PNMsoft Knowledge Base

Sequence Administrator Guides

Sequence Maintenance Guide

June 2016
Product Version 7.0 and above

PNMSOFT
Business Processes in Motion™

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General Document Information

Purpose

The purpose of this document is to provide best practices for the maintenance of Sequence BPM solutions, including Preventive Maintenance, Health Checks and activities which promote better performance of Sequence and its components.

Prerequisites

- You should be a Sequence Administrator.
- You should have knowledge of Sequence components (SQL, SharePoint, Server Farm) and have Administrator rights for these components.

Methodology for Maintaining a Healthy System

There are several elements required to maintain a healthy Sequence solution. Paying attention to these elements can save your project from poor performance, errors and user complaints. A proper strategy will lead to a solution that functions well and happy users.

That's why it's important to devote time to organizing and implementing your Sequence maintenance strategy. In the following sections, we provide some specific guidelines for ensuring the success of this strategy.

We'll cover the following elements:

- Understanding Sequence components
- Preventive Maintenance
- Performing Health Checks
- Understanding and Reviewing Logs
- Troubleshooting and Support Model

Overview of Sequence Components

It's important to understand the main components of a Sequence setup, in order to maintain each component properly.

The following are the components of most Sequence solutions:

Websites

Sequence includes the following sites:

- Administration: An Administration interface which enables you to manage Sequence solutions, workflows, organization structure, connectivity to external systems and more. This is an independent web application.
- Flowtime: The runtime interface where end users operate, run, and manage their work on processes and cases. Flowtime is installed on SharePoint by default, but it can also be hosted in any web application.
- Process$^{TO\ GO}$: A light, mobile version of Flowtime that enables end users to perform many Flowtime actions on their mobile devices. A HTML5 portal that is an independent web application (Optional).

IIS

Standard Microsoft IIS is used as the management interface for Sequence websites.

SharePoint

By default, Flowtime runs within SharePoint. If you use this option, you must install SharePoint as part of the Sequence server topology.

Database

Sequence uses an MS-SQL database to store data and for all of its core functions. This database is installed as part of Sequence installation.

Windows Services

Sequence uses several Windows services as part of its functioning:

- BRS (Background Runtime Service)
- JES (Jobs Execution Service)
- ADSS (Active Directory Synchronization Service)

Server Topology

There are several possible server topologies, and these are outlined in this document:

http://members.pnmsoft.com/Online%20Help/Pages/Topologies%20for%20Sequence.pdf

Preventive Maintenance and Health Checks

There are several ongoing and periodic actions which you should take in order to maintain a healthy Sequence system. We present these checks in this section for the following components:

- Sequence
- SharePoint
- Servers
- Database

Note: The frequency of these checks depends on many factors, including number of instances per day, users, etc. Therefore, you will need to make an educated decision with the help of your Sequence implementation team or our Support Team regarding the frequency of these checks.

Sequence

- **Monitor running processes** - In Administration, open Handle Running Processes to check for any stalled or aborted processes. (This is especially important soon after going live, to catch errors that may have been missed during Testing).
- **Monitor number of instances** - In Administration, check the number of open/closed processes for each workflow (to do so, open the Workflow's dashboard). Pay attention if there are any extreme changes in this number.
- **Monitor Sequence Windows Services**:
  - Check that they are up and running using the services snap-in (check their state).
  - In the server event log, check the PANAM log for errors (in PANAM, you can filter by source).
- **Analyze end user feedback** regarding each of your workflows (e.g. complaints from users that actions are taking too long). Check if workflows with a high volume of support tickets can be improved.
- **Monitor logs** – check for errors in available sources (Event Viewer, execution logs, etc.). See more details in the following section.
- **Proactive Health Checks** – contact PNMsoft support team at least once a year in order to identify potential issues with:
  - Users in system tables
  - Workflow templates
  - Workflow instances (stuck, never-closing, etc.)
- **Set a web test** (using available tools in your organization) to ensure that the Flowtime site is up and running. Set a test on the main Flowtime pages and make sure they are available and respond in a timely manner.

