

# ECS Configuration Change Request

1. Originator John Cockey	2. Log Date: 9/25/98	3. CCR #: 98-1047	4. Rev: -	5. Tel: X4028	6. Off: 3014	7. Org. DEV
8. Title of Change: Update the Spatial Query Server COTS Startup Script to the baseline config at all DAACs.						
9. Originator Signature <i>[Signature]</i>	10. Date: 9/25/98	11. Class II	12. Type: CCR	13. Need Date: 9/25/98		
14. Office Manager Signature <i>[Signature]</i>	15. Date: 9/25/98	15. Date CCB Decision Needed: 09/25/98	17. Category of Change: Update Baseline	18. Priority: Emergency		
19. Documentation/Drawings Impacted: None 914-TDA-040 Rev:00		20. Schedule Impact: None		21. CI(s) Affected: DSS SDSRV COTS		
22. Release Affected:	23. Date due to Customer: ASAP	24. Impl. Date: ASAP	25. Effectivity of Change:	26. Est. Cost None		
27. Source Reference: <input checked="" type="checkbox"/> NCR (attach) <input type="checkbox"/> Action Item <input type="checkbox"/> GSFC CCR <input type="checkbox"/> Tech Ref. <input type="checkbox"/> Other: NCRs 17955 and 18021 (see attached hardcopy).						
28. Description of Change: (use additional Sheets if necessary) Update the Spatial Query Server (SQS) COTS Products Startup scripts to sync up with the baselined and recommended startup parameters.						
29. Proposed Solution: (use additional sheets if necessary) Distribute the RTSC owned script sqs_222 from the EDF to DAACs to be installed by the DAAC DBAs. This is critical to ensure that the SQS product is started with the "-u 125" (number of concurrent users) and the "-e /unix path name" (logfile pathname) parameters. The EDF and mini-DAAC have run with these setting for more than one year. The scripts located at the DAACs do not have the "-u" parameter. SQS's default number of concurrent logins is 25 - which is no acceptable for multiple concurrent SDSRV modes, with any mode using Drop 4pX code baseline Scripts not currently under CM control and should be. <i>[Signature]</i> <i>Clearcase</i>						
30. Alternate Solution: (use additional sheets if necessary) None						
31. Consequences if Change(s) are not approved: (use additional sheets if necessary) DAAC will be restricted to ONE Drop 4PX SDSRV mode in operation at any given time.						
32. Does Change Affect Any of the following (Please Explain on additional sheet): <input type="checkbox"/> Maintenance Training <input type="checkbox"/> Performance <input type="checkbox"/> Operation Training <input type="checkbox"/> Safety <input type="checkbox"/> Service <input type="checkbox"/> Support <input checked="" type="checkbox"/> Test <input type="checkbox"/> Baseline (XRP) <input type="checkbox"/> Y2K Compliance						
33. Organization(s) Affected: <input checked="" type="checkbox"/> CM <input checked="" type="checkbox"/> Clearcase SG <input type="checkbox"/> Contracts <input type="checkbox"/> Chief Eng <input type="checkbox"/> FOS <input type="checkbox"/> M&O <input type="checkbox"/> QO <input type="checkbox"/> Rel Dev <input type="checkbox"/> Procurement <input checked="" type="checkbox"/> RTSC <input type="checkbox"/> Sci. Data Eng <input type="checkbox"/> Security <input type="checkbox"/> Sys. Dev. <input type="checkbox"/> Sys. Eng. <input type="checkbox"/> Sys Verf Acpt <input type="checkbox"/> Other						
34. Site(s) Affected: <input checked="" type="checkbox"/> EDF <input type="checkbox"/> Mini-DAAC <input checked="" type="checkbox"/> VATC <input checked="" type="checkbox"/> EDC <input checked="" type="checkbox"/> GSFC <input type="checkbox"/> LaRC <input checked="" type="checkbox"/> NSIDC <input checked="" type="checkbox"/> SMC <input type="checkbox"/> AK <input type="checkbox"/> JPL <input type="checkbox"/> EOC <input type="checkbox"/> Other						
35. Board Comments: NCR Status needs to be updated. (R. Miller)				36. Work Assigned To:		
37. Release Authorized (For CM Use Only): <input type="checkbox"/> Yes <input type="checkbox"/> No			38. CM Verified/Signature and Date			
39. EDF/REL2 CCB Chair (Sign/Date): <i>[Signature]</i> 10/2/98		40. Disposition: <input checked="" type="checkbox"/> App <input type="checkbox"/> Ap/C <input type="checkbox"/> DisApproved <input type="checkbox"/> Withdraw <input type="checkbox"/> Fwd/ECS <input type="checkbox"/> Fwd/ESDIS		41. ESDIS ERB Concurrence:		
42. ECS CCB Chair (Sign/Date):		43. Disposition: App <input type="checkbox"/> A/C <input type="checkbox"/> DisApproved <input type="checkbox"/> Withdraw <input type="checkbox"/>		44. CCR Closed Date:		

