Core ITIL v3 Process Workflow in IPcenter v3:

Incident, Problem, Change and Configuration Management

User Guide

Date	November 5, 2010
Version	1.3
Internal Location	Shared Documents > IPcenter v3 > User Guides

Contents

Document Purpose

This document steps you through the following key ITIL v3 aligned management processes as they are addressed by IPcenter v3:

- Incident Management
- Problem Management
- Change Management
- Configuration Management

This document is not intended as an exhaustive manual to every aspect of IPcenter v3, but rather as a guide that will step you through common IPcenter tasks related to incidents, problems, changes, and configuration.

Definitions

Following are key terms and definitions related to this content:

Term	Definition
Incident	An incident is an unplanned interruption to an IT service or reduction in the quality of an IT service. Examples of Incident categories: Application • Service not available • Application bug/query preventing customer work • Disk-usage threshold exceeded Hardware • System down • Automatic alert • Printer issue is preventing customer work • Configuration inaccessible

Term	Definition
Incident Management	Incident Management involves the activities and practices associated with the detection and resolution of incidents (service disruptions and performance degradations). Incident Management is *reactive*, initiating only at the occurrence of an incident. The goal of Incident Management is to support and improve the availability and quality of services by restoring normal service operations as quickly and efficiently as possible and minimize the impact of service incidents when they occur.
Problem	Problems are the root cause of incidents. Problems include any condition of the infrastructure or operations that has negative impact (either actual or potential) on service availability or quality. This includes application components, technical infrastructure, processes, methodologies, policies, organization, or any other aspect of the infrastructure or operations on which the availability or quality of services depends. Problems can be reported directly via the Service Desk or from Incident Management to solve an incident ticket.
Problem Management	Problem Management is responsible for the identification and resolution of problems (underlying causes of incidents) whether these problems have already resulted in an incident, or whether they could, but have not yet, resulted in service disruptions or the degradation of service quality. Problem Management is both *proactive and reactive*.
Change	A change is the addition, modification or elimination of authorized, planned or supporting service (component) and its related documentation.
Change Management	The Process responsible for controlling the Lifecycle of all changes. The primary objective of Change Management is to enable beneficial changes to be made, with minimum disruption to IT services. Change Management is

Term	Definition
	responsible for managing all requests for change from initial entry through implementation, if approved.
Configuration Item	A configuration item is an asset, service component or other item that is (or will be) controlled by configuration management.
Configuration Management	Configuration management ensures that all configuration items that form part of the service or product are identified, provided with a baseline (basic configuration) and maintained.
Workflow	A workflow depicts a sequence of operations, which are the work of one or more person or complex mechanisms.

About IPcenter v3

IPcenter v3 is the operational service delivery portal used to manage IPsoft client environments (and the IPsoft environment). It is designed from the ground up to align client business goals with IPsoft's service delivery.

- All operational staff at IPsoft use IPcenter.
- IPcenter is also fully accessible to IPsoft clients and engineers.
- IPsoft employees see all clients, have access to some additional administrative tools, and can develop and execute automata (more detail later).
- Partner engineers see information for all their clients.
- IPsoft clients see **their own information only**.

Design Tenets

The four key design tenets of IPcenter:

- **ITIL v3 Aligned Service Portal.** The portal is aligned to the key services that comprise your IT operation:
    - Service Design
    - Service Transition
    - Service Operation
    - Service Delivery Management
    - Service Technology
    - Continual Service Improvement
- **Consolidated Framework.** IPcenter is a consolidated toolset designed to encompass all facets of IT operations. It has a central Configuration Management Database (CMDB—more on this to come) that all applications can communicate with. When an individual module refers to a host, each of the applications refers to that host utilizing the same database, so when the monitoring system refers to a host, ticketing (for example) references that same host. This is true across all applications that comprise IPcenter.

- **Systematically enforced processes**: Operational processes are typically enforced by human beings (process managers.) IPcenter has the operational processes embedded within it to drive all core operational activities and capture variances. The system ensures process adherence and execution, including:
    - Six-Sigma Quality Control
    - ITIL v3 Service Operation and Service Transition Activities
        - Incident Management Process
        - Change Management Process
        - Event Management Process
        - Problem Management Process
- **End-to-End Automation:** IPcenter (through IPescalate, IPradar, IPautomata, and other tools) provides a consolidated end-to-end automation framework encompassing Level 1 and Level 2 activities. Even when automation cannot completely remediate a problem, it can support human engineering activities by gathering information.

Incident Management

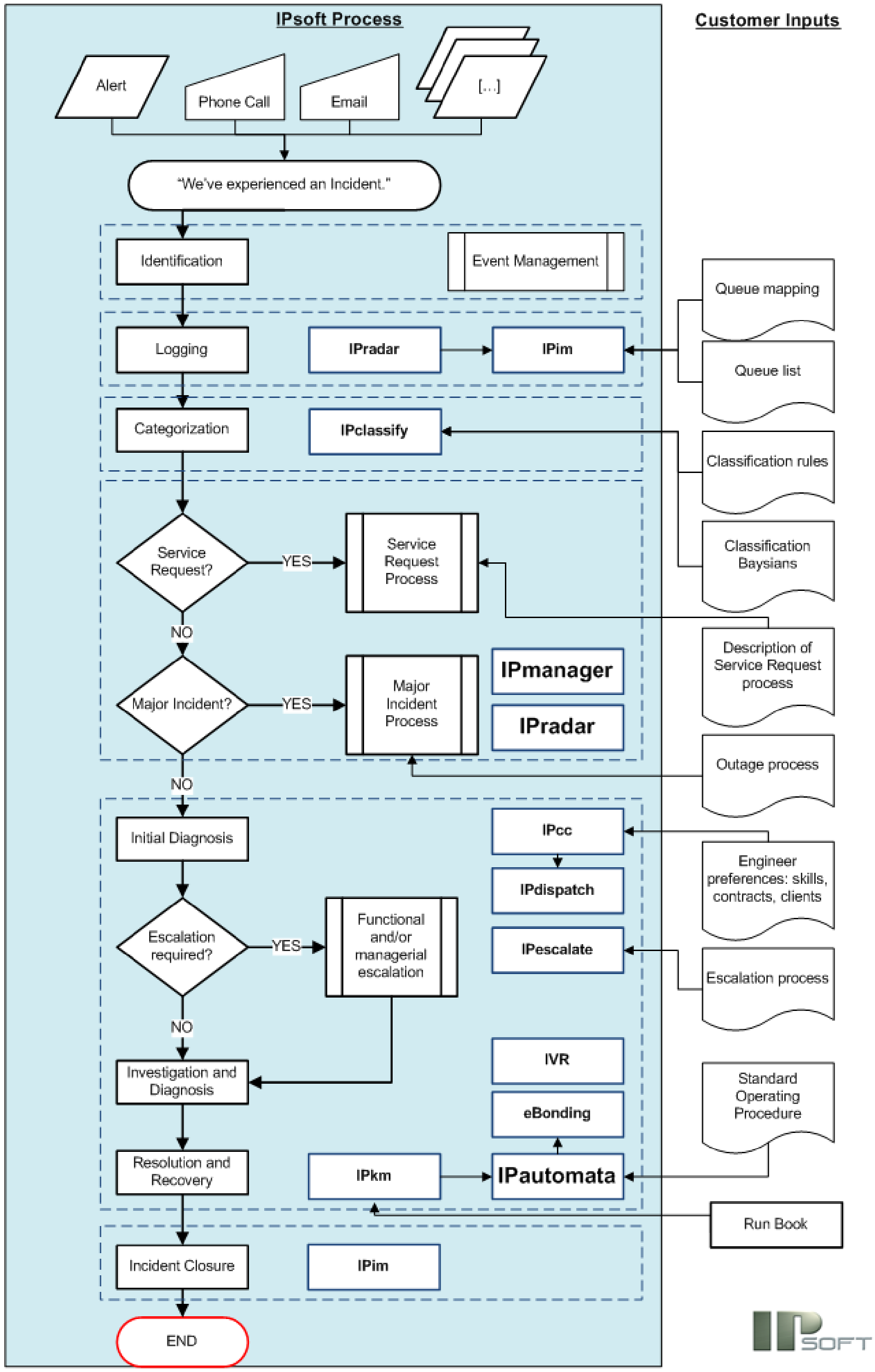
IPim Overview

IPim is IPsoft's Incident Management application. It tracks your incidents through the integrated workflow system, IPradar, ensuring the progression of an incident from inception to satisfactory resolution in the shortest possible time. IPim provides you complete auditability and transparency into the way events in your environment were handled.

IPim—and IPcenter v3 in general—is aligned with ITIL v3 processes.

IPcenter v3 and ITIL v3

The following ITIL v3 workflow diagram outlines how an incident works through to closure. Note the IPcenter v3 modules (blue boxes) related to each step.



Workflow 1: Incident Management

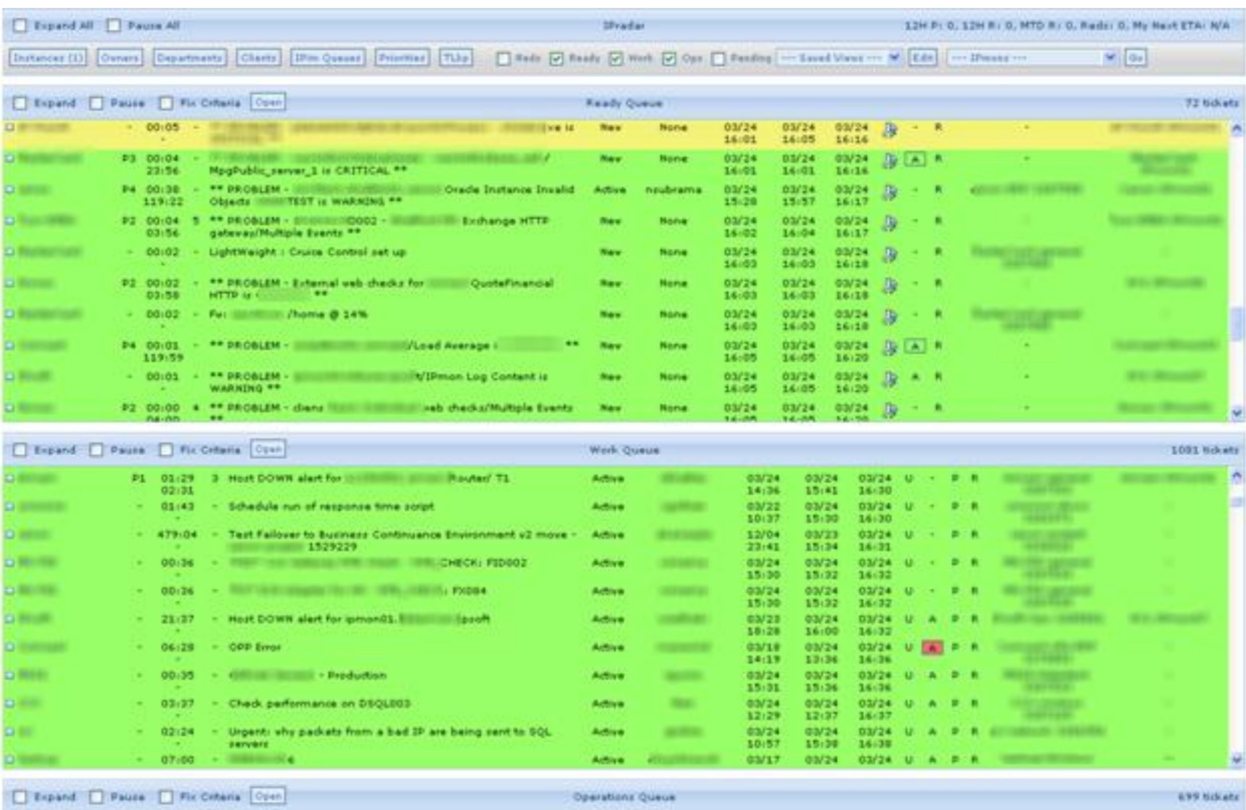
Incident Management Pre-Requisites

Before incident management can take place, the Service Transition process must be mapped, with the following entered:

- All information about client devices must be under management and entered into IPcmdb
- All known escalation information into IPescalate
- All contact information into IPcontact
- All known communications

IPradar Overview

IPradar is IPcenter's core workflow system. It encompasses all facets of the operational lifecycle, including Incident Management. IPradar allows you to monitor and pick up tickets of varying criticality.



Open IPradar

1. Login to IPcenter.
2. Hover your mouse over the 

tab and click IPradar on the tab row below:

Navigate IPradar

IPradar has three key ticket queues for specific accounts engineers are managing:

- **Ready Queue**: Every new or attention-requiring task is visible
- **Work Queue**: Tasks actively being worked on by engineers and/or automata
- **Pending Queue**: Tasks pending some activity, including:
  - Pending Close – Awaiting another pass by the monitoring device before closing
  - Pending Vendor – Awaiting vendor action
  - Pending Client – Awaiting client action, like a change request or client permission
  - Pending Event (scheduled Change) – Awaiting for example, a reboot or an available timeframe

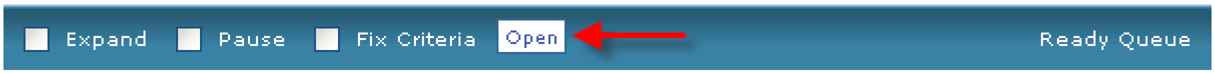
Work with IPradar Queues

IPradar queues are color coded by how long the items have been in queue:

- Green – 0-5 minutes
- Yellow – 10-15 minutes
- Red – 15+ minutes

Filter Queue Tickets

- You can sort tasks by clicking column headers: Client, Description, Status, Owner, Created (date), Modified (date) and ETA.
- To view an entire queue in another browser window, click **Open** in the queue header:



- At the top of the IPradar interface, search/filter displayed tickets using the buttons (with dropdown choices):
  - Owners
  - Departments
  - Clients
  - IPim Queues
  - Priorities
  - TLkp
  - Saved Views
  - IPmons
- ...and/or by checking checkboxes:
  - Reds
  - Ready
  - Work
  - Ops
  - Pending

Update Ready Queue

To change a ticket status, click:

-  to pick up a ticket
- **A** to Add details to a ticket
- **R** to Resolve a ticket

Update Work Queue

The Work Queue can be sorted by: Client, Description, Status, Owner, Created (date), Modified (date) and ETA.

