

[DESCRIPTION]

[TITLE OF INVENTION]

MANAGEMENT SYSTEM

[Technical Field]

5 [0001]

The present invention relates to management systems, for example, an energy management system and the like.

[Background Art]

[0002]

10 In a system such as an energy management system, when a monitoring/managing operation is performed, information can be referred to from a physical structure of a monitoring/managing target, or information can be referred to by defining monitoring/managing groups such as types of energy.

However, in a method of related arts, there is a problem in that it is difficult to change configuration information of a current system or to newly create a hierarchical structure and perform setting for creating a new information group.

[0003]

As a method for solving such a problem, a tree structure display method for displaying information as trees has been proposed (see Patent Document 1).

20 However, the tree structure display method disclosed in Patent Document 1 also has the following problems.

[0004]

(I) There are cases in which information or an information hierarchy to be referred to in a system is different for each operator, and in such cases, the information hierarchy is too deep, the information hierarchy is different from a hierarchical structure targeted by an operator, or data other than information targeted by an operator is displayed, and thus it is difficult to find

information targeted by an operator.

(II) When there is an operation to be performed as a result of an operator referring to information, it is difficult to find an appropriate operation in a system.

(III) Relevance between the same data displayed in different hierarchical structures in a system is not known, and it is difficult to reach data from a different point of view.

[Citation List]

[Patent Literature]

[0005]

[Patent Literature 1]

10 Japanese Patent No. 4710459

[Summary of Invention]

[Technical Problem]

[0006]

The present invention is devised for solving the problems described above, and an objective thereof is to provide a management system that is capable of easily finding target information.

[Solution to Problem]

[0007]

According to the present invention, there is provided a management system including: a storage unit configured to store information of nodes representing either keywords of information about a monitoring target or management points in the monitoring target; a map creation unit configured to create information of a map in which a plurality of nodes is connected on the basis of the information of the nodes stored in the storage unit; and a display unit configured to display a map screen according to the information of the map created by the map creation unit, in which the information of the nodes stored in the storage unit at least includes node configuration information that includes information of names of the nodes and

values of the nodes, and the map creation unit creates the information of the map such that a name is displayed for each node and creates the information of the map such that a value of the node is displayed in a case in which the node has the value.

[0008]

5 In addition, in one configuration example of the management system according to the present invention, the information of the nodes stored in the storage unit additionally includes at least node reference information that includes information representing parent nodes and information representing child nodes, and the map creation unit creates the information of the map in which the plurality of nodes is connected on the basis of the information of the nodes
10 stored in the storage unit.

 In addition, in one configuration example of the management system according to the present invention, when a specific node on the map screen is designated as a central node by an operator, the map creation unit updates the information of the map such that the specific node is configured as the central node on the basis of the information of the nodes stored in the storage
15 unit.

 In addition, in one configuration example of the management system according to the present invention, when folding is designated with a specific node on the map screen selected by an operator, the map creation unit updates the information of the map such that display of layers below the specific node is omitted.

20 In addition, in one configuration example of the management system according to the present invention, the node reference information includes information that represents parent nodes in a case in which the parent nodes are referred to as virtual nodes, and when another parent node of a specific node on the map screen is designated to be switched to a central node by an operator, in a case in which the specific node is defined as a virtual node in the node
25 reference information, the map creation unit updates the information of the map such that the parent node referred to by the specific node as a virtual node is configured as a central node.

[0009]

In addition, in one configuration example of the management system according to the present invention, when a parent node of another node having the same name as a specific node on the map screen is designated to be switched to a central node by an operator, the map creation
5 unit updates the information of the map such that the parent node of the another node having the same name as the specific node is configured as the central node on the basis of the information of the nodes stored in the storage unit.

In addition, in one configuration example of the management system according to the present invention, the node configuration information includes information of processing nodes
10 that are used for performing processing, and the management system further includes a screen operation processing unit configured to perform processing defined by the information of the processing nodes stored in the storage unit when processing is requested to be performed for a processing node on the map screen by an operator.

