Introducing IBM Lotus Domino 8.0.1 Web Access Lite mode

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IBM Lotus® Domino® Web Access Lite mode is an exciting new capability within the established Lotus Domino Web Access product that uses a new page architecture optimized for empty-cache or low-bandwidth scenarios. Learn how these innovative performance improvements are delivered to you in an updated user interface (UI) that more closely resembles your IBM Lotus Notes® client user experience.

IBM Lotus Domino Web Access Lite mode provides users with quick access to Mail, Contacts, and a Day-At-A-Glance calendar. These client performance improvements leverage Web 2.0 technologies such as Ajax and are above and beyond those introduced to Lotus Domino Web Access in 6.5.3 fix pack1.

Lotus Domino Web Access Lite supports the same set of browsers and platforms as Lotus Domino Web Access Full mode. Lotus Domino Web Access Lite is fully integrated into the Lotus Domino 8 mail template and Forms8.nsf, so Lite mode can be used by any Lotus Domino Web Access user after the Lotus Domino server and mail template are upgraded to version 8.0.1.

Lotus Domino Web Access Lite is primarily intended for users accessing Lotus Domino Web Access over slower network connections, such as when traveling. Users accessing Lotus Domino Web Access at kiosks, where typically no design information is cached, also benefit from this new mode. Some developing nations have prohibitively expensive high-bandwidth networking costs, so in these regions, Lotus Domino Web Access Lite can provide access to mail without the need for a high-bandwidth network.

This article provides an in-depth introduction to Lotus Domino Web Access Lite, including accessing Lite mode, navigating the user interface, and working with your mail, calendar, and contacts. In addition, this article covers some of the functionality available in Lite mode, such as the rich text editor, type-ahead, spell check, and the support console, and it discusses the architecture and performance results of Lite mode.
Why Lotus Domino Web Access Lite?

Lotus Domino Web Access performs well over high-speed networks or when able to leverage the browser cache from a previous Lotus Domino Web Access session. Customers attempting to use Lotus Domino Web Access from very-low-bandwidth environments, however, have not been pleased with the client performance. In fact, we discovered that several customers were still enabling the old Lotus Domino WebMail offering (simple Web 1.0 HTML solution that preceded iNotes™/ Lotus Domino Web Access) for such scenarios.

Feedback from surveys that we distributed at past Lotusphere® conferences indicated that many customers were seeking an even-lighter-weight mail-only client that could be made available to infrequent users who need to read and respond quickly, without incurring lots of overhead (bandwidth consumption or wait time). There have also been pleas to have such a browser-based mail client work well without having to disable pop-up blockers, and to work well even when connected over dial-up connections.

Accessing Lotus Domino Web Access Lite

Lotus Domino Web Access Lite mode is available by default in Lotus Domino 8.0.1. You can switch to the Lite mode in several ways:

1. If the Lotus Domino Web Access Redirect is being used, along with a sign-in form mapping to the DWALoginForm, you can select the mode on the log-in page (see figure 1).

   Figure 1. Lotus Domino Web Access log-in page

   The Shared or public computer option on the log-in form is also new to 8.0.1. This feature is supported for both Full mode and Lite mode. When enabled, it prevents users from accessing attachments by passing the &ra=0 parameter when Lotus Domino Web Access is invoked. More information on this option is available in the IBM Support Technote #1297042, "What is the purpose of the 'Shared or Public Computer' option on the Domino Web Access login form?"

2. Another way to access Lite mode is to use the switcher that is available in the Lotus Domino Web Access Full mode user interface, as shown in figure 2.
Introducing IBM Lotus Domino 8.0.1 Web Access Lite mode

Figure 2. Full-to-Lite mode switcher

The iNotes_WA_EnableLiteMode=0 Notes.ini parameter can be used to prevent the mode switcher from being displayed. This option is useful if you don't want users to use Lite mode.