To change a ticket status in the Work Queue, click:

- **U** to Update a ticket
- **A** to Add details to a ticket
- **P** to Pick up a ticket
- **R** to Resolve a ticket

Update Pending Queue

To change a ticket status in the Pending Queue, click:

- **U** to update a ticket
- **B** to activate ticket
- **R** to Resolve a ticket

Update Operations Queue

To change a ticket status in the Operations Queue, click:

- **U** to update a ticket
- **R** to Resolve a ticket

IPradar Columns

- Client
- Number of Correlated Events for this Incident (Event correlation through topology and CMDB relationships are key)
- Description
- Status
- Owner
- Date Created
- Date Modified

- ETA – Defaults to :15
- Related Trouble Ticket (IPim)
- Related Problem Ticket (IPpm)
- Master Monitoring Event Server (IPmon)
- Escalation

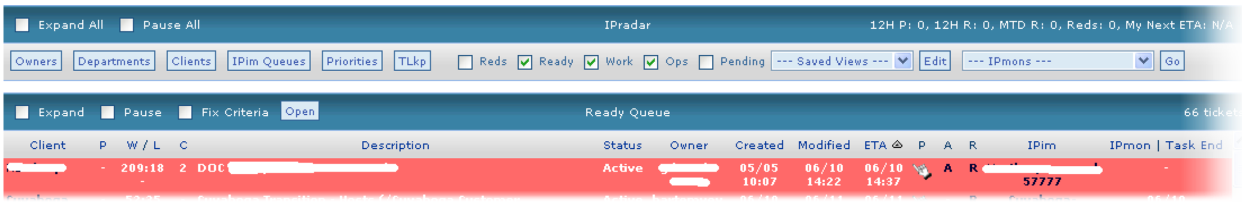
Ticket Status

- New – New ticket has been entered in the workflow
    - Action: Pick up ticket within the guaranteed SLA, set proper ETA, and set it for resolution
- Active – IPsoft engineer is working on the ticket
    - An engineer can keep updating the client on progress
- Hand-off – Handing off ticket from one person to another, for instance to an expert or before leaving for the day.
    - At ETA, ticket stays in the Work Queue
- Operations – Moving IPsoft tickets to the Operations queue (internal)
- Pending Client – Assign tickets for which you are awaiting client response (e.g., awaiting info to complete work)
    - Action: Set ETA. When ETA is set and finally arrives, it pops back into the Ready queue with an ETA of 30 minute
- Pending Vendor – Assign tickets for which you are awaiting vendor response
    - Set ETA = Vendor SLA. When ETA is set and finally arrives, it pops back into the Ready queue with an ETA of 30 minutes
- Pending Event – Assign tickets for which you are waiting for a scheduled event to happen
    - Set ETA for event. 30 minutes before the event it will appear live again in the Ready queue with an ETA of 30 minutes
- Pending Close – Assign tickets for which you are awaiting client sign off
    - 24 hours after ETA, the client receives an auto-reminder that a ticket is waiting for closure. If the client does not respond, the ticket is closed after the next 24 hours.
- Resolved

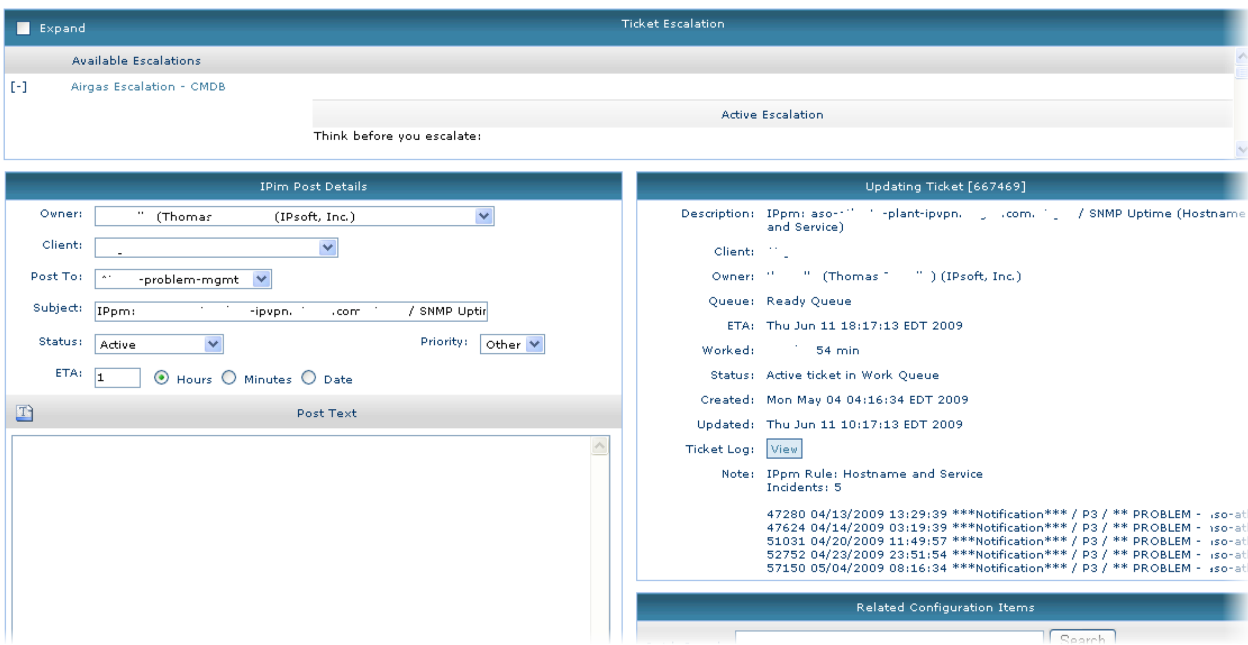
Picking up a Ticket

This section will step you through the most common aspects of picking up and updating an *incident* ticket in IPcenter.

In IPradar, the most urgent tickets are red near the top of the Ready Queue.



1. Click the pickup hand of a specific Ready Queue ticket to pick up the ticket. You will see the **IPradar Update** screen, partially show here:



Note: Most screen shots in this document have been scrubbed of sensitive content, so some screen content is not visible.

2. In the **IPradar Pickup** window, start by reading from the top: **Ticket Escalation** details (more following). Escalation information can detail responsibility and instructions.

a. If you sense that you cannot resolve the ticket quickly (in less than 15 minutes), update the ETA in the **IPim Post Details** to allow time to work the issue. More on this in the last section: **IPim Post Details.**

Ticket Escalation

In the **Ticket Escalation** section, the workflow engine provides the engineer detailed instructions specific to the issue that has been encountered. These instructions are dynamically generated by the system based on how it has classified and categorized the task.

Instructions might highlight, for example:

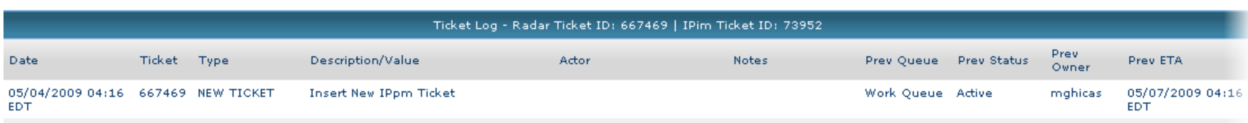
- Key pieces of "tribal knowledge" specific to the customer that the engineer should be aware of for this task
- Customer- and task-specific escalation, communication and business processes, including contact and escalation points.

Updating Ticket

On the upper-right of the **IPradar Pickup** screen you will find original ticket details:

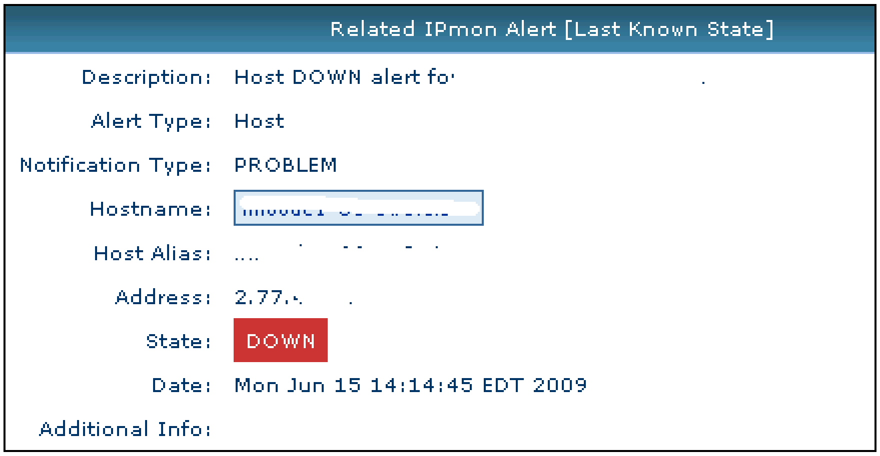
Ticket Log

3. Next to **Ticket Log:** click View to review the ticket history (when, what, who, ETA, etc.):



Related IPmon Alert

In the middle-right of the **IPradar Pickup** window is the **Related IPmon Alert** section. If the source of the ticket is an IPmon alert, the button next to **Hostname** will open the original IPmon alert details. Also, you can see the last known **State** for that Monitoring Alert (in this example: DOWN).

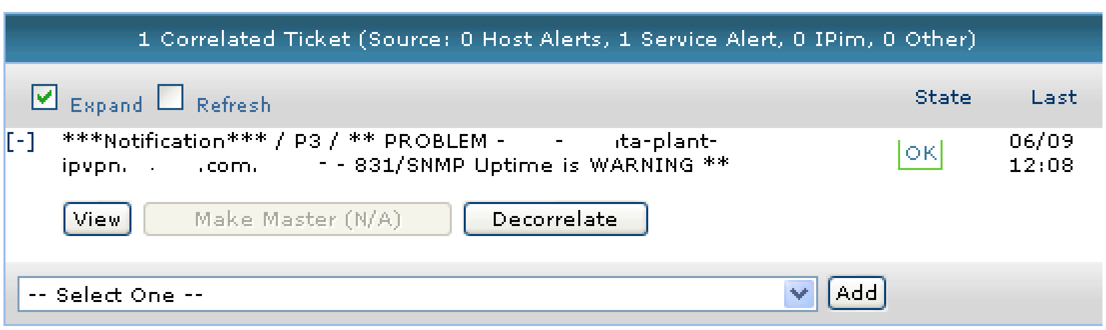


IPmon is the IPsoft monitoring, embedded intelligence, system and network management software. It allows you to monitor network services and host resources and to develop service checks.

Correlated Tickets

Notice the **Correlated Ticket** section in the middle-right part of the **IPradar Pickup** screen. Besides viewing correlated ticket details, you can:

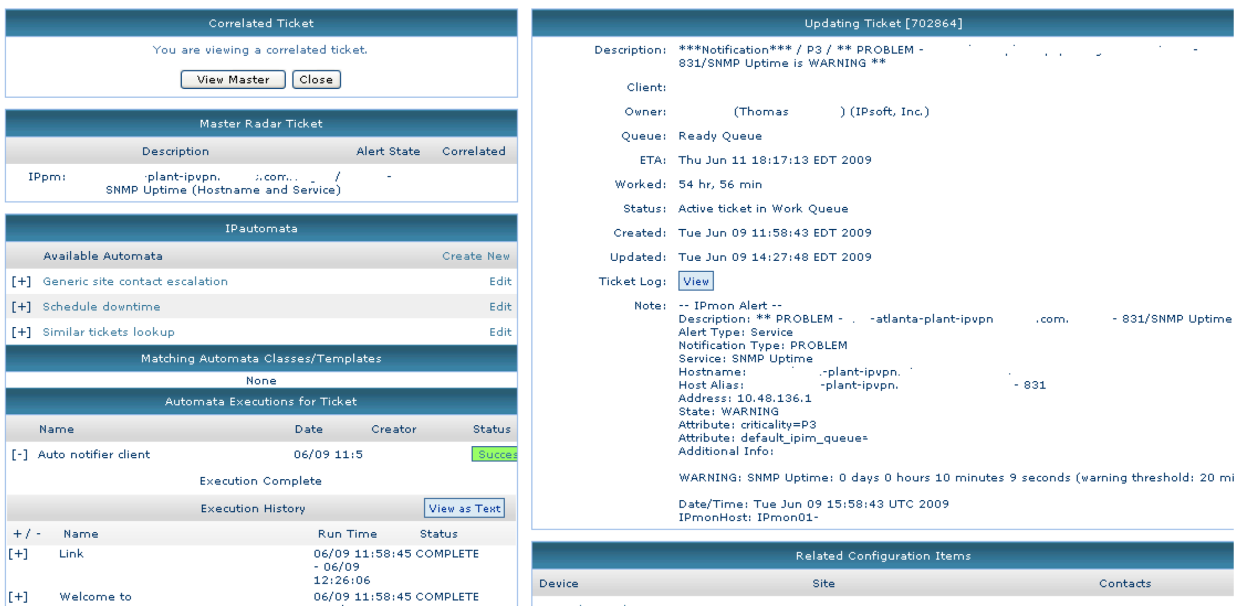
- View Correlated tickets
- Manually correlate tickets
- Make Master
- Decorrelate tickets



View Correlated Ticket

1. First, you can click the **Expand** checkbox [+] next to the correlated ticket you are interested in. Notice available buttons like these:

2. Click **View** (below the listed correlations) to see a full screen of correlation detail (partial screen shown):



Manually Correlate Ticket

1. Select a ticket in the dropdown and click **Add**.

Make Master Ticket

1. If the **Make Master** button is available, click it to make this incident ticket the master ticket to which other incident tickets are associated.

