



Sunrise 5.0 XA System Maintenance
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Introduction

In order to maintain the highest levels of system performance for your Sunrise 5.0 XA system, certain tasks and assignments should be completed on a regular basis.

The database administrators and system engineers should work with the various Information Technology teams to ensure that the servers, databases, hardware and software for the Sunrise 5.0 XA system are continuously monitored and maintained for optimized performance levels.

The following article lists several tasks that should be performed on a daily, weekly, monthly, and quarterly basis in order to ensure that the Sunrise 5.0 XA system is consistently performing at optimal levels. The list of tasks provided in this article is not intended to be a complete list and different sites may have additional tasks depending on which Sunrise XA applications and services are installed.

Daily System Maintenance

The following is a list of *Daily Tasks* that should be performed on the **Sunrise XA Application** servers:

- Verify that all Sunrise services are started in the Sunrise Services Administrator on the active cluster node.
- Verify that all cluster resources on the active cluster node are online for the Sunrise XA services.
- Verify that all HL7 connections are active and connected and that the HL7 Executive, HL7 Manager, and Log Writer services are all running in the Management Console on the active node for the Sunrise XA Consolidated server.
- Verify that the cluster resources for the HL7 services are all online in the Cluster Administrator.
- Verify that all other necessary services and cluster resources are started and online for all Sunrise XA application servers.
- Verify that all Sunrise XA services, batch jobs, and HL7 log files are archived daily.
- Review the HL7 private queues and verify that none of the queues have a large back log of messages waiting to be processed.
- Review the HL7 Log Viewer on the active node of the consolidated servers and work with the interfaces team to have any failed HL7 messages re-sent as needed.
- Review the HL7 log manager files, verify if there are any errors, and then work with the interface team to re-configure and re-send messages as needed.
- Review the Orders, Reports, CDS, and Meds Management log files and work with the appropriate teams to re-submit any failed orders or reports as needed.
- Review the auto-discharge and order status update logs and verify that the batch jobs are successfully completing during their scheduled times.
- Review the event viewer logs on all Sunrise XA servers and resolve any errors.
- Review disk management and the cluster administrator on the active node for all Sunrise XA application servers and verify that all disks are active and online and that there is enough free space available for each disk.
- Run performance monitor and verify that all performance levels for the Sunrise XA servers are within acceptable levels as compared to baseline measurements and as recommended by Eclipsys and Microsoft.
- View the memory usage values in task manager and verify that none of the Sunrise XA services are consuming too much memory.
- Work with the networking team to monitor network traffic and speeds to and from the Sunrise XA servers.
- Verify that the eLink translators are all in a status of running and that there are not too many messages in the queues on the eLink servers.
- Review report jobs in Report Manager and verify that there are not a large number of reports that are failing or that are in a server pending state.
- Review printer queues on the print server and verify that no printer queues are offline and that all print jobs are passing through the printer queues without major delays.

The following is a list of *Daily Tasks* that should be performed on the **Sunrise XA SQL servers and databases**:

- Verify that all SQL services are in a started state on the active node for all SQL Servers.
- Verify that all cluster resources in the Cluster Administrator are online for all appropriate SQL Server services on the active cluster node.
- Review SQL services on the SQL Server Reporting Server and verify that all SQL reports are being processed.
- Review the event viewer logs on all SQL servers and resolve any errors.
- Review the SQL Server Logs and resolve any errors.
- Review disk management and the cluster administrator to verify that all disks are active and online and that there is enough free space available for each disk.
- Run Performance Monitor and verify that all performance levels (memory, CPU utilization, Disk I/O, etc...) for the SQL servers are within acceptable levels as compared to baseline measurements and as recommended by Eclipsys and Microsoft.
- Run SQL traces and compare with performance monitor measurements to verify if there are any performance issues.
- Review memory usage in task manager and verify that none of the processes are consuming too much memory.
- Work with the networking team to monitor network traffic and speeds to and from the SQL servers.
- Verify that there are no blocking transactions or deadlocks in the SQL databases.
- Verify that the nightly database backups complete successfully and that transaction log backups are successfully completing during the scheduled times.
- Review Job Activity Monitor in SQL Server 2005 Management Studio and verify that all scheduled jobs are running successfully and that there are no jobs that are failing.
- Review the Activity Monitor in SQL Server 2005 Management Studio and verify that there are no processes that are causing extensive blocks or deadlocks and that there are no processes with high levels of wait time, resources, CPU, Physical I/O, or memory usage.
- Verify that all necessary alerts are set up and running correctly and that database administrators are notified when any SQL jobs fail or when certain thresholds are met within the Sunrise XA queue and reporting tables as well as for certain performance monitor counters.
- Review all static information for the Sunrise XA SQL Server and databases by using various DMV's and DBCC commands. Some examples are as follows:
 - execute xp_msver,
 - execute sp_configure,
 - DBCC memorystatus,
 - dbcc sqlperf(spinlockstats),
 - DBCC Sqlmgrstats,
 - DBCC cachestats,
 - DBCCProccache,
 - DBCC sqlper(logspace) with_no_infomsgs,
 - select * from sys.dm_os_performance_counters.
- Review current, dynamic information for the Sunrise XA SQL server and databases by using various SQL queries and DMV's. Some examples are as follows:
 - execute sp_who2,
 - select * from sys.dm_exec_connections,
 - select * from sys.dm_exec_sessions,
 - select * from sys.dm_exec_requests,
 - select counter, occurrence, value from sys.dm_exec_query_optimizer_info
- Confirm that there is enough free space in the database data and log files for the Sunrise XA databases as well as for the tempdb database data and log files.
- Verify the amount of free SAN disk space available for each Sunrise XA database and tempdb data and log files and plan to increase the number of files and SAN disks as needed.
- Monitor and document growth of all Sunrise XA databases and plan for an increase in the number of SAN disks in order to prepare for future growth demands.
- Verify that the appropriate Sunrise XA queue tables are purged on a regular basis according to the schedules defined in Eclipsys Solution case S53062.
- Use the following query to review the HVCReportHistory, HVCSubmittedReport, and HVCRequestedReport tables and confirm that all reports are successfully processing:

```
select rh.completionstatusinfo, rh.reportserver, rh.crfilename, sr.frequency, DateDiff(ss, rr.CreatedWhen, rr.TouchedWhen) 'Age(s)', * from hvcreporthistory rh (nolock)
```

```

left outer join hvcrequestedreport rr (nolock)
on rh.requestedreportguid = rr.guid
left outer join hvcsubmittedreport sr (nolock)
on rr.submittedreportguid = sr.guid
where rh.touchedwhen > dateadd(hh, -(24), getdate())
-- Uncomment the two datepart lines below to view report history for specific times
--and datepart(hh, rh.touchedwhen) >= 05 -- enter starting hour here
--and datepart(hh, rh.touchedwhen) < 08 -- enter ending hour here
and rh.completionstatusinfo not in('Report successfully processed', 'The operation completed
successfully')
order by rh.touchedwhen desc

