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Introduction

The MaintScape Multi-Site module supports MaintScape usage by multiple Sites in different geographic locations. Each site has its own data such as equipment, work orders, parts inventory and parts warehouses. Coding data is shared between the sites for reporting consistency. All data is kept in a single central database.

MaintScape data items partitioned by site are:

- Location
- Part Location (parts warehouses)
- Equipment
- Work Orders
- Maintenance Schedules
- Staff
- Service Requests
- Part Inventory Transactions
- Purchase Orders
- Purchase Requisitions

By default, a user will view and take action on data belonging to their site. However the MaintScape administrator can grant a user view and/or active access to any site. A user can then further restrict their access when they log on to MaintScape. For example, the MaintScape administrator can grant a user active access to sites 'A' and 'B' and view access to sites 'C' and 'D'. When this user logs on they may restrict access to active access to site 'A' only and view access to site 'C' only.

The capability to take action on and/or view data at multiple sites supports consolidated reporting by any number of sites and lets a user from site 'A' perform actions as if they were at site 'B'.

This documentation assumes the reader has a good working understanding of MaintScape.

Requirements

Sybase SQL Anywhere database engine maintenance release 7.04 or later is required for proper operation of Multi-Site functionality when using SQL Anywhere version 7. Click menu bar item "Help/About MaintScape" to see which version of SQL Anywhere you are running (look for 'DB Software Version' in the white text box).

Configuring Multi-Site

The Multi-Site module must be enabled by your MaintScape license in order to configure and use Multi-Site functionality. Your MaintScape license also identifies the maximum number of sites permitted. Please contact GrandRavine Software using contact information at the bottom of the page if necessary.

The usual sequence of steps to configure Multi-Site functionality is:

- Set up MaintScape sites
- Enable Multi-Site functionality

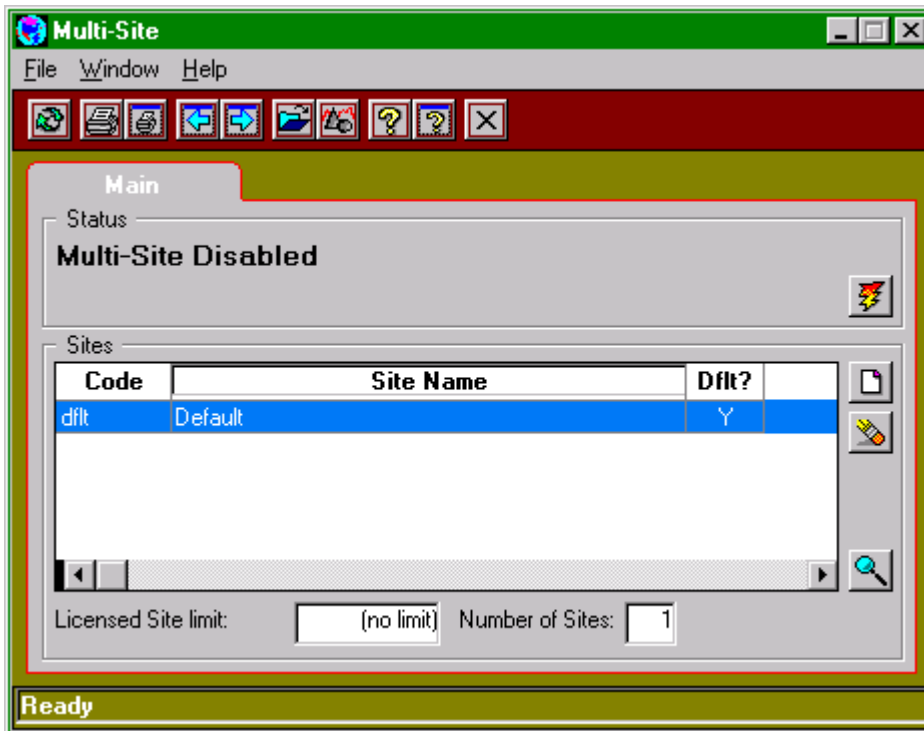
- Partition MaintScape data between sites
- Grant Site Access to MaintScape Users.

Each of the above steps is described in detail below.