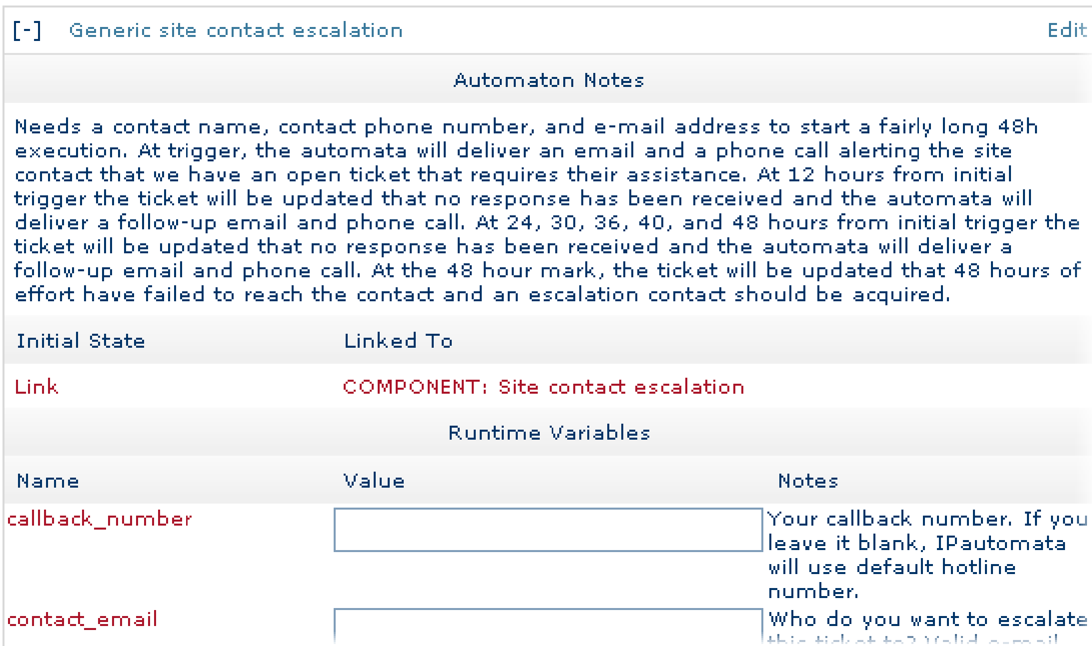
Decorrelate Ticket

1. Click **Decorrelate** (below the listed correlations) to detach the correlated ticket from this master ticket.

Automate

On the left-side of the screen in the **IPautomata** section, you can view available software agents, which facilitate data gathering, management, and remediation of detected issues:

1. Expand one of the available automata:

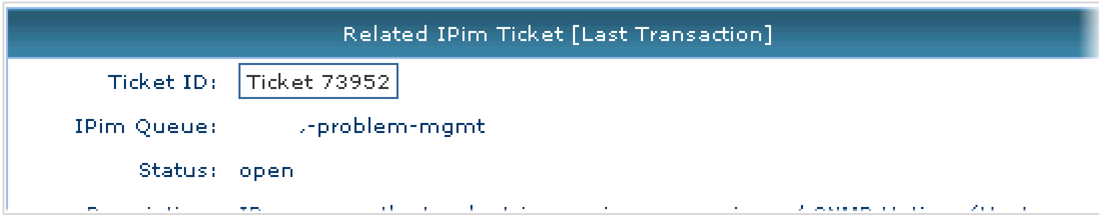


2. You can optionally **Edit** (upper-right) the automaton or Execute (bottom) it.

Related IPim Ticket

1. Back on the right-side of the **IPradar Pickup** screen, notice the **Related IPim Ticket** section.
2. Note IPim details (IPim Queue, Status, etc.) and click the Ticket # button next to **Ticket ID:** to open the ticket in a separate IPim window. IPim contains a full record

of every action taken on the ticket.



3. You can filter the ticket information with the following:

Adjust notification emails

You can update your email notifications (receive more or less) in one or more of the following ways:

1. Update your queue subscriptions
2. Subscribe or Unsubscribe to a ticket's email notifications
3. Bookmark the ticket

Subscribe to a ticket

If you're not a watcher or on a Cc: list for a ticket and want to see it without email notifications, subscribe to the ticket as follows:

1. Click **Subscribe** in the IPim ticket menu bar (gray).
2. You will see an update in yellow noting that you have been added, below which you will see ticket information (metadata).

Unsubscribe to a ticket

Unsubscribe to a ticket by clicking **Unsubscribe** in the IPim ticket menu bar (gray). You will see an update in yellow noting that you are no longer Cc: or AdminCc: for the ticket.

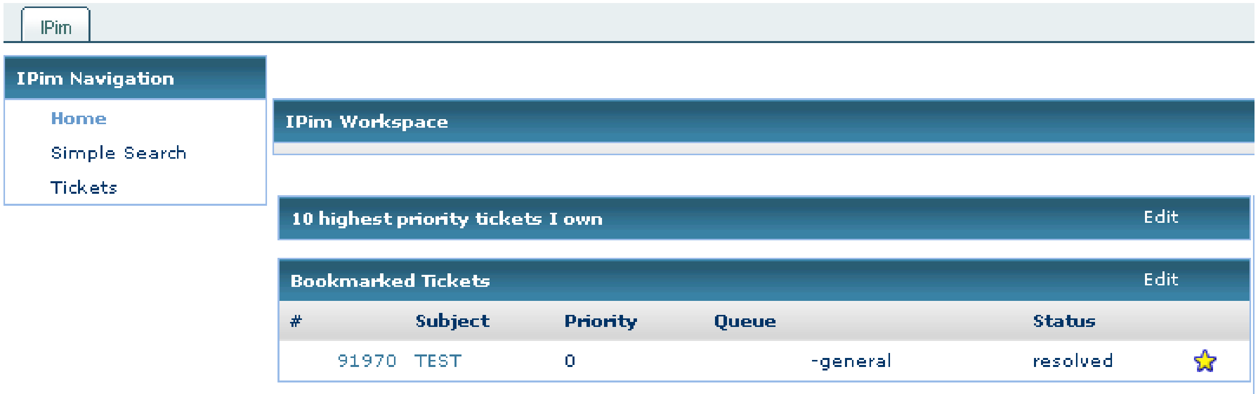
Bookmark a Ticket

If you would like to watch a ticket *without receiving email updates*, bookmark the ticket as follows:

1. Click the star icon in the ticket tool bar.

2. Clicking the star turns it gold and, when you refresh your browser (note that this screen is static--refresh does not happen automatically), you will see the ticket

under **Bookmarked Tickets:**

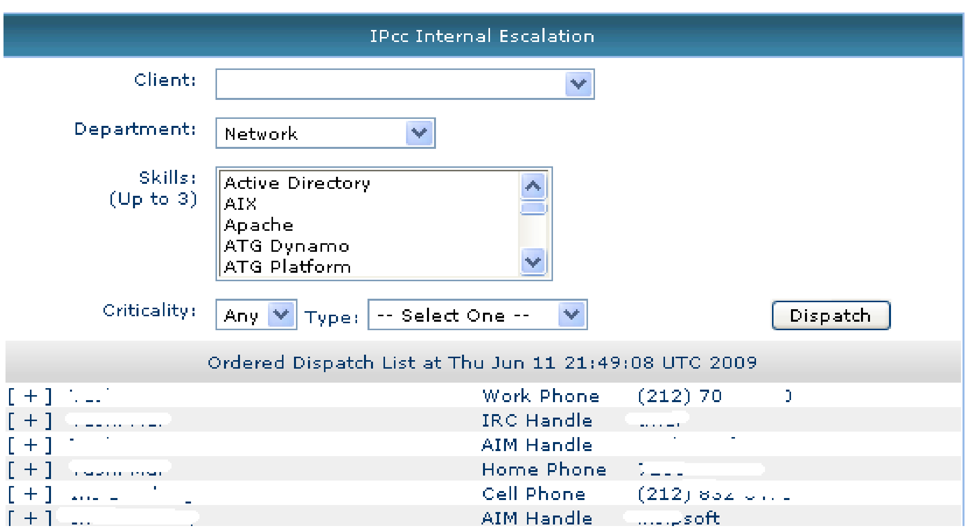


IPcc – Internal Escalation

If you need help with the ticket, IPcc (lower-left of the **IPradar Pickup** screen) allows you to find the appropriate contact for internal escalation. Based on parameters you select, the system will generate an order list of escalation points utilizing available contact details. The system can automatically contact the engineers:

1. Refine the ordered Dispatch List as needed by specifying Client, Department, and Skills.
2. To send the escalation, select a **Criticality** (P1, P2, P3, P4), a **Type** (Red Notification, Hand-off Request, Call-back Request) and click **Dispatch.**

   Important Note: Before dispatching, you should first call/contact the escalation contact(s) to let them know a ticket is being dispatched.



IPim Post Details

On the upper-left of the **IPradar Pickup** screen, notice the **IPim Post Details** section. Engineers use this interface to update tickets. Note that the system requires the engineer to set an ETA for every update by minutes, hours or an exact date.

Update Newly Opened Ticket

1. If you have just opened a ticket and decide that you cannot complete it within a few minutes, update the ETA to a number of Hours, Minutes or to a Date:

   a. This will insert the ticket into the Work queue as a green item ordered according to priority.
2. Optionally you can change:
   a. **Post To** (if you want to switch queue)
   b. **Priority**
   c. **Status,** etc.
3. Include comments in the **Post Text** box before you click **Update Ticket**.

Detail Existing Ticket You Have Updated

4. If you have worked the ticket, fill out Post Details (including Post Text) as a *final* step—include any relevant details.

Problem Management

IPpm Overview

IPpm, IPcenter's problem management process, is responsible for managing the complete lifecycle of all problems. IPpm is engineered to:

- Prevent the problem from happening
- Eliminate recurring incidents
- Minimize the impact of incidents

IPpm can automatically detect and flag trends in incidents by interacting with IPim, IPmon and other event management modules.

IPpm—and IPcenter v3 in general—is aligned with ITIL v3 processes.

IPpm Tasks

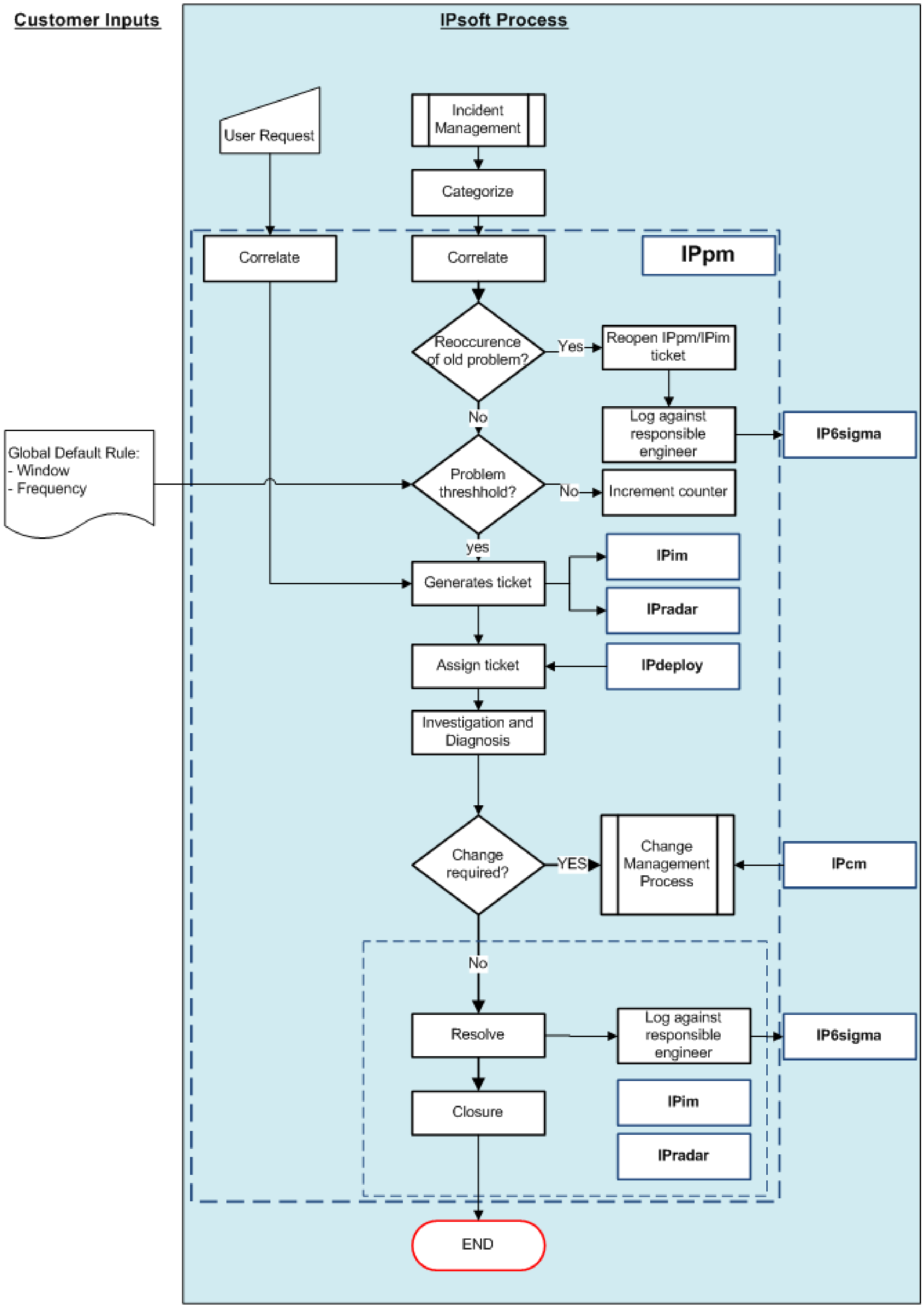
In general, IPpm performs two tasks:

- Allows users to create, search, and update problems
- Listens for ticket events

For each event, the configured IPpm rules are applied to the incident and, if the rule matches, an associated problem is created or updated.

Process Model

The following ITIL v3 workflow diagram shows in more detail how a problem works through to closure. Note the IPcenter v3 modules (blue boxes) related to each step:



Workflow 2: Problem Management

Using IPpm

Navigating IPpm

1. To open IPpm, hover your mouse over the IPcenter **Service Operation** tab and click **IPpm** in the row of tabs that appears below.

2. The IPpm page opens by default to **Problem Search**, detailed in the next section. Note the three tabs below the IPcenter menu (more on each follows):
   - Problem Search
   - Create Problem
   - Problem Rules

IPpm Permissions

Note: You can be granted one of these permission roles in IPpm:

- View – Read-only view of IPpm. Client access. It provides access to problem search and problem viewing in IPpm.
- Update – Create and update a problem in IPpm. IPsoft user access.

