Scan 360 APIs

The Scan 360 opens up APIs to external programs so that all functions made possible by the web browser can be achieved through these APIs. This document explains how to access each function of the Scan 360.

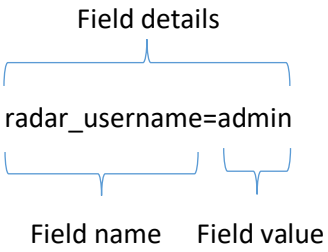
Authorisation

The APIs are called using HTTP POST requests. Each call must use basic authorisation otherwise the request will error. The header will look similar to this:

```
POST http://192.168.1.105/api/get_settings HTTP/1.1
Authorization: Basic YWRtaW46YWRtaW4=
Host: 192.168.1.105
Content-Length: 3
Expect: 100-continue
Connection: Keep-Alive
```

Terminology

Most requests to, or responses from the APIs, involve fields. These fields may represent such things as individual configuration settings, camera commands or filters. A field consists of two parts, the name and the value, and together form the field details. Field details will always be separated by an = character as shown below.



When multiple field details are to be transmitted or received, they will always be ampersand delimited. An example is shown below.

```
radar_username=admin&radar_password=admin&radar_ip_address=192.168.1.105
```

Character replacement

The radar will replace certain characters when returning data, so they are not misinterpreted. The characters, and their string replacements, are shown below.

C**haracter**	**String replacement (quotes not included)**
New line	“\n”
Carriage return	“\r”
&	“%26”
=	“%3D”
%	“%25”

When transmitting data to the radar, the following characters should be replaced otherwise the data may not be read correctly.

C**haracter**	**String replacement (quotes should not be included)**
New line	"%0A"
Carriage return	"%0D"
&	“%26”
=	“%3D”
%	“%25”

Retrieving configuration data

This API will retrieve the radar's configuration data. A comma delimited list of field names should be sent indicating which fields should be returned. These names can represent individual fields, all fields within a category, or everything.

URL api/get_settings

Input Comma delimited list of field names. The field names that can be used, and what they'll return are shown in Appendix A.

Output Field details.

Example 1

Input

perimeter_latitude,radar_clutter_1

Output

perimeter_latitude=51.79571&radar_clutter_1=3

Example 2

Input

camera,vms

Output

camera_alignment=8852&camera_aux_command=tt:WhiteLamp&camera_aux_from=0&camera_aux_to=0camera_ip_address=192.168.1.100&camera_password=9999&camera_port=80&camera_tilts=0.33200,0.30980,0.26540,0.25430,0.22100, -0.01100&camera_tracking=off&camera_username=admin&camera_valid_aux_commands=tt:Wiper,tt:Washer,tt:IRLamp,tt:WhiteLamp&camera_zooms=0.02340,0.02502,0.02652,0.02970,0.03354,0.03600&&adam_inputs=&adam_map=&adam_outputs=&vms_active=off&vms_ip_address=&vms_port=80&vms_protocol=tcp&vms_app=icomply

Retrieving the current date and time

The current date and time of the radar can be retrieved without specifying any input.

URL api/get_datetime

Input *blank*

Output Date and time field details.

Example

Input

blank

Output

datetime_year=19&datetime_month=9&datetime_day=26&datetime_hour=9&datetime_minute=0&datetime_second=30

Retrieve website version

The version of the website firmware on the radar cannot be retrieved using the api/get_settings API. Instead it requires its own API call.

URL api/version_website

Input *blank*

Output Version of the website.

Example

Input

blank

Output

2.00

Retrieving targets

The most recent targets detected since the radar was turned on can be retrieved. Filters can be applied to limit the number of targets returned.

URL api/get_targets

Input A list of field details, each one representing a filter. If no filters exist, the radar will return the most recent 1000 targets detected. The filters that can be used, and their application are shown below.

Filter	Application
last	Maximum number of targets to be returned (or *all* to retrieve every target)
since_date	Earliest date to retrieve targets for (ddmmyy)
since_time	Earliest time to retrieve targets for (must be used in conjunction with since_date) (hhmm)
since_id	Return targets later than this target id (each target has a unique id)
to_id	Return targets up to, but not including, this target id

Output Ampersand delimited list of targets. The details of each target are separated by commas and can be seen in Appendix B. The output will always end with &more, which can be ignored.

Example 1

Input

last=2&since_date=010117&since_time=0900

Output

01/01/17,15:11:36.0,111.17,130,18,74,35,1,7,0,0,0,1,51.772354,-0.323521,twrd&01/01/17,11:03:33.0,111.17,72,12,26,21,0,6,0,0,0,1,51.772842,-0.323807,twrd&more

Example 2

Input

since_id=6

Output

01/01/17,15:11:36.0,111.17,130,18,74,35,1,7,0,0,0,1,51.772354,-0.323521,twrd&more

Retrieving system logs

The next 1000 system logs can be retrieved from the radar. The system logs represent actions made by the user to the radar.

URL api/get_system_logs

Input The default response is to provide the last 1000 system logs. Retrieving earlier logs can be achieved by supplying the latest system log id to return up to, but not include

Output Ampersand delimited list of system logs. The details of each log are separated by commas. The log details and their order in the list are Save Flag,Log Id,Date,Time,Description,Classification

The output will end with 'more' or 'end' to signify whether earlier system logs exist.

The current classifications are:

camera	A camera action occurred
page	A page was visited
save	A save occurred
upload	A firmware upload occurred
security	A security event occurred
other	Any other logs

Example 1

Input

blank

Output

info,683312,27/09/19,11:57:41.8,Save succeeded,save&,683304,27/09/19,11:57:41.8,Saving radar settings,save&more

Example 2

Input

id=683312

Output

,683304,27/09/19,11:57:41.8,Saving radar settings,save&more

Retrieving the details of a save

Each save is stored (subject to memory space) on the radar, and the details of these saves can be retrieved. The system log id that the save is stored against must be known, and can be found by retrieving the system logs.

URL api/get_system_log_info

Input id=*system log id*

Output Comma delimited list of changes with the following details:

Setting description

Value saved

Value before save (if different)

'diff' if a change made, otherwise blank

Blank if no such save

Example

In this example the VMS Active has changed from Yes to No.