```

- Execute any necessary SQL Server Integration Services (SSIS) packages during off-peak hours and extract requested Sunrise XA data into spreadsheets or non-Sunrise XA databases for approved users to view and query.
- Verify replication synchronization (if replication is installed) and confirm that there are no major delays in synchronization.

Weekly System Maintenance

The following is a list of tasks that should be undertaken on a *weekly* basis:

- Work with Desktop Services to verify when new Sunrise XA workstations are added to the domain and then confirm that the new workstations are added to the Workstation list in Sunrise XA Configuration Tools as well as in Enterprise Administrator.
- Work with Desktop Services to verify when any new Sunrise XA printers are added to the domain and then confirm that these printers are added to the logical printers list in Sunrise XA Configuration Tools as well as to the printer queue list on the print servers.
- Refresh the Train databases as needed (This should be from a master copy of the Train databases that contain all updated configuration and training data for use by the trainers).
- Move archived HL7 and Sunrise XA services log files to external disks or CD's as needed for long-term archiving purposes.
- Check for and fix any corrupt user profiles.

Monthly System Maintenance

The following is a list of tasks that should be done on a *monthly* basis:

- Refresh Stage, Development, and Test with a recent copy of Production and then re-build the Sunrise XA environments as needed.
- Run checks in Stage against the most recent copy of production in order to verify the integrity and consistency of the Sunrise XA Production database.
- Run the following dynamic management view in Stage against the most recent copy of production in order to verify fragmentation levels of the Sunrise XA tables (Please see Eclipsys Product Advisory S44934 for more information):

```

Select object_name(object_id), * from sys.dm_db_index_physical_stats(DB_ID(N'Database_Name'), NULL, NULL, NULL, 'Limited')

```

- Re-boot and fail-over all Sunrise XA servers as needed during a scheduled downtime.
- Perform a re-index of those tables with a fragmentation level above 40% as detailed in Eclipsys product advisory S44934.
- Apply in production any necessary Sunrise XA Hotfixes and/or service packs that have been thoroughly tested in Test and Stage.
- Perform Microsoft updates on all Sunrise XA servers once they have been thoroughly tested in Test and Stage.
- Apply the *Multum* monthly updates in Production once they have been thoroughly tested in Test and Stage.
- Verify and then update BIOS and firmware levels on all Sunrise XA servers as needed.
- Record all server updates in the Server logs with a description of the updates as well as the date and time the updates are performed in each environment.

Quarterly System Maintenance

The following is a list of tasks and assignments that should be performed *every three months* or as needed:

- Perform a full Re-index of the Sunrise 5.0 XA Master Active database (as needed).
- Perform a mock Disaster Recovery of the Production Sunrise 5.0 XA environment and document the issues encountered, times taken to complete each step, and lessons learned (as needed between three to six months).

Conclusion

The Sunrise 5.0 XA system is an extensive set of servers, databases, hardware and software that must be monitored on a regular basis in order to ensure that high-levels of system performance are maintained.

Database administrators and system engineers should work with various teams within the Information Technology department in order to ensure that any issues within the Sunrise XA system are discovered and resolved as soon as possible.

As the database administrators, system engineers, and various other IT groups work together to complete the tasks and assignments listed in this article, the performance of your Sunrise 5.0 XA system will be optimized and your end-users will be able to successfully perform vital services that will help ensure a higher level of patient care and safety.

If you need more information on maintaining your Sunrise 5.0 XA system please contact VCS at vcs@getvitalized.com.