In addition, in one configuration example of the management system according to the present invention, the screen operation processing unit transmits instruction information for
15 instructing a monitoring/control system of the monitoring target to change a value of a management point corresponding to the processing node in accordance with an operation on the processing node that is performed by the operator.

In addition, one configuration example of the management system according to the present invention further includes an information managing unit configured to update a value of
20 a node corresponding to the management point in accordance with data of the management point transmitted from a monitoring/control system of the monitoring target, in which the map creation unit updates the information of the map in accordance with the update of the value of the node.

[Advantageous Effects of Invention]

[0010]

According to the present invention, by providing a storage unit configured to store

information of nodes representing either keywords of information about a monitoring target or management points in the monitoring target, a map creation unit configured to create information of a map in which a plurality of nodes is connected on the basis of the information of the nodes stored in the storage unit, and a display unit configured to display a map screen according to the information of the map created by the map creation unit, a management system that is capable of finding target information more easily than in a conventional case can be realized.

[Brief Description of Drawings]

[0011]

Fig. 1 is a block diagram illustrating the configuration of a management system according to an embodiment of the present invention.

Fig. 2 is a flowchart illustrating an operation of a management system according to an embodiment of the present invention.

Fig. 3 is a diagram illustrating a method for creating a map according to an embodiment of the present invention.

Fig. 4 is a diagram illustrating an example of a map screen according to an embodiment of the present invention.

Fig. 5 is a diagram illustrating a map update in a case in which there is a designation of a central node from an operator according to an embodiment of the present invention.

Fig. 6 is a diagram illustrating an example of another map screen according to an embodiment of the present invention.

Fig. 7 is a diagram illustrating a processing node according to an embodiment of the present invention.

Fig. 8 is a diagram illustrating an example of a map screen to which processing node is added in an embodiment of the present invention.

Fig. 9 is a diagram illustrating a virtual node according to an embodiment of the present

invention.

Fig. 10 is a diagram illustrating an example in which a virtual node according to an embodiment of the present invention is used.

Fig. 11 is a diagram illustrating another example in which a virtual node according to an
5 embodiment of the present invention is used.

Fig. 12 is a diagram illustrating a map update in a case in which there is a designation of a central node from an operator according to an embodiment of the present invention.

Fig. 13 is a diagram illustrating a map update in a case in which there is a designation
for switching a parent node, which is another node, to a central node from an operator in an
10 embodiment of the present invention.

Fig. 14 is a diagram illustrating a map screen after switching in a case in which there is a designation for switching a parent node, which is another node, to a central node from an operator in an embodiment of the present invention.

Fig. 15 is a block diagram illustrating an example of the configuration of a computer
15 that realizes a monitoring device according to an embodiment of the present invention.

[Description of Embodiments]

[0012]

[Principle of invention]

The present invention solves the problems described above by using a mind map (a
20 registered trademark) in a monitoring/managing operation screen.

[0013]

[Embodiment]

Hereinafter, an embodiment of the present invention will be described with reference to the drawings. Fig. 1 is a block diagram illustrating the configuration of a management system
25 according to an embodiment of the present invention. The management system is composed of a monitoring device 1, an operation terminal 2, and a monitoring/control system 3. The

monitoring device 1, the operation terminal 2, and the monitoring/control system 3 are interconnected through a communication network 4.

[0014]

5 The monitoring device 1 includes a map creation unit 10 that creates a map in which a plurality of nodes representing either keywords of information about a monitoring target or management points in the monitoring target described above is connected, a screen operation processing unit 11 that performs processing according to an operator's operation on the map, a storage unit 12 that stores programs of the monitoring device 1 and information of nodes, a communication processing unit 13 for communicating with the outside, and an information
10 managing unit 14 that manages the information of nodes stored in the storage unit 12.

[0015]

The operation terminal 2 includes a display unit 20 that displays information for an operator, an operation unit 21, a storage unit 22 that stores a program of the operation terminal 2, and a communication processing unit 23 that is used for communicating with the outside.