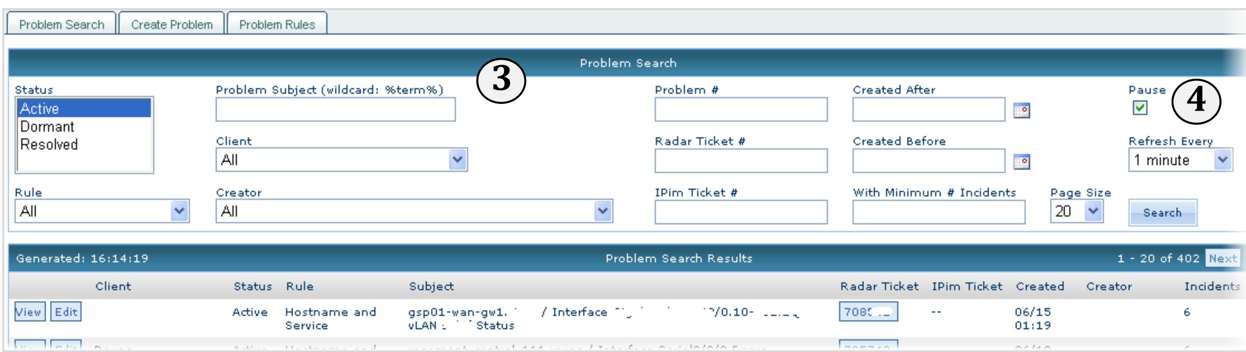
Problem Search

The **Problem Search** page allows you to search for an existing problem based on optional search criteria:

3. Enter search criteria:
   a. Status – Active (default), Dormant, Resolved
   b. Rule – Shows those created in the **Problem Rules** tab (more follows)

c. Problem Subject – You can search using % as a wildcard
d. Client
e. Creator
f. Problem #
g. Radar Ticket #
h. IPim Ticket #
i. Crated After
j. Created Before
k. With Minimum # of Incidents

4. You also can customize how often search results are refreshed on the page:
    a. Pause – No refresh when you check this
    b. Refresh Every – Never, 30 seconds, 1 minute, 5 minutes, 10 minutes, 30 minutes, 1 hour



5. Click 

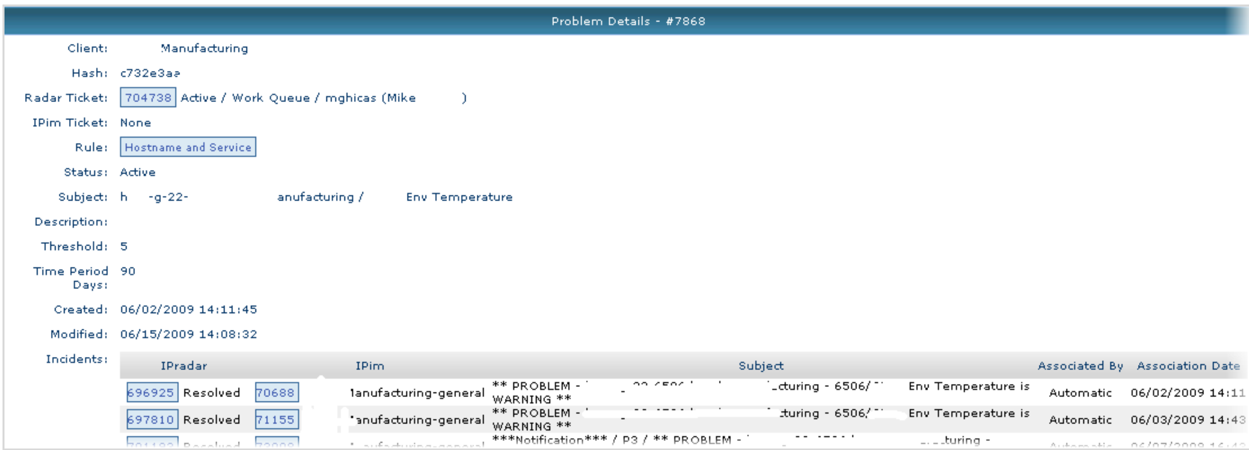
Problem Search Results

The problems are returned in descending order by Problem ID. Due to the number of dormant problems in the system, sorting by additional fields is not supported at this time.

Note: When you open the Problem Search page, you automatically will see **Problem Search** results, which default display Active problems.

View Problem

1. In the **Problem Search** page **Problem Search Results** section, click  to see details of a specific problem, including associated IPradar tickets (which you can click for further detail):



Create Problem

There are two sources of problems in IPpm:

- Manually created problems
- Auto-created problems

To create a new problem (manually created), follow these steps.

1. Click the IPpm **Create Problem** tab.

Enter Manual Problem Details

2. Enter problem detail:
    a. Client – Client with the problem
    b. Creator – User who created the problem (read-only)
    c. Status – Status of the problem (read-only)
    d. Subject – User chosen subject
    e. Description – Description of the problem
    f. Created – Date the problem was created (read-only)

g. Modified – Date the problem was last modified (read-only)
h. Incidents – Manually associated IPim incidents

Manually versus Auto-Created Problems

Depending on the source of the problem, the editable (and displayed) fields differ slightly.

Auto-Created Problem

The following fields display for an auto-created problem:

- Client – Client with the problem (read-only)
- Hash – Hash of the value of the "group by" fields - this hash plus the associated rule make the problem unique (read-only)
- Rule – Link to the rule that generated this problem (read-only)
- Radar Ticket – Link to the IPradar ticket associated with the problem (read-only)
- IPim Ticket – Link to the IPim ticket associated with the problem (read-only)
- Status – Status of the problem
- Subject – Auto-generated subject
- Description – User editable description
- Threshold – Threshold for this problem; copied from the rule definition when the problem is first created
- Time Period Days – Time period copied from the rule definition when the problem is first created
- Created – Date the problem was created (read-only)
- Modified – Date the problem was last modified (read-only)
- Incident – Auto-associated IPim incidents. Additional incidents can be manually associated.

Problem Rules

What are Problem Rules?

Problem rules define how a collection of incidents graduate to a problem. Each rule has the following parameters:

- Name: A unique name for the rule. Should be relatively short.
- Description: A longer description of the rule, its intent, etc.
- Default Threshold: The number of incident that must match this rule before a problem becomes Active.
    - ***Note***: Any changes you make to the threshold will not be reflecting in existing problems (including dormant problems).
- Default Time Period in Days: The threshold must be exceeded within this many days. This is also copied to the problem upon creation.
- Default ETA in Minutes: The initial ETA of the radar ticket when a problem transitions from Dormant to Active.
- Conditional Expression: Javascript expression. If the values returns false for a given incident the rule will not apply. Think of this as the "where" clause in a SQL statement.
    - Example: ticket.getIpmonTicketMapping().getSubservice() == ""
- Group By Fields: The fields from an IPradar ticket that group incidents together.
- Disabled: Rule cannot be deleted, but:
    - 'false' means the rule is currently active and will run
    - 'true' means the rule is currently inactive and will not run

Create New Problem Rule

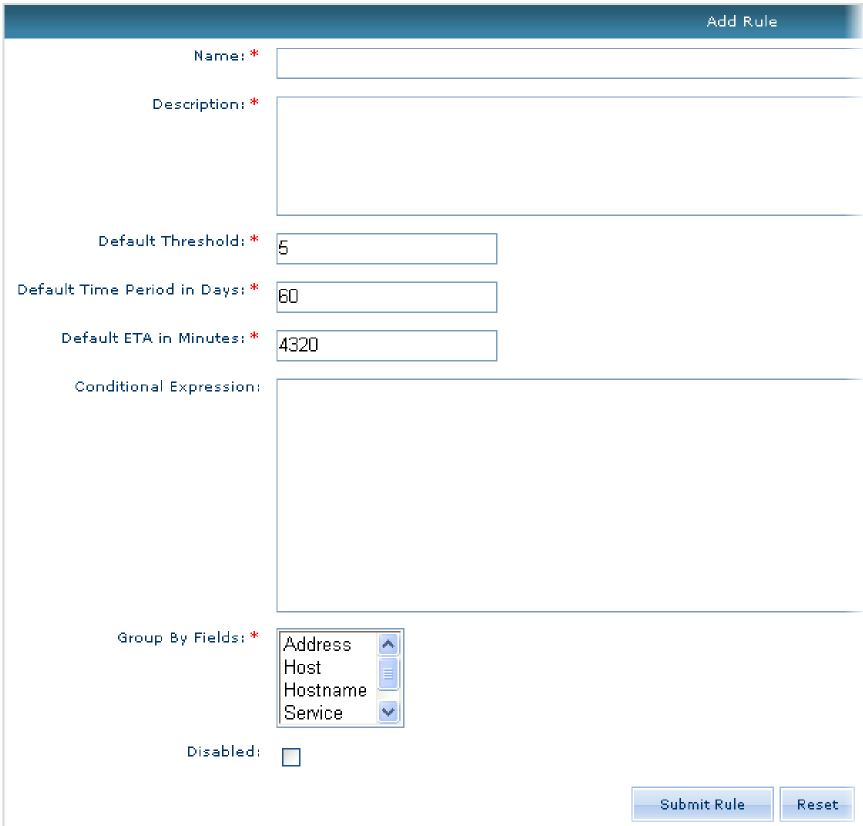
To create a new Problem Rule, follow these steps.

1. Click the IPpm **Problem Rules** tab.


2. Click 

 in the upper-right of the **IPpm Rules** page.

3. In the **Add Rule** page, fill out the required * fields and, if desired, optional fields (all detailed in the preceding section):



4. Click **Submit Rule** to add the new rule.

Edit Problem Rule

1. In the **IPpm Rules** page (or in the **Problem Search** page **Problem Search Results**), click Edit in the row of the problem rule you want to edit.

2. Edit one or more fields and click Update Rule to make the changes.

How IPpm Tickets Populate IPradar

This section details how IPpm tickets interact with IPradar. IPpm injects tickets into the IPradar **Work Queue** when:

- A manual problem is created
- A problem exceeds its threshold—automatically transitions from Dormant to Active
- A problem re-exceeds its threshold—automatically transitions from Resolved to Active

How Ticket ETA is Set

The ETA of the radar ticket is set as follows:

- If the problem exceeded its threshold for the first time—ETA is set based on the ETA of the problem rule
- If the problem has re-occurred (exceeded its threshold)—ETA is 24 hours
- If the problem was manually created—ETA is 48 hours

How Ticket Ownership is Set

The ownership of the radar ticket is set as follows:

- If the problem is manually created—creator of the problem is set as the owner
- If the problem has re-occurred—owner does not change (remains the last owner of the ticket).
- If the problem exceed its threshold for the first time—ownership is set based on the following rules (first owner found wins):
    - A technical lead for the client in the department whose members owned the most associated incidents
    - The technical executive for the client
    - The department head whose department owned the most associated incidents
    - A globally-configured fallback user for the entire IPcenter install. Typically head of operations or the department head for domain focused environments

Change Management

IPcm Overview

IPcm is the IPcenter v3 change management engine. IPcm is designed to ensure that standardized methods and procedures are used for efficient and prompt handling of all changes. All changes to service assets and configuration items are recorded in IPcmdb, and all actions associated with changes are logged in IPim tickets for transparency to the end-user.

IPcm—and IPcenter v3 in general—is aligned with ITIL v3 processes.

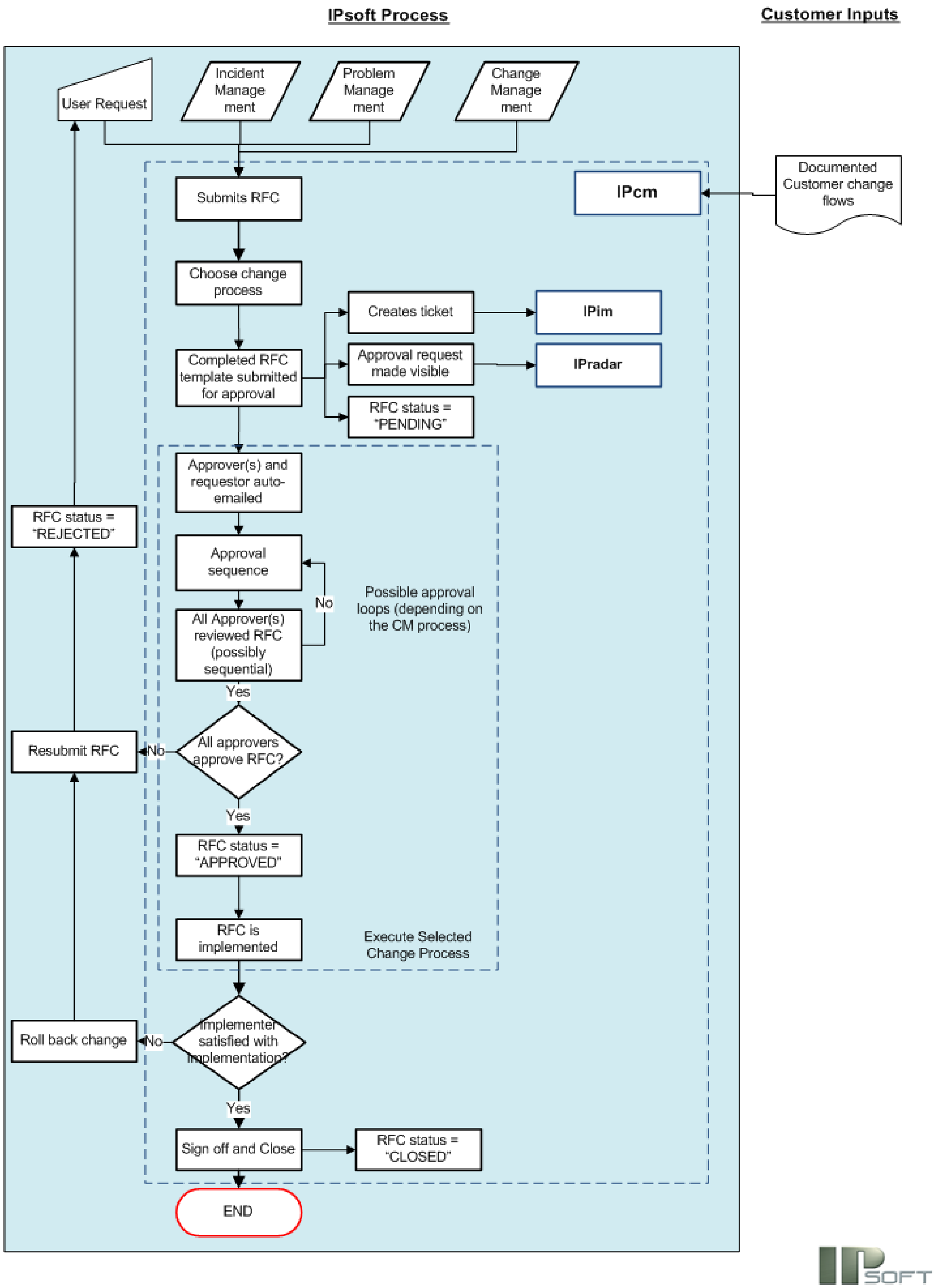
Section Content

This section is divided into two parts:

- How to Create a Change
- How to Create a Change Workflow

Process Model

For the purposes of this section, focus on the left half of the following ITIL flowchart: Change Management. The diagram outlines how a change request interacts with Configuration Management (following section) and progresses to closure. Note the IPcenter v3 modules (blue boxes) related to each step.