Input

Id=683312

Output

"Set","Yes","","","Radar DNS","192.168.1.1","","","Radar Gateway","192.168.1.1","","","Radar Hostname","scan360","","","Radar IP Address","192.168.1.105","","","Radar Password","admin","","","Radar Subnet","255.255.255.0","","","Radar DHCP","Off","","","Radar Username","admin","","","Camera Alignment","0.000000","","","Camera Tilt 1","-0.177000","","","Camera Tilt 2","-0.122000","","","Camera Tilt 3","-0.066000","","","Camera Tilt 4","-0.044000","","","Camera Tilt 5","-0.022000","","","Camera Tilt 6","-0.011000","","","Camera Zoom 1","0.023400","","","Camera Zoom 2","0.025020","","","Camera Zoom 3","0.026520","","","Camera Zoom 4","0.029700","","","Camera Zoom 5","0.033540","","","Camera Zoom 6","0.036000","","","Radar Latitude","51.804569","0.000000","diff","Radar Longtitude","-0.079760","0.000000","diff","Camera Port","80","","","Radar Offset X","200","","","Radar Offset Y","200","","","Radar Zero Angle","0","","","Detection Zones","None set","","","Radar Target Delay","0","","","VMS Port","80","","","Camera Aux Command","","","","Camera Aux From","00:00","","","Camera Aux To","00:00","","","Camera IP Address","","","","Camera Password","","","","Camera Username","","","","Use Satellite Map","Yes","","","VMS Application","iComply","","","VMS IP Address","","","","VMS Narrative","Not set","","","VMS Active","No","","","VMS Protocol","TCP","","","ADAM Unit Map","Not set","","","ADAM Input 0","None","","","ADAM Input 1","None","","","ADAM Input 2","None","","","ADAM

Input 3","None","","","ADAM Input 4","None","","","ADAM Input
5","None","","","ADAM Input 6","None","","","ADAM Input 7","None","","","ADAM
Input 8","None","","","ADAM Input 9","None","","","ADAM Input
10","None","","","ADAM Input 11","None","","","ADAM Input
12","None","","","ADAM Input 13","None","","","ADAM Input
14","None","","","ADAM Input 15","None","","","ADAM Output 0","5","","","ADAM
Output 1","5","","","ADAM Output 2","5","","","ADAM Output 3","5","","","ADAM
Output 4","5","","","ADAM Output 5","5","","","ADAM Output 6","5","","","ADAM
Output 7","5","","","ADAM Output 8","5","","","ADAM Output 9","5","","","ADAM
Output 10","5","","","ADAM Output 11","5","","","ADAM Output
12","5","","","ADAM Output 13","5","","","ADAM Output 14","5","","","ADAM
Output 15","5","","","Camera Tracking","No","","","Custom
Map","custom_map_0919_030222","","","Schedule 1
Continuous","Yes","","","Schedule 1 Mon End","09:00","","","Schedule 1 Mon
Start","17:00","","","Schedule 1 Tue End","09:00","","","Schedule 1 Tue
Start","17:00","","","Schedule 1 Wed End","09:00","","","Schedule 1 Wed
Start","17:00","","","Schedule 1 Thu End","09:00","","","Schedule 1 Thu
Start","17:00","","","Schedule 1 Fri End","09:00","","","Schedule 1 Fri
Start","17:00","","","Schedule 1 Sat End","09:00","","","Schedule 1 Sat
Start","17:00","","","Schedule 1 Sun End","09:00","","","Schedule 1 Sun
Start","17:00","","","Schedule 2 Continuous","Yes","","","Schedule 2 Mon
End","09:00","","","Schedule 2 Mon Start","17:00","","","Schedule 2 Tue
End","09:00","","","Schedule 2 Tue Start","17:00","","","Schedule 2 Wed
End","09:00","","","Schedule 2 Wed Start","17:00","","","Schedule 2 Thu
End","09:00","","","Schedule 2 Thu Start","17:00","","","Schedule 2 Fri
End","09:00","","","Schedule 2 Fri Start","17:00","","","Schedule 2 Sat
End","09:00","","","Schedule 2 Sat Start","17:00","","","Schedule 2 Sun
End","09:00","","","Schedule 2 Sun Start","17:00","","","Schedule 3
Continuous","Yes","","","Schedule 3 Mon End","09:00","","","Schedule 3 Mon
Start","17:00","","","Schedule 3 Tue End","09:00","","","Schedule 3 Tue
Start","17:00","","","Schedule 3 Wed End","09:00","","","Schedule 3 Wed
Start","17:00","","","Schedule 3 Thu End","09:00","","","Schedule 3 Thu
Start","17:00","","","Schedule 3 Fri End","09:00","","","Schedule 3 Fri
Start","17:00","","","Schedule 3 Sat End","09:00","","","Schedule 3 Sat
Start","17:00","","","Schedule 3 Sun End","09:00","","","Schedule 3 Sun
Start","17:00","","","Schedule 4 Continuous","Yes","","","Schedule 4 Mon
End","09:00","","","Schedule 4 Mon Start","17:00","","","Schedule 4 Tue
End","09:00","","","Schedule 4 Tue Start","17:00","","","Schedule 4 Wed
End","09:00","","","Schedule 4 Wed Start","17:00","","","Schedule 4 Thu
End","09:00","","","Schedule 4 Thu Start","17:00","","","Schedule 4 Fri
End","09:00","","","Schedule 4 Fri Start","17:00","","","Schedule 4 Sat
End","09:00","","","Schedule 4 Sat Start","17:00","","","Schedule 4 Sun
End","09:00","","","Schedule 4 Sun Start","17:00","","","Radar
Relay","NO","","","Radar Adaptive","On","","","Radar
Frequency","High","","","Radar Height","3","","","Radar Size Filter","All","","","Radar
Size Value","4","","","Radar Speed Filter","All","","","Radar Speed
Value","4","","","Radar Sync Delay","0","","","Radar Sync
Mode","Internal","","","Radar First Target Alarms","Yes","","","Radar Test

Mode","No","","","Radar Clutter 1","5","","","Radar Threshold 1","1","","","Radar Clutter 2","5","","","Radar Threshold 2","1","","","Radar Clutter 3","5","","","Radar Threshold 3","1","","","Radar Clutter 4","5","","","Radar Threshold 4","1","",""

Retrieving the radar diagnostics

The radar output will show the internal logs produced by the radar. This output is purely for investigative purposes and is not required for the normal running or setup of the radar.

URL api/get_internal_logs

Input The default response is to provide the last five minutes of output produced by the radar. The number of minutes can be increased or decreased by providing the *minutes* field detail.

Output The current configuration settings (in internal format), followed by the logs generated minute-by-minute.