15 [0016]

The monitoring/control system 3 controls a facility device 5 of a monitoring target (for example, a building, a plant, or the like) and transmits data of management points of the monitoring target to the monitoring device 1. The monitoring/control system 3 is composed of a collection unit 30 that collects data of management points of a monitoring target, a control unit
20 31 that controls the facility device 5 of the monitoring target, a storage unit 32 that stores a program of the monitoring/control system 3, a communication processing unit 33 that is used for communicating with the outside, and an information managing unit 34 that manages information of the monitoring target.

[0017]

25 Fig. 2 is a flowchart illustrating an operation of the management system. When data of management points of a monitoring target collected by the collection unit 30 of the

monitoring/control system 3 is received through the communication processing unit 13, the information managing unit 14 of the monitoring device 1 updates the information of nodes stored in the storage unit 12 on the basis of the data. At this time, the collection unit 30 acquires monitoring/control system tag names corresponding to the management points from a tag list of the storage unit 32, adds the acquired monitoring/control system tag names to the data of the management points, and transmits resultant data to the monitoring device 1.

[0018]

As described above, a map according to the present invention is acquired by connecting a plurality of nodes representing either keywords of information about a monitoring target or management points in a monitoring target using lines on the basis of a relationship between the nodes set in advance. Examples of the management points include electric power, a room temperature, a humidity, a set temperature, a water supply usage amount, a gas usage amount, and the like.

[0019]

As node configuration information stored in the storage unit 12, there are a node ID that is unique to each node, node type information representing a node type such as a leading node, a processing node, a virtual node, or the like to be described below, a node name, a monitoring/control system tag name representing a name of a management point of a monitoring target corresponding to a node, a value of a node, processing definition information that defines processing in the case of a processing node, and the like. This node configuration information is stored in the storage unit 12 for each node.

[0020]

As node reference information stored in the storage unit 12, there are a reference source node ID representing an ID of a parent node, a reference destination node ID representing an ID of a child node, and reference type information. As reference types, there are an actual node reference in which its own node refers to a parent node as an actual node (a reference relation

displayed on a map in an initial state) and a virtual node reference in which its own node refers to a parent node as a virtual node as will be described below.

[0021]

As will be described below, a virtual node is acquired by defining an actual node that has already been defined as a virtual node. Thus, for a node defined as a virtual node, both a reference source node ID in a case in which its own node refers to a parent node as an actual node and a reference source node ID in a case in which its own node refers to a parent node as a virtual node are defined. The node reference information described above is stored in the storage unit 12 for each node.

[0022]

The node configuration information and the node reference information can be set and updated by an operator operating the operation unit 21 of the operation terminal 2. More specifically, details input by an operator are transmitted from the operation terminal 2 to the monitoring device 1, and the information managing unit 14 of the monitoring device 1 sets and updates the node configuration information and the node reference information in accordance with the details input by the operator.

[0023]

As described above, a monitoring/control system tag name is added to data of management points transmitted from the monitoring/control system 3. The information managing unit 14 of the monitoring device 1 updates a value of a node corresponding to this monitoring/control system tag name with a value of data transmitted from the monitoring/control system 3. The information managing unit 14 constantly performs such information updating.

[0024]

In order to refer to a map, an operator of the management system accesses the monitoring device 1 by operating the operation terminal 2.

The map creation unit 10 of the monitoring device 1 creates map information for

displaying a map on the basis of the node configuration information and the node reference information stored in the storage unit 12 in accordance with access from the operation terminal 2 (Step S1 in Fig. 2).

[0025]

5 There is one leading node in each node. The leading node is defined in advance using the node type information.

In a case in which a central node of the map has not been designated from the operation terminal 2, the map creation unit 10 creates map information using the leading node as a central node.

10 [0026]

As illustrated in (a) of Fig. 3, a map is composed of a node NOD and a line-shaped link L connecting the node NOD and a parent node or a child node. The map creation unit 10 creates map information such that a node name and a value of a node NOD (in a case in which a value is defined in the node configuration information) are displayed as information of the node NOD.

[0027]

In a case in which a node NOD-B is connected as a child node of a node NOD-A, as illustrated in (b) of Fig. 3, the node NOD-A and the node NOD-B are connected with a link L-AB from the node NOD-A to the node NOD-B. The map creation unit 10 creates map information such that a parent node and a child node are connected on the basis of the node reference information.

