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Tinkering Around: Bugfixes, Friendlier Password Input, and a Directory That Tells Local Time

One of the great joys of programming is not when we are trying to get the bare essentials basically working, but when the system is working as a whole, and we start to ask, "What about this? What about that?" One positive sense of the term "hacking" can refer to this tinkering, and it can be a joy to tinker with an already working system to see what enhancements are possible. Here we will tinker with the system and make some minor tweaks and two slightly more major enhancements. We will cover:

- Minor bugfixes and enhancements
- A more usable input solution for passwords
- Telling an (approximate) local time for other people we are working with, who may be in different time zones

Let's dig in.

Minor tweaks and bugfixes

Good tinkering can be a process that begins with tweaks and bugfixes, and snowballs from there. Let's begin with some of the smaller tweaks and bugfixes before tinkering further.

Setting a default name of "(Insert name here)"

Most of the fields on an Entity default to blank, which is in general appropriate. However, this means that there is a zero-width link for any search result which has not had a name set. If a user fills out the Entity's name before navigating away from that page, everything is fine, but it is a very suspicious assumption that all users will magically use our software in whatever fashion would be most convenient for our implementation.

So, instead, we set a default name of "(Insert name here)" in the definition of an Entity, in `models.py`:

```
name = models.TextField(blank = True,
  default = u'(Insert name here)')
```

Eliminating Borg behavior

One variant on the classic Singleton pattern in **Gang of Four** is the **Borg** pattern, where arbitrarily many instances of a Borg class may exist, but they share the same dictionary, so that if you set an attribute on one of them, you set the attribute on all of them. At present we have a bug, which is that our views pull all available instances. We need to specify something different. We update the end of `ajax_profile()`, including a slot for time zones to be used later in this chapter, to:

```
    return render_to_response(u'profile_internal.html',
        {
        u'entities': directory.models.Entity.objects.filter(
          is_invisible = False).order_by(u'name'),
        u'entity': entity,
        u'first_stati': directory.models.Status.objects.filter(
          entity = id).order_by(
            u'-datetime')[:directory.settings.INITIAL_STATI],
        u'gps': gps,
        u'gps_url': gps_url,
        u'id': int(id),
        u'emails': directory.models.Email.objects.filter(
          entity = entity, is_invisible = False),
        u'phones': directory.models.Phone.objects.filter(
          entity = entity, is_invisible = False),
        u'second_stati': directory.models.Status.objects.filter(
          entity = id).order_by(
            u'-datetime')[directory.settings.INITIAL_STATI:],
        u'tags': directory.models.Tag.objects.filter(entity = entity,
          is_invisible = False).order_by(u'text'),
```

```
u'time_zones': directory.models.TIME_ZONE_CHOICES,
u'urls': directory.models.URL.objects.filter(entity = entity,
  is_invisible = False),
})
```

Likewise, we update `homepage()`:

```
profile = template.render(Context(
    {
    u'entities':
      directory.models.Entity.objects.filter(
        is_invisible = False),
    u'entity': entity,
    u'first_stati': directory.models.Status.objects.filter(
      entity = id).order_by(
        u'-datetime')[:directory.settings.INITIAL_STATI],
    u'gps': gps,
    u'gps_url': gps_url,
    u'id': int(id),
    u'emails': directory.models.Email.objects.filter(
      entity = entity, is_invisible = False),
    u'phones': directory.models.Phone.objects.filter(
      entity = entity, is_invisible = False),
    u'query': urllib.quote(query),
    u'second_stati':directory.models.Status.objects.filter(
      entity = id).order_by(
        u'-datetime')[directory.settings.INITIAL_STATI:],
    u'time_zones': directory.models.TIME_ZONE_CHOICES,
    u'tags': directory.models.Tag.objects.filter(
      entity = entity,
      is_invisible = False).order_by(u'text'),
    u'urls': directory.models.URL.objects.filter(
      entity = entity, is_invisible = False),
    }))
```

Confusing jQuery's load() with html()

If we have failed to load a profile in the main `search.html` template, we had a call to `load("")`. What we needed was:

```
else
    {
    $("#profile").html("");
    }
```

`$("#profile").load("")` loads a copy of the current page into the `div` named `profile`. We can improve on this slightly to "blank" contents that include the default header:

```
            else
                {
                $("#profile").html("<h2>People, etc.</h2>");
                }
```

Preventing display of deleted instances

In our system, enabling undo means that there can be instances (Entities, Emails, URLs, and so on) which have been deleted but are still available for undo. We have implemented deletion by setting an `is_invisible` flag to `True`, and we also need to check before displaying to avoid puzzling behavior like a user deleting an Entity, being told **Your change has been saved**, and then seeing the Entity's profile displayed exactly as before.