3. Administrators can also set Lotus Domino Web Access Lite as the default mode for all Lotus Domino Web Access users, using the iNotes_WA_DefaultUI=dwa_lite Notes.ini parameter. With this parameter in use, mail databases accessed using an explicit URL, such as http://yourserver.yourdomain.com/mail/tuser.nsf are launched using Lite mode. In 8.0.1, however, if the Lotus Domino Web Access Redirect is in use, the mode selected during log-in is used regardless of the Notes.ini setting.

4. A new URL UI parameter, &ui=dwa_lite, triggers Lotus Domino Web Access to open in Lite mode. It can also be used with the ?OpenDatabase Domino URL command: http://yourserver.yourdomain.com/mail/tuser.nsf?OpenDatabase&ui=dwa_lite

Lotus Domino Web Access Lite mode also honors the Notes.ini parameter iNotes_WA_Areas, which provides a means to remove specific functional areas from the product. Note, however, that the mail area in Lite mode cannot be restricted with this parameter because mail is the primary part of the Lotus Domino 8.0.1 Lite mode functionality.

Navigating the Lite mode UI

Lotus Domino Web Access Lite mode is easy and intuitive for users to navigate. The user interface is similar to that of the IBM Lotus Notes 8 Standard Configuration client, and the Day-At-A-Glance calendar displays in a format closely resembling the sidebar in the standard configuration client (see figure 3).
Figure 3. Lotus Domino Web Access Lite mode UI

In figure 3, the sidebar is expanded to show the day-at-a-glance calendar. You can also collapse the sidebar to maximize the available space for displaying mail, and you can use the sidebar action bar button or the panel divider to display or hide the sidebar (see figure 4).

Figure 4. Collapsed sidebar

When working with documents, you open them in new tabs instead of pop-up windows. This method allows you to multitask more easily and also prevents issues with new windows not opening when pop-up blockers are enabled within the browser. A status bar has also been added to display helpful messages when users work in Lite mode (see figure 5).

Figure 5. Status bar
In areas where a dialog box is essential, Ajax <div> dialog boxes are used to display the dialog box as an element on the page rather than a pop-up, as shown in figure 6.

**Figure 6. Dialog box displayed as page element**

![Dialog box displayed as page element](image)

**What functionality is available?**

Basically, Lotus Domino Web Access Lite mode contains a subset of the features that are available in Full mode. The features made available in Lite mode were determined based on what was deemed critical for business travelers and on customer feedback provided during the Beta cycle. When you access a feature that is not fully supported in Lite mode, such as accessing a calendar entry, a message displays with details on how to switch to Full mode for full support of the feature (see figure 7).

**Figure 7. Detailed support message**

![Detailed support message](image)

Lotus Domino Web Access preferences that affect features available in Lite mode are honored in Lite mode; however, access to the user preferences is not currently available from Lite mode. If you wish to modify your Lotus Domino Web Access preferences, you must switch to the Full mode. A list of the preferences that are supported in Lite mode is available in the Release Notes.

**Working with mail**

The layout of the Inbox in Lite mode is nearly identical to that in Full mode. The outline is within a collapsible left panel, and the main area includes a lighter menu widget for the action bar as well as a lighter virtual list widget. Also, this list widget supports scrolling through large sets of data with the vertical scroll bar, clicking on columns to sort, resizing columns by dragging column dividers, and selection similar to Microsoft® Windows® (see figure 8). The Subject column is also a flexible width, meaning that it occupies as much space as is left over within the list.
Two differences between Full and Lite modes are that neither keyboard navigation nor right-click menus are supported in Lite mode, so you must use the mouse to scroll through the Inbox and open messages, and you must use the action bar to invoke actions.

You will find that the user interface to create new mail messages is also quite similar to Full mode. As you work with messages, a document modified indicator displays an alert if there are unsaved changes in the document. To prevent data loss, you are prompted to save any unsaved changes if you attempt to switch to Full mode or to transition to another page with unsaved documents open. When you have multiple tabs open, this document modified indicator also lets you easily locate documents having edits that have not yet been saved.

