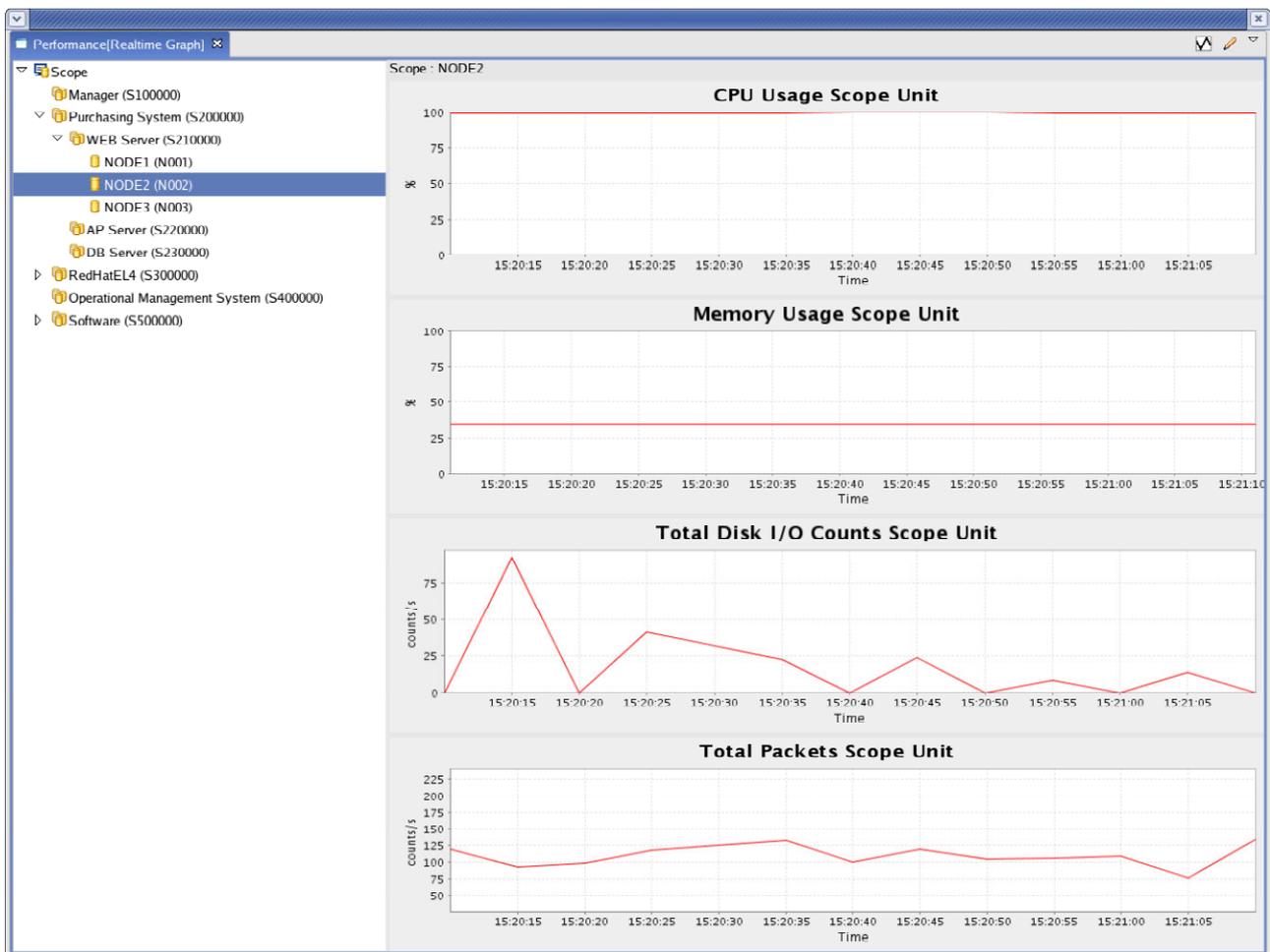


Figure 9-2 Performance [Realtime Graph] view

Table 9-1 Tool bar

Icon	Button name	Description
	Graph View	Start real-time collection.
	Graph Setting	Set up the plots number of a graph.

9.2.3. Performance [Collection List] view

This view displays a list of gathering recorded performance information data.

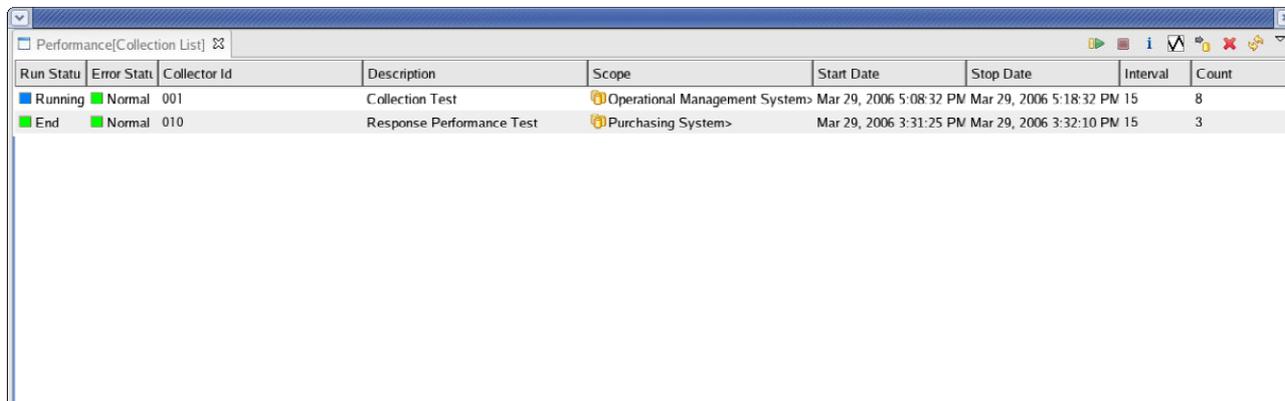


Figure 9-3 Performance [Collection List] view

Table 9-2 Tool bar

Icon	Button name	Description
	Collection Set Up	Set up and start a record collection.
	Collection stop	Suspend a running collection.
	Property	Check a setting of collection data.
	Graphical representation	Draw the graph of a collected data.
	Export	Export a collected data to a CSV format file.
	Delete	Delete a collected data.
	Update	Update the contents of the table to the latest information.

9.2.4. Performance [Collection Data Graph] view

This is a view to display record performance graphs.

The value-in-performance graph of the selected scope by a left-hand side scope tree is displayed on a right-hand side.

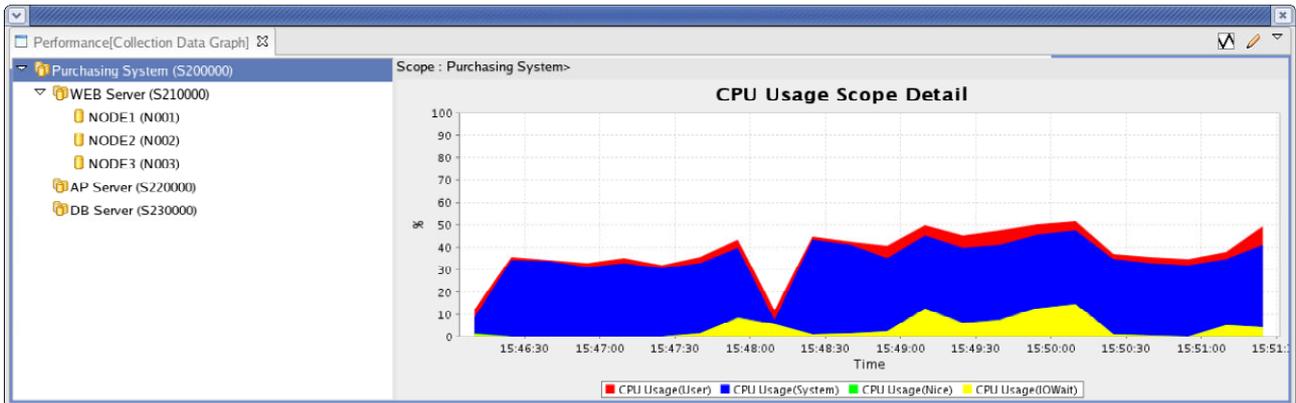


Figure 9-4 Performance [Collection Data Graph] view

Table 9-3 Tool bar

Icon	Button name	Description
	Graph View	The contents of a display of a record graph can be changed.
	Graph Setting	Set up the plots number of a graph.

9.3. Real-time performance graphical representation

9.3.1. Graph classification

It is possible to display three kinds of graphs in the graphical representation of performance management function.

- Scope-representative-value graph

This is a graph for seeing the contour of the value in performance of the appointed Scope. It is a graph for seeing the outline of the value in performance of the appointed Scope. The mean value in performance of the scopes contained directly under a displaying object scope (subscope) is calculated and graphed.