We accomplish this by a specifying, for a Queryset `.filter(is_invisible = False)` where we might earlier have specified `.all()`, or adding `is_invisible = False` to the conditions of a pre-existing filter; for instance:

```
def ajax_download_model(request, model):
    if directory.settings.SHOULD_DOWNLOAD_DIRECTORY:
        json_serializer = serializers.get_serializer(u'json')()
        response = HttpResponse(mimetype = u'application/json')
        if model == u'Entity':
            json_serializer.serialize(getattr(directory.models,
              model).objects.filter(
                is_invisible = False).order_by(u'name'),
              ensure_ascii = False, stream = response)
        else:
            json_serializer.serialize(getattr(directory.models,
              model).objects.filter(is_invisible = False),
              ensure_ascii = False,
              stream = response)
        return response
    else:
        return HttpResponse(u'This feature has been turned off.')
```

In the main view for the profile, we add a check in the beginning so that a (basically) blank result page is shown:

```
def ajax_profile(request, id):
    entity = directory.models.Entity.objects.filter(id = int(id))[0]
    if entity.is_invisible:
        return HttpResponse(u'<h2>People, etc.</h2>')
```

One nicety we provide is usually loading a profile on mouseover for its area of the search result page. This means that users can more quickly and easily scan through drilldown pages in search of the right match; however, there is a performance gotcha for simply specifying an `onmouseover` handler. If you specify an `onmouseover` for a containing `div`, you may get a separate event call for every time the user hovers over an element contained in the `div`, easily getting 3+ calls if a user moves the mouse over to the link. That could be annoying to people on a VPN connection if it means that they are getting the network hits for numerous needless profile loads.

To cut back on this, we define an initially `null` variable for the last profile moused over:

```
PHOTO_DIRECTORY.last_mouseover_profile = null;
```

Then we call the following function in the containing `div` element's `onmouseover`:

```
PHOTO_DIRECTORY.mouseover_profile = function(profile)
    {
    if (profile != PHOTO_DIRECTORY.last_mouseover_profile)
        {
        PHOTO_DIRECTORY.load_profile(profile);
        PHOTO_DIRECTORY.last_mouseover_profile = profile;
        PHOTO_DIRECTORY.register_editables();
        }
    }
```

The relevant code from `search_internal.html` is as follows:

```
<div class="search_result"
  onmouseover="PHOTO_DIRECTORY.mouseover_profile(
    {{ result.id }});"
  onclick="PHOTO_DIRECTORY.click_profile({{ result.id }});">
```

We usually, but not always, enable this mouseover functionality; not always, because it works out to annoying behavior if a person is trying to edit, does a drag select, mouses over the profile area, and reloads a fresh, non-edited profile. Here we edit the Jeditable plugin's source code and add a few lines; we also perform a second check for if the user is logged in, and offer a login form if so:

```
    /* if element is empty add something clickable
       (if requested) */
    if (!$.trim($(this).html())) {
        $(this).html(settings.placeholder);
    }
```

```
$(this).bind(settings.event, function(e) {

    $("div").removeAttr("onmouseover");
    if (!PHOTO_DIRECTORY.check_login())
        {
        PHOTO_DIRECTORY.offer_login();
        }
    /* abort if disabled for this element */
    if (true === $(this).data('disabled.editable')) {
        return;
    }
```

For Jeditable-enabled elements, we can override the placeholder for an empty element at method call, but the default placeholder is cleared when editing begins; overridden placeholders aren't. We override the placeholder with something that gives us a little more control and styling freedom:

```
// publicly accessible defaults
    $.fn.editable.defaults = {
        name        : 'value',
        id          : 'id',
        type        : 'text',
        width       : 'auto',
        height      : 'auto',
        event       : 'click.editable',
        onblur      : 'cancel',
        loadtype    : 'GET',
        loadtext    : 'Loading...',
        placeholder: '<span class="placeholder">
                      Click to add.</span>',
        loaddata    : {},
        submitdata  : {},
        ajaxoptions: {}
    };
```

All of this is added to the file `jquery.jeditable.js`.