Set up MaintScape Sites

You must be granted 'Site'/'Maintain Sites' permission by the MaintScape Administrator in order to create, update or delete MaintScape sites (see Security Permissions, page 11).

Open the Multi-Site configuration window from the main menu by clicking on icon "System Administration", and then select action "Multi-Site":



Notice that Multi-Site functionality is initially disabled and that a single default site is already configured. Data, which must be partitioned between sites (e.g. equipment), will belong to the default site if not directly or indirectly assigned to a custom site. The default site cannot be deleted, however you can easily arrange that no data belong to this site.

Click the standard 'new' button beside the site list to open a window where you can create a custom site record.

You can specify a Default MaintScape User Organization for each site. This has the same meaning as the similarly named field in the System Configuration window. In particular, this field identifies an External Resource record representing your site company name and address. The External Resource address data is used for Bill-to and Ship-to addresses for Purchase Orders belonging to the site. System configuration data is used if site-specific data is not specified.

Enable Multi-Site Functionality

You must be logged on to MaintScape as the MaintScape Administrator (user 'dba') in order to enable or disable Multi-Site functionality. All other MaintScape users must be logged off as well. You may see which MaintScape users are logged on and disable further logons by clicking on main menu icon 'System Administration', then selecting action 'Active MaintScape Users'.

Open the Multi-Site configuration window from the main menu by clicking on icon "System Administration", and then select action "Multi-Site". Click the 'lightning bolt' button in the Status group, then select action 'Enable Multi-Site'.

Enabling Multi-Site functionality may be time consuming, depending on the size of your database, during which time you will see an 'hourglass' mouse pointer.

Partition MaintScape Data between Sites

MaintScape data is primarily partitioned between sites by assigning sites to Locations. If a location is at site 'A', then all its child locations are at site 'A'. Equipment at a location at site 'A' is at site 'A' as are all the work orders for such equipment.

Assign Sites to Locations

Sites are usually assigned to locations from the MaintScape Explorer. We recommend that the top-level set of locations within Explorer represent each of your sites. Bear in mind that you can restructure your location hierarchy, if necessary, to better support Multi-Site assignment.

To assign a site to a location: Double-click the location node within Explorer and specify an 'Assigned Site' from the drop down list within the Location detail window. One of the following should be the case if the drop down list is not modifiable:

- An ancestor location (parent, grandparent, etc.) already specifies an assigned site.
- The MaintScape Administrator has not granted you 'Site'/'Assign MaintScape Objects' security permission (see Security Permissions, page 11).
- The MaintScape Administrator has not granted you 'Location'/'Update Properties' security permission.

Assign Sites to Part Locations

Sites are best assigned to part locations from the MaintScape Explorer. We recommend that the top-level set of part locations within Explorer represent warehouses at each of your sites. Bear in mind that you can restructure your part location hierarchy, if necessary, to better support Multi-Site assignment.

To assign a site to a part location: Double-click the part location node within Explorer and specify a location for the part location. The part location will then derive its site from the location site. For example, if the part location is a parts warehouse for site 'A', then assign the part location a location at site 'A' – i.e. a location assigned to site 'A' or any location below it in the location hierarchy.

One of the following the case if the location field is not modifiable within the Part Location detail window:

- An ancestor part location (parent, grandparent, etc.) already specifies a location.

- The MaintScape Administrator has not granted you ‘Site’/’Assign MaintScape Objects’ security permission (see Security Permissions, page 11).
- The MaintScape Administrator has not granted you ‘Part Location’/’Update Properties’ security permission.

Assign Sites to Other MaintScape Objects

Documentation section, ‘MaintScape Object Site Assignments’, further below, fully describes how sites are determined for MaintScape objects which can be partitioned between sites. The following subset should be considered when initially configuring Multi-Site:

| MaintScape Object | Site Partitioning Consideration |
|--------------------------|---|
| Equipment | Assign default location to equipment to reflect the Equipment’s site. |
| Part | If the part is under inventory control, then assign a Part Location for each site where inventory should be maintained. A part may be used on Work Orders regardless of whether it has an inventory location at the Work Order’s site. |
| Staff | Assign location to staff to reflect the site where the staff member is usually located. |