# ORIGINAL

**914-TDA-040-REV01**

**EOSDIS Core System Project**

**Spatial Query Server (SQS) 2.2.2.29A  
Maintenance Upgrades  
for the ECS Project**

Installation and Release Notes

October 2, 1998

Raytheon Systems Company  
Upper Marlboro, Maryland

**ORIGINAL**

## Abstract

---

Appendix D is an addendum to the original document. Appendix D provides details of the update to the Spatial Query Server (SQS) COTS Products Startup scripts.

# Contents

---

<b>1. Introduction</b> .....	<b>1</b>
1.1 Purpose.....	1
1.2 Scope.....	1
<b>2. Related Documentation</b> .....	<b>2</b>
<b>3. General Product Description</b> .....	<b>3</b>
3.1 Product Description and Capabilities.....	3
3.2 Subsystem Impacts.....	3
<b>4. Inventory</b> .....	<b>4</b>
<b>5. Non-Conformance Status</b> .....	<b>5</b>
5.1 Closed NCRs.....	5
5.2 Open NCR.....	5

**Appendix A. Adaptation Data**

**Appendix B. Installation Instructions**

**Appendix C. Test Procedures**

**Appendix D. SQS Startup Script Update**

# 1. Introduction

---

## 1.1 Purpose

This document describes changes to the ECS COTS Software Baseline. This document describes the installation and verification of SQS 2.2.2.29A. The tar file will be distributed for installation at all the DAAC sites.

The information conveyed by this document includes:

- identification of the new version release and the delivery of the tar file to the SMC
- identification of the software version 2.2.2.29A
- description of ECS specific installation instructions
- identification and tracking of vendor documentation released with the tar file
- identification of the known bugs delivered with this COTS package

## 1.2 Scope

This document describes the contents of the COTS delivery that will be made available to all the DAACs. The document identifies the baseline upgrades, software versions, and locations of the installed COTS products. It also provides an inventory of the delivery, and special operating instructions where applicable.

The following files will be delivered to the SMC for distribution to ALL DAACs:

sqs222\_29a\_sgi.tar

sqs222\_29a\_sgi.chksum

sqs222\_29a\_sgi.rpt

CCR number and title:

CCR 98-0863      Maintenance upgrade from SQS 2.2.2 to 2.2.2.29A

## 2. Related Documentation

---

910-TDA-003: REV 05      COTS Software Version

## 3. General Product Description

---

### 3.1 Product Description and Capabilities

Spatial Query Server (SQS) is a state-of-the-art, multithreaded database engine which supports:

- the definition of spatial datatypes (e.g., point, line, polygon)
- a set of spatial operations for these datatypes (e.g., intersect, inside, outside)
- a spatial indexing schema for efficient data retrieval <sup>1</sup>

*Note:* SQS is Year 2000 compliant when linked with a compliant version of Sybase Open Server.

### 3.2 Subsystem Impacts

The following subsystem/CI was affected:

DSS/SDSRV

---

<sup>1</sup> Spatial Query Server Reference Manual Version 2.2. Visions International, Autometrics Inc. 1995

## 4. Inventory

---

SQS 2.2.2.29A files:

```
326 sqs222_29a_sgi.chksum
1760 sqs222_29a_sgi.rpt
12851200 sqs222_29a_sgi.tar
```

The sqs222\_29a\_sgi.tar includes the following files:

```
0 ./
0 ctez/
2181 ctez/ctez.h
14575 ctez/ezttest.c
33092 ctez/libctez.a
0 sqs/
1017 sqs/README
0 sqs/bin/
4815 sqs/bin/correct.error
20 sqs/bin/help-tem.rpt
21773 sqs/bin/help-tem.sql
6709 sqs/bin/help-tem.txt
4249 sqs/bin/incorrect.error
2737564 sqs/bin/sqsbcp
7114 sqs/bin/sqsprocs.txt
62330 sqs/bin/sqsprocs10.sql
184 sqs/bin/sqsprocs11.rpt
61872 sqs/bin/sqsprocs11.sql
2138072 sqs/bin/sqsserver
2138072 sqs/bin/sqsserver.new
2117592 sqs/bin/sqsserver.noAttention
2117592 sqs/bin/sqsserver.old
0 sqs/samples/
12360 sqs/samples/county.sqs
27336 sqs/samples/usa.sqs
169 sqs/sqs.csh
1318517 sqs/sqs_222.log
```

