Network Performance Measurement
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1 Performance Measurement

This document provides information on understanding and optimizing performance of your SAP Business ByDesign system.

Users and system administrators can use this guide to identify potential performance problems and capture the necessary information required to analyze and report them accordingly.
2 Basics of Performance

2.1 What Is Performance?

Performance, in general, means the way the system responds while a user is working on it.

From an end-user point of view, performance means the behavior and speed of the system, i.e. the time it takes to access a specific screen or to execute a specific action on the same.

An example of response time of the system is the time it takes to render analytical reports. The time taken by the system (speed) might not meet the expectations in all cases when it comes to process huge amount of data, e.g. when collecting and preparing all transactions of the past X years.

Performance might also be relevant for background activities or web service interactions with external systems. Sometimes, the process flow itself might need improvement, e.g. in case too many clicks are required to complete a specific task.

Home Screen

If the home screen is configured with unnecessary views, or with views that may be getting information from external sources (e.g. news items), it might lead to delays in the time taken to render the screen.

In such cases, please get in touch your administrator to identify the views that are absolutely necessary for you. Optimizing the home screen leads to a better experience after logging in next time.

Frontend (End-to-End) Response Time

The frontend performance is measured by the end-to-end response time. This means the time taken from when a request is sent from the device to the server until the response gets back and the screen is fully rendered on the device.

The expected end-to-end response time depends on various factors like the complexity of the screen, the number of documents in a list, the size of the business document (e.g. the number of line items), and might vary between different applications. The response time is strongly influenced by the client, network and current utilization of the available hardware resources in the data center. For more information, see Components Influencing Performance [page 7].

Although the response time can be measured and stated per interaction, the perceived performance strongly varies between different end-users, i.e. a screen coming back in one second might be assumed to be a performance problem when navigating between screens whereas executing an action like posting a customer invoice which might take four seconds could be acceptable.

As part of the proactive monitoring, SAP monitors the average response times across all users of your system and across all applications used by your company. There are threshold values defined for server access times which initiate further activities.

Following checks act as an indicators to find the root cause of performance issues:
- Check if the problem occurs on a single screen/application only or across all screens and applications. In case it is observed across all screens this would be a strong indicator that either network is not sufficient or there is a problem from SAP side.

- Check if the problem is isolated to one environment (or limited to few end-users only) or if all other end-users face similar problems. In case it is isolated to one user or a small group of users, and is observed across all screens, this would be a strong indicator for problems with the local environment.

- Check if the problem is specific for a single location/site or it is observed globally (if applicable). In case it is observed for a single location only this might be a strong indicator for problems with the network.

- Check if the problem is observed all the time or during specific, regular peak-hours only. In case the problem is observed sporadically this might be a strong indicator that the system is affected by background load running at this time or fluctuations on your network.

For more information, see Improve Runtime Performance [page 11].

Analytical Reports

Analytical reports are designed to handle huge amount of data. At the same time it is important to know that the amount data and the expected result set has a direct influence on the runtime of the same.

For more information, see Use Analytical Capabilities Efficiently [page 11].

Background Activities

Background activities (e.g. scheduled jobs) share the system resources with the frontend interactions executed by end-users. Hence an optimized scheduling of the background jobs helps to stabilize the end-to-end response times as well as the runtime and throughput of the jobs. By defining the right scheduling times and recurrences as well as proper selection criteria for each run you can affect the overall performance of your system.

For more information, see Schedule Background Jobs Efficiently [page 12].

Web Service Processing

Similar to background jobs, the web service integrations with external systems might impact the overall performance. SAP offers a large set of capabilities to tune and optimize the integration (throughput and performance) by using bundling and packaging features (e.g. processing multiple entities with a single call). Call frequencies and parallelization are important parameters for an optimized integration.

For more information, see Use Web Services Efficiently [page 13].

Process Flow

In some cases, the observed performance problem is not about the runtime of the application but the number of clicks it takes the end-user to apply a specific task. In this scenario SAP considers the concern as a functional requirement which needs to be addressed. The feedback on improving the process flows is synchronized with the development roadmap for the solution.