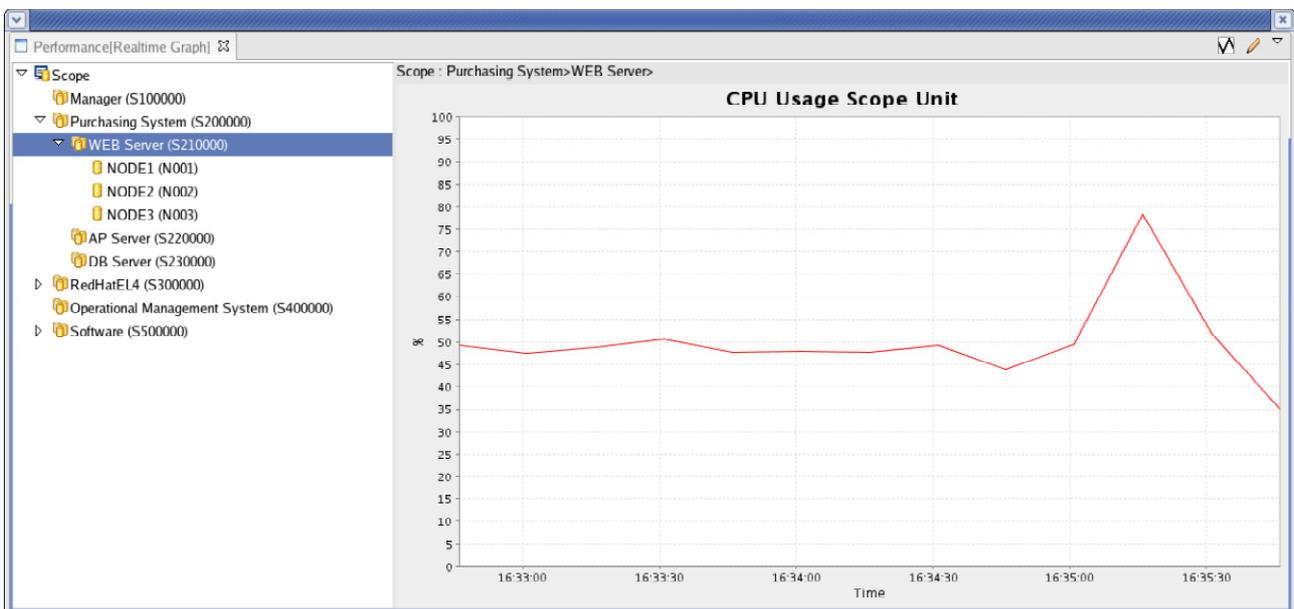


Figure 9-5 Scope-representative-value graph

- Scope-representative-value detailed graph

This is a graph for seeing the detail performance values of a displaying object scope. The items of performance value are displayed as an accumulated graph.

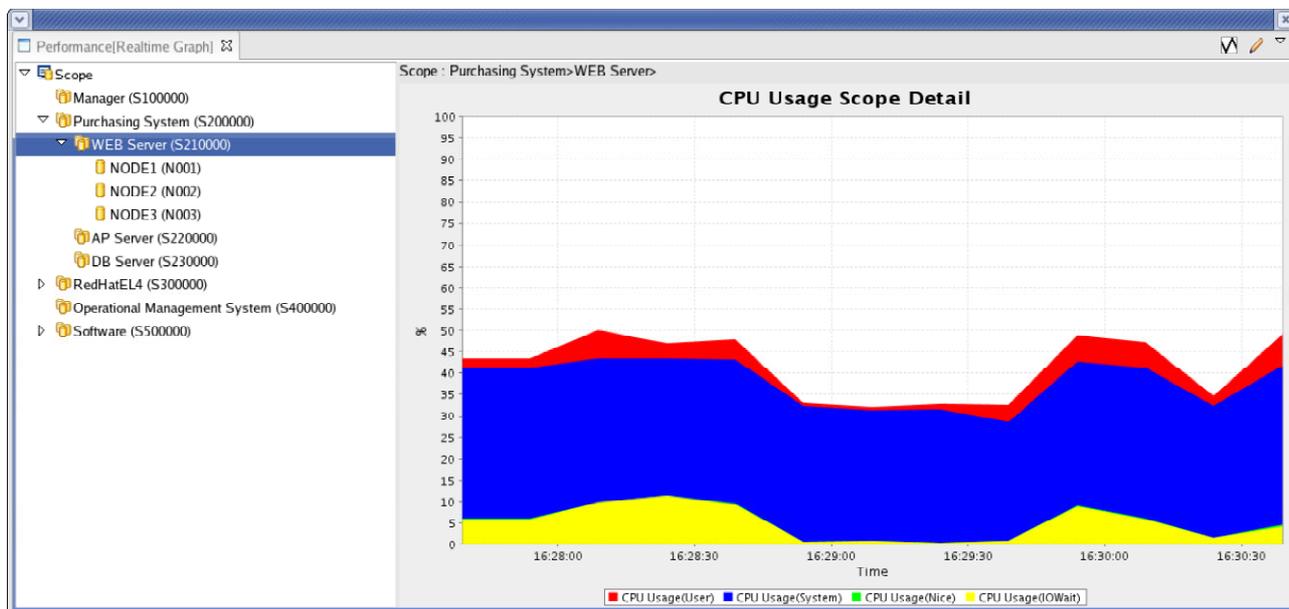


Figure 9-6 Scope-representative-value detailed graph

- Subscope-representative-value graph

The graphical representation of the value in performance (Scope representative value) of the Scope (Subscope) contained directly under a displaying object Scope is carried out.

This is a function to draw the graph of the performance value (Scope representative value) of the Scope (Subscope) contained directly under a displayed object scope.

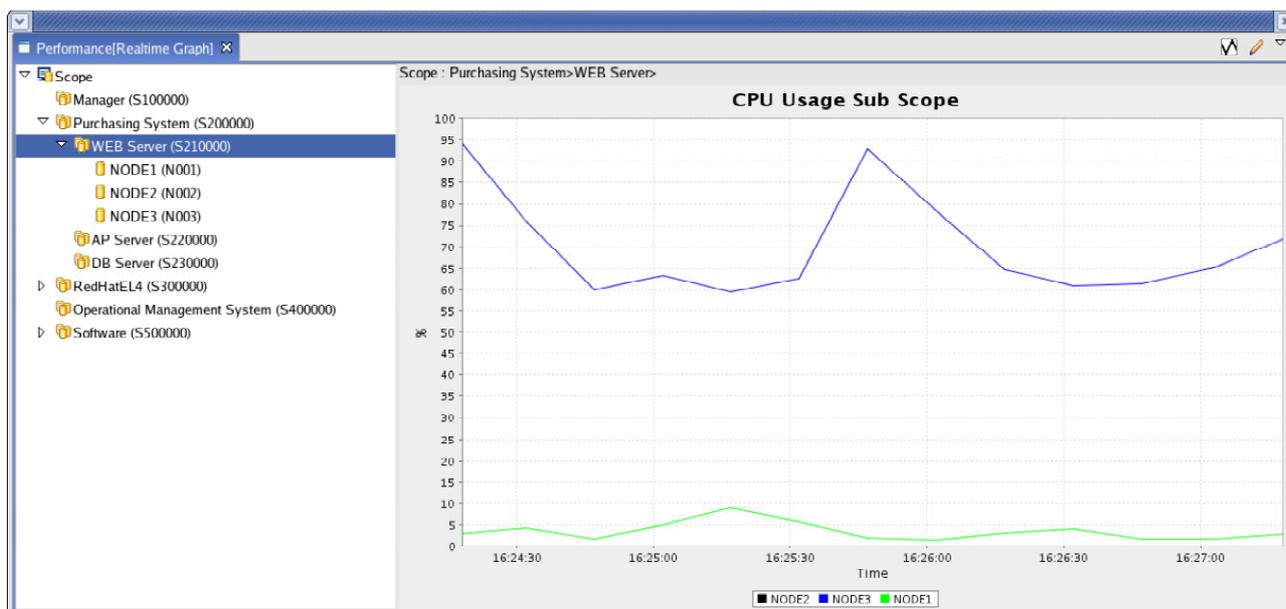


Figure 9-7 Subscope-representative-value graph

9.3.2. Real-time graphical representation

1. Click the "Graph View" button of a Performance [Realtime Graph] view. A setting dialog opens.
2. The following setting items are chosen.

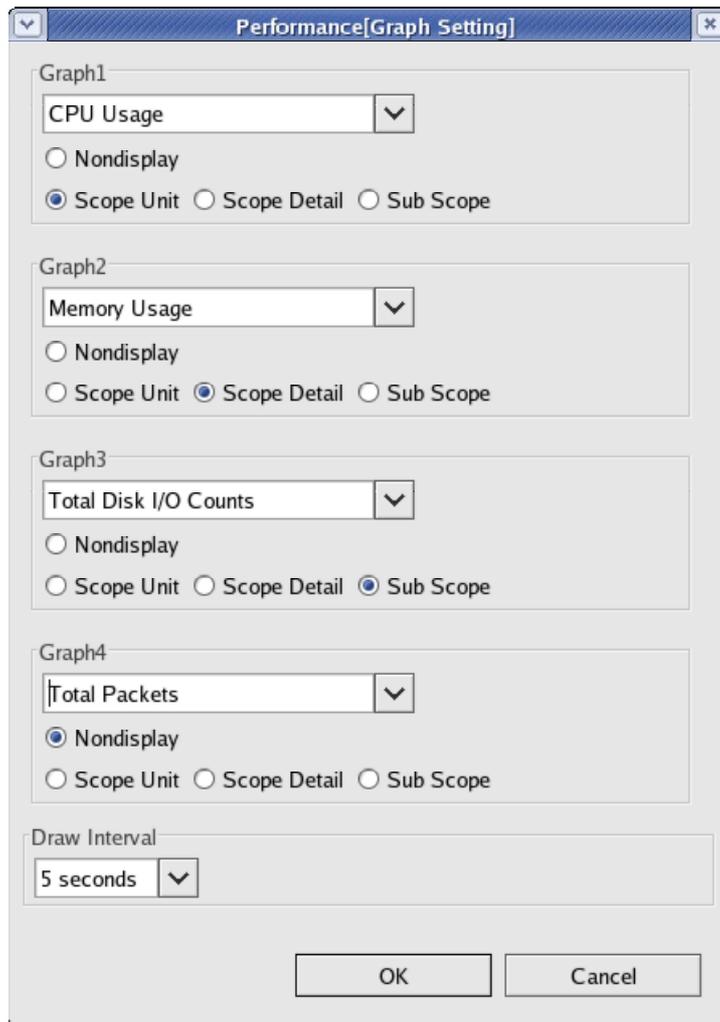


Figure 9-8 Performance [Graph Setting] dialog

- Graphical-representation item

Choose the value in performance to display from the list of combo boxes.

