

SPATIALTM*net* FM

Release 5.1

SPATIALnet FM Work Units User Manual

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Preface

SPATIALnet FM SPATIALnet FM Work Units User Manual

The SPATIALnet FM SPATIALnet FM Work Units User Manual provides guidelines for the use of Work Units in SPATIALnet FM.

Scope

This document describes the configuration and use of Work Units in SPATIALnet FM.

Who should use this manual?

This document is provided as a reference for the users of SPATIALnet FM.

Prerequisite knowledge

A sound working knowledge of SPATIALnet FM.

Definitions and Acronyms

Definition	Meaning
Work Unit	An amount of work or quantity of materials used in the construction of a piece of equipment. An individual Work Unit is based on a Work Unit definition in the Work Unit Dictionary.
Work Unit Dictionary	A dictionary in which Work Unit definitions can be stored. Individual Work Unit types can be associated with one or more classes through the Plant Association Dictionary.
Plant Association	Work Unit types can be associated with a particular class of entity for use as Default Work Units.
Plant Association Dictionary	A dictionary that stores the association between Work Unit types and particular classes of entity.
Default Work Units	Default Work Units are related to a particular class. When an entity of that class is created, Work Units based on the Default Work Unit types can optionally be created.
Default Work Unit Dictionary	A dictionary that stores the default Work Unit types for classes in the Plant Association Dictionary.
Compatible Unit	See Work Unit. In some customized releases of

Definition	Meaning
	SPATIALnet FM, Work Units have been known as Compatible Units.

Conventions used in this manual

Below is a list of the typographical conventions used throughout the text.

Warnings and other important information are shown in a **bold** typeface. Keyboard entries, menu commands and the names of buttons also appear in this typeface.

Angled brackets shown inside a command or name indicate a full or partial path name that is to be supplied by the reader.

Comments and suggestions

We welcome all comments on the software and documentation, and are very interested in suggestions that would help us to enhance the SPATIALnet FM product and its usefulness to you. Please record your comments and send them to your distributor of SPATIALinfo products.

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Chapter 1

Work or Material Units

Work or Material Units

Work Units (WUs) refer to unit codes that specify one or more labor or material items. They may be measured in various units, as described below. In previous customized versions of SPATIALnet FM, these were known as “Compatible Units” (CUs).

Work Units Model

Work unit instances representing a fixed amount of a given type of labor or material will have the following properties:

Property	Description
WU	Reference to the WU type (see below)
WU_OWNER_FK	Reference (foreign key) to the item associated with the WU
UNITS	Quantity of labor/material in specified units by the WU definition (see below)
MULTIPLIER	Number to multiply nominal units by (e.g. to allow a “safety factor” in material procurement, etc.)
JOB_ID	Job with which the WU is associated (populated automatically by the system)

In most cases, these will be created and maintained automatically by the system using the functions described in the sections below. However, users will be able to edit all appropriate fields of work unit records. Individual Work Units associated with specific SPATIALnet plant items are created from Work Unit Definitions stored in the Work Unit Definitions dictionary.

Note that changing Work Unit Definitions in the dictionary will **not** change any existing Work Unit instances that have been created from the templates before the change was made. This allows Work Unit Definitions to be updated over time, as costs increase with inflation, without costs being wrongly changed for all existing Work Units.

Configure Work Unit Definitions

A Work Unit Definitions Dictionary is provided where Work Unit Definitions are configured via a user interface similar to the existing SPATIALnet FM dictionary configuration panels. This is accessed through the **SPATIALnet > Dictionaries > Other Definitions > Work/Material Unit Definitions** menu option. Each Work Unit Definition dictionary entry will have the following fields:

Column	Description
ACTIVE	Specifies whether the Work Unit type is currently available for use or is obsolete.
WU_CODE	Unique Work Unit code for the Work Unit definition. No two Work Unit definitions can use the same code.
DESCRIPTION	Text description of the Work Unit definition.
DISPLAY_UNIT	Units for the Work Unit. eg. 'feet' or '\$'
LABOR_COST	Labor cost component per unit of the Work Unit definition. eg. 230.00
MATERIAL_COST	Material cost component per unit of the Work Unit definition. eg. 25.00
REPORT_COLUMN	Optional value only for specific customers. This specifies the number of the column in special BOM report in which the quantity of this work will be included. For example, '2' for the second column.

Balloon tooltips are provided for all of the fields in Work Unit panels and explain what each field means.

Note that changing Work Unit Definitions in the dictionary will **not** change any existing Work Units that have been created from the templates before the change was made. This allows Work Unit Definitions to be updated over time, as costs increase with inflation, without costs being wrongly changed for all existing Work Units.