[0028]

There is necessarily one central node in a map. As illustrated in (c) of Fig. 3, the map creation unit 10 starts creation of map information from a central node NOD-O and creates map information such that the central node NOD-O and a child node NOD-A thereof are connected with a link L-OA from the node NOD-O to a node NOD-A, and the node NOD-A and a child

node NOD-B thereof are connected with a link L-AB from the node NOD-A to the node NOD-B. In a case in which a central node of a map has not been designated from the operation terminal 2 as described above, the map creation unit 10 creates map information using a leading node set in advance as the central node.

5 [0029]

The map information created by the map creation unit 10 is transmitted to the operation terminal 2 through the communication processing unit 13.

When map information is received through the communication processing unit 23, the display unit 20 of the operation terminal 2 displays a map screen according to the map
10 information (Step S2 in Fig. 2).

[0030]

Fig. 4 is a diagram illustrating an example of the map screen. In the example of the map screen 40 illustrated in Fig. 4, in a system called energy monitoring of XX building, from a central node NOD-O having a name “XX building,” child nodes NOD called “Energy Type,”
15 “Building/Section,” and “Energy Use” having different visual points are defined, child nodes NOD are further provided below them as necessary, nodes NOD having data in a lowermost layer are defined, and the entire system can be referred to from various visual points.

[0031]

Operation information of an operator for the operation unit 21 of the operation terminal
20 2 is transmitted to the monitoring device 1 through the communication processing unit 23.

When it is recognized that an operation has been performed on the map screen in accordance with operation information received through the communication processing unit 13 (Yes in Step S3 in Fig. 2), the screen operation processing unit 11 of the monitoring device 1 performs processing according to an operator’s request (Step S4 in Fig. 2).

25 In a case in which it is necessary to update the node configuration information and the node reference information in accordance with an operator’s request, the screen operation

processing unit 11 updates the node configuration information and the node reference information through the information managing unit 14 (Step S4).

[0032]

5 In addition, in a case in which an instruction for the monitoring/control system 3 (change of a setting value and the like) becomes necessary in accordance with an operator's request, the screen operation processing unit 11 transmits instruction information according to the operator's request to the monitoring/control system 3 through the communication processing unit 13 (Step S4).

10 At this time, in the instruction information, for example, a monitoring/control system tag name representing a name of a management point of a monitoring target corresponding to a node operated by an operator, a value of a node (a setting value and the like) changed by the operator, and the like are included.

[0033]

15 The control unit 31 of the monitoring/control system 3 performs control of the facility device 5 such that a value of a management point becomes a desired value (coincides with a setting value) on the basis of data of the management points of the monitoring target collected by the collection unit 30.

20 When instruction information is received from the monitoring device 1 through the communication processing unit 33, the information managing unit 34 of the monitoring/control system 3 identifies a management point corresponding to a monitoring/control system tag name by referring to a tag list, which is stored in the storage unit 32, on the basis of the monitoring/control system tag name included in the instruction information. Then, the information managing unit 34 updates the value of the identified management point with a value of a node included in the instruction information.

25 [0034]

Next, in a case in which an update of the map screen becomes necessary (Yes in Step S5

illustrated in Fig. 2), the map creation unit 10 updates the map information (Step S6 in Fig. 2).

When the updated map information is received through the communication processing unit 23, the display unit 20 of the operation terminal 2 displays a map screen corresponding to this map information (Step S7 in Fig. 2).

5 [0035]

As a case in which an update of the map screen becomes necessary, for example, there is a case in which the node configuration information is updated, and a value of a node displayed on the map screen is updated. For example, in the example illustrated in Fig. 4, in a case where a lighting power 1F increases from 100 kW to 120 kW, the map screen is updated with a map
10 screen on which the value of a node representing the lighting power 1F is changed to 120 kW.

[0036]

In addition, as another case in which an update of the map screen becomes necessary, there is a case in which a central node has been designated by an operator. For example, when an operator designates a node NOD-B on the map as a central node in a state in which a map as
15 illustrated in (a) of Fig. 5 is displayed, the map creation unit 10 updates the map information such that the designated node NOD-B becomes the central node ((b) of Fig. 5).