Please submit your feedback on performance and get it validated by SAP on ideas place at https://ideas.sap.com/ct/s.blix?c=2D576A2C-FF7C-423F-92A0-B4AAFF99C35D.

SAP as well as your implementation partner also offer special services to evaluate the possibility of providing the required improvement on top of your standard SAP Business ByDesign solution. To check the possibility of customer
specific development, please reach out to either your partner, SAP Cloud Service Center or the Customer Engagement Officer assigned to your contract.

2.2 Components Influencing Performance

For cloud based applications, troubleshooting of performance related issues requires a precise definition of the problem. It involves checking for the root cause in the various components that help the cloud based applications work. This includes the client (i.e. the local device running the browser), the network, and the application running in a data center.

Components that Influence System Performance

Components Involved in Determining Performance of the System

Here is a short high-level introduction to get a better understanding of these components and their relevance for the end-to-end performance of your application.

Data Center

The applications part of your solution are running in a data center and are operated by SAP. The hardware in the data centers is responsible to process all requests coming from end-users or connected external systems as well as to execute the background activities which are triggered or scheduled in your application.
There is an ongoing monitoring available by the SAP team, mainly focusing on the resource consumption (to early identify and resolve potential hardware bottlenecks) as well as the average processing times of the applications executed by the end-users in your system. Detailed statistics on these information are currently not available for customers.

However, an aggregated view of the same (including interaction counts, average data center response times along with the average end-to-end response times) is available in the Customer Information Report sent to our customers once a month.

This report provides a high-level understanding on how your solution is running.

**Network**

The connectivity of your device to the data center is realized by the network. The network consists of multiple segments: the connectivity of your device to your local corporate network, the corporate network of your company itself, the internet and finally the network within the data center.

The relevant aspects of the network are the **bandwidth** (the rate of the data transfer) and the **latency** (delay). So the better these values are, the faster the application is running.

The network connectivity at your organization is managed by your company IT along with your telecommunication service provider. While running the solution, ensure that the basic network requirements are fulfilled. For details about network requirements to use SAP Business ByDesign, check [http://go.sap.com/product/enterprise-management/business-bydesign.system-requirements.html](http://go.sap.com/product/enterprise-management/business-bydesign.system-requirements.html)

Many performance related problems are caused by bad network connections. Hence it is important to check the impact of this component before addressing general performance problems.

**Client**

Client is the environment or devices used to access the application, for example, laptop or desktop computers or mobile devices. The device is mainly responsible for managing the interactions with the data center and the rendering of the screens. For details about hardware and software requirements to use SAP Business ByDesign check [http://go.sap.com/product/enterprise-management/business-bydesign.system-requirements.html](http://go.sap.com/product/enterprise-management/business-bydesign.system-requirements.html)

Even when the requirements are fulfilled, the device and the activities executed on it might impact the performance of the application. Some of the examples are:

- Running resource intensive applications in parallel. This creates a bottleneck on your local CPU or memory and hence delays the rendering of the screens
- Running network bandwidth intensive activities (like video streaming) in parallel. This creates a bottleneck in your network connectivity and hence data cannot be exchanged fast enough
- Working in a wireless environment, when the connection to your corporate network is limited. This affects the connectivity
- Having insufficient browser settings configured on your device. This might harm or prevent an optimized data exchange
- Having browser add-ins running on your device. This slows down the rendering. One of the examples can be if the transmitted content is scanned for pattern (e.g. telephone numbers)
- Slowdowns due to anti-virus and IT installed program.
- Performance problems while using VDI/VM environments. These issues are taken care of by your local IT team.

We strongly recommend to keep only the basic applications on your desktop, and removing all unnecessary browser windows and tabs. Doing so helps in allocating maximum resources of your workstation to the SAP application in browser.
Recommendations on Using Cache

There is a significant static and dynamic content downloaded in your browser. When you are accessing your solution for the first time, the system prompts you to allocate the cache memory. When you allocate the cache memory, static content like images, screen layouts, work centers gets stored in your browser environment (even after shutting down the workstation).