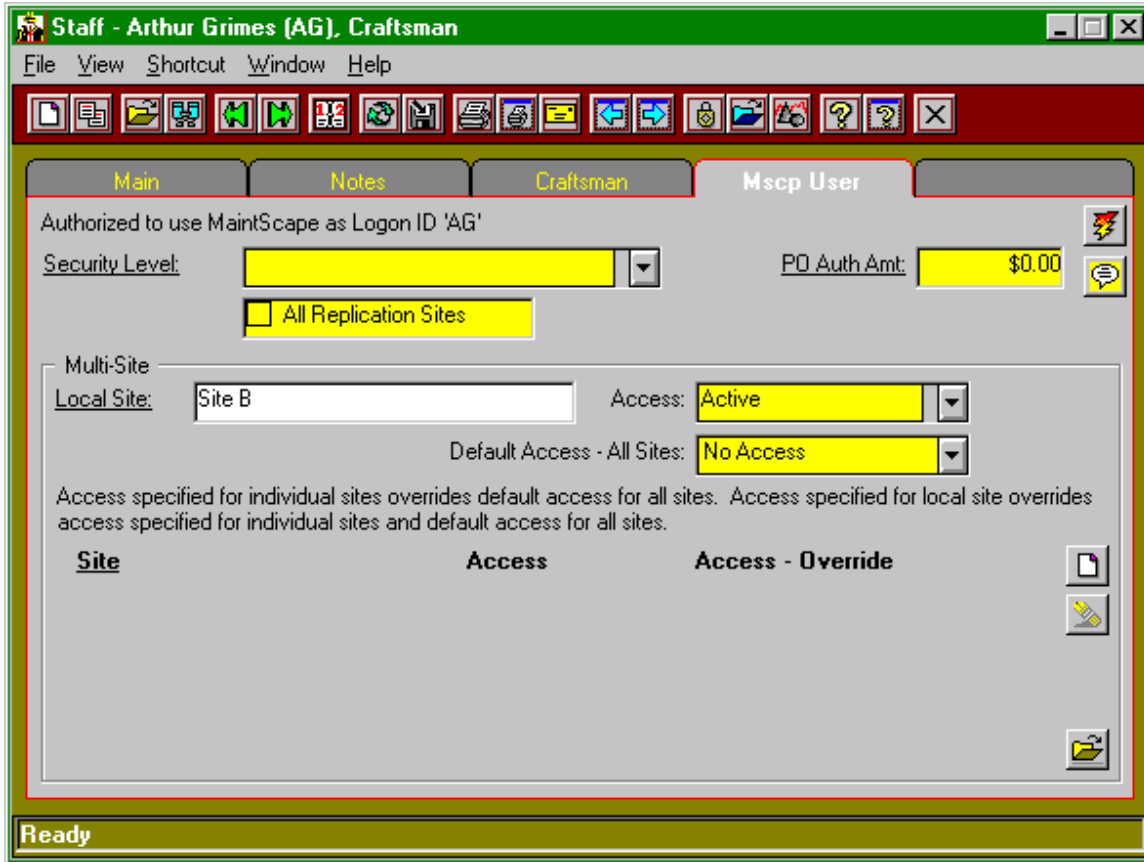
Granting Site Access to MaintScape Users

A MaintScape user is a Staff record granted logon access to MaintScape. A staff member’s site is that of its location, if specified, or the default site otherwise.

There are three possible Access Levels for a MaintScape User at a particular site:

| | |
|---------------|--|
| No Access | The MaintScape user cannot view or perform actions on MaintScape Objects at the site. |
| View Access | The MaintScape user can view MaintScape Objects at the site but cannot perform any actions. |
| Active Access | The MaintScape user can view and perform actions on MaintScape Objects at the site subject to their usual security permissions (as defined by their security level). |

You must be logged on to MaintScape as the MaintScape Administrator (user ‘dba’) in order to grant site access to MaintScape users. Site access is then maintained within the Staff window on the “MaintScape User” tab:



In the above window, the MaintScape user has active access to their local site, ‘Site B’, and no access to any other site. The local site is the site associated with the Staff location as specified on the ‘main’ tab of the Staff window, or is the default site if no location is specified.