Workflow 3: Change Management with Configuration Management

How to Create a Change

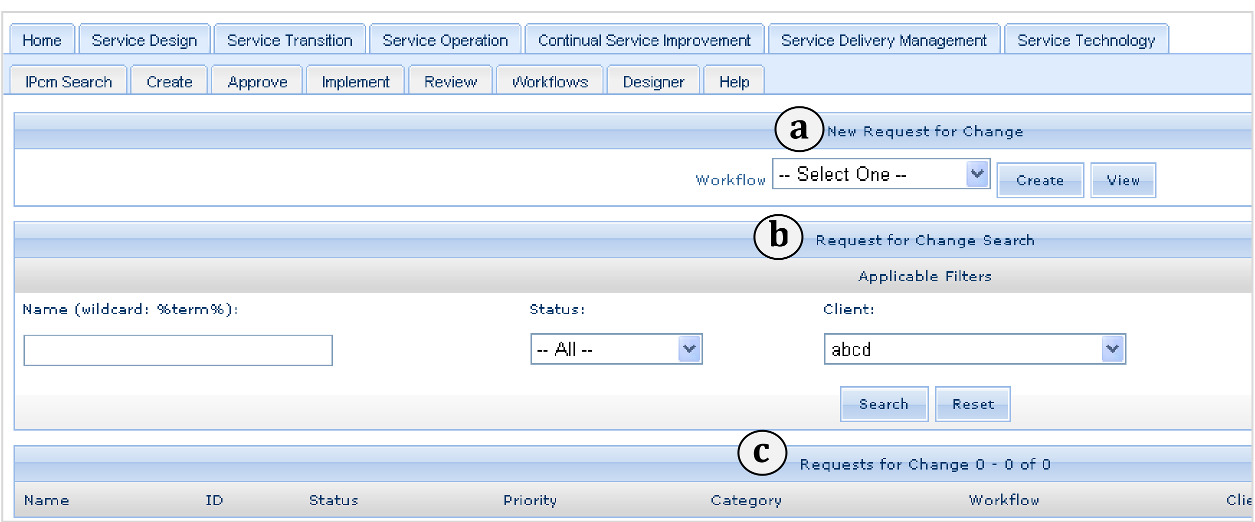
In order to complete a change request, the request for change must complete a workflow in which the change is created, approved, implemented, reviewed and closed.

In this section of the document, you can step through the IPcm workflow. An "ITIL process" note in each phase will keep the related ITIL framework in perspective.

Open IPcm

1. In IPcenter, hover your mouse over the **Service Operation** tab and click **IPcm** in the row of tabs that appears below.

2. The IPcm page opens by default to **IPcm Search**, which allows you to:
   a. Create a new Request for Change (RFC)
   b. Search for an existing Change
   c. View your RFCs



Note the eight tabs below the IPcenter menu:

- IPcm Search
- Create – Create RFC
- Approve – Approve RFC
- Implement – Implement RFC
- Review – Review RFC and close if ok
- Workflows – View workflows associated with a client
- Designer – Design a custom RFC

IPcm Permissions

You can have either View or Edit rights to the IPcm content. You must have edit rights to perform some or all of the actions required to create a change (following).

Create a Change Request

Details Section

1. Select one of the Workflows available to you and click 

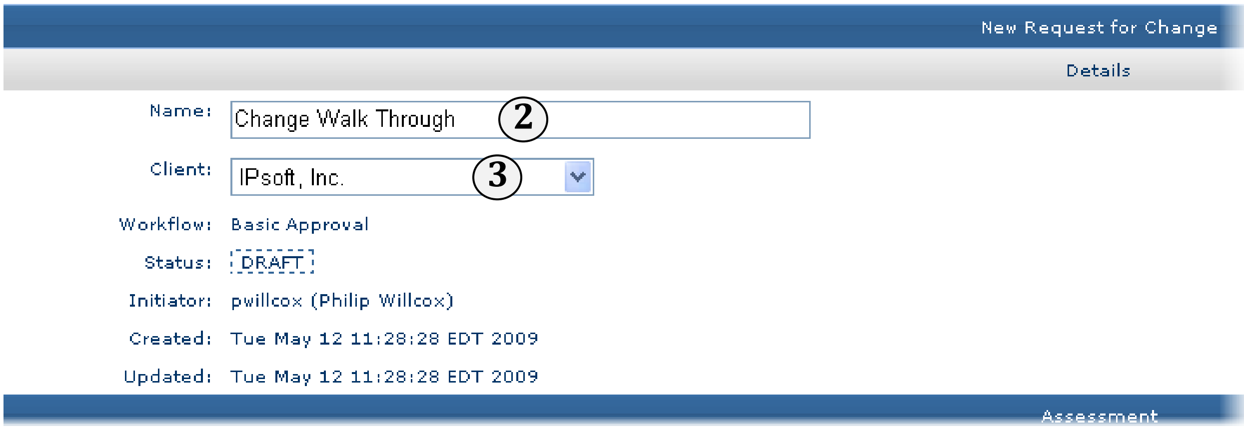
.

   NOTE: You can select a Workflow and click 

to ensure it is appropriate for your change.

2. **Name:** Enter a workflow Name (for our example: Change Walk Through). This is the only required field.
3. **Client:** Client name should automatically be picked

4. **Workflow:** Displays the workflow you selected.
5. **Status:** Shows DRAFT until you have completed this **Create** step (through step 6 following).



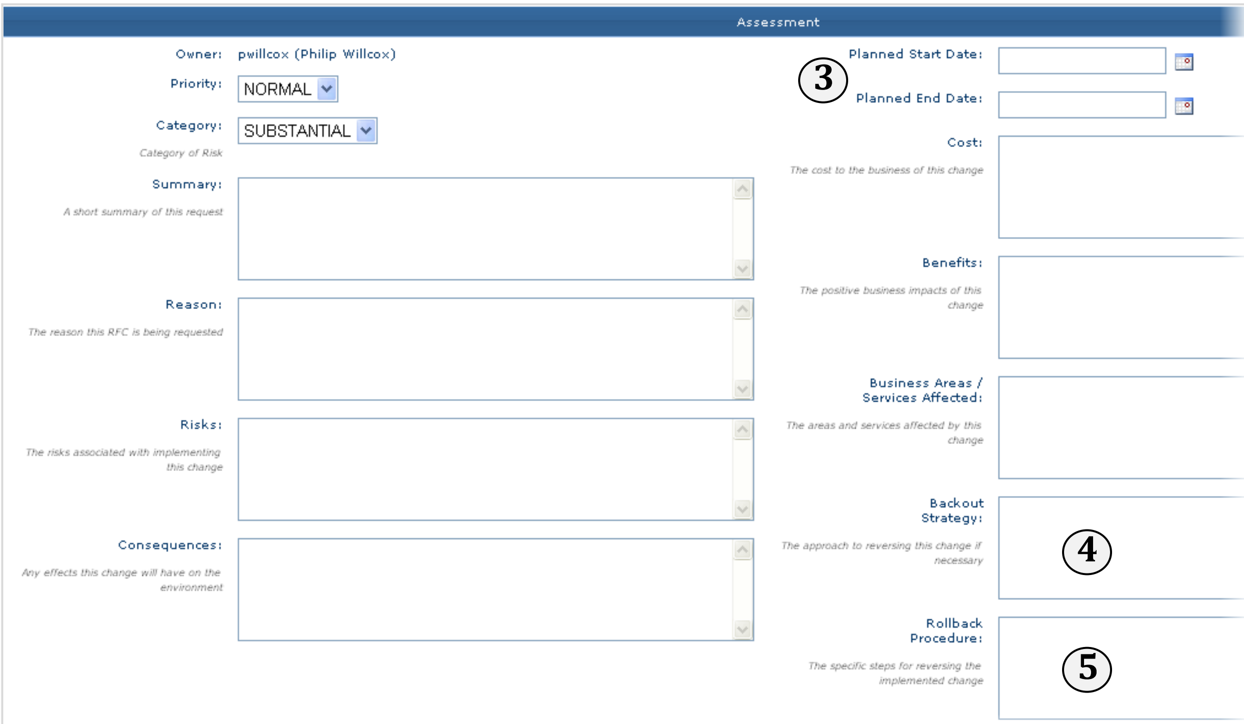
Assessment Section

Below the **Details** section, the optional **Assessment** section allows you to add your assessment details of the RFC.

While most of the boxes are self-explanatory (see descriptions next to each one), a few require explanation:

1. **Priority:** LOW, NORMAL, HIGH, URGENT
2. **Category:** MARGINAL, SUBSTANTIAL, CRITICAL
3. **Planned Start / End Date:** Always enter these dates.
   NOTE: IPradar incorporates your Start Date.
4. **Backout Strategy:** Enter general backout strategy for lower risk / lower priority changes
5. **Rollback Procedure:** Enter a detailed step-by-step procedure for rolling back higher risk/priority changes

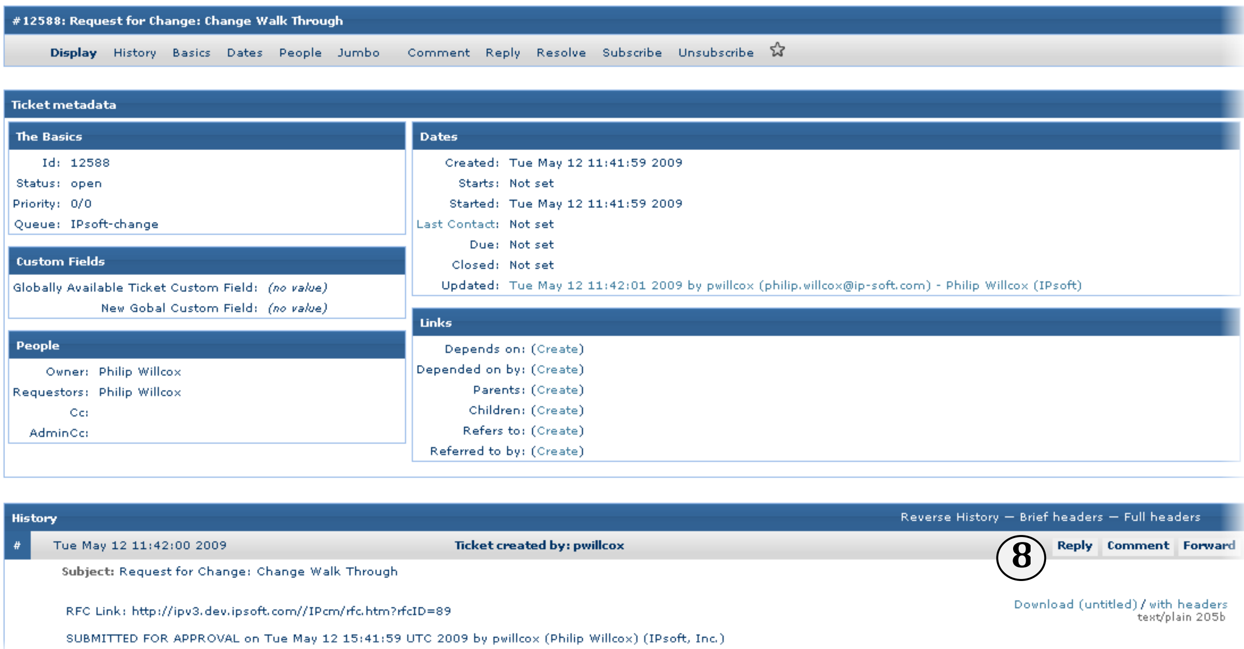
6. Once you have entered desired details, click Create (bottom of page) and click at the prompt click **OK**.



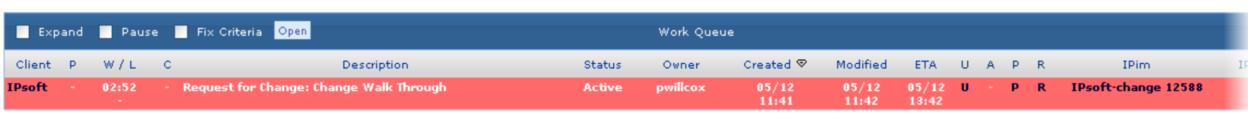
7. You now see your created RFC. If this is an action item, you can either:
   a. Click **Edit** – Edit your entries *OR*

      Note: You can click RFC Change Log View to see details of your edits.
   b. Click **Submit for Approval –** Submits the change to the **Approve** queue (after you click **OK** to confirm that you want to submit).

8. Submitting inserts the RFC into:
    a. IPim - Creates an IPim ticket in the queue the workflow is assigned to (usually <Client>-change) to facilitate conversation about the request. Includes a History section to which you can **Reply**, **Comment**, **Forward**:



    b. IPradar – View the new item



Email Confirmations

Upon submitting the RFC for approval, you will receive an email similar to the following. Relevant stakeholders in each step of the workflow will receive emails with key links pertaining to the RFC.

[IPsoft #12588] (IPsoft-change) Request for Change: Change Walk Through

Philip Willcox via IPim [IPsoft-change@beaker.ip-soft.net]

Sent: Tue 5/12/2009 11:42 AM

To: Philip Willcox

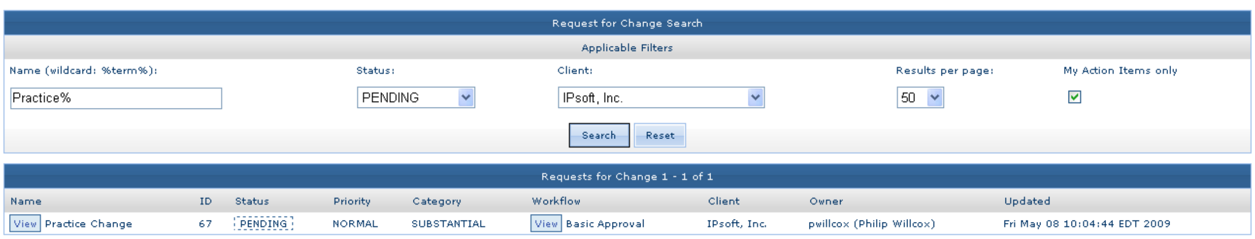
```
RFC Link: http://ipv3.dev.ipsoft.com//IPcm/rfc.htm?rfcID=89

SUBMITTED FOR APPROVAL on Tue May 12 15:41:59 UTC 2009 by pwillcox (Philip Willcox) (IPsoft, Inc.)


----------------------
Tracking ID:[49788]


-- [Ticket Details] -------------------------------------------------------
Tue May 12 11:42:00 2009: Ticket 12588 was acted upon.
 Transaction: Ticket created by pwillcox
       Queue: IPsoft-change
     Subject: Request for Change: Change Walk Through
       Owner: pwillcox
  Requestors: philip.willcox@ip-soft.com
      Status: open
  Ticket URL: http://ipv3.dev.ipsoft.com:/IPim/Ticket/Display.html?id=12588

   Subscribe: http://ipv3.dev.ipsoft.com:/IPim/Ticket/Subscribe.html?id=12588
 Unsubscribe: http://ipv3.dev.ipsoft.com:/IPim/Ticket/Unsubscribe.html?id=12588
```

Search

You can search for a specific Request for Change in any of these IPcm tabs:

- IPcm Search – Searches status "ALL"
- Create – Searches status "DRAFT"
- Approve – Searches status "PENDING"
- Implement – Searches status "APPROVED"
- Review – Searches status "IMPLEMENTED"

1. Search for an RFC by entering some or all of the optional search parameters:
    a. Name – You can use % as a wildcard
    b. Status – Here we search "PENDING" since our RFC is awaiting approvers.
    c. Client
    d. My Action Items only – Checked by default. Uncheck to see other users' RFCs.
2. Click **Search**.