Example 1

Input

blank

Output

String of diagnostics information

Example 2

Input

minutes=10

Output

String of diagnostics information for the past 10 minutes

Save configuration settings

The configuration settings can be saved to the radar by supplying a list of field details. There is no maximum for the number of settings that can be saved in a single request. In addition, only those settings which have changed need to be sent in the request.

URL api/save_settings

Input List of field details. The field names that can be saved are shown in Appendix A.

Output "Saved" if successful

Error message if unsuccessful

Example

Input

camera_ip_address=192.168.1.101&camera_username=main_profile&camera_password=123456

Output

Saved

Save the date and time

The current date and time can be saved to the radar so that logs and schedules work correctly.

URL api/save_datetime

Input List of field details representing the new date and time. The fields are shown below.

Field	Value
datetime_day	Between 1 and 31
datetime_month	Between 1 and 12
datetime_year	Between 0 and 99
datetime_hour	Between 0 and 23
datetime_minute	Between 0 and 59
datetime_weekday	Between 0 (Sunday) to 6 (Saturday)

Output “Saved” if successful

Error message if unsuccessful

Example

Input

datetime_day=1&datetime_month=1&datetime_year=17&datetime_hour=9&datetime_minute=0&datetime_weekday=0

Ouput

Saved

Restoring to a previous save point

The settings of previous saves can be restored to the radar. The number of saves stored depends on the number of saves made and the level of activity made on the radar. The system log id that the save is stored against must be known, and can be found by retrieving the system logs.

URL api/restore_settings

Input id=*system log id*

Output "Saved" if successful. The settings saved at the time will be restored and the radar will reboot.

Error message if unsuccessful

Example

Input

Id=737402

Output

Saved

Reset settings to their default values

This API will reset all configuration settings to their default values. The date and time will not be affected.

URL api/reset_settings

Input *blank*

Output "Saved" if successful

Error message if unsuccessful

Camera movement

The camera can be panned left or right, tilted up or down and zoomed in or out.

URL api/camera_move

Input command=*direction*|*speed*

direction	left, right, up, down, in or out
speed	Floating point number between 0.01 (slow) and 1 (fast)

Output *blank*

Example

Input

left|0.5

Output

Camera pans left at half speed

Pan the camera

The camera can be panned to any bearing.

URL api/camera_pan

Input position=*bearing*

bearing	Angle (to 2dps) between 0 and 359.99 degrees

Output *blank*

Example

Input

position=180

Output

Camera pans to 180 degrees

Tilt and zoom the camera

The camera can be tilted and zoomed to one of six tilt/zoom positions.

URL api/camera_tilt

Input position=*range*

range	0	(0-15m)
	1	(15-25m)
	2	(25-50m)
	3	(50-100m)
	4	(100-150m)
	5	(150-200m)

Output *blank*

Example

Input

Position=2

Output

Camera tilts and zooms to the position stored for targets between 25 and 50m

Run a camera auxiliary command

The camera can be instructed to perform an auxiliary command. The list of valid auxiliary commands can be found by retrieving the camera_valid_aux_commands setting.

URL api/camera_auxiliary

Input command=*auxiliary command*

auxiliary command	A valid auxiliary command

Output *blank*

Example

Input

command=tt:WhiteLamp|On

Output

Camera turns on white lamps for a set period of time

Stop the camera

During any operation the camera is doing, it can be told to stop moving

URL api/camera_stop

Input *blank*

Output *blank*

Pause the camera from responding to targets

During the process of setting the perimeter, alignment or camera tilts, it is useful to stop the camera from responding to targets so that the operator can move the camera to the desired position. This command will ensure the camera does not response to targets for 3 seconds, within which another request should be made if the camera should be paused for longer.

URL api/camera_pause

Input *blank*

Output *blank*

Save the camera alignment

So that the radar can slew the camera to the correct position, the radar and camera need to be aligned. This request will set the camera's current position to be associated with bearing zero of the radar.

URL api/save_alignment

Input *blank*

Output "Saved" if successful

Error message if unsuccessful

Example

Input

blank

Output

Saved

Save camera tilt & zoom

The current position of the camera's tilt and zoom can be stored in one of the six tilt/zoom settings. Each tilt/zoom setting corresponds to a different range.

URL api/save_tilt_zoom

Input position=*tilt/zoom position*

tilt/zoom position	0	(0-15m)
	1	(15-25m)
	2	(25-50m)
	3	(50-100m)
	4	(100-150m)
	5	(150-200m)

Output "Saved" if successful

Error message if unsuccessful

Example

Input

position=2

Output

Saved

Track next target

If target tracking has been enabled, the radar can be cycled through targets it tracks. This API call instruct the radar to track the next target in the list.

URL api/track_next

Input *blank*

Output New track being followed

Example

Input

blank

Output

2

Test mode

The radar can be placed into Test mode to aid setting up the detection zones. In test mode changes in the environment, such as targets or clutter, no longer change the radar sensitivity. In addition no tracking takes place.

The radar will remain in test mode for 10 seconds unless the api/test_mode_stop command is called, or unless a further call to api/test_mode is made, in which case the 10 second timeout is reset.

This API also functions in the same way as retrieving the targets, with the same inputs and outputs. In this way the same call can be made to keep the radar in test mode and retrieve the most recent targets.

URL api/test_mode

Input *See Retrieving Targets*

Output *See Retrieving Targets*

Exit test mode

Test mode can be exited before the 10 second timeout by a call to this API.

URL api/test_mode_stop

Input *blank*

Output *blank*

Reboot the radar

This request will reboot the radar, which will take approximately 15 seconds to return.

URL api/reboot

Input *blank*

Output "Saved" if successful

Error message if unsuccessful

Example

Input

blank

Output

Save

Disabling the radar

The request will disable or enable the radar from responding to targets. This affects the camera, VMS, alarm relay and the target logs.

URL api/disable_radar

Input on *or* off

on	Disable the radar
off	Enable the radar

Output *blank*

Example

Input

on

Output

blank

Upload and download custom maps

This API will allow a new custom map to be uploaded to the radar.

URL api/upload_map

Input Bytes of the map

Output "Saved" if successfully uploaded

Error message if unsuccessful

The custom map can be downloaded using the URL http://*ip address*/custom_map_*hhmm_ddmmyy.* The custom_map_*hhmm_ddmmyy* value can be obtained by retrieving the perimeter_custom_map field using the get_settings API.

The custom map can be removed by setting the perimeter_custom_map field to a blank string.

Upload new processor firmware

This API will allow new firmware to be installed as and when required.

URL api/upload_processor_firmware

Input Bytes of the file

Output “Saved” if successfully uploaded and installed

Error message if unsuccessful

Upload new operational firmware

This API will allow new firmware to be installed as and when required.