The ‘Default Access – All Sites’ field and list of specifically authorized sites are used to grant access to sites other than the local site.

Using Multi-Site

Default Site, Local Site and Default Active Site

The terms ‘Default Site’ and ‘Default Active Site’ sound similar, but are quite distinct. The distinction should be understood when reading this documentation:

| | |
|---------------------|---|
| Default Site | The ‘Default Site’ is a site built into MaintScape, which cannot be deleted. |
| Local Site | Non-transactional data, which must be partitioned between sites, will be assigned to the default site if not directly or indirectly assigned to a custom site – e.g. Equipment. |
| Default Active Site | The local site is the site associated with the location specified for the staff member, or is the default site if no location is specified. |
| Default Active Site | At most one Site is the ‘Default Active Site’ for a user’s |

MaintScape session.

This is either the single site which is active (see Specifying Active, Viewable Sites for a MaintScape Session, below) or the staff member’s local site if it is active.

Transactional data, which must be partitioned between sites, will be assigned to the default active site if the site cannot otherwise be determined – e.g. Service Request with no explicit subject (e.g. equipment).

If there is no default active site for a user’s MaintScape session, then the user has view-only access to viewable sites (at least the local site will be viewable).

MaintScape Object Site Assignments

The effective site of a MaintScape Object, such as Equipment, is the site where the object is located. Unlike Locations, most MaintScape object types are not directly assigned to a site. Their effective sites are determined from other data, usually location.

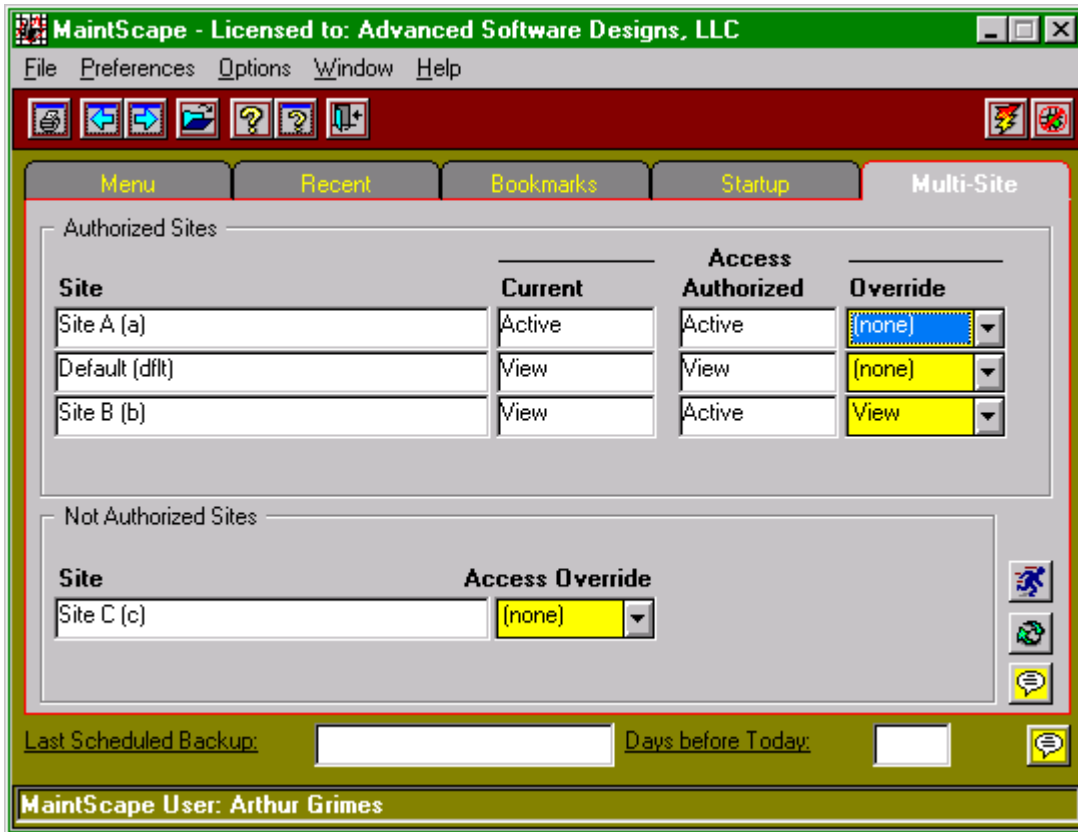
Effective site is only meaningful when Multi-Site functionality is enabled. The following table describes how the effective site is determined for each MaintScape object type:

| MaintScape Object | Effective Site |
|----------------------------|--|
| Equipment | <p>Site is that of the Equipment’s default location. Site is the ‘Default’ site when the equipment has no default location.</p> <p>Equipment in a parent/child hierarchy must all be at the same site.</p> |
| Location | <p>Site is either the site assigned to the location or the site assigned to an ancestor location (parent, grandparent, etc.). Otherwise the site is the ‘Default’ site.</p> <p>See Assign Sites to Locations, above.</p> |
| Part | <p>Inventory may be maintained for a part at none, one or more sites based on the part location(s) defined for a part on the ‘inventory’ tab of the part window.</p> <p>A part record is visible at any site regardless of whether the part has an inventory location at the site.</p> |
| Part Inventory Transaction | <p>Site is that of the part location where the transaction occurred.</p> |
| Part Location | <p>Site is that of the location associated with the part location, or the ‘Default’ site if no such location is associated.</p> <p>See Assign Sites to Part Locations, above.</p> |
| Purchase Order | <p>Site is explicitly assigned to a Purchase Order. I.e. The site is not determined from any field of the PO.</p> |
| Purchase Requisition | <p>Site is explicitly assigned to a Purchase Requisition. I.e. The site is not determined from any field of the PR.</p> |
| Maintenance Schedule | <p>Site is that of the Maintenance Schedule subject – i.e. the</p> |

| | |
|-----------------|---|
| | equipment or location for which the schedule generates work orders. |
| Service Request | Site is that of the Service Request subject, if explicitly known – i.e. the specified equipment or location. Otherwise the site is the default active site in effect for the user who created the service request at the time it was created. |
| Staff | Site is that of the Staff’s location or the default site when no location is specified. This site is the staff member’s ‘local site’. See Granting Site Access to MaintScape Users, above. |
| Work Order | Site is that of the Work Order subject– i.e. the specified equipment or location. |

Specifying Active, Viewable Sites for a MaintScape Session

Consider the following example ‘Multi-Site’ page for the MaintScape main menu window:



The logged on MaintScape user is authorized for ‘active’ access to sites ‘A’ and ‘B’ and ‘view’ access to the default site. This is indicated by values in the ‘authorized access’ column in the ‘authorized sites’ grouping.

This MaintScape user is not authorized for any access to site ‘C’.

Documentation section ‘Granting Site Access to MaintScape Users’ describes how site access is authorized for a MaintScape user.

Although the MaintScape user is authorized for ‘active’ access to site ‘B’, the current access is ‘view’. This is because the MaintScape user has overridden the authorized access level of ‘active’ to ‘view’ as indicated by the ‘override access’ value.