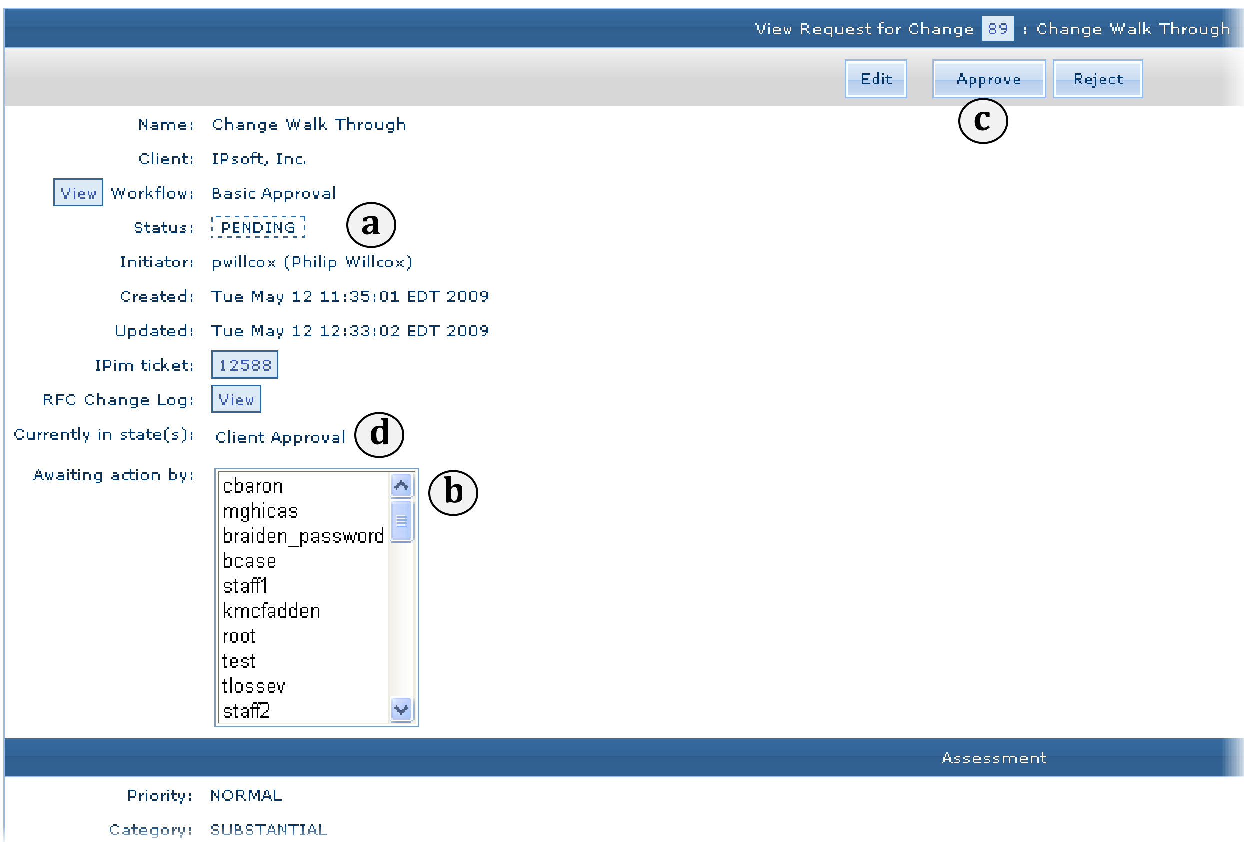


3. In the results row(s) you can click View to see the RFC or its Workflow.

Approve

The **View Request for Change** screen shows all the data you have associated with the RFC. So far the RFC has data only in the **Details** and **Assessment** sections.

1. Note a few key fields:
    a. Status: ("PENDING" at this point the lifecycle)
    b. Awaiting action by: List of Approvers who must address the RFC
    c. Edit / Approve / Reject buttons: Available if you have an approver role
    d. Currently in state(s): Note that the current state is "IPsoft Approval", which means that the RFC has passed unnoticed through the **Client Approval** step. This happened because no users or groups are yet assigned to Client Approval, only a generic change group that currently doesn't have members.



2. If you want to move the RFC into implementation, click **Approve** and **OK** the prompt**.**
    a. Alternately, click **Reject** and the Status becomes REJECTED.

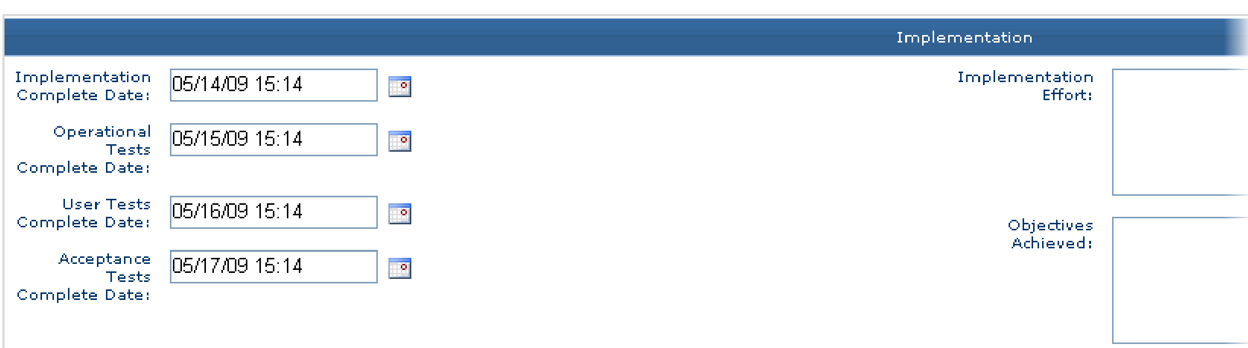
3. You will receive an email detailing an IPim Request for Change “APPROVED” (or “REJECTED”).

Implement

In the Implementation phase, Status is APPROVED. You can edit Implementation details in the **Edit Request for Change** screen before completing the implementation:

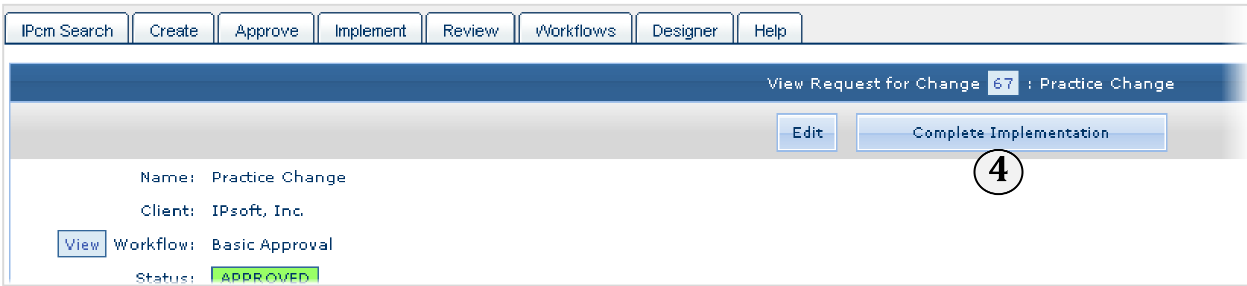
1. Click **Edit**

2. Scroll down to the Implementation section and enter desired details including implementation and testing dates.



3. Click 

4. Once the implementation steps are successfully completed, click **Complete**

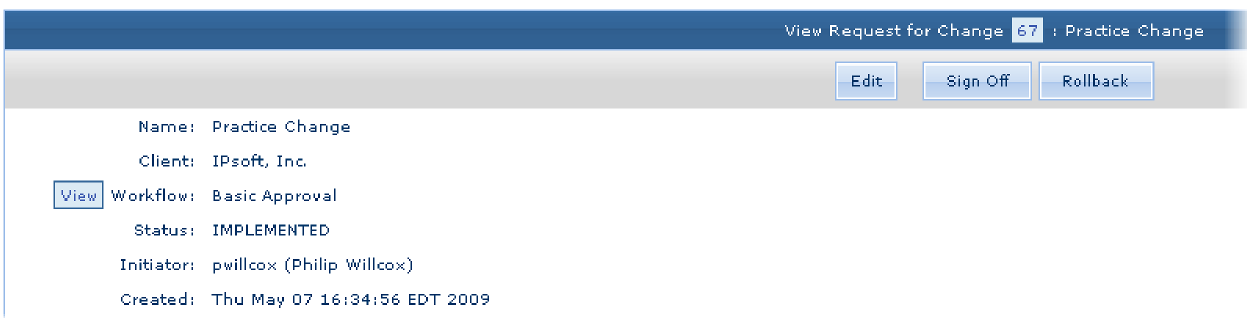


Implementation to move the RFC to its final stage.

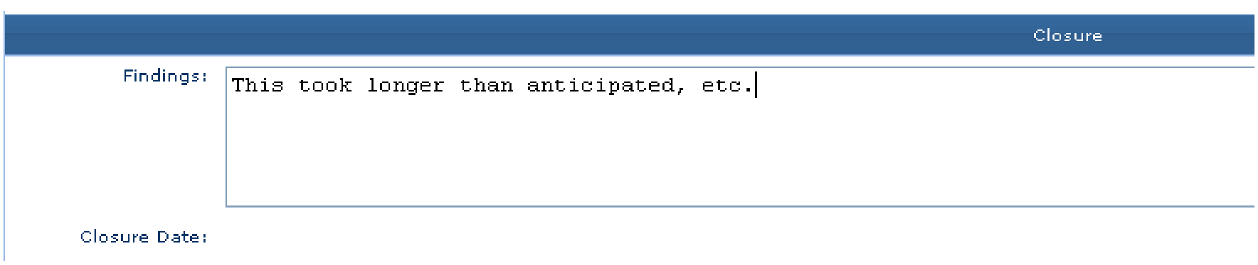
Review

In the Review phase, Status is IMPLEMENTED. Note that, as a reviewer, you see **Edit**, **Sign Off**, and **Rollback** buttons at the top of the View Request for Change screen.

1. Click Edit and scroll down to the bottom of the page.



2. Add Closure notes.



3. Click 

Rollback or Sign Off

1. If you as Implementer are satisfied with the implementation, click Sign Off and then **OK** to close the RFC.

   Note**:** Once the RFC is closed, no more edits can be made to it.

2. If you as Implementer are *not* satisfied with the implementation, click **Rollback** to move the RFC back to its initial state. All steps must be completed again.

How to Create a Change Workflow

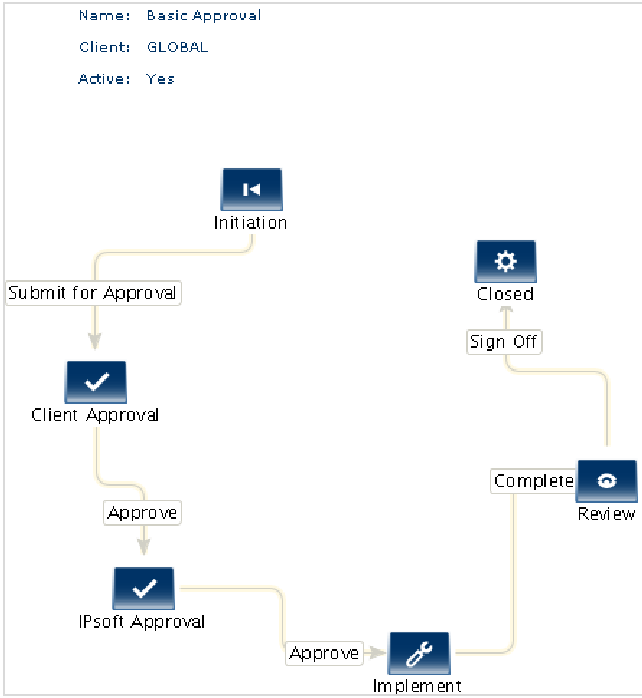
Overview

Most users will interact with IPcm by simply engaging in one or more steps of the change management workflow—creating a request for change (RFC), for example, or implementing a change. In addition, certain users can create the workflow itself using the IPcm Designer tool (Workflow Client).

In the first half of this Change Management section, you stepped through a workflow called "Basic Approval", which, as its name implies, is a simple workflow. Workflows must contain the following processes…

- Initiate
- Approve (involves at least one action)
- Implement (involves at least one action)
- Review (involves at least one action)
- Close

…so the "Basic Approval" workflow is the simplest workflow possible with the addition of a second approval.



User Permissions

Workflow View permission allows you only to view existing workflows in the tool.