**No wait cursors**

Because asynchronous transactions are used in Lite mode, you won't be delayed by wait cursors as you open documents and scroll through views. An activity indicator displays when transactions are occurring in the background, but it does not prevent you from taking further actions such as opening additional documents or switching to a different folder (see figure 9).

**Figure 9. Cursor still available**

**Using type-ahead**

Type-ahead is a new feature that's been added to Lotus Domino Web Access Lite. Depending on how it is configured at the server, type-ahead can be invoked in several different ways; for example, whenever a comma is typed, after some specified number of characters are typed, or after the keyboard has been idle for a specified period. To minimize the load on the Domino server,
type-ahead in Lotus Domino Web Access Lite is disabled by default. To enable and configure type-ahead for Lite mode, use the Notes.ini parameters shown in table 1.

### Table 1. Type-ahead parameters

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>iNotes_WA_NameTypeahead</td>
<td>There are three possible values: 0 - Type-ahead is disabled.</td>
</tr>
<tr>
<td></td>
<td>1 - Type-ahead is triggered immediately after a comma is typed.</td>
</tr>
<tr>
<td></td>
<td>2 - Type-ahead is triggered immediately after a comma is typed, or</td>
</tr>
<tr>
<td></td>
<td>after the conditions of the iNotes_WA_NameTypeaheadMinChars and</td>
</tr>
<tr>
<td></td>
<td>iNotes_WA_NameTypeaheadStartTimeout parameters are met.</td>
</tr>
<tr>
<td>Default value: 0</td>
<td></td>
</tr>
<tr>
<td>iNotes_WA_NameTypeaheadMinChars</td>
<td>Set the value to the number of characters typed to invoke type-ahead.</td>
</tr>
<tr>
<td>Default value: 5</td>
<td></td>
</tr>
<tr>
<td>iNotes_WA_NameTypeaheadStartTimeout</td>
<td>Set the value to the number of milliseconds that should elapse with</td>
</tr>
<tr>
<td></td>
<td>an idle keyboard before type-ahead is invoked.</td>
</tr>
<tr>
<td>Default value: 500 ms</td>
<td></td>
</tr>
<tr>
<td>iNotes_WA_NameTypeaheadWaitTimeout</td>
<td>Cancels the type-ahead request if the server does not respond in the</td>
</tr>
<tr>
<td></td>
<td>specified amount of time.</td>
</tr>
<tr>
<td>Default value: 5000 ms</td>
<td></td>
</tr>
</tbody>
</table>

**NOTE:** If both the iNotes_WA_NameTypeaheadMinChars and iNotes_WA_NameTypeaheadStartTimeout parameters are in use, the conditions of both parameters must be met before type-ahead is invoked.

To achieve a good balance between including type-ahead and not putting too great a load on the Domino server, use the iNotes_WA_NameTypeahead=1 parameter. This parameter implements type-ahead while limiting the process to one transaction between the client and server because the name request is made only once, that is, when the comma is entered. The other options provide a user experience for type-ahead that more closely resembles the Lotus Notes client; however, they could potentially affect server performance.

After invoked, type-ahead displays in Lite mode are similar to the Lotus Notes client, as shown in figure 10.

**Figure 10. Type-ahead display**

Type-ahead is currently supported in Lite mode only. It is planned that a future version of Full mode will also support this feature.
Differences in rich-text editing

When creating a new message in Lite mode, a light version of the rich-text editor is available that has most of the same features as Full mode (see figure 11). One notable exception, however, is the ability to create and manipulate tables.

Figure 11. Rich-text-editing capabilities

Also, the user experience for spell check has been enhanced for Lite mode. Misspellings are visually highlighted with a yellow background and a squiggle underline, and you can visually interact with any of the misspelled words or phrases in line, to examine and accept any correction suggestions (see figure 12).

