SCATS v6.9.4 CR Review

SCATS User Group Conference 2018
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Roads & Maritime
Services

SCATS v6.9.4 CR

New features - 1

VR73 – Green Window Request

- Equivalent of an existing ITS message, Green Window Request

- Designed for external priority i.e. Fire, ambulance etc.

- It is triggered by variation routine

- Embedded SCATS Flag(s) testing

- Delay and duration of a dwell can be controlled.

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New features - 2

VR78 – Terminate a phase

- preceding test is TRUE

- has an active phase

- running Masterlink mode

- termination request not yet set

- not already terminating

- phase time has been calculated

- no dwell hold or dwell send

- not in first second of phase.

VR78 - Terminate a phase

☐ Skip   Comment

Terminate a phase if Det 5 is present longer than 5 seconds

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New features - 3

VR84 – Marry/divorce a subsystem

- preceding test is TRUE

- when there is no marriage/divorce lock present from any user

- trim or Lock applied by marriage/divorce when it is active

VR84 - Marry/Divorce a subsystem

☐ Skip   Comment

RSF1 controls the marriage - when active it forces divorce

0   Subsystem number (0 = own)

Divorce   ∨ Action

Lock   ∨ Type

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New features - 4

VR85 – Test an LK volume

- validate the LK provided

- check based on defined volume type

  - 0 - weighted VK
  - 1 - dynamic VK
  - 2 - weighted VO
  - 3 - dynamic VO

- return TRUE or FALSE based on the test result.

VR85 - Test an LK flow in vph

☐ Skip   Comment

Measure actual flow on WB

| 75 | LK number |

| 2000 | Flow (vph) |

| Dynamic VK | ⌄ | FlowType |

Dynamic VK
Dynamic VO
Weighted VK
Weighted VO

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New features - 5

VR86 – Floating phase

- preceding test is TRUE

- insert a phase when the phase is not in sequence – as much as it is defined per cycle, after nominated phases

- move a phase when the phase is in sequence but allowed once per cycle

- repeat a phase when the phase is in sequence when allowed multiple introductions

- additional insertion tests i.e. when demanded and/or dwell.

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New features - 6

VR87 – Demand a phase

- preceding test is TRUE

- demanded phase is not running

- sets a virtual demand for a phase to be introduced

- optionally hold the demand until phase is introduced.

VR87 - Demand a phase

☐ Skip   Comment

Demand B phase when bus hits advance detector

B ⌄   Phase

☑ Hold demand until introduction

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New features - 7

VR97 – Comment

- A new VR that only contains a comment

- Up to 64 characters

- Each VR entry can now have a comment

- In the LX file

  - VAR11=97!
  - VAR11.0=Following VRs are prepared …!
  - …
  - VAR13=87!
  - VAR13.0=Demand B phase …!
  - VAR13.1=2!
  - VAR13.2=1!

VR97 - Comment

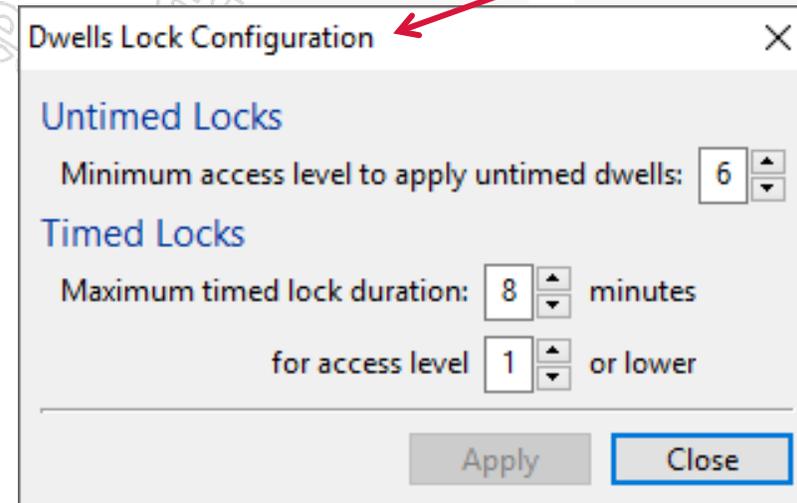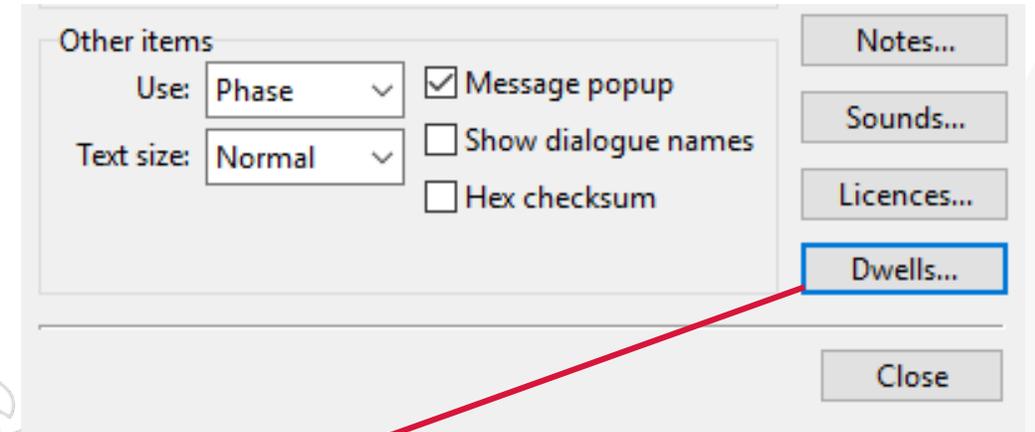☐ Skip   Comment