## 5. Non-Conformance Status

---

### 5.1 Closed NCRs

**NCR ID:** ECSed11695

**Title:** Sybase SQL Server e0acg01\_srvr

**Severity:** 2

**Problem:** Tuesday 1/27/98 at approximately 6:00pm we encountered a data integrity problem with the Sybase SQL server e0acg01\_srvr on ecacg01. There were records in the table DsMdFileStorage table, found in theEcDsScienceDataServer1\_TS2 database, that should have been rolled back rather than committed.

Upon speaking with John Cockey at Landover, MD, we rebooted the Sybase SQL server, killed the Spatial Query Server, and then restarted both. John that there is an issue between Sybase SQL Server and SQS that causes one of the applications to lose count of the transactions. In the instance of a commit, it is possible that only the last insert will actually take place. During a rollback, all but the last insert will be rolled back, leaving a stay record inserted. John and I discussed the transaction logic in the code itself, and believe that the code should be accurate.

This problem happened approximately six months ago, and a solution was NOT determined at that time. We are not sure what triggers this problem, so it is very difficult to reproduce. There is not an easy solution to this problem, but this is very important. This creates data integrity issues. The severity of this problem is difficult to understand at this time, but if it happens here, it could easily happen elsewhere if SQS is used.

I am recommending a Level 1 NCR be created based upon this information. Data integrity is key in any application. We also lack documentation concerning SQS. If we are to maintain this product, it is important that we have user's manuals, troubleshooting guides, etc.

**Resolution:** Vision/Autometrics, vendor of Spatial Query Server delivered a new version of the COTS. The new version was extensively tested in the EDF.

CCR 980818 was approved to install this in the mini-DAAC.PSR scheduled for week of 7/20/98.

### 5.2 Open NCR

**NCR ID:** ECSed13796

**Title:** SDSRV fails spatial query with multi-valued attributes

**Severity:** 2

**Problem:** When SDSRV receives a query containing a constraint against a plural SDT and another constraint against a multi-valued attribute, it receives an error from the SQS. There is an internal bug within SQS that causes this to fail.

See my email to the AO describing this problem and possible solutions.

**Resolution:** Explanation will be made in SQS c.f. ccMail from Andy Newton, 4/17/98:

Subject: Re[7]: SQS bug: OR'ing Gpolygon and MVAs (NCR 13796)

To record the intended solution for this (NCR 13796):

In a meeting on 4/9 Fred Friedman from the SQS vendor (Vision International) and Bob Hartranft agreed on a viable technical solution SQS. Fred estimated the fix as two weeks work and was very positive that it would be viable and successful.

Right now this fix is not high priority for us as it is not needed before drop 5 (Client capability to hit the bug) [To the best of my knowledge BOSOT can't generate queries which will hit this problem but that needs confirmation by someone who knows more about BOSOT than I do]. Also we need to role various SQS updates together into a minimal number of deliveries so it will go into that planning too.

*ACTIONS:*

Andy: To confirm with Vision (Fred) that the fix is still considered viable and determine a date by which the project needs it. This will be based on the assumption of 'not before Drop 5' unless I hear to the contrary.

Bob: Ensure this problem is logged through our maintenance contract for SQS with Sybase. I think there is value in them knowing about it and tracking it also.

Bob: Can you also update the ECS NCR (13796)?

(Finally this does not mean that, for other reasons, we don't anyway need to add a simplified polygon to SDSRVs spatial storage, i.e., a "scalar" polygon4 or polygon6 etc. but that is another issue).

## Appendix A. Adaptation Data

---

*Not Applicable*

# Appendix B. Installation Instructions

---

## B.1 Installation Instructions (ECS Specific)

Install SQS 2.2.2.29A on SSI&T machines:

- journey (Mini-DAAC) - accomplished 7/20/98 by CCR 98-0818 "Install Spatial Query Server 2.2.2 version 29\_A" (for mini-DAAC only).
- t1acg01 (VATC)
- g0acg01 (GSFC)
- e0acg01 (EDC)
- n0acg01 (NSIDC)
- 10acg01 (LaRC)

Install SQS 2.2.2.29A on science processor machines:

- journey (mini-DAAC) - completed. See above.
- t1acg01 (VATC)
- g0acg01 (GDAAC)
- e0acg01 (EDC)
- n0acg01 (NSIDC)
- 10acg01 (LaRC)

## B.2 Vendor Information and Installation Instructions

### B.2.1 Platforms Supported in SQS 2.2.2.29A

SQS 2.2.2.29A supports the following OS versions (and later):

Silicon Graphics Inc. IRIX Version 5.2

### B.2.2 Installation Instructions

Silicon Graphics IRIX

Log into UNIX with the "admin" account ("root" or equivalent")

Step 0. Bring down any instances of Spatial Query Server 2.2.2.