SharePoint

See the following articles for maintaining a healthy SharePoint system:

https://technet.microsoft.com/en-us/library/ee681489.aspx

In addition to the recommendations in these articles above, perform the following:

- Check the Event Log for errors about SharePoint.
- Monitor the server disk space on a regular basis to ensure that there is at least 10% available space.

Servers

- Perform server maintenance according to the specifications of your supplier.
- Hardware should match PNMsoft recommendations (see the Sequence Installation Guide).
- Monitor the disk space for the disks in your system.

Note: if your organization is using a centralized monitoring tool, you should monitor issues such as CPU Usage, Available Memory, Disk Read and Write and more if required.

Database Maintenance

See the following articles for how to create a Database Maintenance plan:

https://msdn.microsoft.com/en-us/library/ms187658.aspx

https://msdn.microsoft.com/en-us/library/ms189953.aspx

Here are some additional recommendations:

- Consider adding indexes to UACT, UWF or UTCMB tables based on monitored table usage.
- Backup: Validate that you have a Database backup, and - IMPORTANT! - check that your backup can be restored.
- Keep the SQL server files (Database, transaction logs) on a separate medium from the system hard disc.
    - Configure transaction logs on a separate medium from the Database files.
- Monitor the disk space on a regular basis to ensure that there is at least 10% available space.
- Check the SQL event log for errors and warnings.
- Check and amend the maintenance plan.
    - Check job history to make sure there are no errors.
- Check the fragmentation level on the indexes.

Integration Activities

For each integration activity in your workflow, make sure you have proper compensation (with error handler or without).

Additional Performance Best Practises

Please consult the following article for an extensive set of performance best practices, which can make a very significant impact on your solution performance:

http://members.pnmsoft.com/Online%20Help/Pages/Performance%20Best%20Practices.aspx

Understanding Sequence Logs

Sequence generates several log files which you should periodically review for errors:

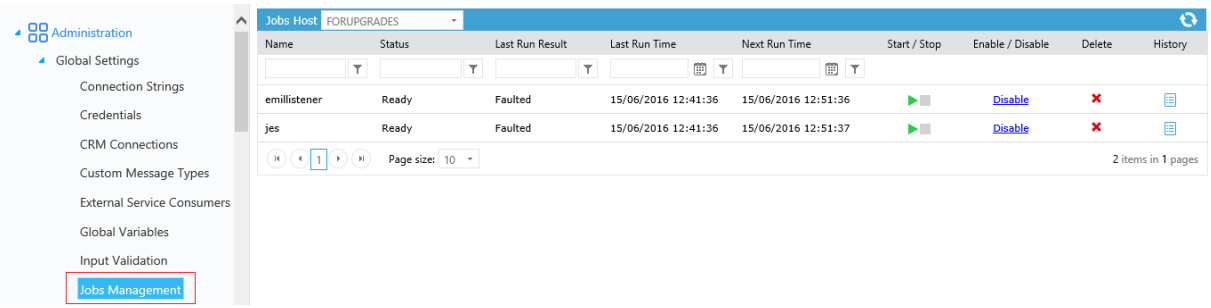
- Installer log – when running Sequence setup/upgrade installer
  - Available for viewing at the last step of the installer wizard.
  - Normally can be found on the server's temp folder (Start → Run → %temp%).
  - Log file name: "Sequence.log" / "sequenceupgrade.log" / "sequenceupdate.log".
  - Error indicator: "return value 3" (search for this string to find errors).
- Event Log (of each server)

  Note: if the organization uses a centralized monitoring tool, critical alerts should be gathered for all Sequence servers.

- Import/export log – when importing/export workflows
  - ~\Shared Resources\ImportLogs
  - ~\Shared Resources\ExportLogs
- Workflow execution trace log files (svclog) – when running workflow instances, each component of Sequence can generate execution trace logs, which are useful in isolating errors.
  - Enable Log files. See this article for enabling SVC log for Sequence sites and services. IMPORTANT: enabling SVC logs impacts performance. Therefore, you may decide to enable it only for troubleshooting purposes.
  - Use SVC Viewer to analyze the SVC log.
  - Review log files for errors and warnings.

  Note: These logs are turned off by default. It is recommended to turn them on during development and when troubleshooting an execution problem.