Following VRs are prepared for training, valid on 25/10/18

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New features - 8

Dwell restrictions are configurable

- set minimum access level to apply untimed dwell

- limit maximum timed lock duration for certain user levels

- limit maximum GWR dwell duration.

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Changes - 1

SCATS Access font sizes changed. Along with Windows 10 changes, new font sizes are rationalised as follows;

- Small – Font 7

- Normal – Font 9 – default

- Large – Font 11

The previous font;

- MS Sans Serif, is not a vector based form and does not look nice anymore

- Windows 10 default font (Segoe UI) and size 9 is selected.

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Changes - 2

Subsystem fallback reason provided

- When a subsystem goes to fallback, SCATS Access displays remaining time and reason

- When mouse is hovered the panel, the reason details are now showing the reasons;

  - FL alarm
  - PF alarm
  - ST alarm
  - no reply to an NXP/CLP
  - a prime voting SA failure
  - increment failure
  - external fallback.

WEN Subsystem 28	Degree of Saturation 148	SCATS 6	
Subsystem Plan 7	Married +	From strategic approach 124	rator 82
Link Plan 4	Link -1, -49 G 2693	Active Link -50 G 2693
Cycle Plan none	Cycle Length 140	Required Cycle Length 158

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Changes - 3

Trigger CL calculations at CG=10, instead of @5 seconds

- SCATS5 used to trigger SS calculations at CG=10, modified to 5 seconds but that is not divisible by each cycle length.

- This caused internal rotation and stretch is always penalised for the remainder.

Subsystem voting results displayed

- The last 5 subsystem adaptive results are now displayed on Monitor dialogue for SP, LP and marriages.

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Changes - 4

VR21 Disable SC, LC and IH alarms – redesigned

- VR21 can be used to prevent the generation of an LC alarm at those intersections that can time off an unusually long and unexpected clearance (such as light rail).

- Preventing an LC alarm also stops an FL alarm from being generated.

- However, if a phase becomes stuck (fault in the personality or wrong SCATS configuration) we need a fail-safe test to allow an LC and FL alarm to be generated.

- As a result, an LC+FL alarm is generated if a phase goes over time by at least 60 seconds and it has been running for at least 120 seconds.

- An FL alarm releases SCATS Masterlink control and the intersection is forced to either the user defined Flexilink or Isolated modes.

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Changes - 5

VR3 – Test for a phase running

- modified to have a new option

- test RFT on a nominated phase

- RFT = a Request for Termination from controller.

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Changes - 6

VR26 – Shadow another subsystem

- modified is to no longer set any CL or plans (SP, LP)

- instead it saves the source SS reference

- when subsystem values are calculated, and SM is produced

- it will get source' CL, SP, and LP if defined to be shadowed

- SM will be correct, and less confusing to get it working and monitoring.

VR26 - Shadow another SS

☐ Skip   Comment

Det to be re-cut

25   Source subsystem number

☐ Ignore source CL
☐ Ignore SP
☐ Ignore LP

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Changes - 7

VR31 – Enable a lane in SA or LK

- modified to have a new option

- no MF update when lane is disabled

- Applies during daily calibration at each SI green period

- Clear the noise due to tidal flow (reverse flow) or any other reason (clearway).

