

Limitations

1. Governor Limits

Salesforce enforces governor limits to ensure efficient resource usage. These limits apply to Apex, SOQL, DML, and other operations.

- **SOQL Query Rows:** A single transaction can return a maximum of **50,000 records**.
- **DML Statements:** Maximum **150 DML operations** per transaction.
- **CPU Time Limit:** Maximum **10,000 milliseconds (10 seconds)** per transaction.
- **Heap Size:**
 - Synchronous limit: **6 MB**
 - Asynchronous limit: **12 MB**
- **Callouts:** Maximum **100 callouts** per transaction.
- **Future Methods:** Maximum **50 future calls** per Apex invocation.
- **Batch Apex:**
 - Batch size: **Up to 2000 records per batch**
 - Maximum **5 concurrent batches**
- **Queueable Jobs:** Maximum **50 jobs** per transaction.

2. Data Storage & File Storage Limits

Salesforce imposes storage limits based on the edition:

- **Essentials:** 10 GB of data storage
- **Professional:** 10 GB + 20 MB per user
- **Enterprise:** 10 GB + 20 MB per user
- **Unlimited:** 10 GB + 120 MB per user

File storage is separate and generally allows **10 GB + 2 GB per user**.

3. API Limits

Salesforce has API usage limits based on the **Salesforce edition** and user licenses.

- API requests per 24-hour period:
 - **Professional Edition:** 1,000 calls per org
 - **Enterprise Edition:** 100,000 + additional per user
 - **Unlimited Edition:** 1,000,000 calls per org

Exceeding API limits can result in temporary API access restrictions.

4. Salesforce Flow & Process Builder Limits

- **Flow Interview Limit:** Maximum **2,000** flow interviews at runtime.
- **Scheduled Flows:** Up to **250,000** records per 24-Hours.

- **Elements per Flow:** Maximum of **2,000 elements** per flow execution.
- **Process Builder:** No more than **50 processes** per object.

5. Reports & Dashboards Limits

- **Maximum Rows in a Report:** **2,000 records** (Can export up to **100,000 records** in CSV format).
- **Dashboard Refresh:** Can refresh dashboards **up to 200 times per hour** (with API).
- **Joined Reports:** Maximum of **5 report blocks** per report.
- **Cross Filters:** Maximum **3 cross filters** per report.
 - Each cross filter can have up to **5 sub filters**

6. Record & Object Limits

- **Custom Objects:**
 - Professional Edition: **50 custom objects**
 - Enterprise Edition: **200 custom objects**
 - Unlimited Edition: **Unlimited custom objects**
- **Fields per Object:**
 - Standard Objects: **Up to 800 fields**
 - Custom Objects: **Up to 500 fields**
- **Related Lists:** A record can have **up to 100 related lists**.

7. Sharing & Security Limitations

- **Roles Hierarchy:** Maximum of **10 levels** in the role hierarchy.
- **Sharing Rules:** **Up to 300 per object**.
- **Manual Shares:** Maximum of **50,000** manual shares per object.
- **Public Groups:** **Maximum 100,000** members per public group.

8. Email & Messaging Limits

- **Daily Emails:**
 - **Enterprise & Unlimited:** **5,000 emails per org per day**
 - **Essential & Professional:** **1,000 emails per org per day**
- **Mass Email:** Cannot send more than **5,000 emails per day**.
- **Single Email Recipients:** Maximum **100 recipients per single email**.
- **Email Attachments:** Maximum **25 MB per email**.

9. Salesforce Sites & Communities

- **Guest User Limits:** Guest users have restricted access to Salesforce data.

- **Data Access:** Guest users **cannot own records**.
- **Community User Limits:**
 - Can have **up to 2 million community users per org**.
 - File Upload limit: **2 GB per file**.

10. Deployment & Metadata Limits

- **Change Sets:** Cannot exceed **2500 components** per change set.
- **Custom Metadata Records:** Limited to **10 million records** per org.
- **Apex Deployment:** Maximum **5,000 Apex classes and triggers** per org.
- **Managed Package Size:** Maximum **250 MB**.

11. Salesforce Mobile Limitations

- Limited offline access.
- No support for complex Lightning components.
- Push notifications limit varies by edition.

12. Integration Limitations

- **Maximum Outbound Messages:** **1,000 messages per hour**.
- **Platform Events:**
 - Standard Volume: **50,000 events per hour**
 - High Volume: **1,000,000 events per hour**

13. Salesforce Lightning Component (LWC) Limits

- **DOM Elements:** Maximum **10,000 elements per page**.
- **Apex Callouts:** Restricted by Apex callout limits.
- **Custom CSS & JS Restrictions:** No access to **window, document, or global variables**.

14. What are Salesforce Governor Limits?

Salesforce imposes **Governor Limits** to ensure efficient resource usage in a **multi-tenant** environment. These limits restrict the number of **SOQL queries, DML operations, CPU time, API calls, heap size, etc.** to maintain platform performance.