URL api/upload_operational_firmware

Input Bytes of the file

Output “Saved” if successfully uploaded and set to reboot

Error message if unsuccessful

Upload new website firmware

This API will allow new firmware to be installed as and when required.

URL api/upload_website_firmware

Input Bytes of the file

Output “Saved” if successfully uploaded and installed

Error message if unsuccessful

Appendix A – Settings List

Below is the list of fields that can be retrieved and saved to the radar.

Field Name	all
Description	Requests the return of all the radar's configuration settings
Use	Retrieval Only
Fields Returned	*All fields returned from* about, camera, perimeter, radar, schedule, vms

Field Name	about
Description	Requests the return of the radar's status
Use	Retrieval Only
Fields Returned	camera_startus, datetime, datetime_status, operational_version, processor_version, schedule_status, status, tracking_status, uptime, vms_status, zones_status

Field Name	camera
Description	Requests the return of the radar's camera settings
Use	Retrieval Only
Fields Returned	camera_alignment, camera_aux_command, camera_aux_from, camera_aux_to, camera_ip_address, camera_password, camera_port, camera_tilts, camera_tracking, camera_username, camera_valid_aux_commands, camera_zooms

Field Name	perimeter
Description	Requests the return of the radar's detection zone settings
Use	Retrieval Only
Fields Returned	perimeter_custom_map, perimeter_latitude, perimeter_longtitude, perimeter_offset_x, perimeter_offset_y, perimeter_use_map, perimeter_zero_angle, perimeter_zones

Field Name	radar
Description	Requests the return of the radar's network and detection settings
Use	Retrieval Only
Fields Returned	radar_clutters, radar_dhcp, radar_dns, radar_first_target_alarms, radar_frequency, radar_gateway, radar_height, radar_hostname, radar_ip_address, radar_mac, radar_password, radar_relay, radar_size_filter, radar_size_value, radar_speed_filter, radar_speed_value, radar_subnet, radar_sync_delay, radar_sync_mode, radar_target_delay, radar_thresholds, radar_username

Field Name	schedule
Description	Requests the return of the radar's 4 schedule settings
Use	Retrieval Only
Fields Returned	schedule**X**_continuous, schedule**X**_mon_start, schedule**X**_mon_end, schedule**X**_tue_start, schedule**X**_tue_end, schedule**X**_wed_start, schedule**X**_wed_end, schedule**X**_thu_start, schedule**X**_thu_end, schedule**X**_fri_start, schedule**X**_fri_end, schedule**X**_sat_start, schedule**X**_sat_end, schedule**X**_sun_start, schedule**X**_sun_end
X	This is a number between 1 and 4 which represents the schedule being returned

Field Name	vms
Description	Requests the return of the radar's VMS settings
Use	Retrieval Only
Fields Returned	adam_inputs, adam_map, adam_outputs, vms_active, vms_app, vms_ip_address, vms_port, vms_protocol *Depending on vms_app:* vms_adam_password, vms_adam_username *or* vms_narrative *or* vms_milestone *or* vms_synergy *or* vms_wavestore_camera, vms_wavestore_password, vms_wavestore_username *or* vms_vast_2

Field Name	camera_status
Description	Requests the return of the camera's status
Use	Retrieval Only
Fields Returned	camera_status, camera_status_type
Values	Camera connected *or* Inactivated by ADAM unit *or* Inactivated by the user *or* Initialising *or* No camera details entered *or* No connection to [*hostname*] *or* [*User defined message set while pausing the camera*]

Field Name	camera_status_type
Description	Short description on the health of the camera
Use	Returned when camera_status requested
Values	error *or* info *or* ok *or* unknown

Field Name	datetime_status
Description	Requests the return of the internal date and time status
Use	Retrieval Only
Fields Returned	datetime_status, datetime_status_type
Values	**[***dd/mm/yy hh:mm*] *or* [*dd/mm/yy hh:mm*] Check Date/Time as clock stopped during last power cycle

Field Name	datetime_status_type
Description	Short description on the health of the internal date and time
Use	Returned when datetime_status requested
Values	error *or* info *or* ok *or* unknown

Field Name	schedule_status
Description	Requests the return of the schedule's status
Use	Retrieval Only
Fields Returned	schedule_status, schedule_status_type
Values	Continuous detection *or* Set. Outside operating hours *or* Set. Within operating hours *or* Set. Zones both within and outside of operating hours

Field Name	schedule_status_type
Description	Indicates the health of the camera
Use	Returned when schedule_status requested
Values	error *or* info *or* ok *or* unknown

Field Name	status
Description	Requests the return of the radar's overall status
Use	Retrieval Only
Fields Returned	status, status_type
Values	Radar not operating correctly *or* Radar operating correctly *or* Target detection disabled as outside operating hours *or* Target detection disabled. Detector busy *or* Target detection disabled. Installing processor firmware *or* Target detection disabled. Radar disabled by the ADAM unit *or* Target detection disabled. Radar disabled by the operator *or* Target detection disabled. Running startup procedure

Field Name	status_type
Description	Short description on the overall health of the radar
Use	Returned when status requested
Values	error *or* info *or* ok *or* unknown

Field Name	tracking_status
Description	Requests the return of the tracking status
Use	Retrieval Only
Fields Returned	tracking_status, tracking_status_type
Values	Camera tracking enabled *or* Off *or* Off (Test Mode enabled) *or* Target tracking enabled

Field Name	tracking_status_type
Description	Short description on the health of the tracking software
Use	Returned when tracking_status requested
Values	error *or* info *or* ok *or* unknown

Field Name	uptime
Description	Requests the return of the radar's total uptime
Use	Retrieval Only
Values	*Time in seconds*

Field Name	version_operational
Description	Requests the return of the operational firmware version
Use	Retrieval Only
Values	*Text*

Field Name	version_processor
Description	Requests the return of the processor firmware version
Use	Retrieval Only
Values	*Text*

Field Name	vms_status
Description	Requests the return of the VMS's status
Use	Retrieval Only
Fields Returned	vms_status, vms_status_type
Values	DNS lookup failed for [*hostname*] *or* No connection to [*hostname*] *or* No VMS details entered *or* VMS connected

Field Name	vms_status_type
Description	Short description on the health of the VMS
Use	Returned when vms_status requested
Values	error *or* info *or* ok *or* unknown

Field Name	zones_status
Description	Requests the return of the detection zone's status
Use	Retrieval Only
Fields Returned	zones_status, zones_status _type
Values	No detection zones created Set