We now have, as well as an `@ajax_login_required` decorator, an `@ajax_permission_required` decorator. We test for this variable in the default postprocessor specified in `$.ajaxSetup()` for the `complete` handler. Because Jeditable will place the returned data inline, we also refresh the profile.

This occurs after the code to check for an undoable edit and offer an undo option to the user.

```
complete: function(XMLHttpRequest, textStatus)
    {
    var data = XMLHttpRequest.responseText;
```

```
var regular_expression = new RegExp("<!-" +
  "-# (\\d+) #-" + "->");
if (data.match(regular_expression))
    {
    var match = regular_expression.exec(data);
    PHOTO_DIRECTORY.undo_notification(
      "Your changes have been saved. " +
      "<a href='JavaScript:PHOTO_DIRECTORY.undo(" +
      match[1] + ")'>Undo</a>");
    }
else if (data == '{"not_permitted": true}' ||
  data == "{'not_permitted': true}")
    {
    PHOTO_DIRECTORY.send_notification(
      "We are sorry, but we cannot allow you " +
      "to do that.");
    PHOTO_DIRECTORY.reload_profile();
    }
},
```

Note that we have tried to produce the least painful of clear message we can: we avoid both saying "You shouldn't be doing that," and a terse, "bad movie computer"-style message of "Access denied" or "Permission denied."

We also removed from that method code to call `offer_login()` if a call came back not authenticated. This looked good on paper, but our code was making Ajax calls soon enough that the user would get an immediate, unprovoked, modal login dialog on loading the page.

Adding a favicon.ico

In terms of minor tweaks, some visually distinct `favicon.ico` (`http://softpedia.com/` is one of many free sources of `favicon.ico` files, or the favicon generator at `http://tools.dynamicdrive.com/favicon/` which can take an image like your company logo as the basis for an icon) helps your tabs look different at a glance from other tabs. Save a good, simple favicon in `static/favicon.ico`. The icon may not show up immediately when you refresh, but a good favicon makes it slightly easier for visitors to manage your pages among others that they have to deal with. It shows up in the address bar, bookmarks, and possibly other places.

This brings us to the end of the minor tweaks; let us look at two slightly larger additions to the directory.

Handling password input in a slightly different way

Our first addition has to do with password inputs. The traditional style of password input leaves plenty of room for second guessing about "Did I hit this key hard enough? Did I mistype something?" Logging in and specifying your password the traditional way ranks up with CAPTCHA as the hardest part of the form for regular users (apart from any disability issues).

What we will do, then, is present a regular text input for the default (users can click on **Hide password** for the old-school password input), and work a little Ajax to let the users switch. We will have two inputs, and when one of them receives a keydown or keyup event, its data is copied to the other. Only one of them, and only one link, will be visible at a time. In our `style.css` we have:

```
#new_password_hidden, #password_hidden
    {
    display: none
    }

#show_new_password, #show_password
    {
    display: none;
    }
```