Step 1. # cd /usr/ecs/OPS/COTS/sqs222/sqs/bin

Response: next Unix prompt is returned.

Step 2. # mv ./sqsserver sqsserver.222

Response: next Unix prompt is returned. Old executable file is renamed.

Step 3. copy new sqsserver binary from media. Ensure that the ownership and execute permissions are correct as the old executable (now sqsserver.222). The old executable file sqsserver.222, should be retained for a short period of time to ensure fall-back position if needed. The old executable may be deleted when the disk space recovery is performed.

### **B.2.3 Documentation for SQS 2.2.2.29A**

Documentation for SQS 2.2.2.29A remains the same as for the baselined version. No changes were required.

Contacting Vision International, Autometric Inc.

Autometric, Inc.

7700 Boston Boulevard

Springfield, Virginia 22150

Phone: 207-945-6353

Fax: 207-942-9815

E-mail (internet): ts@autometric.com

## Appendix C. Test Procedures

### EDF Evaluation Plan/Report

Technology Area:	Software Development	Date:	05/26/98
Requester:	John Cockey	Report No.:	CCR 98-____
Proposed Evaluation Group:	John Cockey, Development Functionality lab		
Applicability to ECS:	COTS product required for spatial searching of metadata within SDSRV		
Reason Needed (Issue, need or risk):	NCR 11695 - Failure of Spatial Query Server to update error status when Sybase connection is lost		
Office:	Development	Office Manager:	_____
		Signature	Date
1. Product Description:	Spatial Query Server - SQS 2.2.2 Patch 29-1A		
1.1 Hardware/Platform Requirements: (consider operating system revision level)	SGI Platform in EDF (comanche)		
1.2 Media Requirements:	N/A		
2. Vendor: (company name, address, etc.)	Autometrics Newington, VA		
2.1 Company Background:	Vendor of currently baseline SQS version 2.2.2		
2.2 Point of Contact:	Fred Friedman	2.3 Phone Number:	(703) 923-4231
2.4 Fax Number:	N/A	2.5 Email Address:	N/A
3. Evaluation Plan - Phase 1 -	Run set of basic SQS functionality. When successful, run in Functionality Lab.		
3.1 Date Needed:	ASAP		
3.2 Length of Evaluation: (please check one)	15 Days <input checked="" type="checkbox"/> 45 Days <input type="checkbox"/> 60 Days <input type="checkbox"/> 90 Days <input type="checkbox"/> Other <input type="checkbox"/>		
3.3 Product Price:	Covered under maintenance agreement.		
3.4 EDF hardware, software and network requirements:	SGI platform "comanche". Separate SQS server installation. CCR has been approved.		
3.5 Schedule:	Complete testing and evaluation by June 19.		
3.6 Projected number of hours to be charged by each evaluator:	40		
3.7 Evaluation Criteria:	Must be regression tested without issues. Must return appropriate error status when Sybase connection is lost.		
4. Assessment of Product	Product meets existing baseline version criteria plus resolves known problem for NCR 11695.		
4.1 Evaluation Against Criteria:	Evaluation successful - Recommend deployment to VATC and DAACs		

<p>5 Summary of Results: Product successfully regression tested both using basic functional feature testing and over a period of time in the Integration lab environment. Results identical to baseline version 2.2.2.</p> <p>Resolution to NCR 11695 was satisfactory - Client program alerted to loss of SQS system (database) connection per specification in the NCR.</p>
<p>Review Committee Comments:</p>
<p>Priority:</p>
<p>Disposition:</p>

SC01SE95

ECS

## Appendix D. SQS Startup Script Update

---

### D.1 Patch Description

The update of the SQS COTS Products Startup scripts is needed to sync up with the Drop 4PX baselined configuration at all DAACs and recommended startup parameters. Refer to NCRs 17955 and 18021 for a complete problem description. The CCR associated with this release is CCR No. 98-1047.

### D.2 License Impacts (Summary)

No license key is required for SQS COTS Products Startup scripts.