Field Name	zones_status_type
Description	Short description on the health of the camera
Use	Returned when zones_status requested
Values	error *or* info *or* ok *or* unknown

Field Name	camera_alignment
Description	Angle of the camera alignment
Use	Retrieve and Save
Values	*Degrees to 2 decimal places*

Field Name	camera_aux_command
Description	Auxiliary command to be activated when a target is detected
Use	Retrieve and Save
Values	*Text up to 30 characters*

Field Name	camera_aux_from
Description	Hour the auxiliary command is active from (set start and end times to 0 for continuous operation)
Use	Retrieve and Save
Values	*0 to 23*

Field Name	camera_aux_to
Description	Hour the auxiliary command is active to (set start and end times to 0 for continuous operation)
Use	Retrieve and Save
Values	*0 to 23*

Field Name	camera_ip_address
Description	Camera IP address or hostname
Use	Retrieve and Save
Values	*Text up to 20 characters*

Field Name	camera_password
Description	Camera password
Use	Retrieve and Save
Values	*Text up to 20 characters*

Field Name	camera_port
Description	Camera port number
Use	Retrieve and Save
Values	*0 to 65535*

Field Name	camera_tilt_1
Description	ONVIF tilt value for range 0-15m
Use	Saving Only
Values	*Floating point number*

Field Name	camera_tilt_2
Description	ONVIF tilt value for range 15-25m
Use	Saving Only
Values	*Floating point number*

Field Name	camera_tilt_3
Description	ONVIF tilt value for range 25-50m
Use	Saving Only
Values	*Floating point number*

Field Name	camera_tilt_4
Description	ONVIF tilt value for range 50-100m
Use	Saving Only
Values	*Floating point number*

Field Name	camera_tilt_5
Description	ONVIF tilt value for range 100-150m
Use	Saving Only
Values	*Floating point number*

Field Name	camera_tilt_6
Description	ONVIF tilt value for range 150-200m
Use	Saving Only
Values	*Floating point number*

Field Name	camera_tilts
Description	List of ONVIF tilt values for each of the 6 ranges
Use	Retrieve and Save
Values	*6 comma delimited floating point values*

Field Name	camera_tracking
Description	Type of camera tracking enabled
Use	Retrieve and Save
Values	camera *or* target *or* off
Field Name	camera_username
Description	Camera username
Use	Retrieve and Save
Values	*Text up to 20 characters*

Field Name	camera_valid_aux_commands
Description	List of auxiliary commands the camera supports
Use	Retrieval Only
Values	*Comma delimited list of auxiliary commands*

Field Name	camera_zoom_1
Description	ONVIF zoom value for range 0-15m
Use	Saving Only
Values	*Floating point number*

Field Name	camera_ zoom _2
Description	ONVIF zoom value for range 15-25m
Use	Saving Only
Values	*Floating point number*

Field Name	camera_ zoom _3
Description	ONVIF zoom value for range 25-50m
Use	Saving Only
Values	*Floating point number*

Field Name	camera_ zoom _4
Description	ONVIF zoom value for range 50-100m
Use	Saving Only
Values	*Floating point number*

Field Name	camera_ zoom _5
Description	ONVIF zoom value for range 100-150m
Use	Saving Only
Values	*Floating point number*

Field Name	camera_ zoom _6
Description	ONVIF zoom value for range 150-200m
Use	Saving Only
Values	*Floating point number*

Field Name	camera_zooms
Description	List of ONVIF zoom values for each of the 6 ranges
Use	Retrieve and Save
Values	*6 comma delimited floating point values*

Field Name	gps
Description	Current GPS position of the radar
Use	Retrieval Only
Values	*Comma separated floating point latitude and longtitude*

Field Name	last_target_id
Description	Id for the last target detected
Use	Retrieval Only
Values	*Whole number*

Field Name	perimeter_custom_map
Description	URL page to retrieve the custom map (if used)
Use	Retrieve and Save
Values	custom_map_*hhmm_ddmmyy or blank*

Field Name	perimeter_longtitude
Description	Longtitude for the satellite map used during setup
Use	Retrieve and Save
Values	*Floating point number*

Field Name	perimeter_offset_x
Description	X location of the radar on the satellite map. Centre X position is 200
Use	Retrieve and Save
Values	*0 to 400*

Field Name	perimeter_offset_y
Description	Y location of the radar on the satellite map. Centre Y position is 200
Use	Retrieve and Save
Values	*0 to 400*

Field Name	perimeter_use_map
Description	Whether to use a satellite map
Use	Retrieve and Save
Values	yes *or* no

Field Name	perimeter_zero_angle
Description	Angle of the radar's zero position on the satellite map
Use	Retrieve and Save
Values	*Degrees to 0 decimal places*

Field Name	perimeter_zones
Description	Detection zones
Use	Retrieve and Save
Values	*See Appendix C*

Field Name	radar_clutter_1
Description	Clutter filter for the 1st clutter/threshold setting
Use	Retrieve and Save
Values	*0 to 8*

Field Name	radar_clutter_2
Description	Clutter filter for the 2nd clutter/threshold setting
Use	Retrieve and Save
Values	*0 to 8*

Field Name	radar_clutter_3
Description	Clutter filter for the 3rd clutter/threshold setting
Use	Retrieve and Save
Values	*0 to 8*

Field Name	radar_clutter_4
Description	Clutter filter for the 4th clutter/threshold setting
Use	Retrieve and Save
Values	*0 to 8*

Field Name	radar_clutters
Description	List of clutters for each of the 4 clutter/threshold settings
Use	Retrieve and Save
Values	*4 comma delimited numbers between 0 and 8*

Field Name	radar_dhcp
Description	Whether the radar has DHCP enabled
Use	Retrieve and Save
Values	on *or* off

Field Name	radar_dns
Description	Primary DNS server
Use	Retrieve and Save
Values	*IPv4 address*

Field Name	radar_first_target_alarms
Description	Whether isolated targets are responded to
Use	Retrieve and Save
Values	on *or* off

Field Name	radar_frequency
Description	Frequency of the radar
Use	Retrieve and Save
Values	high *or* low

Field Name	radar_gateway
Description	Default gateway
Use	Retrieve and Save
Values	*IPv4 address*

Field Name	radar_height
Description	Installed height of the radar
Use	Retrieve and Save
Values	*Metres between 1 to 8*

Field Name radar_hostname
Description Radar hostname
Use Retrieve and Save
Values *Text up to 20 characters*