A Graph classification can be chosen. A selection of un-displaying will not display the graph of the item.

- Draw Interval

Set up the draw interval value in performance plotted on the graph.

3. Click "OK" button and collections are started and graphs are displayed.

9.4. Gathering recorded performance information

9.4.1. Start of collection

1. Click the "collection Set-Up" button of performance [Collected data] view a collection Setting dialog will open.
2. Set the following setting items.
 - Collection ID:
Give a unique name to a collected data.
 - Description:
Input the Description to a collected data.
 - Scope:
Choose a scope of a collection object from a scope tree.
 - Collection Interval:
Set up the interval of a collection.
 - Collection Period:
Set up the collecting period. The collection of recorded performance information is started when the "OK" button of a Recorded-performance-information-setup dialog is pushed, and it keeps collecting during the period specified here.
 - Collection Item:
Items which are collectable to the specified scope are displayed in the form of a tree. Please check into the items which are collected (sure to choose one or more items).
3. Click "OK" button, and the collection will be started. After started the collection, the started collected data is added to a table of performance [Collected data] view.

9.4.2. Stop of a collection

Choose the collected data to stop from the table of a performance [Collected data] view, and click the "Collection-stop" button.

9.4.3. Record graphical representation

In order to display the graph of the presently collecting data, click the "graphical-representation" button after choosing a collecting data from a table on the performance [Collected data] view.

In order to display the graph of the collected data, click the "graphical-representation" button after choosing a collected data from a table on the performance [Collected data] view.

A graph is drawn in the performance [record graph] view.

9.4.4. Finish record graphical representation

Close the performance [record graph] view.

9.4.5. Export of collected data

The collected data can be exported to a file by CSV format.

1. Click "export" button with the choice of the collected data to export from a table of performance [Collected data] view. An Export dialog opens.
2. Input an output file name after choosing a scope whose data is exported from a scope tree,
3. When attaching and outputting a header to the CVS File, check the "output of header" check box. The following informations are given to the head of an output file as header information.
 - Collection ID
 - Description
 - Scope
 - Start time
4. Input the output file name and Export will be started when "OK" button is clicked.
When canceling the export, click the "Cancel" button.

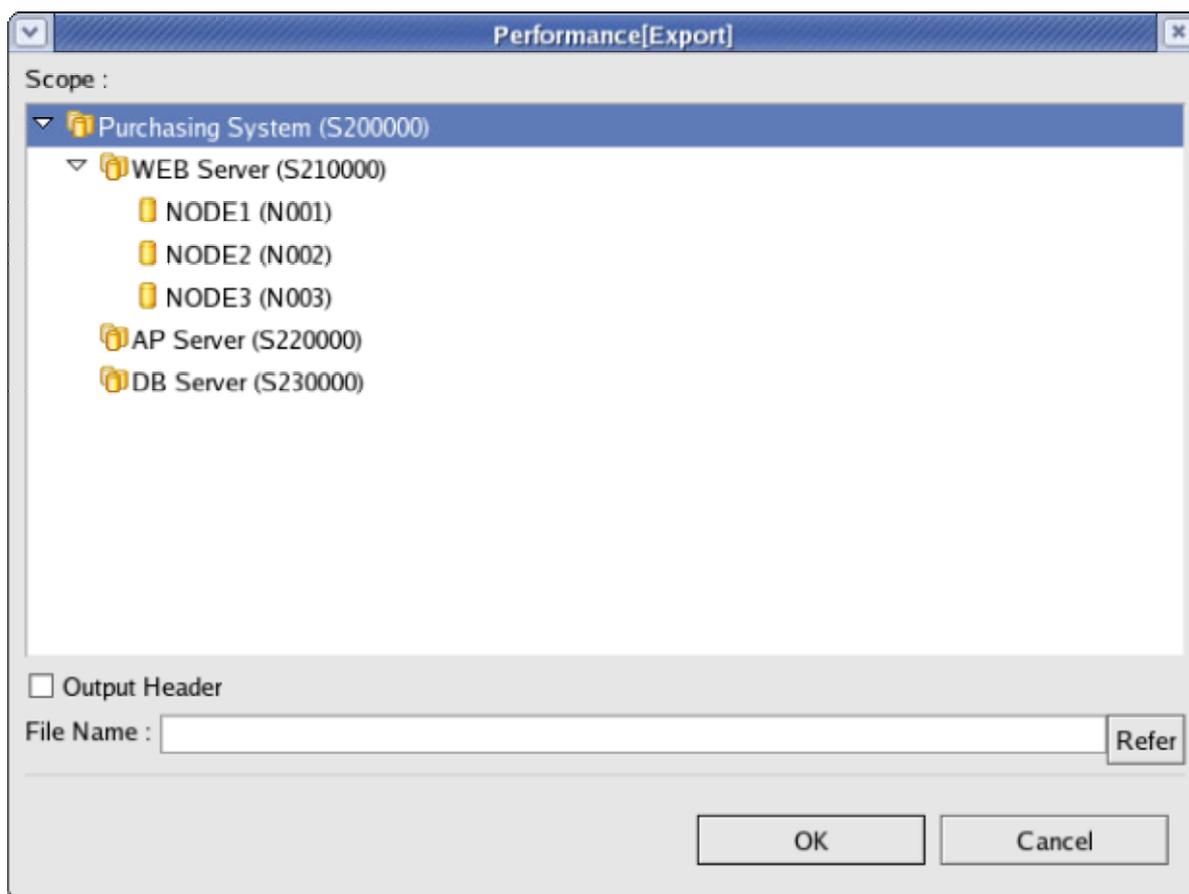


Figure 9-91 Performance[Export] dialog

9.4.6. Delete of Collected data

In order to delete a collected data, click the "Delete" button is clicked after choosing of the collected data to delete from the table of performance [Collected data] view.

9.5. Threshold monitoring

9.5.1. Threshold monitoring setup

Threshold judgments can be performed to the acquired values in performance, and the result can be notified to status monitor or an event monitor.

Choose [Operations] -> [Performance Management] -> [Resource [List]] from a menu bar, and a Resource [List] dialog is opened.

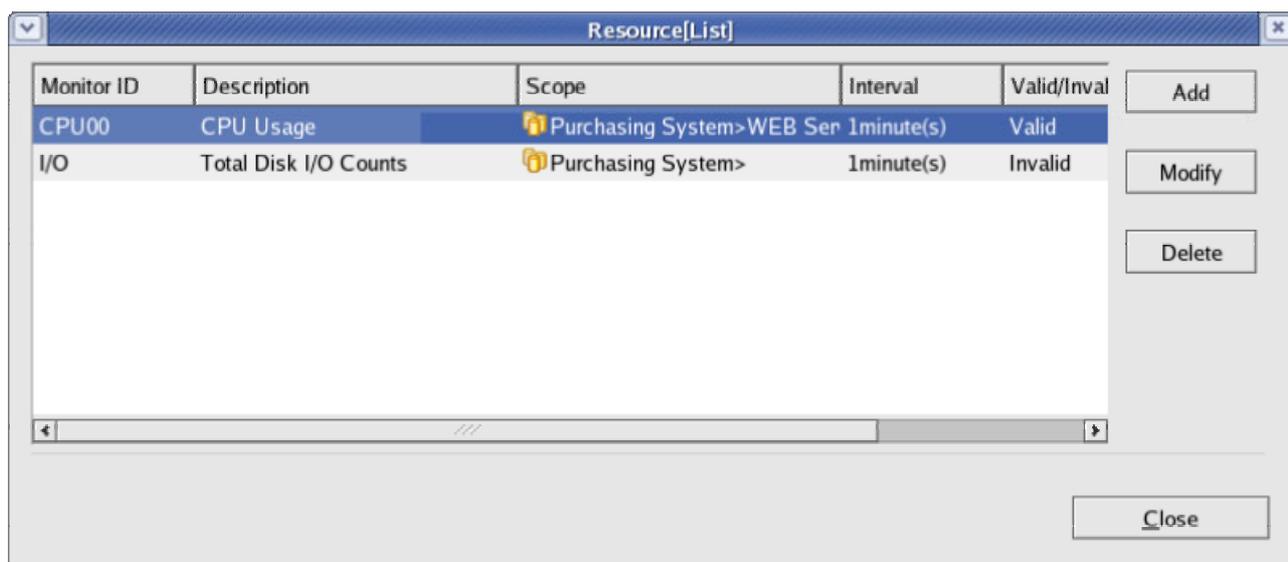


Figure 9-12.Resource [List] dialog

- Register of Monitoring setting

1. Click the "additional" button. Resource [Create/Change] dialog opens.
2. Set up the following items.

Monitor ID:

Input in text. It is used as an ID for identifying the notification which monitoring setting generated.

Description:

Input description about monitoring settings in text.

Scope:

Input the target scope. Click "Refer" button and Scope selection dialog opens. Please choose an object scope from the Scope tree of the dialog.

3. Set up Monitoring Conditions. Input the following items.

Run Interval:

SNMP polling is executed at the interval specified here.

Monitor Item:

Choose collection items made into the target of Threshold monitoring.

4. Set up monitor unit. Please input the following items.

- Node

Make the nodes contained in the scope set up above monitored objects.

- Scope

Make the scope set up above and its subordinate scopesmonitored objects.

- Scopes and Nodes

Make all the nodes contained in the scope set up above, and scopes monitored objects.

5. Define node level priority. Please input the following items.

When successfully get value: Set up the threshold of the value in performance of the appointed Monitor Item. Please specify the range of "Notification" and "Warning", respectively. It becomes "Critical" when it the value is out of range "Notification" and "Warning".