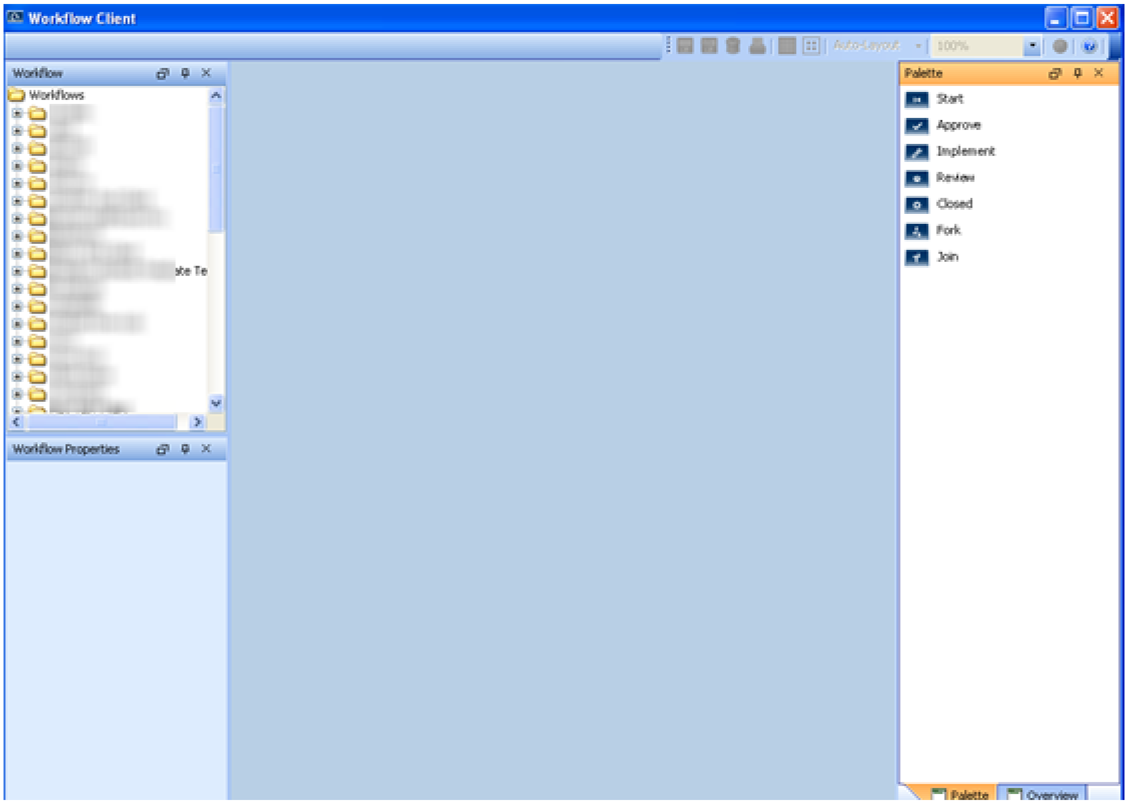
Workflow Create permission gives you full access to create new or modify existing workflows.

Open Designer

1. To open the Designer tool, click the **Designer** tab within IPcm (IPcm is in **Service Operation** tab).

   Note: Java must be installed on your computer.

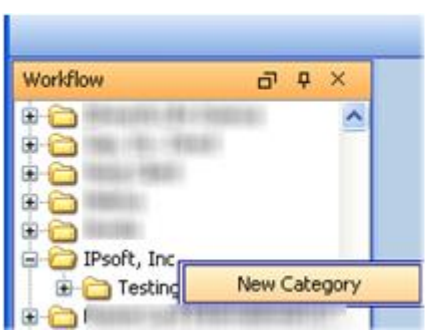
2. Login as needed, using the same username and password you use to login to IPcenter.
3. **Workflow Client** will open in a separate window (not within your browser)…



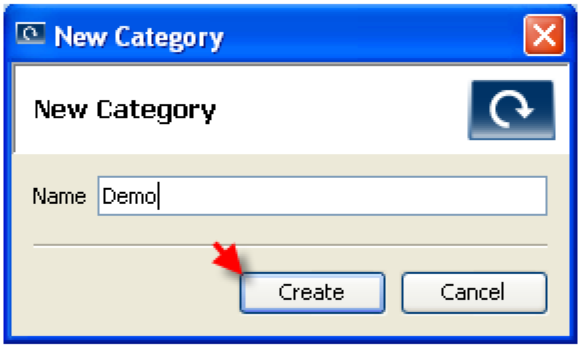
...and in Windows, will be visible on you to your Taskbar.

Create a Workflow

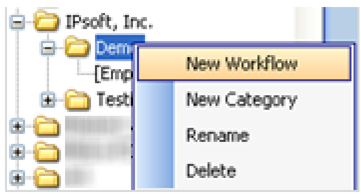
1. In the (upper-left) Workflow section, right click your company and click **New Category**.



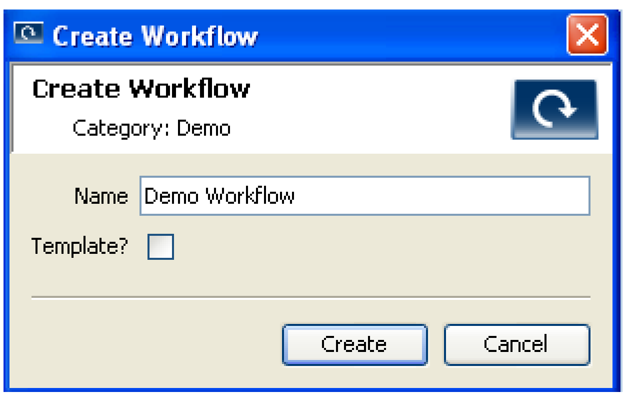
2. Enter the name for your **New Category**, a business group for example, and click Create**.**



3. Now right-click your new category and click **New Workflow**.



4. Enter the name for your workflow[1].

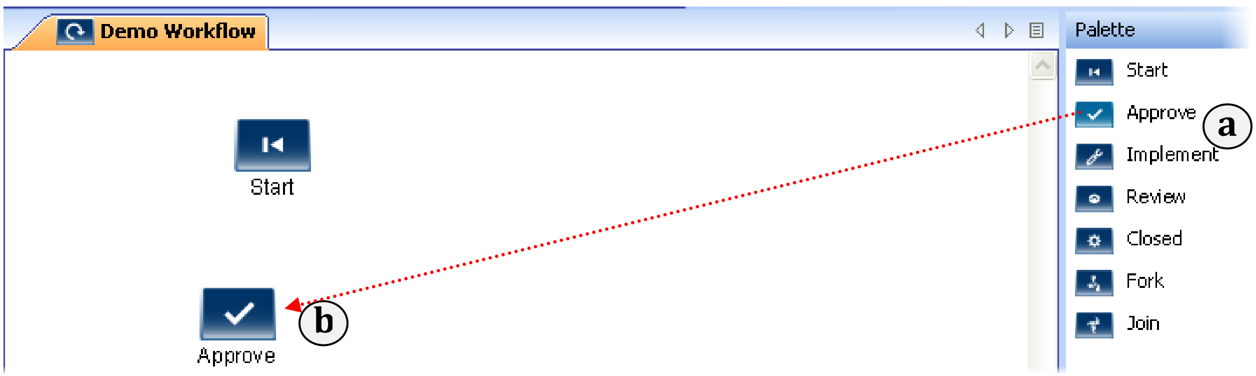


[1] *The **Template?** checkbox relates to upcoming IPcm functionality under development.*

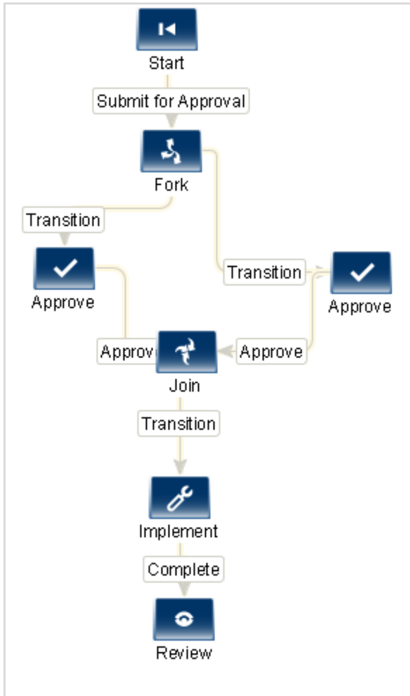
Add Items to Workflow

1. Now, simply begin dragging items…
    a. From the (upper-right) **Palette** section
    b. …onto the empty workflow space in the middle of the Designer.

    Note: Clicking and dragging the icons is intuitive, however if you accidentally create a Transition (which is an attached gray line--more on this following), simply click on the line and hit **Delete** on your keyboard.



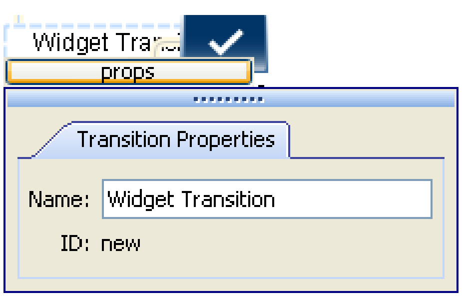
2. Once you have added all desired icons for your flow, you can begin connecting them.
    a. Click-drag on the middle of the origin icon, dragging it (without moving the icon) to the destination icon. A Transition automatically will be created with a default Name.
    In our example, adding Transitions by default created the following workflow, which we will now edit (**Fork** and **Join** steps will be explained shortly):



Edit Workflow States

1. Hover your cursor over one of the icons (for our example, Start) and click on the **props** button to edit the step.

2. Rename a Transition in the same way, clicking **props** under the Transition name.



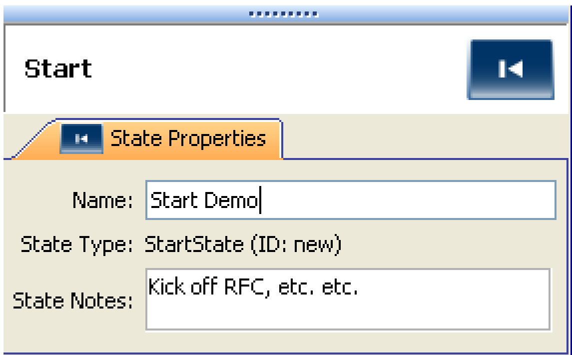
Now you can edit and customize properties for each state in your flow…

Edit State Properties

The following sections step you through editing and customizing properties for each specific state in your flow.

Start

1. Enter another **Name** and **State Notes** if needed in the **State Properties** window.



2. Click outside this small window to return to Designer.

Approve, Implement, Review

These three states have the same editing window. Edit as follows.

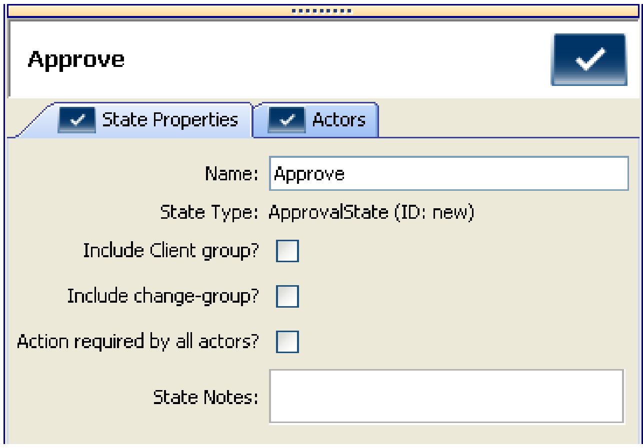
1. Click the **props** button on an Approve, Implement, or Review icon.

State Properties

Edit the **State Properties** tab as you require:

2. Enter a **Name**
3. **Include Client group?** – Check if you want to automatically add approval required from everyone in the Client group
4. **Include change** – Check if you want to automatically add approval required from everyone in the Change group

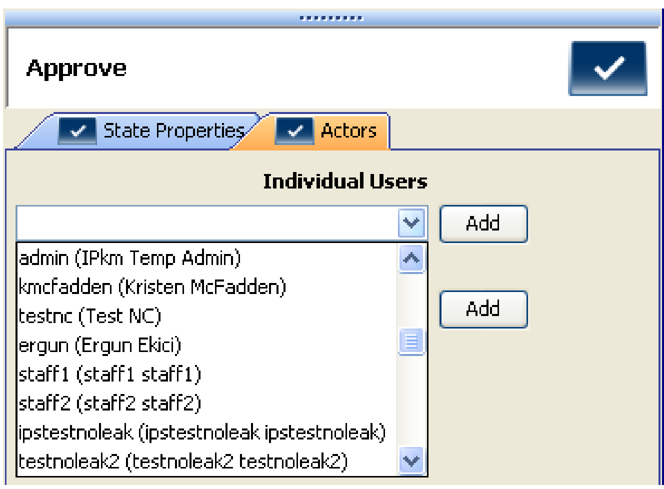
   Note: **Client group** and **change-group** save time when assigning Actors to a step, since they allow a pre-defined group to be assigned instantly without individually adding in the **Actors** tab.



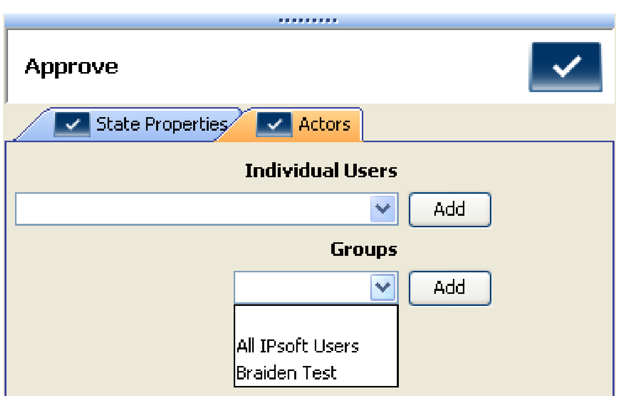
5. Click **Action required by all actors** if you want all actors to approve before the workflow can leave that step.

Actors

6. Add **Individual Users** as approvers by clicking a user, then the **Add** button…



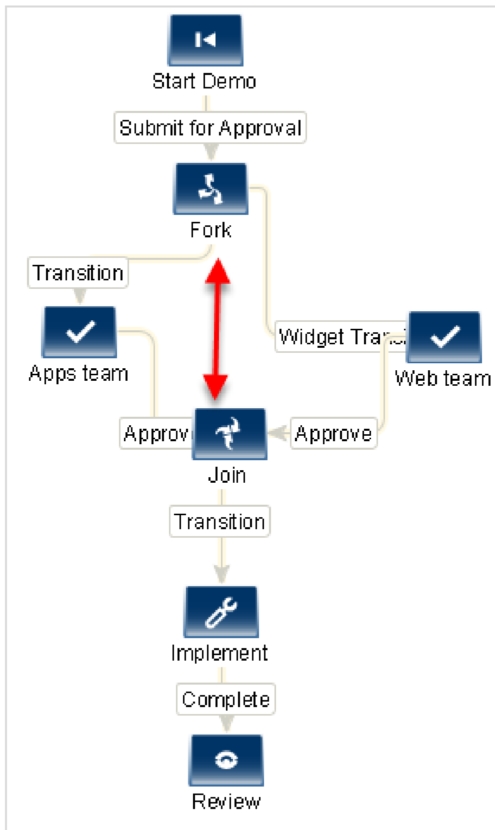
7. …and/or Add **Groups** in the same way.



Fork and Join

To **Fork** a workflow allows you to assign Approvers in parallel, so that, for example, an Applications team and a Web team could do approvals without waiting on the other team.

Once you create a fork, naturally you must **Join** the fork before you can move onto Implement in order to avoid having multiple parallel flows. Joining will show actors from both sides.