A **Plant Classes** button is provided on the Work Unit Definitions list panel to associate Work Unit Definitions with particular SPATIALnet plant classes as described in the following section.

Plant Association Dictionary

A **Plant Classes** button is provided on the Work Unit Definitions list panel accessed through the **SPATIALnet > Dictionaries > Other Definitions > Work/Material Unit Definitions** menu option. When clicked, this displays an additional panel allowing the currently selected Work Unit Definition to be associated with one or more classes of plant (e.g. Fiber Cable, Splice Case,

Pole, etc.). This is used to provide the ability to filter Work Unit Definitions by the plant classes to which they nominally apply.

Balloon tooltips are provided for all of the fields in Work Unit panels and explain what each field means.

Configure Default Work Units for Plant Types

Several of the dictionaries associated with entity classes have a **Default WUs** button on their list panel. This displays a panel allowing one or more Work Units to be specified as the “Default WUs” for the type of equipment selected in the dictionary list panel. These Default Work Units will be created whenever an instance of the plant type is created. For example, associating the following Work Units as Default Work Units for the definition of a WOOD POLE specifies that each Work Unit type will be created with the quantities and multipliers specified, and associated with each WOOD POLE created:

1 x POLE

1 x CROSS ARM KIT

2 x BRACE BOLTS

125 LB FOUNDATION CONCRETE

2 x FLAG CREW (4 hrs)

2 x POLE CREW (2 hrs)

2 x EXCAVATION CREW (2 hrs)

2 x GROUND COVER RESTORATION CREW (1 hr)

There is a check box labeled **Create Default WUs** on to the **Add** panel for each plant type that supports the addition of Default Work Units. If checked, this will automatically create the default Work Units configured for that plant type when any instance of that plant type is added to the system. The Work Units created are based on the template defined in the Work Unit Definitions dictionary. If not checked, no Work Units will be added. Regardless of whether the Default Work Units were added to a plant item or not, Work Units may be associated with plant item(s) or edited/deleted at any time.

Balloon tooltips are provided for all of the fields in Work Unit panels and explain what each field means.

Note that changing Work Unit Definitions in the dictionary will **not** change any existing Work Units that have been created from the templates before the change was made. This allows Work Unit Definitions to be updated over time, as costs increase with inflation, without costs being wrongly changed for all existing Work Units.

Associate Default/Single Work Units with Plant Items

The browser and details panel for each plant class which supports Work Units includes a “Work Units” branch. This lists all the Work Units currently associated with the plant item, and allows them to be edited or deleted using the **Edit** and **Delete** buttons on the panel.

The Add button on the browser and details panels includes some options for adding Work Units. When clicked, the **Add** button it will display a pop-up including the following options:

- Add WU - Filtered...** Allows user to choose a Work Unit Definition from the list of Work Unit Definitions associated with this type of entity as defined in the Plant Association Dictionary and then enter data for a single WU.
- Add WU...** Allows user to choose a Work Unit Definition from the full list of Work Unit Definitions using a QBE panel and then enter data for a single WU.
- Add Default WUs...** Automatically add the default Work Unit set configured for the plant item. If Work Units already exist, the system will warn the user that this is the case, and ask them if they wish to continue. If no default Work Units have been configured for the selected plant type, a message stating this will be displayed.

The Work Unit Creation panel will be similar to that shown below.

If the option to add from a filtered list of Work Unit Definitions has been selected, the list of WUs displayed in the drop-down will be filtered according to the associations in the **Plant Association Dictionary** list specified above. If the unfiltered list is selected, the pulldown will include all possible Work Unit Definitions. A ? button is provided on the panel allowing a QBE panel of Work Unit definitions to be displayed and selected from in a similar way to other type-selection fields in SPATIALnet FM.

Note that balloon tooltips are provided for all of the fields in Work Unit panels and explain what each field means.