Field Name radar_ip_address
Description Radar IP address when DHCP is disabled
Use Retrieve and Save
Values *IPv4 address*

Field Name radar_mac
Description MAC address of the radar
Use Retrieval Only
Values *MAC address*

Field Name radar_password
Description Radar password
Use Retrieve and Save
Values *Text up to 20 characters*

Field Name radar_relay
Description Whether the relay is normally open or normally closed
Use Retrieve and Save
Values NO *or* NC

Field Name radar_size_filter
Description Target filter active based on size of target
Use Retrieve and Save
Values all *or* large *or* small

Field Name radar_size_value
Description Value of the size filter to use
Use Retrieve and Save
Values *1 to 10*

Field Name radar_speed_filter
Description Target filter active based on speed of target
Use Retrieve and Save
Values all *or* fast *or* slow

Field Name radar_speed_value
Description Value of the speed filter to use
Use Retrieve and Save
Values *1 to 10*

Field Name	radar_subnet
Description	Subnet mask
Use	Retrieve and Save
Values	*IPv4 address*

Field Name	radar_sync_delay
Description	Value of the sync delay to use
Use	Retrieve and Save
Values	*0 to 8*

Field Name	radar_sync_mode
Description	Sync mode to use with other nearby radars
Use	Retrieve and Save
Values	internal *or* external

Field Name	radar_target_delay
Description	Delay to use when low priority targets are detected following high priority targets
Use	Retrieve and Save
Values	*Seconds between 0 and 600 to 1 decimal place*

Field Name	radar_test_mode
Description	Whether test mode is active
Use	Retrieval Only
Values	on *or* off

Field Name	radar_threshold_1
Description	Target detection threshold for the 1st clutter/threshold setting
Use	Retrieve and Save
Values	*0 to 8*

Field Name	radar_threshold_2
Description	Target detection threshold for the 2nd clutter/threshold setting
Use	Retrieve and Save
Values	*0 to 8*

Field Name	radar_threshold_3
Description	Target detection threshold for the 3rd clutter/threshold setting
Use	Retrieve and Save
Values	*0 to 8*

Field Name	radar_threshold_4
Description	Target detection threshold for the 4th clutter/threshold setting
Use	Retrieve and Save
Values	*0 to 8*

Field Name	radar_thresholds
Description	List of target detection thresholds for each of the 4 clutter/threshold settings
Use	Retrieve and Save
Values	*4 comma delimited numbers between 0 and 8*

Field Name	radar_username
Description	Radar username
Use	Retrieve and Save
Values	*Text up to 20 characters*

Field Name	schedule1_continuous
Description	Whether zones which apply the 1st schedule are continuously active or set to schedule
Use	Retrieve and Save
Values	on *or* off

Field Name	schedule2_continuous
Description	Whether zones which apply the 2nd schedule are continuously active or set to schedule
Use	Retrieve and Save
Values	on *or* off

Field Name	schedule3_continuous
Description	Whether zones which apply the 3rd schedule are continuously active or set to schedule
Use	Retrieve and Save
Values	on *or* off

Field Name	schedule4_continuous
Description	Whether zones which apply the 4th schedule are continuously active or set to schedule
Use	Retrieve and Save
Values	on *or* off

Field Name	schedule1_mon_start
Description	Hour zones using the 1st schedule become active on Monday
Use	Retrieve and Save
Values	*0 to 24*

Field Name	schedule2_mon_start
Description	Hour zones using the 2nd schedule become active on Monday
Use	Retrieve and Save
Values	*0 to 24*

Field Name schedule3_mon_start
Description Hour zones using the 3rd schedule become active on Monday
Use Retrieve and Save
Values *0 to 24*

Field Name schedule4_mon_start
Description Hour zones using the 4th schedule become active on Monday
Use Retrieve and Save
Values *0 to 24*

Field Name schedule1_mon_end
Description Hour zones using the 1st schedule become inactive on Monday
Use Retrieve and Save
Values *0 to 24*

Field Name schedule2_mon_end
Description Hour zones using the 2nd schedule become inactive on Monday
Use Retrieve and Save
Values *0 to 24*

Field Name schedule3_mon_end
Description Hour zones using the 3rd schedule become inactive on Monday
Use Retrieve and Save
Values *0 to 24*

Field Name schedule4_mon_end
Description Hour zones using the 4th schedule become inactive on Monday
Use Retrieve and Save
Values *0 to 24*

Field Name schedule1_tue_start
Description Hour zones using the 1st schedule become active on Tuesday
Use Retrieve and Save
Values *0 to 24*

Field Name schedule2_tue_start
Description Hour zones using the 2nd schedule become active on Tuesday
Use Retrieve and Save
Values *0 to 24*

Field Name schedule3_tue_start
Description Hour zones using the 3rd schedule become active on Tuesday
Use Retrieve and Save
Values *0 to 24*

Field Name schedule4_tue_start
Description Hour zones using the 4th schedule become active on Tuesday
Use Retrieve and Save
Values *0 to 24*

Field Name schedule1_tue_end
Description Hour zones using the 1st schedule become inactive on Tuesday
Use Retrieve and Save
Values *0 to 24*

Field Name schedule2_tue_end
Description Hour zones using the 2nd schedule become inactive on Tuesday
Use Retrieve and Save
Values *0 to 24*

Field Name schedule3_tue_end
Description Hour zones using the 3rd schedule become inactive on Tuesday
Use Retrieve and Save
Values *0 to 24*

Field Name schedule4_tue_end
Description Hour zones using the 4th schedule become inactive on Tuesday
Use Retrieve and Save
Values *0 to 24*

Field Name schedule1_wed_start
Description Hour zones using the 1st schedule become active on Wednesday
Use Retrieve and Save
Values *0 to 24*

Field Name schedule2_wed_start
Description Hour zones using the 2nd schedule become active on Wednesday
Use Retrieve and Save
Values *0 to 24*

Field Name schedule3_wed_start
Description Hour zones using the 3rd schedule become active on Wednesday
Use Retrieve and Save
Values *0 to 24*

Field Name schedule4_wed_start
Description Hour zones using the 4th schedule become active on Wednesday
Use Retrieve and Save
Values *0 to 24*

Field Name schedule1_wed_end
Description Hour zones using the 1st schedule become inactive on Wednesday
Use Retrieve and Save
Values *0 to 24*

Field Name schedule2_wed_end
Description Hour zones using the 2nd schedule become inactive on Wednesday
Use Retrieve and Save
Values *0 to 24*

Field Name schedule3_wed_end
Description Hour zones using the 3rd schedule become inactive on Wednesday
Use Retrieve and Save
Values *0 to 24*