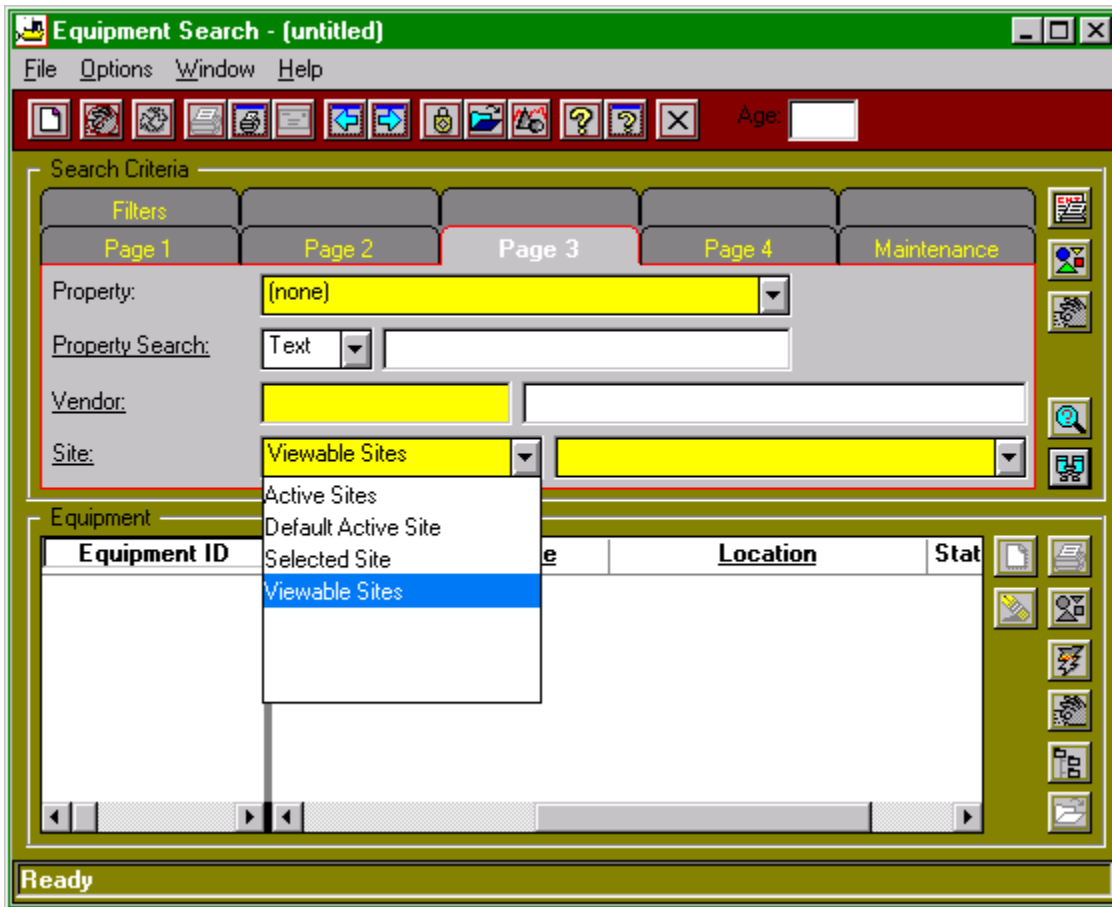
Access override settings only become effective once you exit MaintScape and log back in.

Notes:

- Access overrides can only reduce access from access levels authorized, not increase access levels.
- Access override values are ignored for non-authorized sites. Any value you set will only become effective once the MaintScape administrator authorizes the site.

Searching for MaintScape Objects by Site

The search window for any object partitioned by site supports searching for objects by site. For example:



Site search criteria defaults to ‘Viewable Sites’, or the sites which are viewable in your current MaintScape session. ‘Active’ sites are considered viewable as well for the purposes of searching.

If you select ‘Selected Site’ in the above drop down list, then you must select a specific site in the drop down list to the right. Only viewable (including active) sites are in this list.

There are two special cases where search criteria does not default to ‘Viewable Sites’:

- You can search for and view staff at all sites. The principle behind this exception is that staff records serve as a corporate directory and global lookup of such information is useful.
- You can search for and view all parts regardless of whether the part has an inventory location at a viewable site. The principles behind this exception are a part not under inventory control should be visible, and a user should be able to determine that a part exists so it can potentially be stocked at their site.

Moving MaintScape Objects between Sites

Review the table describing how sites are determined for MaintScape objects in documentation section, 'MaintScape Object Site Assignments', above. This information should indicate how to change site assignment.

In general, if a MaintScape Object (e.g. Equipment) is to be moved from site 'A' to site 'B', both sites 'A' and 'B' must be active in the MaintScape session (see Specifying Active, Viewable Sites for a MaintScape Session, page 8).

In some cases, changing site assignment is a time consuming process because of the side effects. For example, changing a location record's site changes the site of all its child locations which changes the site of any record whose site is dependent on any of those locations, such as equipment, work orders, maintenance schedules, etc.