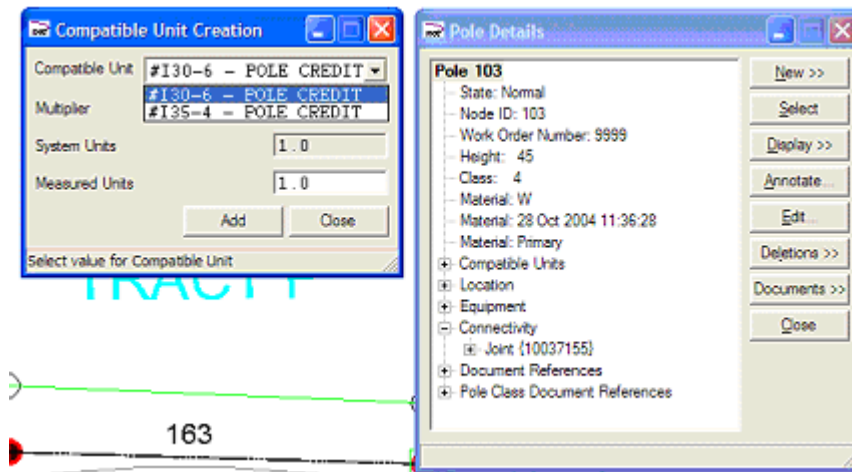


Figure 1. Example CU and details panels.

Associate Work Units with Multiple Items

The system will also allow a set of Work Units to be prepared, and then identical copies associated with multiple plant items simultaneously. This is accessed through the **SPATIALnet > Add > Other > Work/Material Units...** which displays the Multi Work Unit Tool, which appears similar to that shown below:

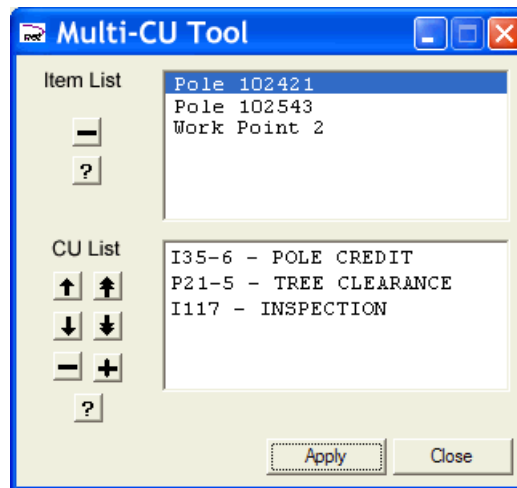


Figure 2. Proposed Multi-CU Tool panel.

When the panel opens, the top pane lists all the items in the current **SPATIALnet** selection set which support Work Units (multiple selection is permitted). To add items to the list, just click in the view and entities nearby will be added. Items can be removed from the list by clicking the **-** button. Multiple selection/removal is supported.

The lower pane lists the current set of Work Units which will be applied to the selection set. Work Units can be added/removed to/from this list using the **-** and **+** buttons. Selection is through an Add panel and a QBE panel can be used to select the Work Unit Definitions required.

Balloon tooltips are provided for all of the fields in Work Unit panels and explain what each field means.

When the **Apply** button is clicked, each item in the upper pane will receive a set of Work Units as specified in the lower pane.

Manage Work Points and Work Spans

To support the ability to associate Work Units with locations or paths where specific plant items do not exist, the system will support two new types of objects:

- Work points
- Work spans

A Work Point will be used to represent a specific location at which a Work Unit is to be applied, while a work span represents a linear path along which a Work Unit is to be applied. Neither represent any specific item of plant and, for this reason, neither support Default Work Units, nor will they support plant-class filtering of Work Unit selections.

Work points will have the following properties:

NUMBER

ASSET_STATE

OWNING_JOB

COMMENTS

Work spans will have the following properties:

NUMBER

ASSET_STATE

START_NODE

END_NODE

OWNING_JOB

COMMENTS

The system will provide two new menu options and two buttons on the Work Units toolbar, for adding work points and work spans.

Work points and spans will follow the normal JMS-controlled entity lifecycle in SPATIALnet, and will be associated with work units using the functions described in and . Note, however, that since work points and spans cannot have default WUs, the **Add WUs>>** button described in will be replaced with a button labeled **Add WU**, which performs the same function as the **Add Single WU** button in .

A number of new parameters are required in the SPATIALnet FM System Parameters dictionary. These are added as part of the semi-automatic database upgrade or added when a database is created using the SPATIALnet FM database creation scripts. The dictionary is access through the menu option **SPATIALnet > Dictionaries > Other Definitions > System Parameter Definitions**.

Parameter Name	Notes
WORK_POINT_BLOCK_LAYER	Layer on which work points are drawn
WORK_POINT_BLOCK_NAME	Name of block used to draw work points
WORK_POINT_BLOCK_SCALE	Scaling of work point symbol
WORK_SPAN_LINE_LAYER	Layer on which work spans are drawn

Associate Work Units with Work Areas/Jobs

In addition to associating Work Units with geographically located items such as plant or work points/spans, the system will allow Work Units to be associated with the a specific job boundary.