Figure 12. Spell check UI

Working with Contacts

The Contacts view leverages the same, lighter virtual-list widget that is used when working with mail, providing you with fast access to information stored in your contacts, which is especially useful while traveling (see figure 13).
Figure 13. Contacts view

Although view-only access to the information displayed in the Contacts view is typically all that most business users need while traveling, the full Contacts form was leveraged to let users edit or view the full contact record if needed.

One limitation when accessing the contacts in Lite mode is that you cannot create or edit groups. To create a new group, you must switch to Full mode. To edit an existing group, you can use the link in the "Some actions of this feature are not supported" message to open the group in Full mode.

Working with the calendar

Again keeping the traveling user in mind, IBM included the day-at-a-glance sidebar in Lite mode so that you can quickly see your calendar entries for a particular day. As with all the other features included in Lotus Domino Web Access Lite, usability was a key design goal. When working in the day-at-a-glance calendar in Lite mode, you find that the same color scheme as the one used in the Lotus Notes 8 Client is used to display calendar entries (see figure 14).

Figure 14. Color scheme display

A drop-down calendar is provided that lets you easily jump to a particular day in the day-at-a-glance sidebar (see figure 15). You can quickly switch back to the current day using the Today button (see figure 16).
Using the support console

A new support console is available in Lotus Domino Web Access Lite (see figure 17). The console provides more information on what is occurring during a Lotus Domino Web Access session, as well as more details when a JavaScript™ error occurs, and it can be used by IBM Technical Support when troubleshooting issues.
Figure 17. Lotus Domino Web Access support console

![Lotus Domino Web Access support console](image)

When a JavaScript error occurs, a message displays in red on the status bar, along with the Show Console button (see figure 18).

Figure 18. JavaScript error

![JavaScript error](image)

You can manually launch the console any time by holding down the Ctrl key while clicking the Domino Web Access logo. In the console, you can click the Detail button to see a list of the calls and actions being performed in Lotus Domino Web Access. This information can be requested by IBM Technical Support when troubleshooting issues with Lotus Domino Web Access Lite.

The console is currently available in Lite mode only.

Architecture

Now let's examine the pertinent architectural aspects of Lite mode.

Where does Lite mode fit in?

Figure 19 illustrates how Lotus Domino Web Access Lite mode fits in with Lotus Domino Web Access Full mode. It shows users Samantha and Ted set up to use the same 8.0.1 Mail Template (mail8.ntf), which is the same template that a typical Lotus Notes 8 client user would use, but having two different user experiences.
The majority of the design elements leveraged by Lotus Domino Web Access reside in what is known as a shared Forms file, in this case, Forms8.nsf. The design from the Forms file is merged with the data in the Mail file to display the resultant response page. Both Lotus Domino Web Access Full and Lite modes merge the view data with the view design at the browser for view screens (such as the Inbox or Contacts view). Lotus Domino Web Access Lite mode, though, also merges the document design with the data for document screens (such as the Read Message and Compose Message screens). Lotus Domino Web Access Full mode currently merges the document design and the data at the server.

When Samantha opens her mail file from the browser, she gets Lotus Domino Web Access Full mode by default. Ted, even though he is using the same template, can opt to use the new Lotus Domino Web Access Lite capability by specifying the &ui=dwa_lite argument when he opens the mail file.

How do Lite mode pages differ from Full mode pages?

The faster loading of the initial Lotus Domino Web Access Lite page is due to its different page architecture. This page architecture is optimized for low-bandwidth, empty-browser cache scenarios, in which the number of bytes sent from the server to the browser over the slow network pipe is the critical determinant for how long it takes to display the page.