Enabling cache on the browser helps improve the performance of your solution significantly. Every time there is a change at the server for this static content, the cache content gets updated without your intervention.

For more information, see Caching.

2.3 Address Performance Issues

To address the performance — related issues, the first step is to identify the component that might be causing it.

Features

Identifying the Source of Performance Issue

Here is a summary checklist of how to address performance issues described so far. The checklist has been divided into three parts that pertain to each area where a potential performance issue can be mapped to.

Is the issue in your Local Environment?

<table>
<thead>
<tr>
<th>Checklist</th>
<th>Corrective Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Are any resource intensive applications running on the local system?</td>
<td>Terminate them and check again.</td>
</tr>
<tr>
<td>Are the browser settings as per recommendations?</td>
<td>Ensure that the recommended settings are maintained, and check again.</td>
</tr>
<tr>
<td>Are there any browser add-ons that may be affecting the performance?</td>
<td>Disable the browser add-ons, and check again.</td>
</tr>
<tr>
<td>Is there a generic problem with all web applications?</td>
<td>Check if network bandwidth intensive applications are running e.g. YouTube videos.</td>
</tr>
<tr>
<td></td>
<td>Terminate such applications, and check again.</td>
</tr>
</tbody>
</table>

Is the Issue in the Network?

<table>
<thead>
<tr>
<th>Checklist</th>
<th>Corrective Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Are users in a certain geographical location getting affected?</td>
<td>Check if Bandwidth is as per recommendations?</td>
</tr>
<tr>
<td></td>
<td>For more information, see <a href="#">here</a></td>
</tr>
<tr>
<td>Is network latency is too high?</td>
<td>Check with local help desk or ISP.</td>
</tr>
<tr>
<td>Is network latency not too high but there is a performance problem?</td>
<td>Trace application with HttpWatch.</td>
</tr>
</tbody>
</table>
### Checklist

| Are there any large integration jobs running in the system using the network resources of your organization? | Check the performance again after the jobs are over. For more information, see Use Web Services Efficiently [page 13]. |

### Is the Issue arising due to Server Response Time?

| Are all users across all geographical locations affected? | Report an incident to SAP Support. |
| Do you suspect that a custom solution developed by a partner could be causing an issue? | Contact the development partner. |
| Does the partner confirm that the custom solution is not causing the issue or the screen does not involve a custom solution? | Report an incident to SAP Support. |
| Are there any large background jobs running in the system? | Check the performance again after the jobs are over. For more information, see Schedule Background Jobs Efficiently [page 12]. |

### Tools for Measuring Performance

HttpWatch is a tool for Internet Explorer and is used to troubleshoot performance issues. It is used to find out whether the problems with performance is a client, network or server issue. The basic (free) edition is good enough for the basic troubleshooting purposes. To download the tool, go to [http://www.httpwatch.com/download/](http://www.httpwatch.com/download/).

### Reporting the incident to SAP Support

While reporting the incident to SAP, please provide the following information:

- URL of the system that is experiencing the performance problem
- Detailed description of the problem
  - Describe the performance problem
  - Describe the steps to reproduce the problem
  - What is the business impact of this performance problem
  - Number of users impacted
- Did you encounter a dump when performing any of the steps above?
- Do you notice any variance in performance when the data on the screen varies?
- Are you aware of a custom solution associated with the screen with the performance issue? If yes, then please give some basic details of the solution.
- Details of users impacted by this performance problem
  Provide 2 or 3 user IDs who are experiencing the problem
- Problem observed in a desktop version
  If it is a browser, which browser and version of the browser is being used where the problem was observed? By example: Microsoft® Internet Explorer 10 Version: 10.0.9200.17183.
- If you have taken an HTTPWatch trace and checked the output of SAP Cloud Network Tool, please attach it with the incident
  For more information, see SaaS Cloud Check Tool and Performance Measurement with Browser Based Tools.
3 Tips and Tricks

3.1 Tips and Tricks to Improve Runtime Performance

Runtime performance includes the behavior of the SAP Business ByDesign screens. The screens can be of two types—lists and documents. This document helps you work more efficiently with the screens.