[0037]

In addition, as another case in which an update of the map screen becomes necessary, there is a case in which folding of a map is designated by an operator. For example, in a state
20 in which a map screen as illustrated in Fig. 4 is displayed, when an operator designates folding with nodes NODs having names “2F” and “3F” below the node NOD having the name “Building/Section” selected on the map screen, designates folding with nodes NODs having names “lighting”, “air conditioning”, and “production” below the node NOD having the name “Energy Use” selected on the map screen, and designates folding with nodes NODs having
25 names “electricity”, “gas”, and “water supply” below the node NOD having the name “Energy Type” selected on the map screen, the map creation unit 10 updates the map information such

that display of layers below the node NOD that is designated to be folded is omitted. In accordance with this, a map screen as illustrated in Fig. 6 is displayed. In this way, by displaying only a part desired to be seen by an operator, data can be easily viewed.

[0038]

5 Among nodes, there are processing nodes that are able to perform processing. A processing node has a parameter used for performing processing. The parameter of the processing node can be associated with an attribute of a parent node.

[0039]

10 In a case in which there is an attribute value of a parent node defined by processing definition information of a processing node when processing is requested to be performed from an operator to the processing node, as illustrated in (a) of Fig. 7, the screen operation processing unit 11 takes in a value VA of the parent node NOD-A as a parameter at the time of performing processing of the processing node NOD-X and performs processing defined by the processing definition information (Step S4).

15 [0040]

 In addition, in a case in which association with an attribute of a parent node is not defined by processing definition information of a processing node when processing is requested to be performed from an operator to the processing node NOD-X, the screen operation processing unit 11 performs the processing defined by the processing definition information
20 without taking in a value of the parent node (Step S4).

[0041]

 For example, in an example illustrated in (b) of Fig. 7, the map creation unit 10 creates map information such that a numerical value input box is displayed in the processing node NOD-X on the basis of the processing definition information. The screen operation processing
25 unit 11 takes in a value input to the numerical value input box of the processing node NOD-X as a parameter at the time of performing the processing of the processing node NOD-X and

performs processing defined by the processing definition information. In a case in which the value input to this numerical value input box is a setting value of the monitoring/control system 3, the setting value is updated as described above.

[0042]

5 In an example illustrated in Fig. 8, below a node NOD having a name “set temperature” below a node NOD having a name “1F”, a processing node NOD-X having a name “room temperature setting operation” is defined. The processing definition information of this node NOD-X is defined such that a set temperature can be input by an operator clicking a key displayed on the map screen. When an operator inputs a set temperature, the screen operation
10 processing unit 11 performs processing of updating the value of the node NOD having the name “set temperature” below the node NOD having the name “1F” with a value input from the operator (Step S4). In addition, the screen operation processing unit 11 transmits instruction information to the monitoring/control system 3 and changes a value of a management point corresponding to the processing node (1F set temperature).

15 [0043]

Furthermore, the map creation unit 10 updates the map information such that the value of the node NOD having the name “set temperature” below the node NOD having the name “1F” is changed when the value of the set temperature input from an operator is changed (Step S6).

In this way, an operator who has viewed the 1F room temperature can easily perform an
20 operation of changing the set temperature of 1F through the processing node NOD-X, and an operation mistake can be prevented.

[0044]

In this embodiment, a node that has already been defined can be defined as a virtual node. For example, as illustrated in (a) of Fig. 9, in a state in which nodes NOD-A, NOD-B, and NOD-C are defined, as illustrated in (b) and (c) of Fig. 9, the node NOD-B can be defined as
25 a virtual node below a central node NOD-O. The definition as this virtual node can be realized

by defining the reference type information described above.

[0045]

At this time, not only referring to a parent node as a virtual node is defined, it can be selected whether a node configuration below this virtual node is also taken over as a virtual node or only a target node is defined as a virtual node.