To appreciate the benefits of this new page architecture, it is useful to contrast it with the Lotus Domino Web Access Full mode, which employs a typical HTML page architecture (see figure 20).
Figure 20. Typical HTML page architecture

Typical HTML pages have a <head> section and a <body> section. The Head section includes references to several external script files, and the routines defined within these files are referenced within the Body section of the page. When the browser encounters these script tags, it loads that script.

Lotus Domino Web Access has various script files. Figure 20 shows several such external script components in the gray boxes within the rectangle representing the <head> section of the page. For instance, s_JSMnUtils includes minimal utility routines and is referenced by all the Lotus Domino Web Access pages. s_JSBase includes some common framework routines, such as date manipulation routines and the date-picker widget logic. menucode is code for the rich Lotus Domino Web Access menu widget, and s_JSView has common view routines. The important thing to understand is that pages for rich Ajax applications reference a lot of script, which is typically referenced in many external script files.

The problem with this traditional page architecture is that the visible page doesn’t appear until all the referenced script travels from the server to the browser (or is loaded from the browser’s disk cache) and is interpreted.

When you have a high-speed connection, these external script files are delivered from the server fairly quickly. When you are on a low-bandwidth connection, and particularly when you are accessing the product for the first time (or after having cleared the browser cache), a significant amount of time passes before the initial page is displayed. Subsequent pages might be able to leverage some of the same external script used by the first page and thus be a bit quicker, but that first-page display is delayed until the browser can retrieve all the script that the page references within the <head> section (or <body> section).

Now that we’ve reviewed the traditional HTML page architecture, we’re ready to contrast it with the Lotus Domino Web Access Lite mode page architecture, which is shown in figure 21.
The Lite mode page architecture uses a frameset with a single visible frame and two hidden frames, a frame called the script frame and one called the session frame. In this scenario, as the frameset loads, a small set of core utility routines is initially loaded into the script frame; at the same time, server and user settings are loaded in the session frame. Much-simplified view code is then loaded within the script frame, and as soon as this code is available, the view can then display, getting design information the first time and then retrieving data for the view.

A big benefit of this alternate architecture is that script is parsed only once per session. As you switch from the Mail view to the Contacts view, a separate full page is not loaded, and hence the view-handling code doesn't need to be reloaded or even reparsed. The reduced script provides a much improved performance experience. In addition, all transactions are performed in an asynchronous manner, yielding much-improved responsiveness.

**Why Lite mode is faster**

Lotus Domino Web Access Lite is faster for these reasons:
• IBM developers were diligent about analyzing code size and determining exactly when the code download cost is incurred. As a result, less code is downloaded, and as illustrated in the preceding architecture contrast, this approach results in a reduced number of transactions.
• The downloading of code is deferred until it is actually needed for the first time. This detail means that, if a particular UI area (such as the sidebar calendar) isn’t currently displayed, then all the logic needed to realize this area isn’t loaded until the user invokes an action to make the area visible. In most Web applications, the logic for a particular widget is grouped together and loaded at once. For Lotus Domino Web Access Lite, the widget logic can be further grouped as distinct loadable pieces. In this way, methods that are not needed until a subsequent user action occurs are delayed, thus speeding up the display of the initial page.
• Lotus Domino Web Access Lite mode, like Full mode, returns response headers with each of its external JavaScript code parts. This approach supports caching within the browser cache and avoids the need to incur even a network transaction to retrieve these pieces during subsequent sessions. With Lite mode, as mentioned earlier, all script is interpreted only once per session because multiple pages are not traversed during a Lotus domino Web Access Lite session. When you switch from the Inbox to the Contacts view, the JavaScript related to the view widget doesn't need to be reloaded or reinterpreted; instead, the version previously loaded and interpreted is leveraged.

Lite mode also attempts to minimize the number of image resources that it needs to download and uses consolidated images to reduce the number of transactions for displaying various images. Consolidated images use a single, larger image that contains all the smaller images pieced together like a quilt and uses CSS styles to reference specific rectangles within the larger image.