When failed to get value: Set up priority when value acquisition goes wrong. The result value of polling of SNMP was unacquirable. Or although the Value was acquirable, the Value is not updated from the collection time last time. By these causes, when calculation of a value in performance is impossible, it becomes a Value acquisition Failed.

6. Set up notice contents. Please input the following items.

Notification ID:

Specify the notification ID of the notice setting used as the notice method.

Application:

Input the application name displayed as notification information in text.

7. Specify whether this setting is valid or not. Set up by the following check boxes.

Enable this Setting:

This setting will be effective if a check is put in. When a check is not put in and invalid is specified, the setting is saved, but the monitoring process is not performed.

The screenshot shows a dialog box titled "Resource[Create/Change]". It contains the following fields and controls:

- Monitor ID : [Text Field]
- Description : [Text Field]
- Scope : [Text Field] [Refer Button]
- Condition : [Text Field]
- Interval : [1min] [Dropdown Arrow]
- Monitor Item : [CPU Usage] [Dropdown Arrow]
- Unit :
 - Node
 - Scope
 - Scopes and Nodes
- Node Level Priority :
 - When successfully get value :

Priority	Lower Threshold		Upper Threshold
Info :	[Text Field]	Over	[Text Field] Under
Warning :	[Text Field]	Over	[Text Field] Under
Critical :	(Other than Info or Wa		
 - When failed to get value : [Unkn] [Dropdown Arrow]
- Notification :
 - Notification ID : [Text Field] [Dropdown Arrow] [Refer Button]
 - Application : [Text Field]
- Enable this Setting
- [OK Button] [Cancel Button]

Figure 9-10 Resource[Create/Change] dialog

- Click "OK" button. The setting created newly is added to the setting list.

10. Job management function

10.1. Functional outline

A Job management function makes it possible to carry out a Schedule startup and sequential execution of the Process performed by multiple nodes.

The following functions are offered.

- Job Management by GUI

Job can be registered, changed and deleted by screen operation.

Moreover, the following operation of the registered Job can be executed by screen operation.

- Execution of job
- Start of Job
- Start from arbitrary job which consisted of multiple jobses.
- Suspend of JobNet
- Stop of Job
- Resume interrupted Job

The advancing situation of running jobs and executed jobs can be checked on the list screen.

- A control of a fine Job

The command executed by a job can be specified with command line arguments, and a run user can be also specified.

It can specify with the value (end value) of the results of the jpreceded job whether the job which follows will startup or not. It can also be specified that multiple jobs are run at the time of the end of the job.

Job execution nodes can be specified per scope. The same job can be executed at all the nodes in the scope.

10.1.1. Startup of agent

In order to perform jobs, the agents need to be run in the target nodes. Startup script for an agent is as follows,

```
# cd $HINEMOS_AGENT_HOME/bin
```

```
# agent_start.sh
```

* Please refer to the Installation manual for details.

10.1.2. Composition of job

Hierarchy structures can be given to jobs in Hinemos. The hierarchy of jobs consists of the following elements.

- JobUnit

It is a Job hierarchy's top element. All the JobNets and Jobs are set up as an element of this JobUnit. For this reason, when registering a Job, it is necessary to create a JobUnit first.

In the case of scheduling, it certainly becomes a top run. Preceding Job (or JobNet) cannot be specified. It becomes the same operation as JobNet except certainly performing at the head.

- JobNet

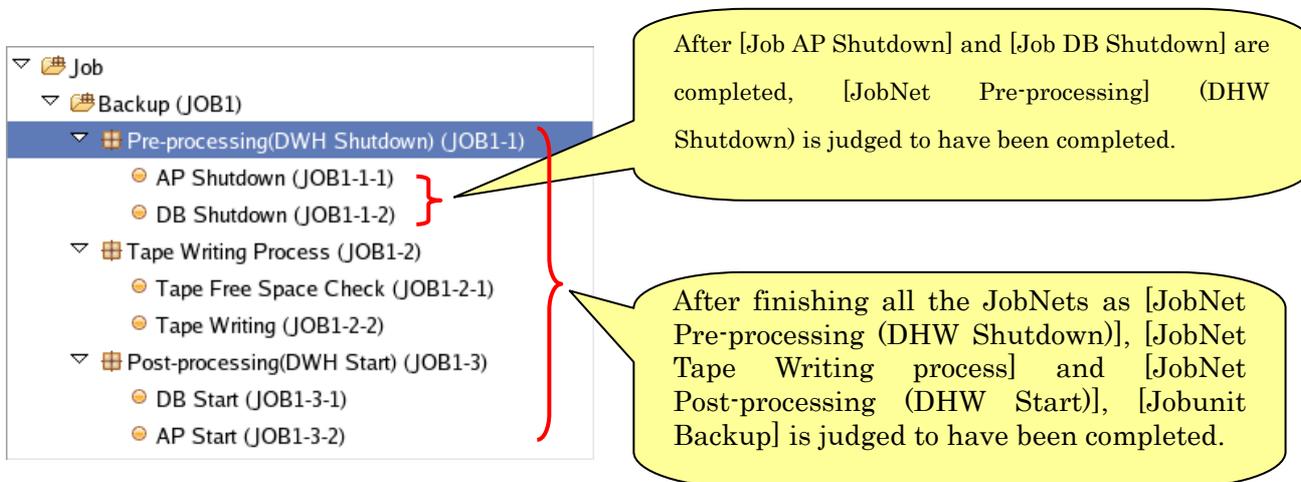
It is an element which can put and treat jobs together. JobNets can also be collectively treated with Jobs. Therefore, a JobNet consists of JobNets and Jobs.

In the case of scheduling, it is possible to perform at specified time, and also possible to perform on condition of the end of JobNets or Jobs which are existing same layer of the job hierarchy.

Run of a JobNet will execute low order hierarchy's Jobs (or JobNets) registered into the JobNet. It becomes the end conditions that execution of all the Jobs (or JobNet) of the low order hierarchy is completed.

- Job

Job is the minimum execution unit. The command executed on a node is set up. In the case of scheduling, it is possible to perform at specified time, and also possible to perform on condition of the end of JobNets or Jobs which are existing same layer of the job hierarchy.



- File Transfer Job

This is a special Job which transfers files. The setting is for File Transfers instead of for command.

10.1.3. End Status and End Value

JobUnit, JobNet and Job have the End Value and End Status. There are three Statuses of Normal, Warning and Error as End Status. An End Value is determined by the End Status

The determination of an End Status differs between JobNet (and JobUnit) and Job in treatment.

In the case of Job, End Status is specified in the range of the return code of a command executed at the time of Job execution (for example, "ordinary", when a Return code is 0. It is "Warning" when Return codes are 1-9.

It is "Errors" except them.)

In the case of JobNet, End status is specified by the Range of End Value of all the Jobs (or JobNet) performed at the time of a Run of the JobNet.

A Monitor management function or a Mail can notify the end state of jobs and job nets. Moreover, it is possible to make the End Status of Precedence job (or JobNet) to the conditions which start following jobs.

10.1.4.Run of JobNet (JobUnit)

As running of a JobNet (or JobUnit) , jobs or jobnets without wait rules contained the JobNet are simultaneously run at first. Jobs or JobNets with wait rules are started when their Wait Rules fulfill Conditions.

10.1.5.Notice function at the time of Job execution and of End Value.

At the time of the start and end of Job (or JobNet and JobUnit) execution, Status can be notified to monitor management function or Mail. Priority ("Critical", "Warning", "Info" and "Unknown") can be set to the Notification. The Notification at the time of job end can be change the Priority according to the End Status.