A few special cases are noted below:

- Because of the large number of side effects, special security permission is required to change the site of a location or a part location (security permission: 'Site'? Assign MaintScape Objects').
- Transfer quantities of a Part from one site to another by executing a 'transfer' inventory transaction. Note that you need active access to both the 'from' and 'to' site in order to do this. A 'transfer' inventory transaction is preferable to separate adjustment transactions at each site as it ensures the value of inventory removed from one site is exactly the same as the value added to another site.

Parts Inventory Control and Purchasing

The following points summarize how parts inventory and purchasing functionality behaves when Multi-Site functionality is enabled:

- Inventoried parts are committed from inventory to a Work Order from a part location at the same site as the work order subject (e.g. equipment).
- Apart from other cases identified here, aggregate part quantities displayed on MaintScape screens are aggregate quantities for sites active in the user's MaintScape session. For example, available quantity displayed for part 'x' when creating or viewing a purchase order item for part 'x' is computed by summing available quantity at part locations for all active sites.
- The Part window contains a field in the toolbar that lets you indicate whether quantities on the 'inventory' tab should be displayed for active sites or viewable sites.
- When searching for parts in the Part Search window, inventory quantities displayed in the parts list are for the sites requested in the search criteria. For example, if you are searching

for parts at active sites, then on hand, committed, re-order quantities etc. are only computed from part locations at active sites. This also applies to all reports generated from the Part Search window.

- Also in the Part Search window: The parts re-order query only considers parts for sites requested in the search criteria. For example, if you perform a re-order query and also specify search criteria “site ‘A’”, then the parts list will display parts which must be re-ordered at site ‘A’.
- Purchase Orders and Purchase Requisitions specify a single site for which they are effective. Therefore on order and requisitioned quantities for the PO/PR will apply to that Site.

This has implications for the Part re-ordering process. For example, assume site ‘A’ performs a re-order query for Sites ‘A’, ‘B’ and ‘C’ and the resulting PO is assigned to site ‘A’. Then a subsequent re-order query for the same sites will recognize the active order quantities and not flag the same parts as needing to be re-ordered. However a re-order query executed for site ‘B’ will show the parts as needing to be re-ordered (since the active order quantities belong to site ‘A’).

Therefore a consistent re-ordering policy should be adhered to – i.e. a policy indicating which site orders parts for which site. One extreme has each site ordering its own parts, the other has fully centralized purchasing where one site orders for all sites. Any combination in between is possible.

Administering Multi-Site

Security Permissions

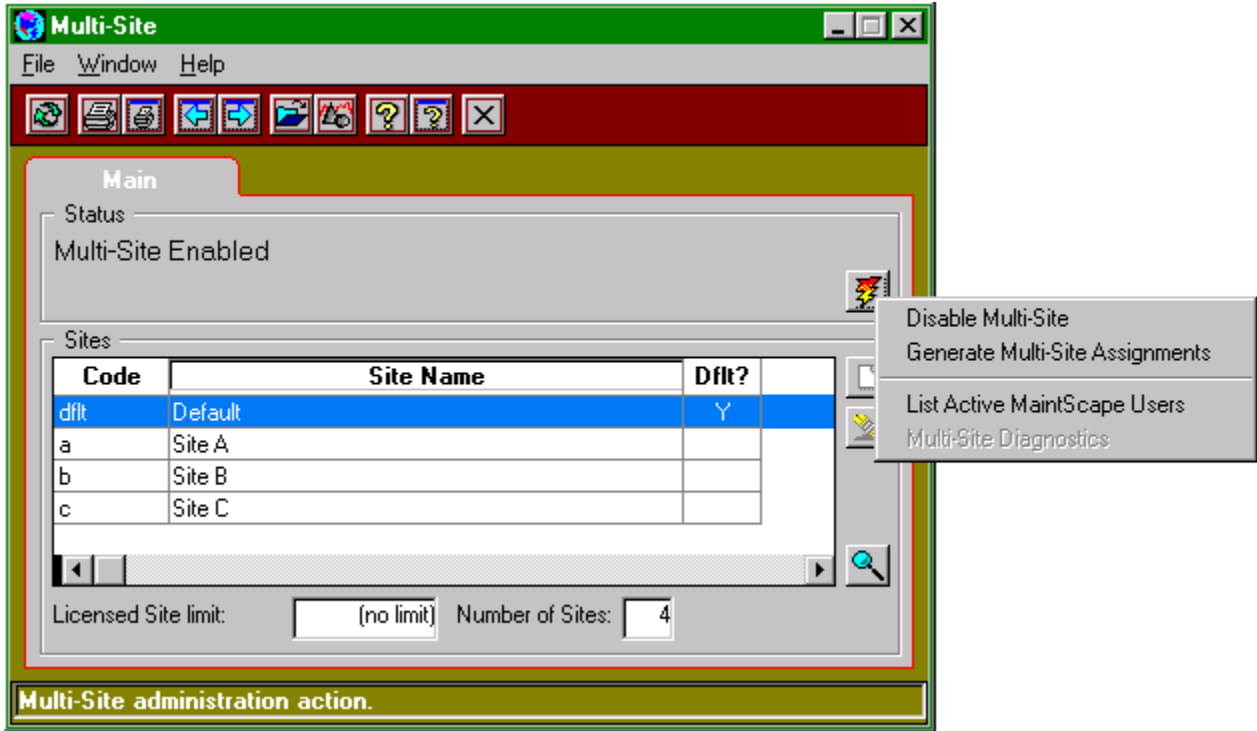
The following Multi-Site security permissions are defined for a Security Level:

| Action | Description |
|---------------------------|--|
| Maintain Sites | This permission is required to add, delete or modify Sites within the Site Configuration window. |
| Assign MaintScape Objects | This permission is required to assign a site to a Location or to perform any action that changes the site of a Location or Part Location. These actions are secured with a special permission since many dependent objects will change site as well. |

These security permissions are found on the ‘general’ tab of the security level maintenance window under object category value ‘Miscellaneous’.

Multi-Site Administration Window

Multi-Site is administered within the Multi-Site configuration window. Access this window from the main menu by clicking on icon “System Administration”, and then select action “Multi-Site”:



The current state of Multi-Site functionality, i.e. enabled or disabled, is indicated in the ‘Status’ group at the top of the window. The MaintScape administrator (user ‘dba’) may toggle MaintScape status using an action in the pop-up menu from the action button. Administrative actions available from the action button are:

- Disable/Enable Multi-Site** This action reads ‘Disable Multi-Site’ when Multi-Site functionality is enabled, and ‘Enable Multi-Site’ conversely.

All other MaintScape users must be logged off when enabling or disabling Multi-Site functionality. The ‘List Active MaintScape Users’ action (see below) may be used to see who is presently logged on and prevent subsequent logons.

If you disable Multi-Site functionality, any user who subsequently logs on may then operate on any MaintScape data subject to their usual security permissions. You may want to disable MaintScape logons first if disabling Multi-Site functionality temporarily for administrative purposes

Enabling or disabling Multi-Site functionality may be time consuming, depending on the size of your database, during which time you will see an ‘hourglass’ mouse pointer.
- Generate Multi-Site Assignments** This action re-computes data kept in the MaintScape database to ensure Multi-Site functionality performs with acceptable response time. Perform this action if any errors are identified by the ‘Multi-Site diagnostics’ action (see below), or if errors are suspected. Please notify MaintScape technical support if necessary.

| | |
|------------------------------|--|
| | <p>This action requires 'Site'/'Maintain Sites' security permission, and requires all other MaintScape users be logged off.</p> |
| List Active MaintScape Users | <p>Some administrative actions require no other users be logged on to MaintScape. This action will bring you to a window where you can see which users are logged on, and where you can disable subsequent logons.</p> <p>This navigation is equivalent to clicking on main menu icon, 'System Administration', then selecting item 'Backup and Administer Database', then clicking on the 'MaintScape Users' tab.</p> |
| Multi-Site diagnostics | <p>This action finds errors in data kept in the MaintScape database to ensure Multi-Site functionality performs with acceptable response time. These errors are fixed using action, 'Generate Multi-Site Assignments' (see above).</p> |

Sites are created, deleted and updated using actions in the 'Sites' group at the bottom of the window. You may add sites when Multi-Site is enabled or disabled, however Multi-Site must be disabled in order to delete sites. Total number of sites is restricted to a value permitted by your MaintScape license (see 'Licensed Site limit' at bottom of window).