Performance results

In the previous section, we described how the many design innovations help make Lite mode faster, which in turn helps you access and work with your mail faster. Now let's discuss the measured performance results.

We measure Lite mode using IBM Page Detailer Pro, which helps us visualize the size, quantity, and contents of HTTP requests and responses between the browser and the Domino HTTP server. Analyzing Lite mode with Page Detailer, we find that it requires fewer transactions and fewer transferred bytes to display your Inbox, so you can get to and work with it faster. When we compare Lite mode to Lotus Domino WebMail, Lite mode requires about half the transactions that Lotus Domino WebMail requires to display your mail Inbox.

During the Lite mode product-development cycle we tested client performance early and often, and attained baseline numbers for what we called an "Initial Use Test Case" with these parameters:

• Empty browser cache
• 56 K modem speed
• 500 MHz CPU
• 256 MB RAM
• Measure time to view Inbox
• Measure time to read a message
Our parameters come from studying regions that have slower connection speeds. For this test, we empty the browser cache (temporary Internet files) so that no Lite mode JavaScript, HTML markup, or images are on your local computer (see figure 22).

**Figure 22. Delete Files dialog box**

![Delete Files dialog box](image)

Then we measure how long it takes to perform common operations, such as displaying your Inbox or creating a new message, so that all the required code and data come from the server, not the local system cache. After we have these measurements, the team is mandated to keep within an established upper bound for those numbers. If we go above the numbers, we must make innovative design changes to get our speed back in line.

We succeeded. In the 8.0.1 shipping version, we measured fewer bytes downloaded to display your Inbox in the Initial Use Test Case. Compared with Full mode (which has many more features), Lotus Domino Web Access Lite mode had a 71 percent savings in bytes downloaded. Comparing this with Lotus Domino WebMail, we had about a 50 percent savings (see figure 23).

The fewer bytes that are downloaded, the faster the user interface displays and reacts to user input. We measured a 67 percent savings in the time it takes to show your Inbox for Lite mode versus Full mode for the Initial Use Test Case. Comparing Lite mode to Lotus Domino WebMail, we measured a 55 percent savings in time.
Figure 23. Performance comparisons

Our Initial Use Test Case was helpful in the development of Lite mode. Our tests were run on an isolated network, on one system, with one Lotus Domino server, and using bandwidth-constraining software. This configuration helped us compare Lite mode to other products in an "apples-to-apples" manner. Note, however, that this performance test was conducted on a particular configuration that does not match typical Lotus Domino customer environments. You need to run your own tests to obtain performance data for your configuration.

Conclusion

Lotus Domino Web Access Lite mode has been through a vigorous Beta test phase. Feedback from Beta test customers has been positive and enthusiastic.

The key points to remember are that Lotus Domino Web Access Lite mode:

- Is a new capability within IBM Lotus Domino Web Access 8.0.1 that uses the same mail8.ntf template
- Is a pure Ajax application
- Offers a rich user experience with great performance
- Has the critical set of mail features
- Excels in bandwidth-constrained scenarios
- Provides easy access to all capabilities of Full mode
- Introduces a foundation for future innovation

Many of the new features, such as the innovative performance improvements and updated user interface, offered in Lotus Domino Web Access 8.0.1 Lite mode also benefit Full mode users:

- Keeping all transactions asynchronous so that the browser is always responsive
• Managing your open work within tabs
• The Day-At-A-Glance sidebar
• Avoiding pop-up blockers with <div> dialog boxes
• Improved supportability with the support console
• The new type-ahead name lookup
• The new spell check experience
Related topics

- Refer to the Lotus Notes/Domino 8.0.1 Release Notes.
- Refer to the product documentation, Detailed system requirements - Domino Web Access 8.0.1.
- Download a trial version of IBM Lotus Domino.
- Download a trial version of IBM Lotus Notes, Domino Designer, and Domino Administrator clients.

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