10.2. Screen composition

10.2.1. Initial screen composition

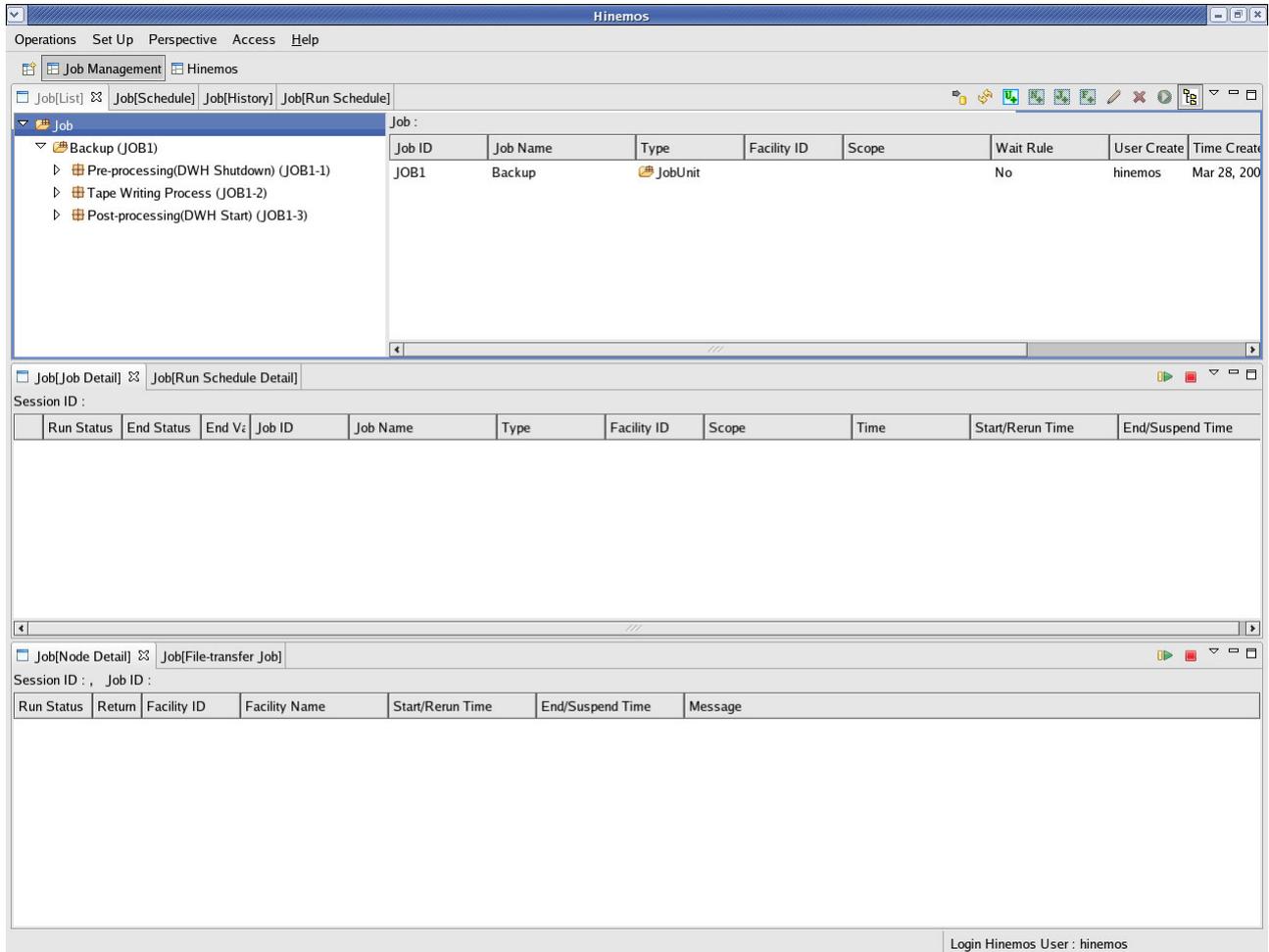


Figure 10-1 Job management function Initial screen composition

10.2.2. Job [List] view

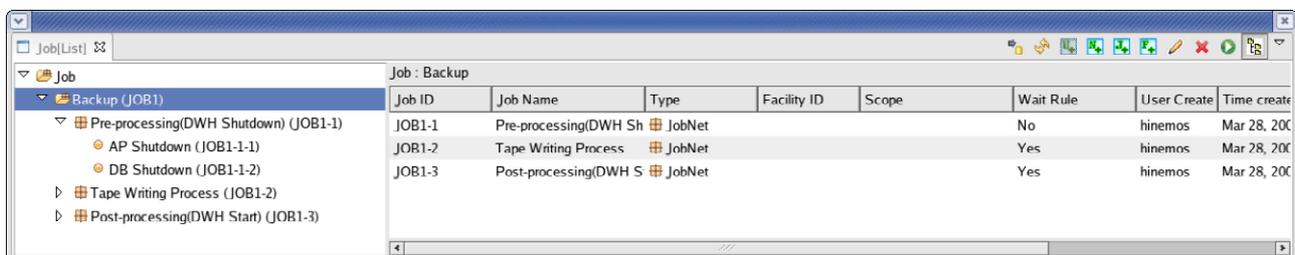


Figure 10-2 Job[List] view

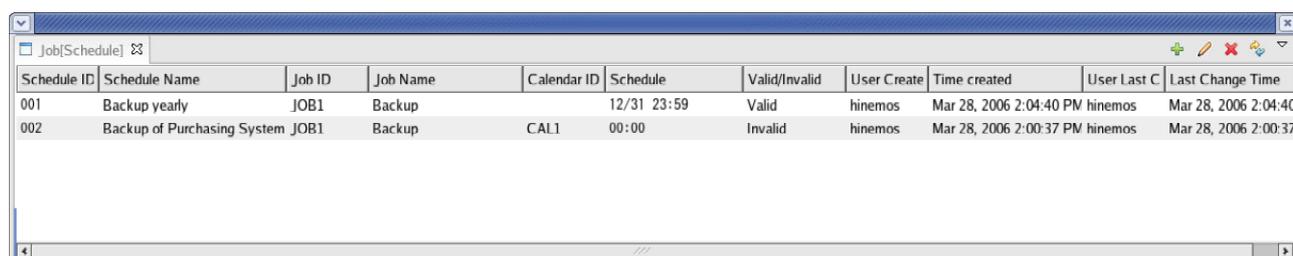
Table 10-1 Icon of a Job tree

Icon	Description
	JobUnit is expressed.
	JobNet is expressed.
	Job is expressed.

Table 10-2 Tool bar

Icon	Button name	Description
	Register	Register the information on the Job tree which edited on the client into a server.
	Cancel	Clear the information on the Job tree which edited on the client.
	Create JobUnit	Create a new JobUnit.
	Create JobNet	Create a new JobNet.
	Create Job	Create a new Job.
	Create File-transfer Job	Create a new File Transfer Job.
	Change	Change the element (a JobUnit, a JobNet and a Job) chosen by the Job.
	Delete	Delete the element (a JobUnit, a JobNet and a Job) chosen by the Job.
	Run	Execute immediately the element (a JobUnit, a JobNet and a Job) chosen by the Job tree.
	A display of a Job hierarchy pane	Choose to display / un-displaying a Job tree.

10.2.3. Job [Schedule] view



Schedule ID	Schedule Name	Job ID	Job Name	Calendar ID	Schedule	Valid/Invalid	User Create	Time created	User Last C	Last Change Time
001	Backup yearly	JOB1	Backup		12/31 23:59	Valid	hinemos	Mar 28, 2006 2:04:40 PM	hinemos	Mar 28, 2006 2:04:40
002	Backup of Purchasing System	JOB1	Backup	CAL1	00:00	Invalid	hinemos	Mar 28, 2006 2:00:37 PM	hinemos	Mar 28, 2006 2:00:37

Figure 10-3 Job [Schedule] view

Table 10-3 Tool bar

Icon	Button name	Description
	Create	Create a Job Schedule.
	Change	Change a Job Schedule.
	Delete	Ddelete a Job Schedule.
	Update	Update a Job Schedule.

10.2.4. Job[History] view



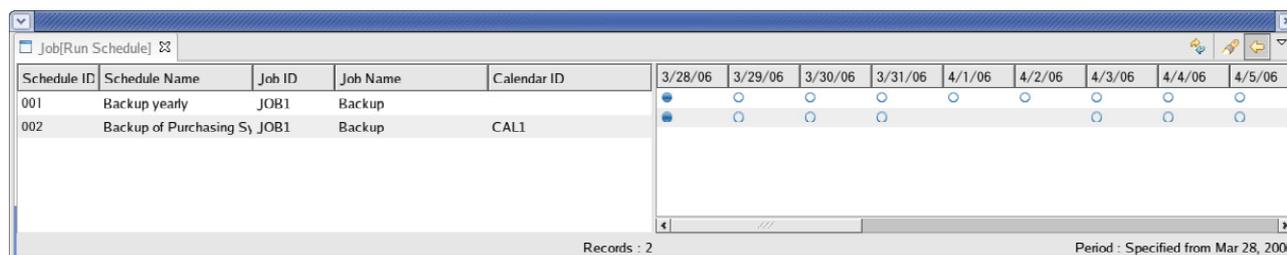
Run Status	End Status	End Vz	Session ID	Job ID	Job Name	Type	Facility ID	Scope	Scheduled Start Time	Start/Rerun Time
End	Normal	0	20060328142916-000	JOB1	Backup	JobUnit			Mar 28, 2006 2:29:16 PM	Mar 28, 2006 2:29:16 PM
Running			20060328142803-000	JOB1	Backup	JobUnit			Mar 28, 2006 2:28:03 PM	Mar 28, 2006 2:28:03 PM
Command			20060328142555-000	JOB1-1-1	AP Shutdown	Job	S200000	Purchasing Systems	Mar 28, 2006 2:25:55 PM	Mar 28, 2006 2:25:55 PM
Running			20060328142152-000	JOB1-1-1	AP Shutdown	Job	S200000	Purchasing Systems	Mar 28, 2006 2:21:52 PM	Mar 28, 2006 2:21:52 PM
Success			20060328141625-000	JOB1-1-1	AP Shutdown	Job	S200000	Purchasing Systems	Mar 28, 2006 2:16:25 PM	Mar 28, 2006 2:16:25 PM

Figure 10-4 Job[History] view

Table 10-4 Tool bar

Icon	Button name	Description
	Filter	Filter Job execution history list.
	Start	Start Job.
	Stop	Stop Job.
	Update	Update Job execution history to the latest.

10.2.5. Job[Run-Schedule] view



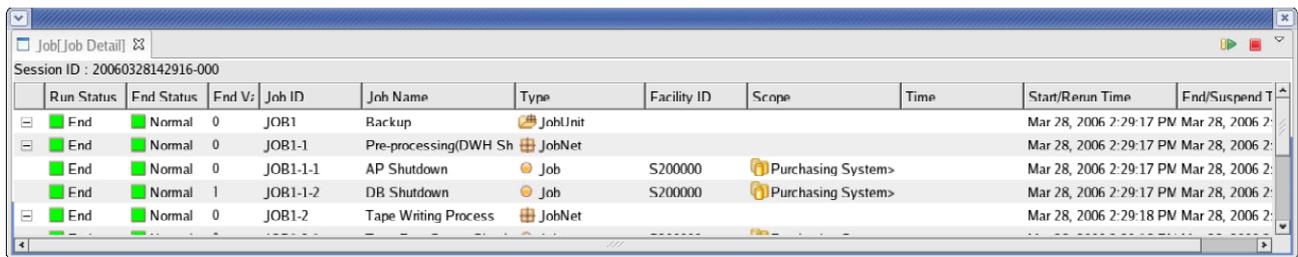
Schedule ID	Schedule Name	Job ID	Job Name	Calendar ID	3/28/06	3/29/06	3/30/06	3/31/06	4/1/06	4/2/06	4/3/06	4/4/06	4/5/06
001	Backup yearly	JOB1	Backup		<input checked="" type="radio"/>	<input type="radio"/>							
002	Backup of Purchasing S	JOB1	Backup	CAL1	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Figure 10-5 Job[Run-Schedule] view

Table 10-5 Tool bar

Icon	Button name	Description
	Update	Update Job-execution schedule to the latest.
	Filter	Set up the opening day of display period.
	Show Schedule	Choose displaying/un-displaying Run Schedule.