In the template, we expand the markup for the login and create account forms:

```
<div id="login_form" title="Log in">
    <form>
        <fieldset>
            <label for="login">Login</label><br />
            <input type="text" name="login" id="login"
              class="text ui-widget-content ui-corner-all" /><br />
            <label for="password">Password</label><br />
            <input onkeyup="PHOTO_DIRECTORY.field_sync(
              'password_visible', 'password_hidden');"
              onkeydown="PHOTO_DIRECTORY.field_sync(
              'password_visible', 'password_hidden');"
              autocomplete="off" type="text" name="password_visible"
                id="password_visible"
                class="text ui-widget-content ui-corner-all" />
            <input onkeyup="PHOTO_DIRECTORY.field_sync(
              'password_hidden', 'password_visible');"
              onkeydown="PHOTO_DIRECTORY.field_sync(
              'password_hidden', 'password_visible');"
```

```
                type="password" name="password_hidden"
                id="password_hidden"
                class="text ui-widget-content ui-corner-all" /><br />
              <a id="hide_password" name="hide_password"
                href="JavaScript:PHOTO_DIRECTORY.hide_element(
                'password');">Hide password</a>
              <a id="show_password" name="show_password"
                href="JavaScript:PHOTO_DIRECTORY.show_element(
                'password');">Show password</a>
            </fieldset>
        </form>
    </div>
    <div id="create_account" title="Create account">
        <form>
            <fieldset>
                <label for="new_username">Account name</label><br />
                <input type="text" name="new_username" id="new_username"
                  class="text ui-widget-content ui-corner-all" /><br />
                <label for="new_email">Email</label><br />
                <input type="text" name="new_email" id="new_email"
                  class="text ui-widget-content ui-corner-all" /><br />
                <label for="new_password">Password</label><br />
                <input onkeyup="PHOTO_DIRECTORY.field_sync(
                  'new_password_visible', 'new_password_hidden');"
                  onkeydown="PHOTO_DIRECTORY.field_sync(
                  'new_password_visible', 'new_password_hidden');"
                  autocomplete="off" type="text"
                  name="new_password_visible" id="new_password_visible"
                  class="text ui-widget-content ui-corner-all" />
                <input onkeyup="PHOTO_DIRECTORY.field_sync(
                  'new_password_hidden', 'new_password_visible');"
                  onkeydown="PHOTO_DIRECTORY.field_sync(
                  'new_password_hidden', 'new_password_visible');"
                  type="password" name="new_password_hidden"
                  id="new_password_hidden"
                  class="text ui-widget-content ui-corner-all" /><br />
                <a id="hide_new_password" name="hide_new_password"
                  href="JavaScript:PHOTO_DIRECTORY.hide_element(
                  'new_password');">Hide password</a>
                <a id="show_new_password" name="show_new_password"
                  href="JavaScript:PHOTO_DIRECTORY.show_element(
                  'new_password');">Show password</a>
            </fieldset>
        </form>
    </div>
```

With this change, we also change the `search.html` file's reference to `document.getElementById("password").value` to `document.getElementById("password_visible").value`.

`field_sync()` copies data from one specified form element to another:

```
PHOTO_DIRECTORY.field_sync = function(from, to)
    {
    $("#" + to).val($("#" + from).val());
    }
```

`hide_element()` and `show_element()` feed their argument into toggling visibility for several elements:

```
PHOTO_DIRECTORY.hide_element = function(name)
    {
    $("#hide_" + name + ".#" + name + "_visible").hide();
    $("#show_" + name + ".#" + name "_hidden").show();
    }
```

And with the last arguments reversed:

```
PHOTO_DIRECTORY.show_element = function(name)
    {
    $("#hide_" + name + ".#" + name + "_visible").show();
    $("#show_" + name + ".#" + name "_hidden").hide();
    }
```

In our HTML markup for the inputs of type text, we specified `autocomplete="off"`, which is an important housekeeping detail to exclude the password from the list of form elements that are quietly recorded whether the user wants it that way or not.

And that completes this usability enhancement.

A directory that includes local timekeeping

We live in a world where we can deal with people in many different time zones, and sometimes it would be nice to know what time it is for the other person.

The solution here is an approximate solution that can run aground on the intricacies of Daylight Saving Time. Readers wishing for a more accurate solution may find an Ajax use of the Python module `pytz` on the backend (`http://pytz.sourceforge.net/`) to be more accurate in handling Daylight Saving Time. All the world's time zones amount to a lot of nooks and crannies, and a server-side database allows a finer granularity than a quick client-side solution. However, even an approximate client-side solution can be helpful in knowing, "What time of day is it for the other person?"

