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| **Category** | **Attribute** | **Description** | eurobase siena |
| **Availability** | Maintenance | What times will the system be required to be taken offline for maintenance and for how long | siena does not require any offline time and only has a limited maintenance period which only affects dealing activity. |
| High Availability (Resilience) | If a system component were to fail should the system be capable of continuing to function? | All but three siena system components can fail without affecting the integrity of the solution. Critical services including database management failing will cause other components to pause until the database service restarts. |
| Restorability | If the system fails for some reason, can the system recover automatically or will it be restored manually? | siena services can be controlled and monitored by external applications/frameworks.  If a component does fail, it can (where applicable) be restarted automatically by an external tool or started manually. |
| Disaster Recovery (DR) | Is DR available? How quickly can the system be restored after a DR event? | siena is an installed solution DR support is that defined by the banks DR policy. |
| **Alert and Monitoring** | Infrastructure messages | Does the system possess alerting mechanisms for situations such as : missed deadlines PTD, missing trade details etc. | The siena infrastructure provides logging of all transactions and events, this data can be used to produce statistics in support of monitoring any KPIs defined in the mutually agreed SLA. The application infrastructure is dedicated to a particular client.  All components in the siena Architecture have audit capability built-in, with all operations in Siena logged using log4j, the standard log4j format is easily imported to other logging tools and databases.  siena supports alerts frameworks that can be used to inform users of key events, operational or system. |
| Application messages | Are there any system error messages for which an alert/alarm should be raised with the operators? | Yes. eurobase work with our clients operations team(s) to identify which applicable alerts will require immediate attention based on the profile of the client.  All alerts/logs in siena are categorised allowing Operations users to identify the criticality of the alert. |
| Thresholds | Are there any system specific thresholds which must be monitored e.g. storage capacity, load capacity, CPU or memory utilisation? | As an installed solution these can be monitored directly by the banks operations team. |
| **Maintainability** | Logging | Are system logs available?  Does it support archiving? | siena supports machine and human readable system logs. |
| Start-up/Shut-down | If the system is not required (offline) should it be shut-down and started when needed or let run all the time? | It is anticipated that siena will run 24x7 |
| **Security** | Access Logging | Is there an audit log of all access for a given profile, e.g. privileged, accesses on the system, like logon/logoff, change access policy, insert/update/delete system files and data in database?  Are user profiles maintained in the system? | Yes, fully supported.  Yes, siena maintains its own user profiles controlling access, operational permissions and functional permissions. |
| Key/Cert mgmt. | Will access to the system be controlled using security certificates and/or licenses? | The system will be controlled using an encrypted licence. |
| Transaction auditing | Is the system capable of providing an audit trail of the lifecycle of a transaction? | Yes, fully supported. |
| SOX | Is the system SOX compliant? |  |
| **Data Backup and Restore** | Backup Frequency | Standard backup within the bank is nightly and on weekends. Does the system have specific backup requirements e.g. back-up the system hourly? | siena has no specific backup requirements. The frequency is under the banks control. |
| RTO – Recovery Time Objective | If a system fails, what is the maximum time allowed for the system to be recovered i.e. made re-available for use? | As siena is an installed solution the maximum time allowed for the system to be recovered dependant on the banks deployed infrastructure and resourcing. |
| RPO – Recovery Point Objective | In the event that the system fails, from what point will the recovery process be initiated from? | If the system fails the recovery will process begins with the last valid database snapshot (the frequency of the snapshot is definable) and rolls forward to the most recent transaction. A transaction could be a deal, order or singe field update in the database. |
| Data Initial size | What is the initial system size (pre-loaded data included) | The initial siena system installation is typically less than 512mb with no transactional data. |
| Data Archiving | What archiving capabilities does the system offer and for how long? | All database data can be archived. Internal Database logs are archived at each EOD to a configurable archive directory. These can then be further archived according to the banks own internal policy. For maintaining an online archive, Eurobase would recommend using the siena Relational Gateway with database triggers to update designated archive tables. |
| System Data Retention | Please confirm whether the responsibility for the purging of data (after x amount of time) would lie with Bank of Ireland | siena has no specific data retention requirements. The period is under the banks control. |
| **Performance** | Reporting | Does the system monitor and report on transaction performance? | Transaction performance can be monitored and reported on using standard tools compatible with JMX standards. |
| Online peak users | what is the **maximum** number of users that can log into the system concurrently | There is no artificial limit to the maximum number of users other than that defined in the licence agreement. |
| Batch windows | If there is batch processing are there any time constraints e.g. batch must start by, needs to finish by or should take no longer than? | The siena installation is under control of the bank. There are no time constraint place on you by eurobase. |
| Reporting | Does the system report performance statistics e.g. no of users, peak volumes, average response times, breached thresholds etc.? | Yes. The system collects data which can be reported on to monitor the number of active users, response time etc. These can be monitored in a tool of your choice that support jmx apis. |
| **Documentation and Training** | Support | Is formal training required to use and/or support the system? | No formal training is mandated. Training can be provided on request and is tailored to the usage of the system prior to delivery. |
| Ops Guide | Are there any system manuals, operations and support procedures or any support documentation for the system? | Yes. Manuals and how-to guides are available on request. |
| **Other** | Solution options | Solution implementation options (in-house, hosted, hybrid). | siena will be installed in-house. |
| Infrastructure Requirements | Infrastructure requirements (Infrastructure component breakdown, hardware, OS, application software (including details of supporting databases, webservers, etc.)). | siena requires OS that supports Oracle java 7 or 8 is supported. The following is an indicative specification likely to be suitable given the current understanding of the requirement:  **Server**  Quad Processor - 2.5 GHz  16 GB Ram  100 GB of RAID 5 Disk  **Clients**  Any OS that supports Oracle java 7 or 8 is supported  The minimum requirement for a client workstation is Single 1 GHz processor  2 GB RAM  1600 x 1200 screen  An optimal workstation would is -.  Dual Processor - 2 GHz  4-8 GB RAM  1600 x 1200 screen |
| Scalability | Scalability of solution | siena is both horizontally and vertically scalable. |
| Support | Support offering (Helpdesk hours, remote support, SLA’s,etc.) | The support offering is tailored to the banks requirements and would be agreed with the bank prior to implementation. |
| Change model | Change model (Ad-hoc, regular core releases, patch releases, etc.) | All releases and upgrades and patch releases are agreed and scheduled in advance with the bank. eurobase does not enforce timescales. We do recommend that our clients stay within 2 releases of the current release version. |
| Additional security | Security (End-user(SSL/TLS), network, database, data in transit, data at rest, etc.) | siena is secure, uses SSL and is tested to ensure OWASP top 10 compliance. The transport tier layer is TCP/IP and uses secure reliable multicast IPV4. No external component can intercept and change data in transit without an issue being logged by the server. |