Example Limits:

- **SOQL Query Rows:** 50,000 records per transaction
- **Heap Size:** 6 MB (synchronous), 12 MB (asynchronous)
- **CPU Time:** 10 seconds per transaction

15. How can you avoid hitting SOQL query limits?

- Use **bulkified queries** (process multiple records in a single query).
- Use **FOR loops with SOQL** instead of writing queries inside loops.
- Use **batch Apex** for large data processing.
- Use **filters and indexed fields** to reduce the result set.

16. What are the storage limitations in Salesforce?

- **Data Storage**
 - Essentials: **10 GB total**
 - Professional & Enterprise: **10 GB + 20 MB per user**
 - Unlimited: **10 GB + 120 MB per user**
- **File Storage**
 - Default: **10 GB + 2 GB per user**
- **Workarounds:** Store files in **AWS, Google Drive, or SharePoint** instead of Salesforce.

17. What are the API limits in Salesforce, and how can they be optimized?

- API limits depend on **Salesforce edition and user licenses** (e.g., Enterprise: **100,000 API calls/day**).
- **Optimizations:**
 - Use **bulk API** instead of multiple single requests.
 - Implement **caching mechanisms**.
 - Use **Asynchronous Processing** (Batch Apex, Queueable Apex).

18. What is the maximum depth for a role hierarchy in Salesforce?

Salesforce allows a maximum of **10 levels** in the **role hierarchy**.

Solution:

If more levels are needed, use **sharing rules, public groups, or external data storage**.

19. What are the governor limits for Apex Callouts?

- **Maximum callouts per transaction: 100 HTTP callouts.**
- **Maximum callout time: 120 seconds.**

Optimization Techniques:

- Use **Queueable Apex** to manage external API requests.
- Use **Platform Events** for async processing.

20. What are the limitations of Salesforce Flow and Process Builder?

- **Flows:**
 - **2,000 elements** per flow execution.
 - **Scheduled flows:** Max **250,000 records** per execution.
- **Process Builder:**
 - Maximum **50 processes** per object.
 - **Cannot delete records** (can only update or create).

Solution:

- Use **Apex Triggers** when Process Builder hits its limits.
- **Batch Apex** for bulk record processing.

21. What is the maximum number of related lists a record can have?

A record can have a maximum of **100 related lists**.

Solution:

If you exceed this, consider:

- **Custom components** to display related data.
- **Using reports and dashboards** instead.

22. What are the Salesforce email limitations?

- **Mass Emails:**
 - Professional: **1,000 per org/day**
 - Enterprise: **5,000 per org/day**
- **Single Email Recipients:** Max **100 recipients** per email.
- **Attachment Limit:** **25 MB** per email.

Workarounds:

- Use **third-party email services** (SendGrid, Mailchimp, or AWS SES).
- Use **Marketing Cloud** for large-scale email campaigns.

23. How can you handle large data volumes (LDV) in Salesforce?

For records **above 1 million**, standard Salesforce queries slow down.

Optimizations:

- **Indexes** on frequently queried fields.
- **Skinny Tables** for performance improvement.
- **Big Objects** for massive data storage.
- **Batch Apex** and **Asynchronous processing** (Future, Queueable).
- **External data storage** (AWS, Google Drive).

24. What are the batch processing limitations in Salesforce?

- Maximum **5 concurrent batches**.
- **200 records per batch**.
- Maximum **50 million records** in a batch job.

Workarounds:

- Use **Queueable Apex** for chained execution.
- Use **Streaming APIs** for real-time processing.

25. What are the limitations of LWC (Lightning Web Components)?

- **DOM Elements**: Max **10,000 elements** per page.
- **Cannot access global objects like window or document directly**.
- **Limited Offline Support**.
- **Restricted file upload size**: Max **2 GB** in Communities.

- Use **Apex controllers** for heavy operations.
- Use **third-party libraries** for additional features.

26. What are the limitations of Salesforce reports and dashboards?

- **Max 2,000 records** displayed in a report.
- **Max 5 report blocks** in a joined report.
- **Max 3 cross filters per report**.
- **Dashboard refresh**: Max **200 times per hour** via API.

Workarounds:

- Use **Apex-based reporting** for complex scenarios.
- Export data to **BI tools** (Tableau, Power BI).

27. How do you optimize API consumption in high-volume integrations?

- Use **Bulk API** instead of multiple single requests.
- Implement **OAuth token caching** to avoid multiple logins.
- Use **Change Data Capture (CDC)** to get incremental updates.
- Enable **Streaming API** for real-time updates.

28. How do you handle record locking issues in Salesforce?

Record locking happens when multiple processes update the same record.

- Use **Optimistic Locking** (FOR UPDATE in SOQL).
- Reduce **parallel DML operations**.
- **Split transactions** in batch jobs.