10.2.6. Job[Job-Detail] view



Session ID : 20060328142916-000

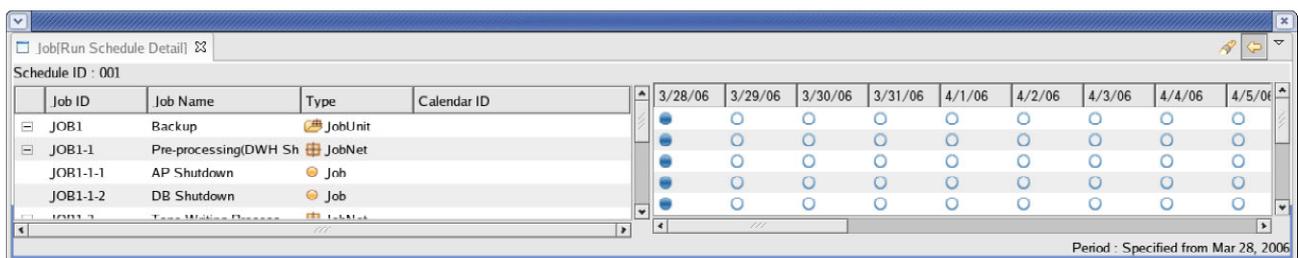
	Run Status	End Status	End V:	Job ID	Job Name	Type	Facility ID	Scope	Time	Start/Run Time	End/Suspend T
[-]	End	Normal	0	JOB1	Backup	JobUnit				Mar 28, 2006 2:29:17 PM	Mar 28, 2006 2:
[-]	End	Normal	0	JOB1-1	Pre-processing(DWH Sh	JobNet				Mar 28, 2006 2:29:17 PM	Mar 28, 2006 2:
	End	Normal	0	JOB1-1-1	AP Shutdown	Job	S200000	Purchasing System>		Mar 28, 2006 2:29:17 PM	Mar 28, 2006 2:
	End	Normal	1	JOB1-1-2	DB Shutdown	Job	S200000	Purchasing System>		Mar 28, 2006 2:29:17 PM	Mar 28, 2006 2:
[-]	End	Normal	0	JOB1-2	Tape Writing Process	JobNet				Mar 28, 2006 2:29:18 PM	Mar 28, 2006 2:

Figure 10-6 Job[Job-Detail] view

Table 10-6 Tool bar

Icon	Button name	Description
	Start	Start Job.
	Stop	Stop Job.

10.2.7. Job[Run-Schedule-Detail] view



Schedule ID : 001

Job ID	Job Name	Type	Calendar ID	3/28/06	3/29/06	3/30/06	3/31/06	4/1/06	4/2/06	4/3/06	4/4/06	4/5/06
JOB1	Backup	JobUnit		●	○	○	○	○	○	○	○	○
JOB1-1	Pre-processing(DWH Sh	JobNet		●	○	○	○	○	○	○	○	○
JOB1-1-1	AP Shutdown	Job		●	○	○	○	○	○	○	○	○
JOB1-1-2	DB Shutdown	Job		●	○	○	○	○	○	○	○	○

Period : Specified from Mar 28, 2006

Figure 10-7 Job[Run-Schedule-Detail] view

Table 10-7 Tool bar

Icon	Button name	Description
	Filter	Set up the opening day of a display period.
	Show Schedule	Choose displaying/un-displaying Run Schedule.

10.2.8. Job[Node-Detail] view



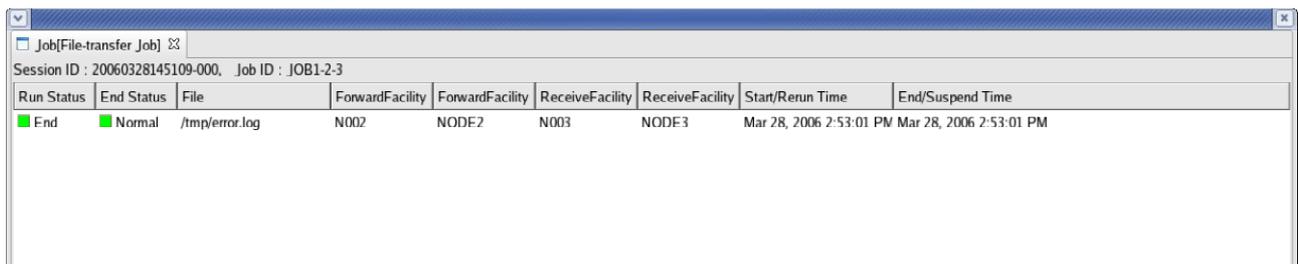
Run Status	Return	Facility ID	Facility Name	Start/Rerun Time	End/Suspend Time	Message
Running		N001	NODE1			
Running		N002	NODE2			
End	0	N003	NODE3	Mar 28, 2006 2:49:33 PM	Mar 28, 2006 2:49:33 PM	bin jre1.5.0_06 lib var

Figure 10-8 Job[Node-Detail] view

Table 10-8 Tool bar

Icon	Button name	Description
	Start	Start Job.
	Stop	stop Job.

10.2.9. Job[File-transfer-Job] view



Run Status	End Status	File	ForwardFacility	ForwardFacility	ReceiveFacility	ReceiveFacility	Start/Rerun Time	End/Suspend Time
End	Normal	/tmp/error.log	N002	NODE2	N003	NODE3	Mar 28, 2006 2:53:01 PM	Mar 28, 2006 2:53:01 PM

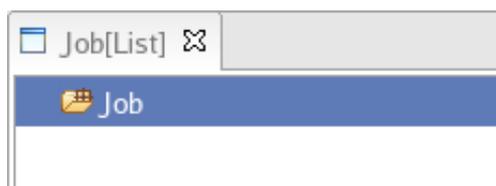
Figure 10-9 Job[File-transfer-Job] view

10.3. Registration of job

10.3.1. Create JobUnit

- Create JobUnit

1. Choose the "Job" in the top position from the Job tree of a Job[List] view.



2. Click the "Create-JobUnit" button of Job[List] view. A Job [Create/Change-JobUnit] dialog opens.
3. Set up a Job ID, a Job Name and a Description. Since the Job ID and the Job Name are required items, please be sure to input them. The Job ID needs to be a unique on the system.
4. Set up the End Status. Please choose the "End-Status" Tab. First, the End Value of this JobUnit is set up to "Normal", "Warning" and each "Error" Status. Next, the judge condition of this end state of job unit is set up. Please set up a Range of End Value so that there is no overlapping range between "Normal" and "Warning."

Job[Create/Change JobUnit]

Job ID :

Job Name :

Description :

End Status Notifications

	End Value	Range of End Value
Normal	<input type="text" value="0"/>	<input type="text"/> ~ <input type="text"/>
Warning	<input type="text" value="1"/>	<input type="text"/> ~ <input type="text"/>
Error	<input type="text" value="-1"/>	(Other than Normal or Warning)

OK Cancel

Figure 10-10 Job[Create/Change JobUnit] dialog (End Status Tab)

5. Set up Notifications. Please choose "Notifications" Tab. The following items are set up.

Start:

Set up the Notification performed at the time of JobUnit Start.

Normal:

Set up the Notification performed when the end state of a job unit is "Normal".

Warning:

Set up the Notification performed when the end state of a job unit is a "Warning".

Errors:

Set up the Notification performed when the end state of a job unit is "Error".

Notification ID :

Set up the Notification ID of the Notice setting used as the notice method.

The screenshot shows a dialog box titled "Job[Create/Change JobUnit]". It has three text input fields for "Job ID", "Job Name", and "Description". Below these are two tabs: "End Status" and "Notifications". The "Notifications" tab is selected and contains a "Priority" section with four rows: "Start", "Normal", "Warning", and "Error". Each row has a dropdown menu currently set to "Info". Below the priority section is a "Notificat" dropdown menu and a "Refer" button. At the bottom of the dialog are "OK" and "Cancel" buttons.

Figure 10-11 Job[Create/Change JobUnit] dialog (Notifications Tab)

6. Click "OK" button. Job[Create/Change JobNet] dialog is closed and the created JobUnit is added to the Job tree of the Job[List] view.

Notes: Creation operation here serves as an editing work on a client. Unless it performs a "Register" Operation, the information on the Job tree under edit is not reflected on a server.

10.3.2.A Create JobNet

- Create JobNet
 1. Choose the JobUnit or JobNet where to create a new JobNet from the Job tree of Job [List] view.
 2. Click the "Create JobNet" button of Job[List] view. Job[Create/Change JobNet] dialog opens.

Figure 10-12 Job[Create/Change JobNet] dialog

3. Set up a Job ID, a Job Name and a Description. Since the Job ID and the Job Name are required items, please be sure to input them. The Job ID needs to be a unique on the system.
4. Input Wait Rules. Please choose the "Wait Rule" Tab. First, set up Objects.
 - Addition of Wait Rule

As Wait Rules, the end conditions of a precedence job and time can be specified. By specifying the end conditions of the precedence job, it is possible, for example, to set up to perform a

JobNet only when the precedence job ends in the status of Error.

Please click the "Add" button. Wait Rule dialog opens.