Features

Improving Performance of Lists

Lists are the most commonly viewed screens in SAP Business ByDesign as most of the work center views result in rendering lists. The performance of lists is a major factor in system performance because lists control the amount of data displayed to the end-user. Lists may not have sufficient performance at times depending on the data volumes. While SAP is working on this issue, here are some hints to achieve better performance of lists.

- If you are experiencing low performance on lists because too much data is being loaded by default, use the Organize Query or Save Query options on lists to save the desired search parameters. The desired query can also be set as default. This would ensure that only a limited set of records that match the selection is loaded by default, resulting in a better performance.

- You can decide whether you want to disable the execution of query automatically when you choose the query option. This is very useful when you want to just check the status of a known ID of business document.

- Default sort criteria may lower the performance of lists. To enhance the performance of the lists, remove any default sort criteria maintained for your lists. You can check if a sort criteria has been configured on a list by navigating to Personalize, then click Configure Sorting and Group By option.

- Some lists are built based on a special architecture to provide a better performance as compared to standard architecture. These lists can be enabled by selecting the scoping question Do you want to use the new enhanced and faster object work list based on Service Adaptation Definition Language (SADL)?. To find this option, in the Business Configuration work center, go to Built in Services and Support, then System Management, and click User Interface List Mode.

Improving Performance of Documents

Transactional documents with large number of line items tend to reduce the performance and result in slow response. So, wherever possible, use limited number of line items in transactional documents. Also, it is a good practice to intermittently save large documents to prevent losing all the data in case a timeout error occurs.

3.2 Tips and Tricks to Efficiently Use Analytical Capabilities

Analytics is integrated in the solution to support and monitor business processes, helping you make informed decisions. These reports offer best performance when the data volumes are limited. This document helps you work more efficiently with the analytical capabilities of the solution.
Features

Basics of Working with Analytics

- The analytical reports tend to give slower response when huge volumes of data are selected. In order to achieve better performance use as many selection parameters as possible to ensure smaller chunks of data are selected for analysis.
  For example, if you intend to view data of three months on an analytical report and if you are experiencing slow response, view the data for one month at a time to achieve a better response. The data can also be exported to excel and collated there for further analysis.
- Create user-based views which include only specific characteristics/columns which you may be interested in. Use your discretion to choose the fields carefully because including characteristics or key-figures which are not required could reduce performance.
- If you have created your own key-figures which involve heavy calculation, the analytical report could give a slower response. To prevent this, create additional key figures only if the pre-delivered key figures do not meet your requirement.

Advanced Features: Creating Custom Data Sources

- While creating custom data sources, inner joins should be the preferred approach to ensure better performance. Left outer joins should be avoided. If unavoidable, these should be created at a higher level.
- For better performance, while creating a left outer join, ensure that the start data source (anchor) is the one that returns minimal number of unique records.
  In the backend, the data from left member/side is looped through to get the matching right member data. So, more the data on the left member/side, more time will be taken to get the final results from the right member/side.

3.3 Tips and Tricks to Efficiently Schedule Background Jobs

All the jobs scheduled on your system can be monitored by using the Background Jobs view under Application and User Management work center. This document helps you to schedule background jobs more efficiently.

Features

Scheduling Background Jobs Efficiently

- Review the frequency (reoccurrence) of scheduled jobs - the frequency should be optimized in such a way that the job does not run too often unless really required by business.
- Ensure that you do not schedule two jobs of the same type to run around the same time, this could potentially lead to locking issues.
- Ensure that you do not schedule jobs during the system down time slots.
- If you have too many background jobs scheduled on your system, and if the job executed is very resource intensive, it could potentially affect the frontend response time for other business users as well.
3.4 Tips and Tricks to Use Web Services Efficiently

Web services enable the system to communicate and exchange data with other systems using a network. This document helps you work more efficiently with web services.