The example illustrated in (b) of Fig. 9 illustrates a case in which reference type information representing that a node NOD-B is set as a virtual node, and a node configuration below this node NOD-B is also taken over as a virtual node is defined. Thus, the node NOD-C below the node NOD-B is also configured as a virtual node.

[0046]

For the node NOD-B, both a reference source node ID (an ID of the node NOD-A) in a case in which its own node refers to a parent node as an actual node and a reference source node ID (an ID of the node NOD-O) in a case in which its own node refers to a parent node as a virtual node are defined.

In a case in which a node configuration below a virtual node is also taken over as a virtual node in this way, when reference type information is defined for a virtual node of the highest rank, reference type information does not need to be defined for virtual nodes of low ranks.

An example illustrated in (c) of Fig. 9 illustrates a case in which reference type information configuring only the node NOD-B as a virtual node is defined.

[0047]

When a virtual node is defined, a parent node in a case in which a node displayed on a map refers to it as a virtual node can be displayed as a central node.

For example, when an operator designates another parent node of the node NOD-C on the map to be switched to a central node in a state in which a map as illustrated in (a) of Fig. 10 is displayed, the map creation unit 10 acquires a reference source node ID in a case in which the

node NOD-C refers to a parent node as a virtual node by referring to the node reference information of the designated node NOD-C and updates the map information such that a parent node represented by this reference source node ID is configured as a central node (Step S6).

[0048]

5 In an example illustrated in (b) of Fig. 10, an ID of a node NOD-A2 is defined as a reference source node ID in a case in which a node NOD-C refers to a parent node as a virtual node, and thus, the map is updated such that the node NOD-A2 is configured as a central node.

[0049]

10 In addition, when a virtual node is defined, the virtual node can be easily associated with other nodes. For example, in the map as illustrated in Fig. 6, it is assumed that a node having a name “Tenant A” is additionally defined as node configuration information. A node having a name “1F” that has already been defined refers to a parent node having a name “Tenant A” as a virtual node, and node reference information representing that a node configuration below the node having the name “1F” is also taken over as a virtual node is assumed to be
15 defined for the node having the name “1F”. In this case, when an operator clicks the node having the name “Tenant A”, a virtual node configuration below this node is displayed on the map (Fig. 11).

 In this way, only data of 1F as a structure for a manager of Tenant A renting the 1F floor of XX building can be automatically associated with the node having the name “Tenant A”.

20 [0050]

 In addition, in this embodiment, a parent node of another node having the same name as that of a certain node can be switched to a central node.

 For example, when an operator designates the node NOD having the name “Building/Section” on the map as a central node in a state in which a map screen 40 as illustrated
25 in Fig. 12 is displayed, as described above, the map creation unit 10 updates the map information such that the designated node NOD is configured as a central node NOD-O (Fig. 13).

[0051]

Then, an operator is assumed to click a link button LB displayed on a side of a node NOD-2FW having a name “2F Water supply usage amount” on the map in a state in which the map screen 40 as illustrated in Fig. 13 is displayed and designate a parent node of another node having the same name as that of this node NOD-2FW to be switched to a central node. In this case, the map creation unit 10 searches for another node having the same name as that of the node NOD-2FW by referring to the node configuration information and updates the map information such that a parent node of the retrieved node is configured as a central node.

[0052]

In this way, the map screen 40 is updated as illustrated in Fig. 14. Fig. 14 illustrates a state in which another node NOD-2FW’ (a node having a name “2F water supply usage amount” below “Energy Type”) having the same name as that of the node NOD-2FW is reached, and a parent node of this node NOD-2FW’ that has a name “Water supply” is configured as a central node NOD-O. In this way, in this embodiment, by jumping between other nodes having the same name associated under a parent node, data having a different structure (viewpoint) can be easily reached.

[0053]

In Figs. 12 to 14, for the convenience of description, although the link button LB is displayed only in some nodes, the map creation unit 10 may create map information such that the link button LB is displayed in all the nodes.