First of all, we define a choice for a time zone. (Note that we are using strings rather than decimals for offsets; pure decimals had implementation issues and produced results that JavaScript did not recognize as equal.)

```
TIME_ZONE_CHOICES = (
  (None, "Select"),
  ("1.0", "A: Paris, +1:00"),
  ("2.0", "B: Athens, +2:00"),
  ("3.0", "C: Moscow, +3:00"),
  ("4.0", "D: Dubai, +4:00"),
  ("4.5", "-: Kabul, +4:30"),
  ("5.0", "E: Karachi, +5:00"),
  ("5.5", "-: New Delhi, +5:30"),
  ("5.75", "-: Kathmandu, :5:45"),
  ("6.0", "F: Dhaka, +6:00"),
  ("6.5", "-: Rangoon, +6:30"),
  ("7.0", "G: Jakarta, +7:00"),
  ("8.0", "H: Kuala Lumpur, +8:00"),
  ("9.0", "I: Tokyo, +9:00"),
  ("9.5", "-: Adelaide, +9:30"),
  ("10.0", "K: Sydney, +10:00"),
  ("10.5", "-: Lord Howe Island, +10:30"),
  ("11.0", "L: Solomon Islands, +11:00"),
  ("11.5", "-: Norfolk Island, +11:50"),
  ("12.0", "M: Auckland, +12:00"),
  ("12.75", "-: Chatham Islands, +12:45"),
  ("13.0", "-: Tonga, +13:00"),
  ("14.0", "-: Line Islands, +14:00"),
  ("-1.0", "N: Azores, -1:00"),
  ("-2.0", "O: Fernando de Norohna, -2:00"),
  ("-3.0", "P: Rio de Janiero, -3:00"),
  ("-3.5", "-: St. John's, -3:50"),
  ("-4.0", "Q: Santiago, -4:00"),
  ("-4.5", "-: Caracas, -4:30"),
  ("-5.0", "R: New York City, -5:00"),
  ("-6.0", "S: Chicago, -6:00"),
  ("-7.0", "T: Boulder, -7:00"),
  ("-8.0", "U: Los Angeles, -8:00"),
  ("-9.0", "V: Anchorage, -9:00"),
  ("-9.5", "-: Marquesas Islands, -9:30"),
  ("-10.0", "W: Hawaii, -10:00"),
  ("-11.0", "X: Samoa, -11:00"),
  ("-12.0", "Y: Baker Island, -12:00"),
  ("0.0", "Z: London, +0:00"),
 )
```

We expand the Entity definition to include a time zone slot, along with a checkmark for whether Daylight Saving Time is observed:

```
class Entity(models.Model):
    active = models.BooleanField(blank = True)
    department = models.ForeignKey(u'self', blank = True, null =
      True, related_name = u'member')
    description = models.TextField(blank = True)
    gps = GPSField()
    image_mimetype = models.TextField(blank = True, null = True)
    is_invisible = models.BooleanField(default = False)
    location = models.ForeignKey(u'self', blank = True, null = True,
      related_name = u'occupant')
    name = models.TextField(blank = True,
      default = u'(Insert name here)')
    observes_daylight_saving_time = models.BooleanField(
      blank = True, default = True)
    other_contact = models.TextField(blank = True)
    postal_address = models.TextField(blank = True)
    publish_externally = models.BooleanField(blank = True)
    reports_to = models.ForeignKey(u'self', blank = True,
      null = True, related_name = u'subordinate')
    start_date = models.DateField(blank = True, null = True)
    time_zone = models.CharField(max_length = 5, null = True,
      choices = TIME_ZONE_CHOICES)
    title = models.TextField(blank = True)
    class Meta:
        permissions = (
          ("view_changelog", "View the editing changelog"),
          )
```

Then we expand the `profile_internal.html` template to allow selection of time zone and Daylight Saving Time observance:

```
<p>Time zone:
    <select name="time_zone" id="time_zone"
      onchange="PHOTO_DIRECTORY.update_autocomplete(
      'Entity_time_zone_{{ id }}', 'time_zone');">
        {% for time_zone in time_zones %}
            <option value="{{ time_zone.0 }}"
                {% if time_zone.0 == entity.time_zone %}
                    selected="selected"
                {% endif %}
            >{{ time_zone.1 }}</option>
        {% endfor %}
```

```
    </select><br />
Observes daylight saving time: <input type="checkbox"
  name="observes_daylight_saving_time"
  id="observes_daylight_saving_time"
  onchange="PHOTO_DIRECTORY.update_autocomplete(
    'Entity_observes_daylight_saving_time_{{ id }}',
    'observes_daylight_saving_time');"
  {% if entity.observes_daylight_saving_time %}
    checked="checked"
  {% endif %}
  /></p>
```

And in addition, we add hooks to be filled out with the local time:

```
{% if entity.time_zone != None %}
<p>Local time:
<span id="local_time_zone">{{ entity.time_zone }}</span>
<span id="local_time"></span></p>
{% endif %}
```

The `local_time_zone span` is hidden:

```
#local_time_zone
    {
    display: none;
    }
```

Its purpose is to let Ajax fetch the Entity's time zone. In `search.html`, we expand the `register_update()` to set the clock:

```
    PHOTO_DIRECTORY.register_update = function()
        {
        PHOTO_DIRECTORY.limit_width("img.profile", 150);
        PHOTO_DIRECTORY.limit_width("img.search_results", 80);
        PHOTO_DIRECTORY.register_editables();
        PHOTO_DIRECTORY.register_autocomplete();
        if (!PHOTO_DIRECTORY.SHOULD_TURN_ON_HIJAXING)
            {
            $("a").removeAttr("onclick");
            // This link needs to be hijaxed:
            $("#add_new").click(function()
                {
                PHOTO_DIRECTORY.add_new();
                return false;
                });
            }
```

One gotcha has to do with Daylight Saving Time: some places observe daylight saving time, some places don't, and if you don't take it into account, it's an easy way to be wrong by an hour about the other party's local time.