Field Name schedule4_wed_end
Description Hour zones using the 4th schedule become inactive on Wednesday
Use Retrieve and Save
Values *0 to 24*

Field Name schedule1_thu_start
Description Hour zones using the 1st schedule become active on Thursday
Use Retrieve and Save
Values *0 to 24*

Field Name schedule2_thu_start
Description Hour zones using the 2nd schedule become active on Thursday
Use Retrieve and Save
Values *0 to 24*

Field Name schedule3_thu_start
Description Hour zones using the 3rd schedule become active on Thursday
Use Retrieve and Save
Values *0 to 24*

Field Name schedule4_thu_start
Description Hour zones using the 4th schedule become active on Thursday
Use Retrieve and Save
Values *0 to 24*

Field Name schedule1_thu_end
Description Hour zones using the 1st schedule become inactive on Thursday
Use Retrieve and Save
Values *0 to 24*

Field Name schedule2_thu_end
Description Hour zones using the 2nd schedule become inactive on Thursday
Use Retrieve and Save
Values *0 to 24*

Field Name schedule3_thu_end
Description Hour zones using the 3rd schedule become inactive on Thursday
Use Retrieve and Save
Values *0 to 24*

Field Name schedule4_thu_end
Description Hour zones using the 4th schedule become inactive on Thursday
Use Retrieve and Save
Values *0 to 24*

Field Name schedule1_fri_start
Description Hour zones using the 1st schedule become active on Friday
Use Retrieve and Save
Values *0 to 24*

Field Name schedule2_fri_start
Description Hour zones using the 2nd schedule become active on Friday
Use Retrieve and Save
Values *0 to 24*

Field Name schedule3_fri_start
Description Hour zones using the 3rd schedule become active on Friday
Use Retrieve and Save
Values *0 to 24*

Field Name schedule4_fri_start
Description Hour zones using the 4th schedule become active on Friday
Use Retrieve and Save
Values *0 to 24*

Field Name schedule1_fri_end
Description Hour zones using the 1st schedule become inactive on Friday
Use Retrieve and Save
Values *0 to 24*

Field Name schedule2_fri_end
Description Hour zones using the 2nd schedule become inactive on Friday
Use Retrieve and Save
Values *0 to 24*

Field Name schedule3_fri_end
Description Hour zones using the 3rd schedule become inactive on Friday
Use Retrieve and Save
Values *0 to 24*

Field Name schedule4_fri_end
Description Hour zones using the 4th schedule become inactive on Friday
Use Retrieve and Save
Values *0 to 24*

Field Name schedule1_sat_start
Description Hour zones using the 1st schedule become active on Saturday
Use Retrieve and Save
Values *0 to 24*

Field Name schedule2_sat_start
Description Hour zones using the 2nd schedule become active on Saturday
Use Retrieve and Save
Values *0 to 24*

Field Name schedule3_sat_start
Description Hour zones using the 3rd schedule become active on Saturday
Use Retrieve and Save
Values *0 to 24*

Field Name schedule4_sat_start
Description Hour zones using the 4th schedule become active on Saturday
Use Retrieve and Save
Values *0 to 24*

Field Name schedule1_sat_end
Description Hour zones using the 1st schedule become inactive on Saturday
Use Retrieve and Save
Values *0 to 24*

Field Name schedule2_sat_end
Description Hour zones using the 2nd schedule become inactive on Saturday
Use Retrieve and Save
Values *0 to 24*

Field Name schedule3_sat_end
Description Hour zones using the 3rd schedule become inactive on Saturday
Use Retrieve and Save
Values *0 to 24*

Field Name schedule4_sat_end
Description Hour zones using the 4th schedule become inactive on Saturday
Use Retrieve and Save
Values *0 to 24*

Field Name schedule1_sun_start
Description Hour zones using the 1st schedule become active on Sunday
Use Retrieve and Save
Values *0 to 24*

Field Name schedule2_sun_start
Description Hour zones using the 2nd schedule become active on Sunday
Use Retrieve and Save
Values *0 to 24*

Field Name schedule3_sun_start
Description Hour zones using the 3rd schedule become active on Sunday
Use Retrieve and Save
Values *0 to 24*

Field Name schedule4_sun_start
Description Hour zones using the 4th schedule become active on Sunday
Use Retrieve and Save
Values *0 to 24*

Field Name schedule1_sun_end
Description Hour zones using the 1st schedule become inactive on Sunday
Use Retrieve and Save
Values *0 to 24*

Field Name schedule2_sun_end
Description Hour zones using the 2nd schedule become inactive on Sunday
Use Retrieve and Save
Values *0 to 24*

Field Name schedule3_sun_end
Description Hour zones using the 3rd schedule become inactive on Sunday
Use Retrieve and Save
Values *0 to 24*

Field Name schedule4_sun_end
Description Hour zones using the 4th schedule become inactive on Sunday
Use Retrieve and Save
Values *0 to 24*

Field Name	track_id_following
Description	Id for the track currently being followed (only applicable if target tracking enabled)
Use	Retrieval Only
Values	*0 to 7*

Field Name	adam_inputs
Description	List of actions to take when a DI is activated on an ADAMs unit. vms_app must be set to adam and vms_active must be set to on
Use	Retrieve and Save
Values	*Comma delimited list of actions for up to 16 DI* camera off *or* radar off *or* none

Field Name	adam_map
Description	List of mappings of detection zones and the DO to activate on an ADAMs unit when a target is detected. vms_app must be set to adam and vms_active must be set to on
Use	Retrieve and Save
Values	*Pipe delimited list of mappings. Each mapping is a zone number and DO number separated by a comma. Up to 50 mappings can be made and up to 16 DO can be handled.*

Field Name	adam_outputs
Description	List of timeouts for activated DO on an ADAMs unit. vms_app must be set to adam and vms_active must be set to on
Use	Retrieve and Save
Values	*Comma delimited list of timouts for up to 16 DO.* *Seconds between 0 and 600 to 1 decimal place*

Field Name	vms_active
Description	Whether the VMS is active
Use	Retrieve and Save
Values	on *or* off

Field Name	vms_adam_password
Description	ADAMs unit password used if vms_app set to adam
Use	Retrieve and Save
Values	*Text up to 50 characters*

Field Name	vms_adam_username
Description	ADAMs unit username used if vms_app set to adam
Use	Retrieve and Save
Values	*Text up to 50 characters*