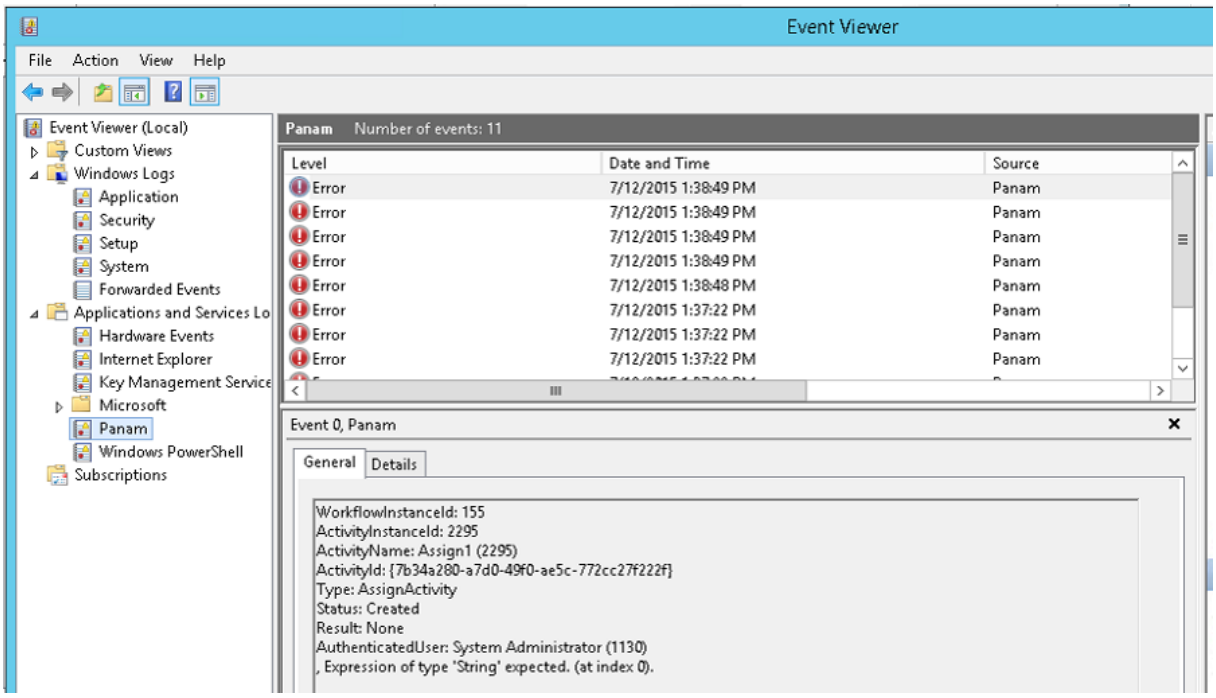
- Job execution service (JES) log:
  - Access run results from Job history: Administration > Global Settings > Jobs Management.
  - In Database: use sql: SELECT * FROM tblJobRunHistory WHERE fldError IS NOT NULL