VR31 - Enable a lane in an SA or LK

☐ Skip   Comment

Disable Det 6 when right turn is heavy

34   SA or LK number

2   Lane number

☐ Disable true/false invert

☐ no MF update if lane disabled

☐ Link

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Changes - 8

VR43 – Diamond overlap control

- modified to have option controlling Z- and Z+ setting

- RTA standard diamond may not be fully utilised.

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Changes - 9

VR55 – Set DC

- modified to have a new option

- regardless of cycle length; double cycling can be forced

- FS and DC – don't work together

  - CL < DCL and FS
  - CL >= DCL and DC

<u>Warning</u>

- VR56 – Half cycle specific phases does not operate if DC is set in plan or VR55.

VR55 - Set DC

☐ Skip   Comment

Set DC if CL >= 80 seconds

☑ Force DC in any cycle length

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Changes - 10

VR37 – Composite test VR

- Extended to have more test

- SS fallback

- LK volumes

- Count for second

  - For example: if SG 8 is RED at selected site and count value is greater than or equal to 20 seconds

- Count for cycle

  - For example: if measured flow for link 2 in the CITY region is greater than or equal to 1000 vehicles per hour and subsystem 30 count value is greater than or equal to 3 cycles.

VR37 - Composite Test VR

☐ Skip   Comment

Detector actuation ⌄   Feature to test #1

Remaining time ⌃
Lamp faults
Detector alarms   l, SA, LK)
Measured flow (vph)   of test
Reconstituted flow (vph)
Weighted flow (vph)
Subsystem fallback   nd
Count seconds / cycles ⌄   Feature to test #1

0	Index
0	Reference (site, SS, SI, SA, LK)
ON ⌄	Type of test
0	Value

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Changes - 11

Variation routine monitor dialogue

- The dialogue contains two tabs now, displaying results and status of entry/exit in different view, mixing both in one view created confusion!

◇	Test
○	Operator
▭	Conditional action
▭	Unconditional action
⇩	Go to
—	Skipped
↶	Bypassed (not processed)
●	Stop
?	Unknown routine

3560 - Variation Routine Monitor

Result | State

	VAR	VR	Description	Result
◇	1	5	Test for a single MSS flag	False
▭	2	36	Read action list	False
◇	3	5	Test for a single MSS flag	False
▭	4	36	Read action list	False
▭	5	40	Prevent new DA alarms	False
○	6	10	RESET	True
◇	7	82	Test for an XSF flag	False
▭	8	25	Apply an XSF flag	False
▭	9	57	Master Isolated	False
○	10	10	RESET	True
	11	97	Comment	
—	12	25	Apply an XSF flag	
—	13	37	Composite Test VR	
—	14	87	Demand a phase	
—	15	37	Composite Test VR	
—	16	55	Set DC	

Variation Routines   Close

3560 - Variation Routine Monitor

Result | **State**

	VAR	VR	Description	On entry	On exit
◇	1	5	Test for a single MSS flag	True	False
▭	2	36	Read action list	False	False
◇	3	5	Test for a single MSS flag	True	False
▭	4	36	Read action list	False	False
▭	5	40	Prevent new DA alarms	False	False
○	6	10	RESET	True	True
◇	7	82	Test for an XSF flag	True	False
▭	8	25	Apply an XSF flag	False	False
▭	9	57	Master Isolated	False	False
○	10	10	RESET	True	True
	11	97	Comment	True	True
—	12	25	Apply an XSF flag	True	True
—	13	37	Composite Test VR	True	True
—	14	87	Demand a phase	True	True
—	15	37	Composite Test VR	True	True

Variation Routines   Close

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Changes - 12

Serial communications @300 bps is supported

- When serial communication speed is set to 300, or LOWBPS command is set to TRUE for entire region;
  - SCATS no longer sends an RPS request for pedestrian status every second
  - Controller log entries are not uploaded and saved to the regional computer's daily log files
  - Signal group data is not requested every second unless a signal group SI is defined at the intersection, or the intersection is being monitored in SCATS Access, or a variation routine is testing for signal groups (VR4 and/or VR37)
  - When signal group data is not being requested, signal group changes will not be included in the history file nor will signal group states be saved when an SC, LC and IH alarm is generated

- New command – action list only
  - LOWBPS! enables 300 bps limitation in entire region – regardless of communication type
  - LOWBPS/ clears it.