Features

Query Services
Query operations are mass-enabled stateless synchronous web service operations. Transferring or requesting amounts of data that are too large causes communication timeouts. The web service consumer (external application) is responsible for ensuring reasonable sizes for mass operations.

Requested Elements: Providing requested elements enable web service consumers to reduce the size of query response messages. This helps in reducing transmission and response times, and avoiding timeouts.

Paging: Paging helps fetch data in chunks – if the requested data is huge in terms of number of records.

Processing Conditions: Processing conditions are used to set the maximum number of returned hits per query or to retrieve the next chunk of data (paging)

For more informations, see Web Services.

Maintain Bundle Services
Bundling and parallelization help optimize runtimes and throughput.

The bundle operation groups multiple single operations for processing. All single operations are successfully performed or none. The processing stops at the first failed single operation and the modifications done by the previous single operations are canceled in the system.

The overall bundle result includes a list of successful single results. In case of business error, the overall result is failed and includes a list of successful but not applied single results and one failed operation.

You will need to find the best bundling size for the web service you are using for your use case.

Asynchronous Web Services

In case of asynchronous web services, a message is send to SAP Business ByDesign system. The message is received, and a technical acknowledgement of the message is sent back by the system.

The message is scheduled in the backend and then processed. In some cases, hundreds of messages may get accumulated within a few seconds. Scheduler starts and process the messages. This could cause a drop in the available system resources. If you anticipate that a process could lead to a high load on the system, it is recommended that it is scheduled in the night when there are no business users or other large processes running in the system.

To ensure that a significant amount of system resources are still available for processing, giving a Queue ID in the Http Header is a good practice. The queue ID must be transferred as a field in the query part of the url, with a field name QueueId and a significant string value.
Providing the Queue ID can help consumer to sequence the messages and control the number of processes used in the system, so that sufficient systems resources are still available. QueueId also helps to avoid lock issues. For example, Customer Contact ID can be used as a Queue ID.

**OData Sources and ODP Interface for SAP Business ByDesign Analytics.**

While using OData sources and ODP Interface for analytics, it is essential to choose suitable selection parameter to ensure limited and stable amounts of data is fetched from the data base.

For more information on using OData sources, see [OData for SAP Business ByDesign Analytics](#).

**Tips while Creating an Integration Project**

Consider answering these questions while creating an integration project:

- What is the volume of data to be transferred between systems (throughput, peaks, long-term volumes)?
- What is the frequency of data transfer? What kind of event triggers the data transfer?
- What are the expected messages sizes
  - Delta load vs. full load: What is the delta volume? How is the delta selected
  - Maximum message size
  - Stability of message size: What does the classification low/medium/high mean? Actually the message size must not grow above a specified and tested limits. The expectation would be to identify and test the maximum expected message size and to make sure message size does exceed this tested limit.
  - Time-outs
- What is the number of parallel sessions in target systems and impact on other processes and frontend (in case of mass runs and asynchronous communication)?
  - Do the business objects get locked by frontend or by replication?: This question is about identifying concurrent access to business objects by users and web services and to make sure critical processes are not blocked or interrupted because of locked business objects.
  - What are the available remaining processes for users working on the system? It is important to make sure that any integration does not parallelize without limits to avoid impacting users too much.
- What kind of Add-ons are active for the solution, and how are they processed in case of business object modification triggered by web services?

**3.5 Application Specific Recommendations to Boost Performance**

This document identifies certain processes in each application areas which typically affect the system performance, and offers recommendations for working more efficiently.

**Features**

**Customer Relationship Management**

- **Sales Order web service**
  
The Manage Sales Order web service provides faster performance if immediate ATP (available to promise) check is switched off. To turn off the immediate ATP check, switch off the business option **Do you want to immediately confirm quantities and requested dates during sales order creation based on an availability check?** To find this option, in Business Configuration work center, under Sales, go to Selling Products and Services, then Sales Orders. Select Available to promise policy.
Switching off immediate ATP would mean that the ATP information will not be automatically calculated for sales orders created via web service as well as the frontend. However, it can be triggered manually using the Check Availability option available on the sales order screen.