JavaScript offers no explicit facility to tell if our local time includes Daylight Saving Time. One way to tell if we have Daylight Saving Time right now is by looking at our offset from UTC and seeing if it is the same as the January 1 offset. If the two offsets are different then we are in Daylight Saving Time.

```
if ($("#local_time_zone").html())
    {
    var date = new Date();
    var profile_offset = -parseFloat(
      $("#local_time_zone").html()) * 3600000;
    var january_offset = new Date(date.getFullYear(), 0,
      1).getTimezoneOffset() * 60000;
    var our_offset = date.getTimezoneOffset() * 60000;
    if (our_offset != january_offset)
        {
        if (document.getElementById(
          "observes_daylight_saving_time").checked)
            {
            profile_offset -= 60 * 60 * 1000;
            }
        }
    PHOTO_DIRECTORY.update_clock(our_offset - profile_offset,
      PHOTO_DIRECTORY.current_profile);
    }
}
```

And we define the `update_clock` function. First it checks to see if the profile it was registered with is the current profile, and if not, we bail out:

```
PHOTO_DIRECTORY.update_clock = function(offset, id)
    {
    if (id != PHOTO_DIRECTORY.current_profile)
        {
        return;
        }
```

Then we make an adjusted date, "fudged" to give us values for the Entity's local time, and build human-friendly display output for it.

```
    var adjusted_date = new Date(new Date().getTime() + offset);
    var days = ["Sunday", "Monday", "Tuesday", "Wednesday",
      "Thursday", "Friday", "Saturday"];
```

```
var months = ["January", "February", "March", "April",
  "May", "June", "July", "August", "September", "November",
  "December"];
var ampm = "AM";
var hours = adjusted_date.getHours()
if (hours > 11)
    {
    hours -= 12;
    ampm = "PM"
    }
if (hours == 0)
    {
    hours = 12;
    }
var formatted_date = "<strong>" + hours + ":";
if (adjusted_date.getMinutes() < 10)
    {
    formatted_date += "0";
    }
formatted_date += adjusted_date.getMinutes() + " " + ampm;
formatted_date += "</strong>, ";
formatted_date += days[adjusted_date.getDay()] + " ";
formatted_date += months[adjusted_date.getMonth()] + " ";
formatted_date += adjusted_date.getDate() + ", ";
formatted_date += adjusted_date.getFullYear();
$("#local_time").html(formatted_date + ".");
```

An example of the formatted output this produces is "**12:01** PM, January 1, 2001."

Lastly, before closing, we set the clock to update again in a second, to keep the displayed value fresh.

```
setTimeout("PHOTO_DIRECTORY.update_clock(" + offset + ", " +
  id + ")", 1000);
}
```

In the code to dynamically build a profile, we add, after **Other contact information** and before **Department**, fields to build the equivalent of what we added to `profile_internal.html` earlier:

```
result += "<p>Other contact information: <strong ";
result += "class='edit_textarea' " +
  "title='Click to edit.' " +
  "id='Entity_other_contact_" + id + "'>" +
  entity.fields.other_contact + "</strong></p>\n";
```

```
result += "<p>Time zone: ";
result += "<select name='time_zone' id='time_zone'";
result += "onchange=
  'PHOTO_DIRECTORY.update_autocomplete(
  \"Entity_time_zone_{{ id }}\", \"time_zone\");'>";
{% for time_zone in time_zones %}
    result += "<option value='{{ time_zone.0 }}'>";
    result += "{{ time_zone.1 }}</option>\n";
{% endfor %}
result += "</select><br />\n";
result += "Observes daylight saving time: ";
result += "<input type='checkbox' ";
result += "name='observes_daylight_saving_time' ";
result += "id='observes_daylight_saving_time' ";
result += "onchange=
  'PHOTO_DIRECTORY.update_autocomplete(";
result += '"Entity_observes_daylight_saving_time_';
result += id;
result += '", "observes_daylight_saving_time");';
result += "'";
if (entity.fields.observes_daylight_saving_time)
    {
    result += " checked='checked'";
    }
result += " /></p>";
if (entity.fields.time_zone)
    {
    result += "<p>Local time:";
    result += "<span id='local_time_zone'>";
    result += entity.fields.time_zone;
    result += "</span>
      <span id='local_time'></span></p>";
    }
result += "<p>Department: <strong>";
```