### D.3 Tar File Listing

The following magnetic tape was used to archive the files for the SQS patch delivery:

#### Tape No. 1170

<u>Checksum</u>	<u>Blocksize</u>	<u>Filename</u>
14261	3	/sqs222.daac
26563	4	/sqs222.daac.README
53367	11	/sqs_startup.tar
7264	1	/sqs_startup.tar.listings

### D.4 NCR Reports

#### D.4.1 Closed NCRs

There are no closed NCRs related to this patch.

#### D.4.2 Open NCRs

**NCR ID:** ECSed18021  
**Title:** Number of User Connections reached  
**Severity:** 1  
**Problem:** We kept getting "The number of connections have already been opened" error every time we bring up the GUI "EcDsSdSrvrGUI" to add esdts.  
**Note:** Need to reboot sqs server at least once a day to clean old processes.

9/22/98 -

This is a SQS server configuration /startup problem. GSFC has the incorrect SQS startup script. All DAACS should be using the one derived from the Landover EDF SQS startup script with the Login Configuration parameter of 125.

See the Problem Enclosure in NCR 17955 has more details for this problem. I am forwarding to SysBld to determination who the SQS Startup script owner is for resolution.

**NCR ID:** ECSed17955  
**NCR Title:** Number of DB connections max out very frequently  
**Severity:** 2  
**Problem:** Error message saying "Number of DB connections have all been used. This is in the Science Data Server log files on g0acs03 in TS2 mode. Workaround: which is not good is to recycle the SQL server.

9/22/98 -

After lengthy consultation with GSFC personnel, determined that the Spatial Query Server (SQS) startup script used to start the SQS at GSFC was not current. This script did not contain the correct number of connection parameter (125) documented and recommended for ECS.

The messages described in this NCR is a direct result of this issue. SQS takes the default number of connections as 25. GSFC has been running with this setting presumably for some time. This has been sufficient for SDSRV until recently when Drop 4PX as installed.

Prior to Drop 4PX, SDSRV opened 3 connections. The Drop4PX SDSRV opens 15 connections, which combined with other modes exceeded SQS's default limit.

GSFC has been informed of the correct settings/startup script. The correct script needs to be delivered to all DAACs. Currently RTSC owns the Landover SQS startup script. Please forward to the correct POC for the SQS startup scripts (I don't think that's Development, but not sure).

The NCR is also associated with NCR 18021.

Also found in this investigation that GSFC has g0acg01\_svr Sybase SQL Server connections set to 110 - which really shouldn't be less than the number of SQS logins.

## D.5 SQS Startup Script README File

File Name: sqs222.daac.README

SQS Startup script README 9/25/1998 - Clarence Pinto

---

- 1) Log on to the machine that has SQS on it.
- 2) tar -xvf sqs\_startup.tar  
(This tar file contains this file & sqs222.daac file)
- 3) Check to make sure the following directories are correct and exist:  
  
    Sybase       - /usr/ecs/OPS/COTS/sybase  
    SQS 222     - /usr/ecs/OPS/COTS/sqs222
- 4) Make sure you have a file called "sp" in /usr/ecs/OPS/COTS/sybase  
    This file should be owned by "sybase" and readable by "sybase" ONLY  
    and should contain sybase "sa password"
- 5) Make sure your have the file called "ctlib.loc" in /usr/ecs/OPS/COTS/sybase/locales/us\_english/iso\_1/  
    If you don't, copy the file from:

/tools/sybOCv11.1.0/locales/us\_english/iso\_1/  
You should log in as "sybase" to do this.

- 6) Make sure "uname -n" command gives you your UNIX machine name
- 7) Make sure the "DSLISTEN" and "DSQUERY" variables are correct.
- 8) Rename file sqs222.daac to sqs222
- 9) If you already have a file in /etc/init.d called sqs222, rename that file.
- 10) Copy the file sqs222 to /etc/init.d and should be owned by "root" and should have read, write & execute permissions for "root" ONLY.
- 11) Create a startup link in /etc/rc2.d

eg. ln -s /etc/init.d/sqs222 /etc/rc2.d/S99sqs222

(Make sure that the line in /etc/rc2.d for Sybase is S98sybase or lower)

- 12) Create a stop link in /etc/rc0.d

eg. ln -s /etc/init.d/sqs222 /etc/rc0.d/K20sqs222

(Make sure that the line in /etc/rc0.d for Sybase is K19sybase or higher)

- Note:**
- i) System Administrator has to perform Step (9 through 12)
  - ii) This script has to be executed AFTER sybase script at startup and BEFORE sybase script at shutdown.