- **Pricing**
  - When you upload huge price lists through the migration workbench ensure that you split the migration excel so that it contains a maximum of 10,000 entries at a time.
  - In order to achieve better performance on price list maintenance you can choose to maintain different kinds of price lists categorized by sales organization, company, or customer instead of one huge price list.
  - Use the Release in background option available on the price list maintenance screen to avoid timeout error while releasing huge price lists.

**Financial Management**

- **Journal Entries**
  - Allowing gaps in the number range of the accounting documents enables faster creation of accounting documents. To see this option, select the configuration element Journal Entry Types and Number Ranges then Edit number range profiles for journal entries and select Allow Gap.
  - In some countries it is a legal requirement that accounting documents should be numbered without gaps. This option cannot be used in such countries.

- **GdPdu Run**
  - While executing GdPdu run, if the data to be extracted is huge, specifically for the Journal Item report, then the run may not get executed completely. If the reporting package that you use has other reports as well, you can create a separate reporting package for others and execute it for the whole year. Execute it for Journal item report separately per period. This will help you to split the file and extract the data without any issues.

- **Journal Entry Voucher Excel Upload**
  - If there is too much data being uploaded, the excel plugin may time out with an error, but journal entry gets created successfully. Check if the journal entry voucher is posted successfully, before uploading another one.

- **Background Runs**
  - Background Runs like Revenue Recognition, Overheard Absorption for Direct Cost Projects, Overheard Absorption for Overhead Projects, Work-in-process Clearing, or Goods Receipt Invoice Receipt Clearing Run provide some additional selection parameters like Set of Books and Document ID to limit the data to be processed so that the execution is successful.
  - In the selection parameters, if a range of accounts is provided for a background job and if there is one account that has too much data to be processed, it may result in a bottleneck. Create a separate run for it so that the documents are created quickly for the remaining accounts. For example, if you create a Dunning Run and the selection parameters consist of one account that has too many open items and the rest with much lesser, then processing for the large account may end up being a bottleneck for the run.
  - For Background Runs like Payment Run or Payment Media Run, try to create a restricted run definition with more selection parameters and lesser accounts if performance issues are encountered. This will help complete the job faster.

- **Performance Payment Monitor List**
  - There is a new version of Payment Monitor list that can be enabled for your tenant. This version involves migration of data from the older persistency to the newer more performance efficient version. If you want to opt for it, contact SAP Support to enable it for your solution.
Human Capital Management

- **Employee Self-Service**
  - User can hide the calendar using *Hide Calendar* option if not needed and this would load the time sheets faster on subsequent access.
  - Use the *Hide details* or *Show details* options to control the visibility of detail section for each day-cell. The time sheet works faster without the details section.
  - Limit the number of daily tasks in your time sheet to less than 10 and ensure that you refresh your work lists and get rid of obsolete tasks.
  - If you wish to record time for several tasks on a daily basis, consider using the *Day* view of the time sheets.

Supplier Relationship Management

- **Supplier Invoicing**
  For invoices having large number of items post and void actions can be scheduled as background jobs by using the *Quick Post* and *Quick Void* options. These options can be enabled by enabling more performance efficient Quick lists.

- **Purchase Orders**
  Use the *New Purchase Order – Quick Create* option available in *Purchase Requests and Orders* work center to create orders faster. On the purchase order screen, use the *Quick Edit* option to provide better performance.

Supply Chain Management

- **Inventory Migration**
  SAP recommends that inventory migration is done in smaller chunks. If data is migrated in bulk, in Financials this data expands depending on the number of set of books in the system. For example, a user uploads 500 lines, and there are 3 set of books in the system. This data can expand to 500 * 3 = 1500 lines in Financials and the migration could fail.
4 Troubleshooting

This document addresses some of the commonly known issues that affect performance of your system.

Optimizing a Customized Solution

During key user adjustments or adaptations performance can be impacted. This will affect only in the window when the adjustments are activated. However if you experience slow response for a longer period of time, check this with your system administrator.