The code fails to select the Entity's time zone; we remedy that after `build_profile()` is called:

```
PHOTO_DIRECTORY.load_profile = function(id)
        {
        PHOTO_DIRECTORY.current_profile = id;
        if (PHOTO_DIRECTORY.SHOULD_TURN_ON_HIJAXING)
            {
            try
                {
```

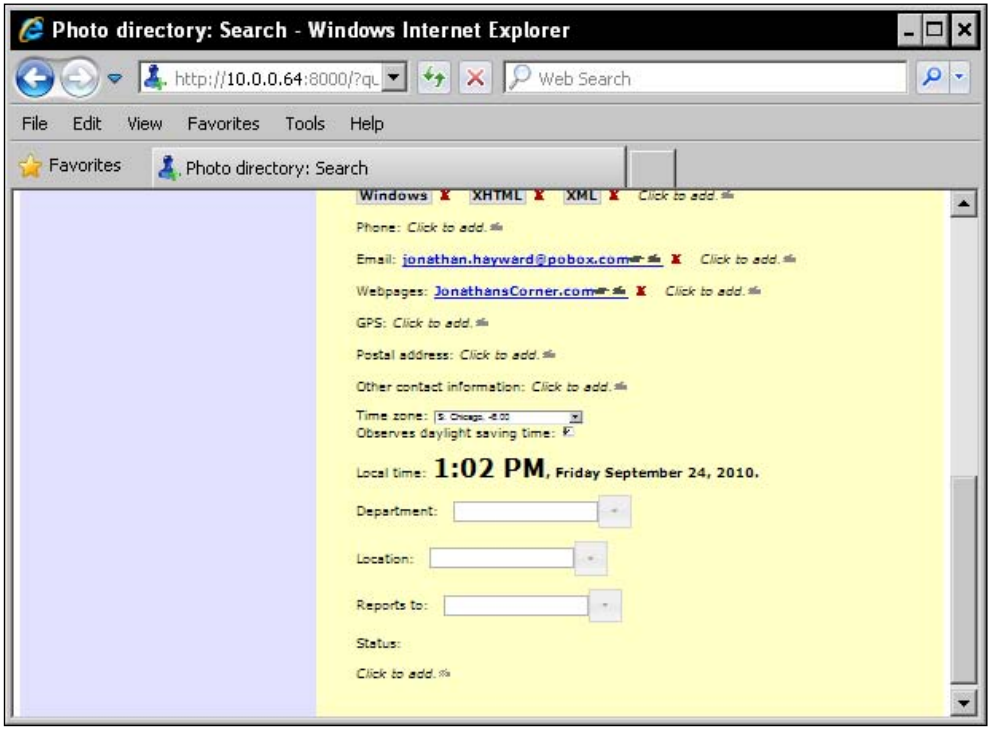
```
$("#profile").html(PHOTO_DIRECTORY.build_profile(id));
if (PHOTO_DIRECTORY.entities[id].fields.time_zone !=
  null)
    {
    $("#time_zone").val(
      PHOTO_DIRECTORY.entities[id].fields.time_zone);
    }
PHOTO_DIRECTORY.register_update();
```

We add a bit of styling:

```
#local_time
    {
    font-weight: bold;
    }

#local_time strong
    {
    font-size: 2em;
    }
```

And with that, we have a clear local time slot in our profile:



Summary

We have covered some tinkering and tweaks, and bugfixes along the way. Our directory has fewer rough spots! These include: updating the code to handle deletion correctly after we have added undoing and we retain some "deleted" items in the database, tweaking a standard plugin to enhance its behavior, improving a basic widget in terms of its usability, and adding a good first pass at a world time zone "What's their local time?" slot on the profile.

Let us continue to take a look at usability itself in the next chapter.