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Changes - 13

Clearing fallback reloads the plan

- When a fallback is cleared, split plans will be reloaded for the all sites in the subsystem

Clearing BD alarm reloads the plan

- when BD alarm is cleared by user and BD alarm was caused by active plan settings (PL0, PP, or stretch)

- SCATS reloads the selected/voted split plan

Plan vote calibration factor is increased from 127 to 200.

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Changes - 14

Walk clearance time increased

- Walk clearance time used to be 50 seconds (CL1 + CLR2), now it is increased to be max 100 seconds.

- In order to control phase termination, intergreen max time is also increased to 63 seconds

Phase gap event changed in the history file

- Two discrete events are now captured compare to single event in IDM equivalent operation, these are;
  - SCATS permits phase to gap
  - Controller gaps and moved to next phase.

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Changes - 15

SCATS Access – removed dialogues

- RAS (modem) support from Access removed

  - Accessing to corporate networks via encrypted modem is no longer supported.
  - SCATS Security Audit recommendation, this feature opens back-door access to the corporate networks, and therefore it shall be retired.

- Redundant "Action List Import" dialogue

SCATS Access - session authentication enabled!

- Each GUI client is now uniquely identified and authenticated; any bad client connection/data changes are rejected

- Backward compatibility is allowed – not for the <u>Next Commercial Release.</u>

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Changes - 16

Limitation of number of VR - revised and corrected!

The number of TC schedules

- Increased from 250 to 500

Detector file additionally includes

- Daily estimated MF records

- No volume data measurements are no longer marked as BAD DATA

- Data is recorded as it is reported by controller, even it is marked as BAD DATA or DA is raised.

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Changes - 17

SA gain control

- Only during Masterlink excluding the Master Isolated operations

Changes related to controller type

- VC6.2 is now supported (VC6.1 + VC5.1)

Restrict the messages sent to the controller during the validation sequence

- CSM, NXP, HEL, RSY & SYN only.

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Resolved issues - 1

Daily detector profile update stopped

- Detector profile update – takes place each midnight - based on previous day detector readings has been stopped since 6.9.3.21 release due to format change in detector file – this has been corrected.

- Detector estimation never worked in 6.9.3 CR, this is now resolved.

A VC6 controller can crash a region if VS data is required by an ITS client

- Number of detectors supported by VC6 is now 48 and doesn't fit in ITS VS file and ITS VS message. VS file was coded correctly while ITS message was compiled incorrectly and could cause crashes depending on which slot resides – SIL crashed on 28 and 29 August 2017, 20 October 2017.

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Resolved issues - 2

VR43 - user defined minimum (bay) times was not implemented correctly in SCATS6

- When a user specifies a minimum time, the highest turn DS has to be 80% or larger to be accepted. As SCATS was always using a value of zero, any DS would be accepted as long as it was higher than the opposing right turn DS. In other word, B and/or C was introduced in low traffic.

A long dwell applied by ITS dwell

- ITS port accepts an invalid time parameter that causes a long dwell, up to 22 days, to be applied.

- ITS interface is now modified to response with error code of 7 in the reply to indicate the duration has been limited to 90 seconds (default). This value will be a configuration parameter as part of Dwell policy.

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Resolved issues - 3

History file, events missing/incorrect

- Modification of sites i.e. new, delete, and change events are now recorded in history file

- IH alarm code recorded incorrectly

- MSS changes when site is not monitored, VR5, VR9, or VR50 not defined

Parked/suspended sites will not cause SS fallback

- When a new site is created, SCATS sets it as parked. If site belongs to a subsystem, and propagate fallback is set, and new site is not communicating, it used to force subsystem to go to fallback, this has been corrected.

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Resolved issues - 4

Route Pre-emption times out

- When users perform other queries, and many database transactions are in progress, route pre-emption dialog was closed reporting session time-out.

User credential updates closes Route Pre-emption dialogues

- Any user credential update forces closing all open RPC dialogues, this has been corrected.

Google Earth – link is broken

- Google decided to move where the applications are installed.

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Resolved issues - 5

User with Level 0 can't log out

- Access doesn't show a user login when user level is 0, incorrectly assessing as not yet logged in, this has been corrected because it is a valid requirement that a system manager may force all users to login while some can't change/modify any action.

Region purge causes database errors

- After deleting a region, 5 working days; central manager fails to purge related configuration entries from CONFIG table, this has been corrected.

TDD, when the name exceeds 57 characters

- crashes the Central Manager!

Any questions?