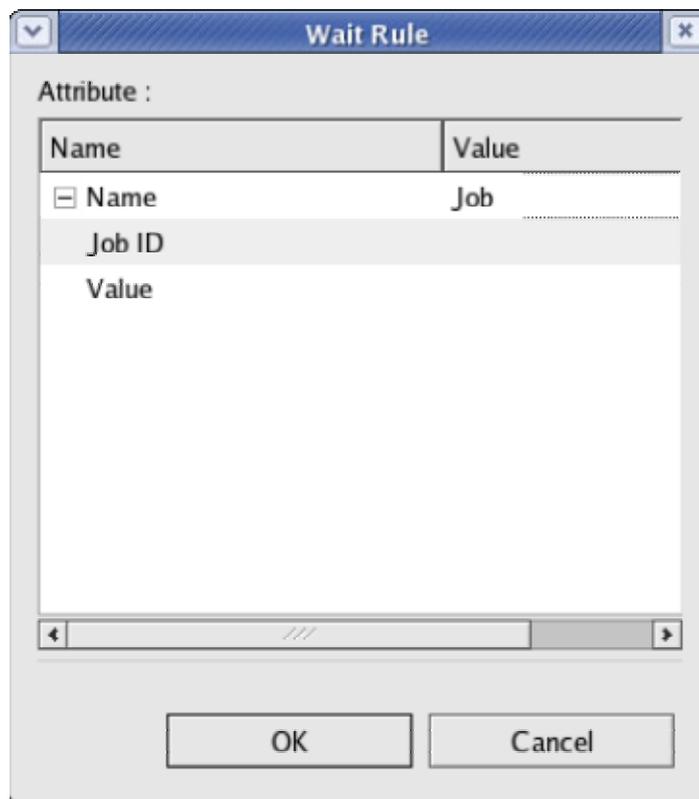


Figure 10-13 Wait Rule dialog

5. Set up a Condition between Objects. "AND" or "OR" is chosen with a radio button. When "AND" is chosen, this JobNet is started by filling all the Wait Rules set up in the top. A JobNet is started, when "OR" is chosen and some at least one of the Wait Rules is filled.
6. When setting up a Calendar, check a Calendar check box and choose Calendar ID.
7. Please choose "End-Status" Tab. First, set up the end value of this jobnet to each status of "Normal", "Warning" and "Errors".
8. Set up notifications is. Please choose a "Set Up of report destination" Tab. The following is set up.
Start:

Set up the Notification performed at the time of a JobNet Start.

Normal:

Set up the Notification performed when a The end state of a job net is "Normal".

Warning:

Set up the Notification performed when a The end state of a job net is a "Warning".

Error:

Set up the Notification performed when a The end state of a job net is "Error".

Notification ID:

Specify the Notification ID of the Notice setting used as a notice method.

9. Click "OK" button. Job [Create/Change JobNet] dialog is closed and the created JobNet is added to the Job tree of the Job [List] view.

10.3.3.A Create Job

Since a Job is the minimum execution unit, it is necessary to set up the command published to the nodes at the time of the Job execution. About the setting of others, such as the End Status and Wait Rule, it becomes the same procedure to create JobNet.

- Create Job

1. Choose the JobNet (or JobUnit) which adds a new Job from the Job tree of a Job[List] view.
2. Click the "Create-Job" button of a Job [List] view. Job [Create/Change Job] dialog opens.
3. Set up a Job ID, a Job Name and a Description. Since the Job ID and the Job Name are required items, please be sure to input them. The Job ID needs to be a unique on the system.
4. Choose "Wait-Rule" tab and set up Wait Rule.
5. Set up the Command executed on nodes at the time of the Job execution. Choose "Command" tab and set up the following items.



Figure 10-14 Job[Create/Change Job] dialog (Command Tab)

Scope:

Click "Refer" button and Scope selection dialog will open. Choose a command-execution target scope, and click "OK" button.

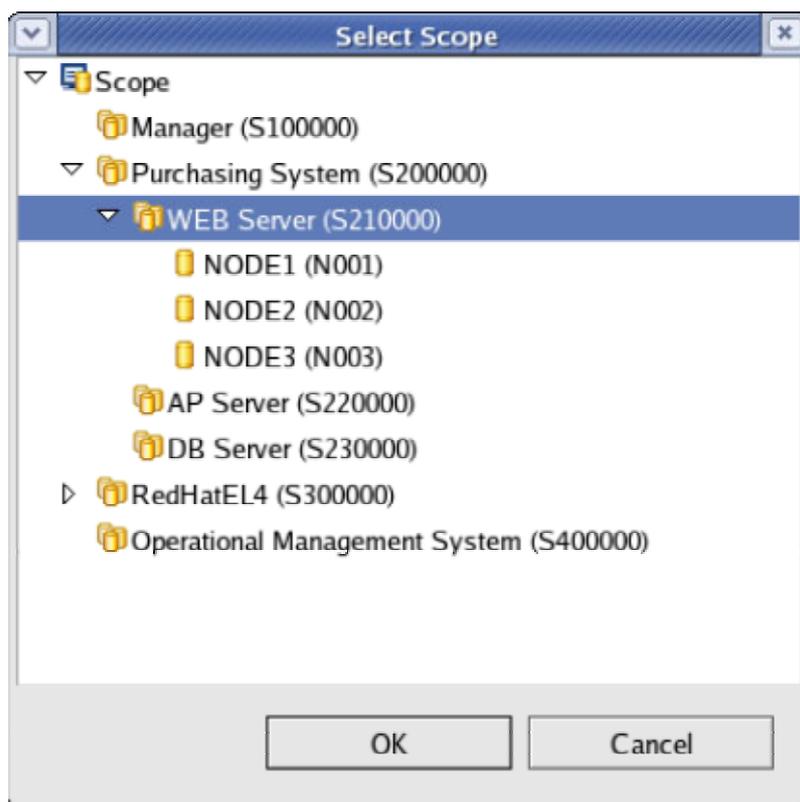


Figure 10-15 Select Scope dialog

Scope Process:

It chooses from two of the followings.

- Run all nodes
- Retry nodes one by one until the end status 'Normal'

Start Command :

Input the Command published to Nodes at the time of a Job execution.

Stop Command :

Input the Command published to Nodes at the time of a Job Stop Process.

Run user :

Input the Run user of the Command.

Terminate when unable to execute :

Input the End Value at the time of a Command execution going wrong.

Start Command :	<input type="text" value="/home/job/sleep.sh start 10"/>
Stop Command :	<input type="text" value="/home/job/sleep.sh stop 5"/>
Effective User :	<input type="text" value="job"/>

- 6 . Choose "End-Status" Tab, and Set up an End Status.
- 7 . Choose "Set Up of report destination" Tab and set up a report destination.
- 8 . Click "OK" button. Job[Create/Change Job] dialog is closed and the new job created here is added to the job tree of a Job[List] view.

When canceling a Create Job, click "Cancel" button.

10.4. Execution, Start and Stop of job

10.4.1. The Status/operation of a Job

In JobUnit, JobNet and Job, the following Statuses are taken according to the present Run Status.

- Waiting: The Status that the JobUnit was started and session information was made.
- Suspended: The Status that the Command execution is suspended.
- Skip: The Status that the Command execution is skipped.
- Running: The Status which notified the agent of the Command execution.
- Stopping: The Status until the notice of end returns from the agent after executing the Stop Command.
- Suspend: The Status until the notice of an end returns from the agent after executing the Suspend Command.
- Command Stop: The Status that the notice of end returned from the agent after executing the Stop[Command].
- End: The Status that the notice of an end of a Command execution has returned.
- Changed: The Status that the End Value was set by the Stop[Change End Value].
- Start Failure: The Status which failed in the Run of the Command for a certain cause.

The operation state transition which can be performed with the JobNet in a Job[Job Detail] view and Job, and a Job[Node Detail] view is as follows.

Table 10-7 The operation which can be performed by the JobNet, the Job, and a Node

Operation	JobNet	Job	Node details
Stop[Suspend]	○	○	
Start[Cancel Suspend]	○	○	
Stop[Skip]	○	○	
Start[Cancel Skip]	○	○	
Stop[Pause]	○	○	
Start[Cancel Pause]	○	○	
Stop[Command]	○	○	○
Start[Start]	○	○	○
Stop[Change End Value]	○	○	○