Field Name	vms_app
Description	VMS application to transmit to
Use	Retrieve and Save
Values	adam *or* manual *or* icomply *or* milestone *or* synergy *or* vast2 *or* wavestore

Field Name	vms_ip_address
Description	VMS IP address or hostname
Use	Retrieve and Save
Values	*Text up to 20 characters*

Field Name	vms_milestone
Description	Milestone message sent if vms_app set to milestone
Use	Retrieve and Save
Values	*Text up to 128 characters*

Field Name	vms_narrative
Description	TCPIP message sent if vms_app set to manual
Use	Retrieve and Save
Values	*Text up to 128 characters*

Field Name	vms_port
Description	VMS port number to use
Use	Retrieve and Save
Values	*0 to 65535*

Field Name	vms_protocol
Description	Transmission protocol to use
Use	Retrieve and Save
Values	tcp *or* udp

Field Name	vms_synergy
Description	Synergy message sent if vms_app set to synergy
Use	Retrieve and Save
Values	*Text up to 128 characters*

Field Name	vms_wavestore_camera
Description	Wavestore camera number used is vms_app set to wavestore
Use	Retrieve and Save
Values	*0 to 65535*

Field Name	vms_wavestore_password
Description	Wavestore password used is vms_app set to wavestore
Use	Retrieve and Save
Values	*Text up to 50 characters*

Field Name	vms_wavestore_username
Description	Wavestore username used is vms_app set to wavestore
Use	Retrieve and Save
Values	*Text up to 50 characters*

Field Name	vms_vast2
Description	VAST2 message sent if vms_app set to vast2
Use	Retrieve and Save
Values	*Text up to 128 characters*

Appendix B – Target Information

Detections by the radar are stored as individual targets, and when target tracking is enabled these targets are assigned to tracks. Up to 8 tracks can be active at any one time and are numbered 0 to 7. Each target is returned by the radar as a list of 16 comma delimited values which define the target. These values are displayed below in the order they appear on the output.

Description Target date
Format dd/mm/yy

Description Target time
Format hh:mm:ss.m

Description Target bearing in degrees
Format To 2 decimal places

Description Target range in metres
Format Whole number

Description Radial speed of the target. This is not output in units such as m/s, but as a range where 0 is slow and 30 is fast. The radial speed changes depending on the angle of travel relative to the radar.
Format Whole number between 0 and 30, or a dash if the speed is unknown

Description Reflected signal size of the target. This is not output in units such as m^2, but as a range where 0 is small and 220 is large. Factors such as orientation and material composition of the target will have an impact on the signal reflected.
Format Whole number between 0 and 220

Description Internal Info. For internal purposes only
Format Whole number between 0 and 255

Description Alarmed flag
Format 0 – Radar did not alarm. 1 – Radar alarmed on detection

Description Target Id
Format Whole number

Description Track Id that the target has been assigned to. Only applicable if target tracking is enabled
Format Whole number between 0 and 7

Description	New Track. Only applicable if target tracking is enabled
Format	0 – Target is part of an existing track. 1 – This is the first target for this track.
Description	Following. Only applicable if target or camera tracking is enabled
Format	0 – Camera did not move to the target. 1 – Camera moved to the target.
Description	Individual target
Format	0 – Target is part of a track. 1 – Target is not part of a track (ie. target tracking is disabled)
Description	Latitude of the target. Only applicable if a satellite map is used
Format	Floating point number
Description	Longtitude of the target. Only applicable if a satellite map is used
Format	Floating point number
Description	Direction of the target
Format	twrd – Target travelling toward the radar. away – Target travelling away from the radar. A dash if the direction is unknown.

Appendix C – Detection Zones format

Detection zones can be retrieved and saved to the radar using the field name perimeter_zones. Each detection zone contains its priority, number of points, clutter/threshold setting, schedule setting and points in a pipe delimited format.

The details of each zone are:

Priority [*comma*] Number of Points [*comma*] Clutter/Threshold setting [*comma*] Schedule setting [*pipe*] X,Y of point 1 [*pipe*] X,Y of point 2…

The priority can either be 0 – exclude, 1 – low or 2 – high

Clutter/Threshold setting is a number between 1 and 4

Schedule setting is a number between 1 and 4

The X and Y of a point changes depending on whether a satellite image is present or not:

> If no satellite image or custom map are present, x and y is the position of the point relative to the radar where the radar is at position 0,0 and zero bearing is horizontally right.
>
> If a satellite image or custom map is present, x and y is the position of the point where the radar is at position perimeter_offset_x, perimeter_offset_y.

Example 1

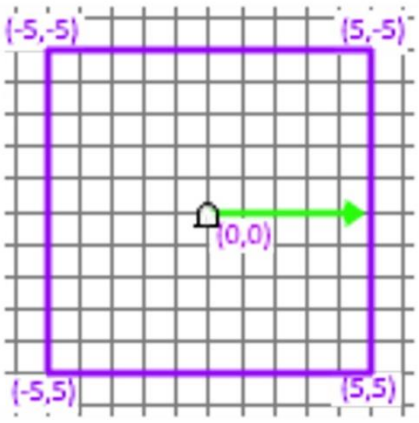
No satellite image or custom map is present.

Low priority

Using the 1st Clutter/Threshold setting

Using the 2nd Schedule setting

The zone is a 10m x 10m box containing the radar at its centre



1,4,1,2|-5,-5|5,-5|5,5|-5,5

Example 2

Satellite image or custom map is present

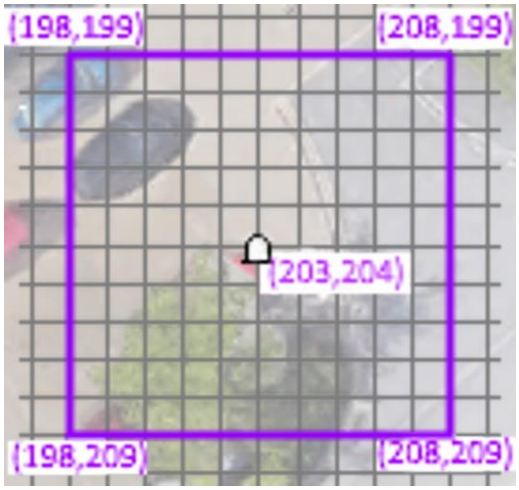
High priority

Using the 3rd Clutter/Threshold setting

Using the 1st Schedule setting

The radar is at position 203,204 (ie perimeter_offset_x = 203 and perimeter_offset_y = 204)

The zone is a 10m x 10m box containing the radar at it's centre



2,4,3,1|198,199|208,199|208,209|198,209