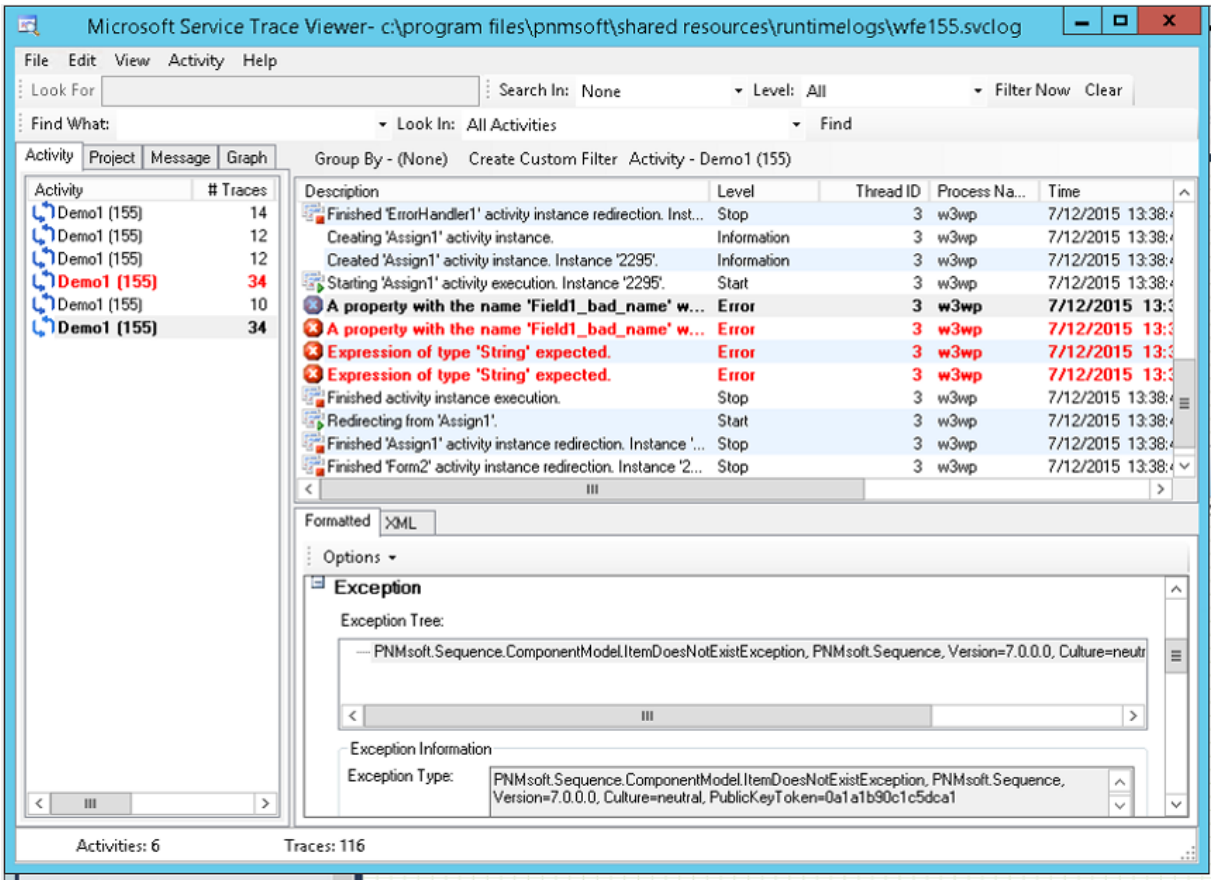
Jobs Management

Recommendations

- Enable Log files. See this article for enabling SVC log for Sequence sites and services. IMPORTANT: enabling SVC logs impacts performance. Therefore, you may decide to enable it only for troubleshooting purposes.
- Use SVC Viewer to analyze the SVC log.
- Review log files for errors and warnings.