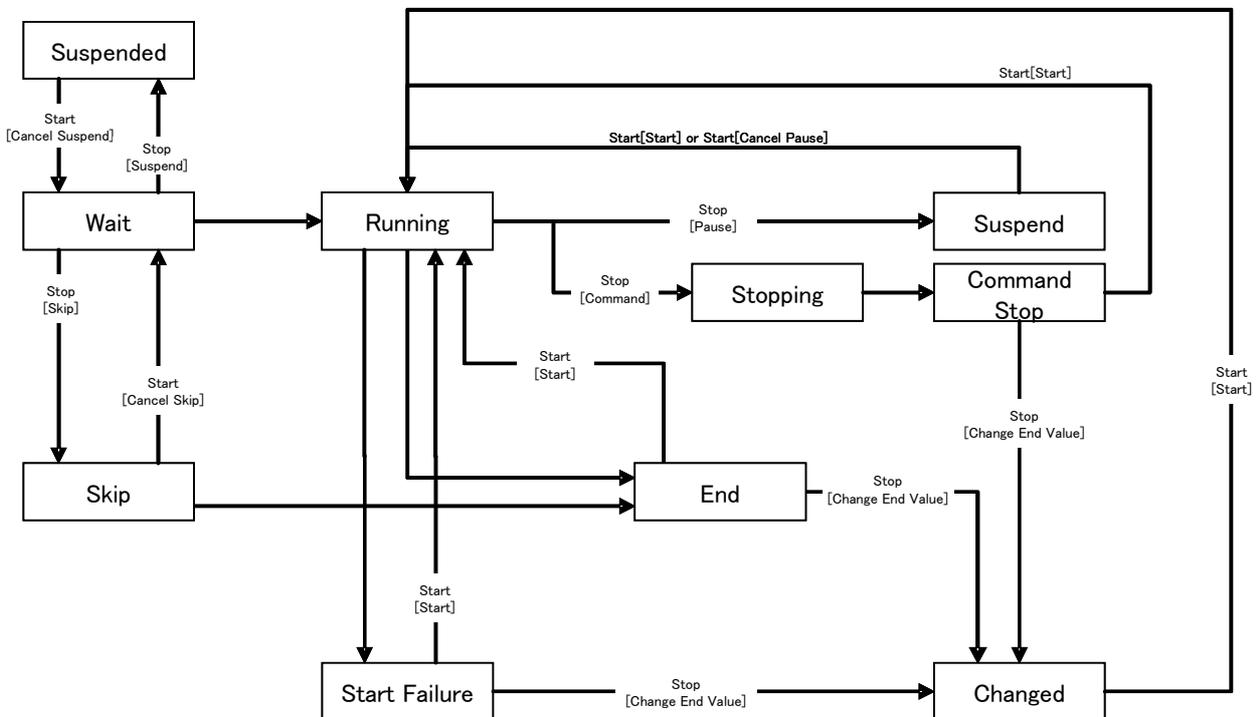


Figure 10-16 Status transition diagram

10.4.2. Execution of a job

Click "Run" button after choosing the Job to execute from the Job tree or Job List table of a Job[List] view .

10.4.3. Schedule execution of job

Schedule the Job (JobNet, JobUnit) registered now. The scheduled jobs will be executed at the setting time.

1. Click "Add" button of the Job[Schedule] view. Job [Create/Change Schedule] dialog opens.

The dialog box is titled "Job[Create/Change Schedule]". It contains the following fields and controls:

- Schedule ID : [Text Input]
- Schedule Name : [Text Input]
- Job ID : [Text Input] [Refer]
- Job Name : [Text Input]
- Calendar ID : [Text Input] [Dropdown Arrow]
- Schedule**
 - Month [Dropdown] [Dropdown] [Dropdown] [Dropdown] [Dropdown] minute(s)
 - Weekday [Text Input] [Dropdown] [Dropdown] [Dropdown] [Dropdown] minute(s)
- Valid/Invalid**
 - Valid Invalid
- [Register] [Cancel]

Figure 10-17 Job [Create/Change Schedule] dialog

2. Input a Schedule ID and a Schedule Name. Since the Schedule ID and the Schedule Name are required items, please be sure to input them. The Schedule ID needs to be a unique on the system.
3. Set up a scheduling the target job (or a JobNet, a JobUnit). Click "Refer" button. A Job

selection dialog opens.

Click "OK" button after choosing the scheduling the target job.

Job ID and Job Name are set up.

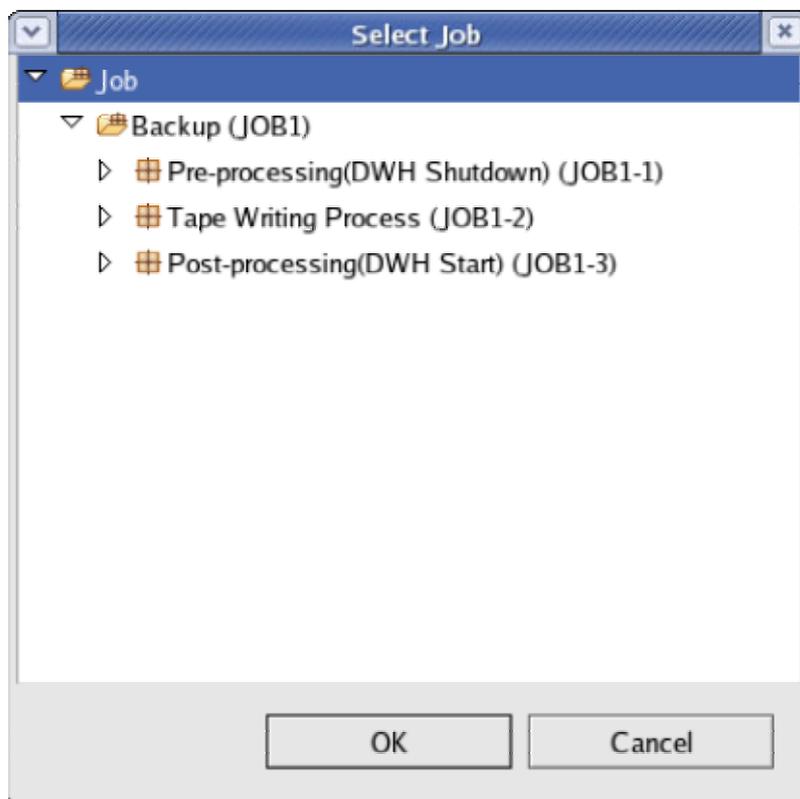


Figure 10-18 Job selection dialog

4. Set up Calendar. Choose the Calendar ID of the Calendar to set up.
5. Set up Schedule. Setting of the schedule can be set up by the following two methods.
 - Time specification
It sets up so that Job may be performed at the time of a designated date. Value is chosen from each combo box of a minute<:s:> at a Month, a Monthday, and the time.
 - Day-of-the-week specification
The scheduling of the Execution of a job is carried out by a Day-of-the-week specification. Value is chosen from each combo box of a minute<:s:> at a Weekday and the time.
6. Set up whether the Schedule setting under present is validated or not. It chooses with the radio button of "Valid/Invalid." When an Invalid is chosen, the Schedule setting is saved, but the Job is not performed.
7. Click the "Register" button. Job ([create and Add] of Schedule) dialog is closed, and the new Schedule created here added to the Schedule List table of the Job[Schedule] view.

10.5. Job sample (sleep.sh)

The Job sample (sleep.sh) actually performed by Node is shown below. In the case where sleep.sh exists in the Home Directory of User Name job -- for example

```
/home/job/sleep.sh start 10
```

If it performs, for sleep 10 seconds will be performed and 0 will be returned (at the time of a normal end). moreover

```
/home/job/sleep.sh stop 5
```

Zero is returned, after kill(ing) the sleep.sh process performed now and performing for sleep 5 seconds after that, if it performs (at the time of a normal end).

```
#####  
###                                     ###  
###           sleep.sh                 ###  
###                                     ###  
#####  
  
#!/bin/sh  
#####  
# Parameter  
#####  
# Service name  
gyomu="Sleep"  
# User program  
prg_home="/home/job"  
prg_name="${prg_home}/${gyomu}"  
# PID File  
prg_pid="${prg_home}/${gyomu}.pid"  
# Logging file  
log="${prg_home}/${gyomu}.log"  
  
#####  
# Command Line Arguments  
#####
```

```
# $1 $ {action} Specification of # start/stop
# $2 $ {sleep} # sleep hour<:s:>
action=$1
sleep=$2

#####
# Process
#####
start() {
    cd ${prg_home}
        echo "Starting : ${gyomu}" >> ${log}
        echo "${action}" >> ${log}
        echo "${sleep}" >> ${log}

    if [ -f ${prg_pid} ]; then
        echo -- >> ${log} "$ {gyomu} is already a Running" -- [ log ]
        exit 1
    fi

    touch ${prg_pid}
    rval=$?
    if [ $rval != 0 ]; then
        ">> $ which failed in the create of the echo" Status file {log}
        exit 1
    fi

    # To this timeliness, acquire pid and write in a pid File.
        echo "$$" >> ${prg_pid}
        sleep ${sleep}
    rval=$?
    if [ $rval != 0 ]; then
        echo" -- ret=${rval}" >> ${log} in which $ {gyomu} program carried out the abnormal end --}
        rm -f ${prg_pid}
        rval2=$?
        if [ ${rval2} != 0 ]; then
            ">> $ which failed in the echo" Deletion of a status file {log}
            exit ${rval2}
        fi
    fi
}
```

```
    exit ${rval}
fi

echo -- >> ${log "which $ {gyomu} program ended normally" --}
rm -f ${prg_pid}
rval2=$?
if [ ${rval2} != 0 ]; then
    ">> $ which failed in the echo" Deletion of a status file {log}
    exit ${rval2}
fi
return ${rval}
}

stop() {
    echo "Stopping : ${gyomu}" >> ${log}
    kill `cat ${prg_pid}`
    rval=$?
    if [ ${rval} != 0 ]; then
        echo -- >> ${log "which failed in the Stop of $ {gyomu} program" --}
        exit ${rval}
    fi
    sleep ${sleep}
    rval=$?
    if [ ${rval} != 0 ]; then
        echo -- >> ${log "which failed in the Stop of $ {gyomu} program" --}
        exit ${rval}
    fi

    echo -- >> ${log "which $ {gyomu} program stopped normally" --}
    rm -f ${prg_pid}
    rval2=$?
    if [ ${rval2} != 0 ]; then
        ">> $ which failed in the echo" Deletion of a status file {log}
        exit ${rval2}
    fi
    return ${rval}
}
```

```
case ${action} in
  start)
    start
    ;;
  stop)
    stop
    ;;
  *)
    The Command Line Arguments which specifies an echo" Operations is inaccurate." >> ${log}
    exit 1
esac

exit $?
# End of file.
```

10.6. File Transfer Job

Although the usual Job executes a designated command at the run time, the File Transfer set up is performed in a File Transfer Job.

The Transfer to multiple Nodes from one Node can be performed.

Others settings, such as an End Status and a Set Up of a Wait Rule, are the same process about Create-Job procedure.