SAP recommends that partners who build customized solutions do not perform deployments during business hours of customers to prevent any performance issues. It is also recommended that performance metrics are tested by partners before deploying a customized solution on the customer system. In case of any performance issues where a customized solution is known to have been deployed, please contact your implementation partners.

Working with Mash-Ups

Mash-ups are used to integrate data from your SAP Business ByDesign system with data provided by an online web service or application. Users can access the content provided by these web services and applications, and use it in their daily work. Mash-ups can include web searches, company or industry business information, or online map searches.

Mash-ups can be provided in the following ways:

- Pre-configured mash-ups that are provided in the system.
- Your organization can procure mash-ups from the SAP Store. These mash-up partner solutions are provided by SAP partners
- The administrator can create mash-ups for your organization

In all three cases above, mash-ups involve integration with an external application. The overall page load will be impacted by how quickly the external request is made or how quickly the external site responds.

Check with your administrator to identify if the screen that responds slowly involves a mash-up and take an HttpWatch trace to identify if the external site is responding too slowly.

Optimizing Your Client

Checking System Resources

In case of high client time that reflects high rendering times in the browser please use taskmgr under MS Windows. In Mac OS you can check the system using the Activity Monitor. Observe for any high CPU utilization and the available memory. CPU utilization less than 50% and free memory around 2GB is ideal. Also check the I/O counters to see if the hard disk is the bottleneck.

Browser Settings

In case you have set the browser settings to Delete browsing history on exit, it will affect performance drastically because each time you open a browser it will be in cold state. This means the SAP Business ByDesign application will get the related assets from the server and over the network. Also if your IT policy mandates automatic deletion on cache content, this will also affect your performance. Also ensure there is enough disk space available for cache content.
SAP recommends that you use the default settings for cache for optimal performance.

**Browse Add-Ins**

Browser Add-ons, also known as ActiveX controls, browser extensions, browser helper objects, or toolbars, can improve your experience on a website by providing multimedia or interactive content, such as animations. However, some add-ons can cause your device to stop responding or display content that you don’t want, such as pop-up ads. If you suspect that browser add-ons are affecting the performance of your browser, you might want to disable some add-ons to see if that solves the problem.

To disable add-ons in Internet Explorer follow these steps:

1. In Internet Explorer, click **Tools**, and then click **Manage Add-ons**.
2. Click the add-on you want to disable, and then click **Disable**.
3. Repeat for every add-on you want to disable. When you are finished, click **Close**.

**Analyzing Network Performance**

**Basic Network Performance Check using SAP Cloud Network Tool**

Network service provider of your organization and network strength in your corporate office play a major role in your system’s performance. There are two measurement units for evaluating network performance: Latency & Bandwidth.

**SaaS Cloud Check Tool** helps you to determine issue in networks latency or bandwidth that could be a cause of concern. You can find the tools here: [https://cct.sapdemocloud.com/perftest/saas/speedtest.html](https://cct.sapdemocloud.com/perftest/saas/speedtest.html).

For more information, see SaaS Cloud Check Tool.

Include the results/output of this tool from your workplace while reporting performance issues to SAP through incidents.

**How & when to measure network performance?**

To identify network issues, collect the data using the SaaS Cloud Check tool across multiple time schedules. For example, when maximum number of users are using the system, early morning, late evening, and midnight hours (when system integration and background jobs are scheduled). These times may vary in the organizations that are spread across different geographical regions working in multiple time zones.

- Organizations may use wireless/wired local intranet within the premises. It can also be a remote location in the organization like a warehouse, a shop floor of manufacturing organization, financial department, or a corporate office. Both these factors result in variances in the results of these tests.
- Check whether the background jobs, system integration jobs, or other activities that consume considerable amount of bandwidth are running at the same time when maximum end users are connecting to system.

Please include this information when you communicate with SAP support about the issue.

**See Also**

- SAP Business ByDesign System Requirements
- Performance Checks with Browser Based Measurement Tools
- Measuring Network Performance with Cloud Check Tool