[0054]

The monitoring device 1 described in this embodiment can be realized by a computer that includes a central processing unit (CPU), a storage device, and an interface and a program that controls such hardware resources. A configuration example of this computer is illustrated in Fig. 15. The computer includes a CPU 200, a storage device 201, and an interface device (hereinafter, abbreviated to I/F) 202. A communication circuit configuring at least a part of the

communication processing unit 13 and the like are connected to the I/F 202. In such a computer, a program used for realizing a management method according to the present invention is stored in the storage device 201. The CPU 200 executes the processing described in this embodiment in accordance with the program stored in the storage device 201. As is well known, each of the operation terminal 2 and the monitoring/control system 3 can be realized by a computer and a program.

In addition, in this embodiment, although the monitoring device 1 and the operation terminal 2 are configured as separate devices, the monitoring device 1 and the operation terminal 2 may be integrally configured.

[Industrial Applicability]

[0055]

The present invention, for example, can be applied to an energy management system.

[Reference Signs List]

[0056]

- 1 monitoring device
- 2 operation terminal
- 3 monitoring/control system
- 4 communication network
- 5 facility device
- 10 map creation unit
- 11 screen operation processing unit
- 12, 22, 32 storage unit
- 13, 23, 33 communication processing unit
- 14, 34 information managing unit
- 20 display unit
- 21 operation unit

22 storage unit

30 collection unit

31 control unit

[CLAIMS]

[Claim 1]

A management system comprising:

5 a storage unit configured to store information of nodes representing either keywords of information about a monitoring target or management points in the monitoring target, wherein the information of the nodes stored in the storage unit at least includes node configuration information that includes information of names of the nodes and values of the nodes, and information of processing nodes that are used for performing processing;

10 a map creation unit configured to create information of a map in which a plurality of nodes is connected on the basis of the information of the nodes stored in the storage unit, wherein the map creation unit is configured to create the information of the map such that a name is displayed for each node and is configured to create the information of the map such that a value of the node is displayed in a case in which the node has the value;

15 a display unit configured to display a map screen according to the information of the map created by the map creation unit;

a screen operation processing unit configured to perform processing defined by the information of the processing nodes stored in the storage unit when processing is requested to be performed for a processing node on the map screen by an operator; and

20 a monitoring/control system configured to receive instruction information from the screen operation processing unit to control a facility device of the monitoring target.

[Claim 2]

The management system according to claim 1, wherein the information of the nodes stored in the storage unit additionally includes at least node reference information that includes information representing parent nodes and information representing child nodes, and

25 wherein the map creation unit creates the information of the map in which the plurality of nodes is connected on the basis of the information of the nodes stored in the storage unit.

[Claim 3]

The management system according to claim 2, wherein, when a specific node on the map screen is designated as a central node by an operator, the map creation unit updates the information of the map such that the specific node is configured as the central node on the basis of the information of the nodes stored in the storage unit.

[Claim 4]

The management system according to any one of claims 1 to 3, wherein, when folding is designated with a specific node on the map screen selected by an operator, the map creation unit updates the information of the map such that display of layers below the specific node is omitted.

[Claim 5]

The management system according to claim 2, wherein the node reference information includes information that represents parent nodes in a case in which the parent nodes are referred to as virtual nodes, and

wherein, when another parent node of a specific node on the map screen is designated to be switched to a central node by an operator, in a case in which the specific node is defined as a virtual node in the node reference information, the map creation unit updates the information of the map such that the parent node referred to by the specific node as the virtual node is configured as the central node.

[Claim 6]

The management system according to claim 2, wherein, when a parent node of another node having the same name as a specific node on the map screen is designated to be switched to a central node by an operator, the map creation unit updates the information of the map such that the parent node of the another node having the same name as the specific node is configured as the central node on the basis of the information of the nodes stored in the storage unit.

[Claim 7]

The management system according to claim 1, wherein the screen operation processing unit transmits instruction information for instructing the monitoring/control system of the monitoring target to change a value of a management point corresponding to the processing node in accordance with an operation on the processing node that is performed by the operator.

5 [Claim 8]

The management system according to any one of claims 1 to 6 further comprising an information managing unit configured to update the value of the node corresponding to the management point in accordance with data of the management point transmitted from the monitoring/control system of the monitoring target,

10 wherein the map creation unit updates the information of the map in accordance with update of the value of the node.