Event Viewer



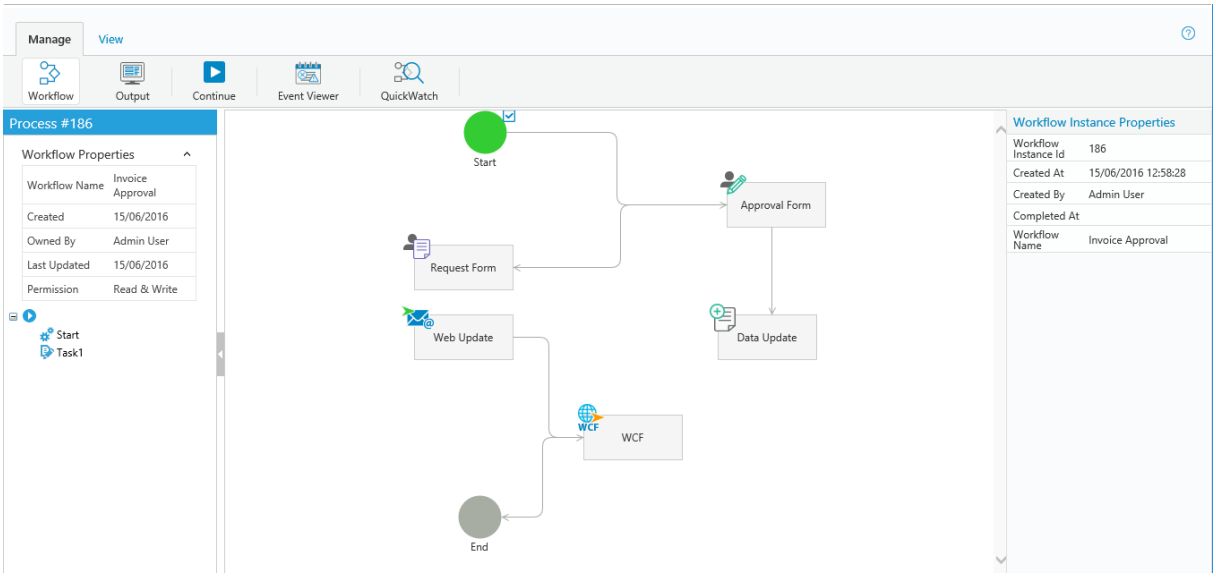
Microsoft Service Trace (svclog) Viewer

Troubleshooting and Support

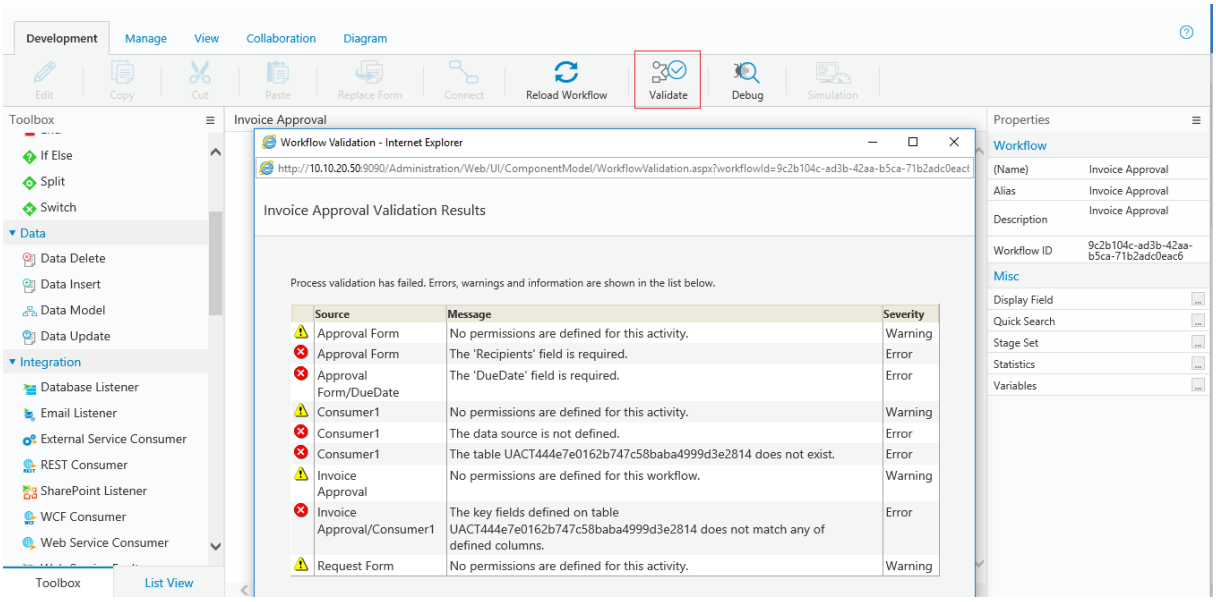
There are various tools you can use to troubleshoot issues with Sequence workflows and solutions:

Sequence Tools and Actions

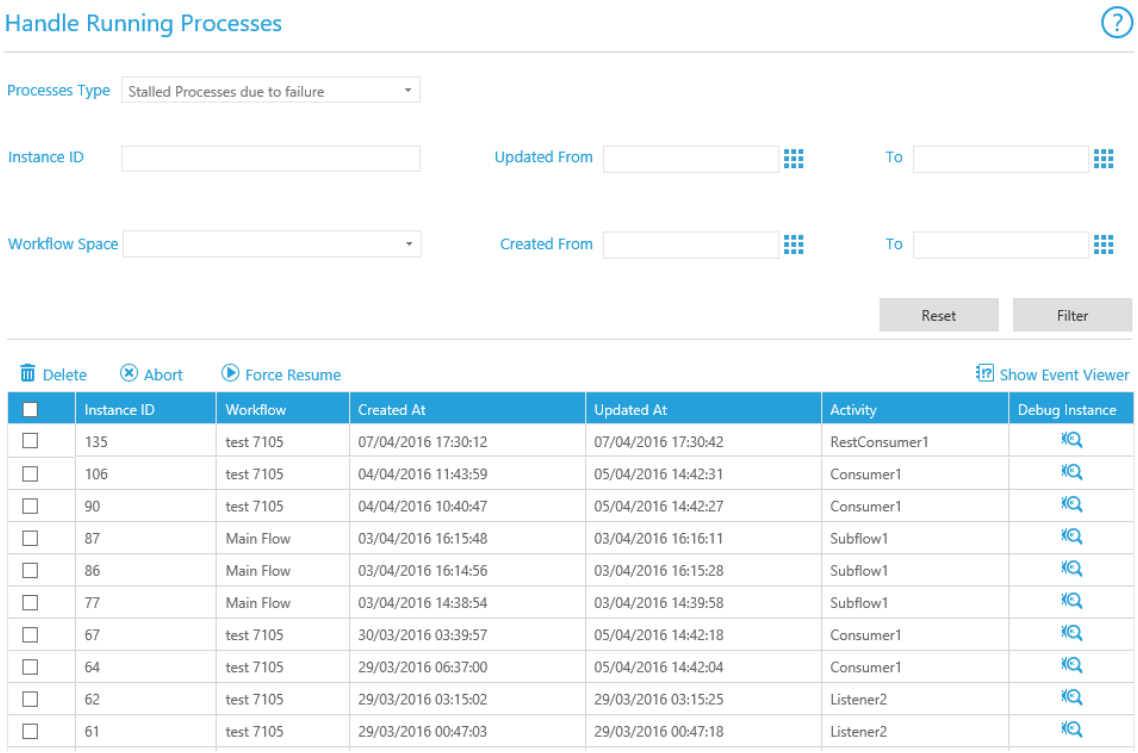
- Validate workflows (in the App Studio)
- Sequence Debugger/Process Lab
- Handle Running Processes wizard
- Analyze Logs (see section above)
- Check Permissions



Debugger



Validation



Handle Running Processes

Troubleshooting Articles

We have an extensive library of Troubleshooting articles on the Knowledge Center, which covers solutions for many common issues:

http://members.pnmsoft.com/Online%20Help/SitePages/Troubleshooting.aspx

Please consult this library and search for the error you are receiving.

Additional Tools

The following additional tools are available from the Knowledge Center > Downloads > More Tools:

- Sequence Toolkit: includes tools such as credentials encryption for SQL database connection string, and more.
- Support general checkup workflow:
  - Automatic redirections
  - BRS redirection forecast
  - SMTP and email link setup

External Troubleshooting Tools

You can also make use the following external troubleshooting tools:

- Fiddler:
  - For HTTP errors on the client side.
- IIS logs:
  - For HTTP errors on the server side.
- SQL Profiler:
  - For SQL queries troubleshooting
- Browser developer tools (F12):
  - For CSS issues
  - For debugging JavaScript
  - Broken HTML
- Microsoft SVC viewer:
  - For reading svclog files
- Microsoft ULS viewer:
  - For reading SharePoint logs
- WCF Tracing:
  - For debugging WCF consumers

Support Model

Here is a suggested tiered support model, which you can set up to handle issues effectively:

1. Tier 1 is power user from the business who knows how the workflows should function.
2. Tier 2 is the users' IT support who triage user tickets.
3. Tier 3 consists of separate teams:
    - Sequence project team or workflow developer
    - Windows stack owner
    - DBA
4. Tier 4 is the PNMsoft Support Team

PNMsoft Support Team

For situations where you are not able to quickly resolve issues independently (with the tools above), please contact our support team to receive professional product support:

You can open a new support ticket and view ticket status at support.pnmsoft.com

You can contact the team directly as follows:

Phone: UK/Global: +44-208-1500-664 | US: +1-888-300-3909 | IL: +972-9-885-36-33

Email: support@pnmsoft.com