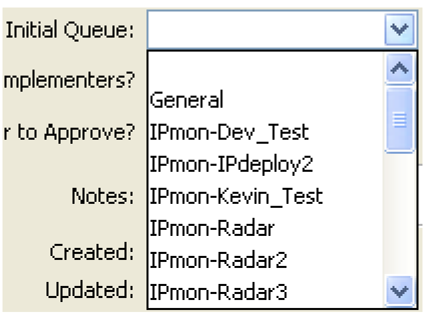


Edit Workflow Properties

In the (bottom-left) **Workflow Properties** section of the tool, you can update the properties assigned to the workflow.

1. Below **Name**, checking the **Live?** checkbox ensures that the workflow appears among the dropdown options when creating a new RFC.
2. Click the **Initial Queue** dropdown and click a selection. **Initial Queue** selects which IPim queue the workflow will be assigned to.

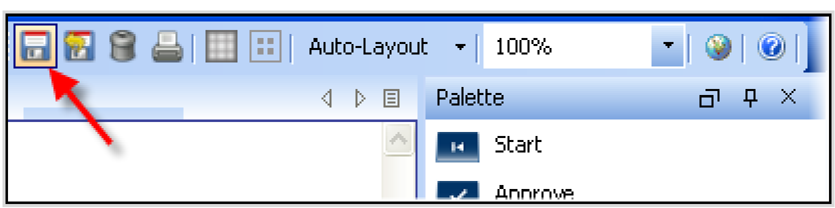
   Note: The default is the **<Client>-change** queue, for example: IPsoft-change.

3. Click **Allow Overridable Implementers** if you want to allow the option of assigning specific implementers (not limited to the implementers defined in the workflow).

Save Workflow

1. In the (upper right) toolbar, click the **Save Workflow** icon.

Configuration Management

IPcmdb Overview

IPcmdb is IPsoft's Configuration Management Database implementation. It gives your organization complete visibility into attributes, relationships, and dependencies of the components across your enterprise computing environment. IPcmdb provides a standard framework for federating and accessing IT information, which integrates communication between the IT management tools.

With IPcmdb, you can add, edit, and search for configuration items via numerous custom criteria. The items, the item types and the custom field types available are all completely configurable. Items can also be associated with other items, so, for example, you can create a "Contact" for a client, link that Contact to Sites or Devices, and link any of them to Sites or Geographical Locations. Associating in this way allows you to identify responsible devices and parties to handle issues as they arise.

IPcmdb—and IPcenter v3 in general—is aligned with ITIL v3 processes.

Purpose of the Document

This document is divided into two main sections:

- IPcmdb Overview – Step through the IPcmdb tabs: IPcmdb Search, CI Types, Attributes, Select Lists, and Association Types
- Common IPcmdb Tasks – How to add a CI, associate to a CI, disable a CI

What is a Configuration Item?

The ITIL definition of a configuration item (CI):

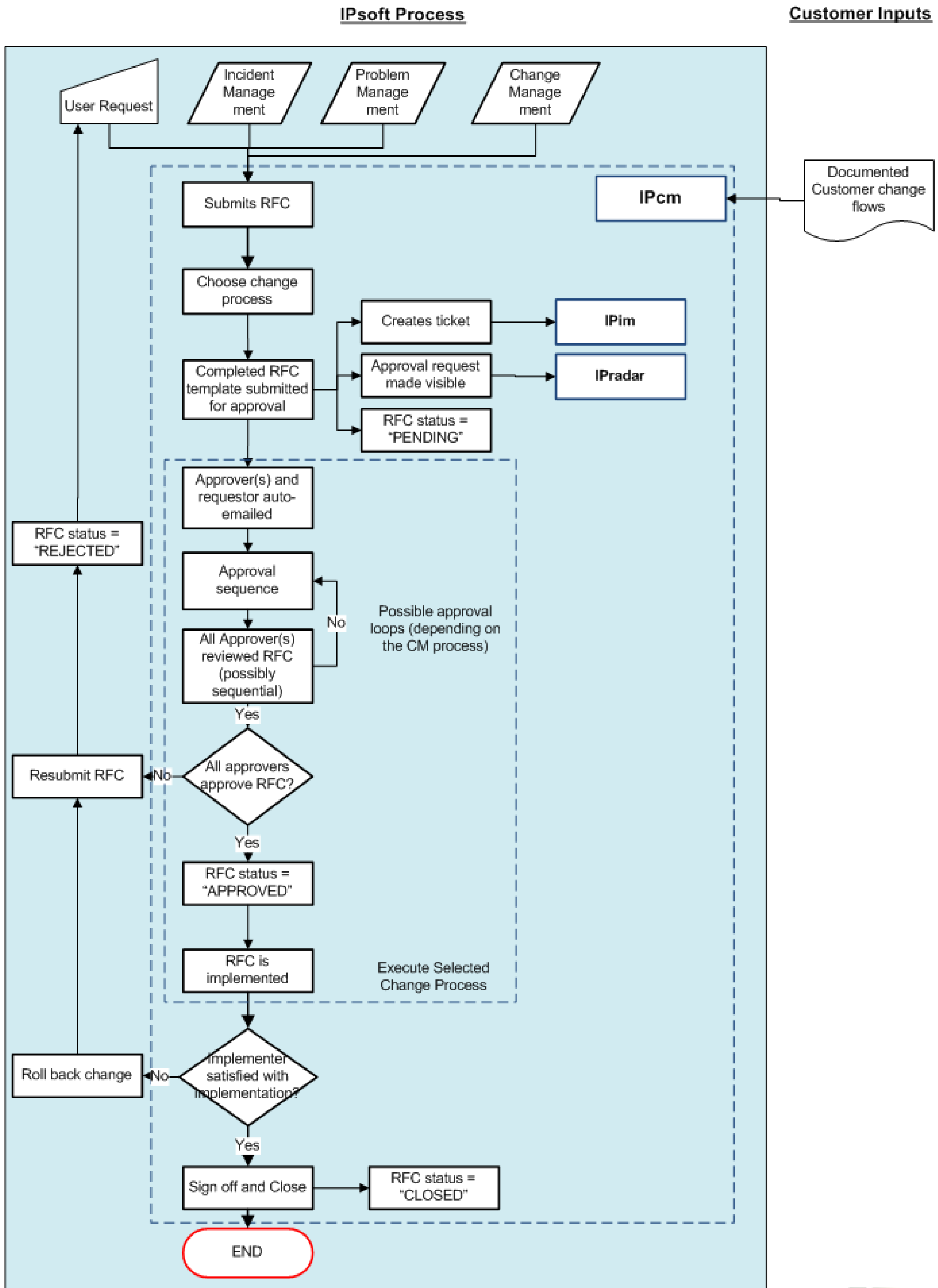
> *A **configuration item** is an asset, service component or other item that is (or will be) controlled by configuration management.*

Configuration management ensures that all configuration items that form part of the service or product are identified, provided with a baseline (basic configuration) and maintained[2].

Process Model

For the purposes of this section, focus on the right half of the following ITIL flowchart: Configuration Management. As the chart illustrates, Configuration Management interacts closely with Change Management (previous section). Note the IPcenter v3 modules (blue boxes) related to each step.

[2] *Foundations of IT Service Management Based on ITIL v3*.Van Haren Publishing. 2007



Workflow 4: Change Management with Configuration Management Worflow

CI Types in IPcenter

Every CI is placed in a hierarchy of CI Types. Each CI Type has its own custom set of properties that provide relevant information about that class of item, which also determines what properties may be used for custom searches (details follow). Some types are "abstract" and cannot be directly created, but are there to provide custom properties to child category types. All CI Types are themselves fully configurable within IPcmdb; the IPcmdb current hierarchy includes (types in ***italics*** can directly be created):

- Base CI
  - Base Circuit
    - ***Circuit***
  - Base Interface
    - ***Interface***
  - ***Billing Product***
  - ***Communication Endpoint***
  - ***Contact***
  - ***Device***
    - ***Virtual Machine***
  - External Entity
    - ***External Network***
  - ***Geographical Location***
    - ***Site***
  - Protocol Endpoint
    - ***IP Endpoint***
  - ***Vendor***

Types, Attributes and Associations

All Configuration Items must have a Name, an Owning Client, and a CI Type. The CI Type will determine what other required or optional attributes the item may have. For example, a Contact needs phone numbers and email, while a Site should contain an address, sometimes a Google maps link, and so on.

The CI Type also determines what types of associations it may have, which allows the engineer to walk through relevant device, contact, and site information when working on an issue. From a CI's perspective, associations may either be "Incoming" or "Outgoing" depending on that desired flow. Since many "Device" items may be present at a single Client "Site," the Site sees this as an Incoming Association, whereas the Device(s) will see this as an Outgoing Association. When viewing a CI, there will be buttons to add/remove only those associations the current item can handle.

Navigating IPcmdb

1. To open IPcmdb, hover your mouse over the IPcenter **Service Transition** tab and click **IPcmdb** in the row of tabs that appears below.

2. The IPcmdb page opens by default to **IPcmdb Search**, is detailed in the next section. Note the five tabs below the IPcenter menu (more on each follows):
   - IPcmdb Search
   - CI Types
   - Attributes
   - Select Lists
   - Association Types

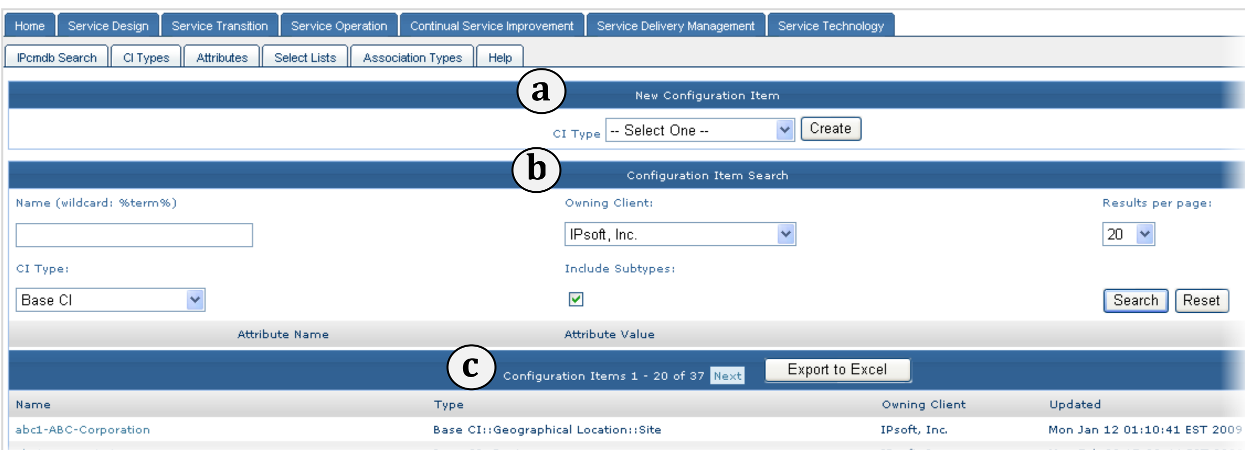
IPcmdb Search

You can search for CI's by client, using a combination of full text search, Item Type, and up to three custom attributes for that item type. Every result is linkable, and the entire table is exportable to Excel.

Search Page

The **IPcmdb Search** page allows you to:

a. Create a new Configuration Item (CI)
b. Search for an existing Configuration Item
c. View Configuration Items returned in the search



Permissions

Note: You can have either View or Edit rights to the IPcmdb content. Edit rights are required to perform the actions required to add or update CI content.

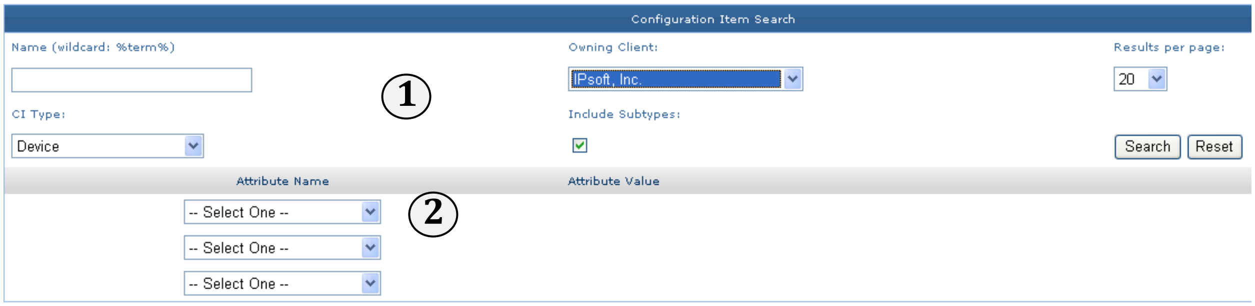
Search for a CI

1. In **IPcmdb Search** in the **Configuration Item Search** section, search for an existing CI by entering some or all of the optional search parameters:
   a. Name – The CI Name. You can use % as a wildcard
   b. CI Type (more on CI Types following)

c. Owning Client - The client that the CI belongs to

d. Include Subtypes – Checking this will also return CIs (if any) for which this CI is a parent.

2. Optionally add Attribute Name and Value details (more on this following).

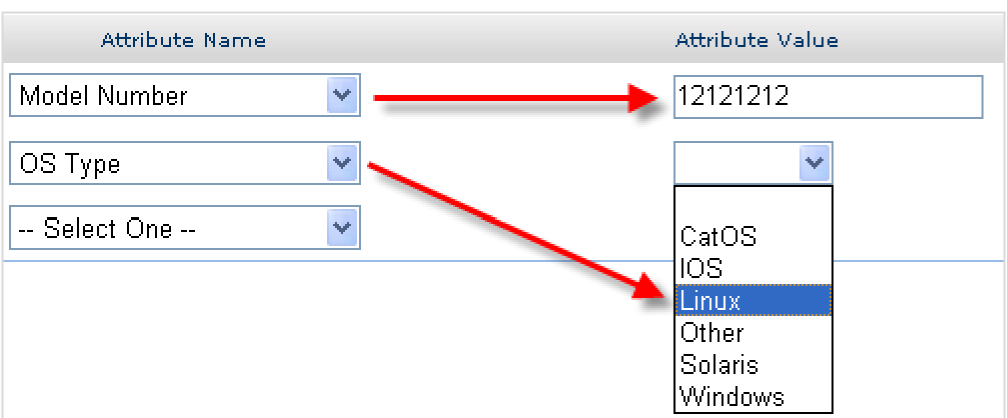


Refine Your Search: Add Attribute Values

When you select a CI Type, three dropdowns (customized to the CI Type you selected) will appear under **Attribute Name**.

The **Attribute Name** dropdowns allow you to further refine your search. If you select CI type **Device**, for example, you will see device-specific Attribute search options like Model Number, SNMP System Object ID, etc. (whereas a CI Type **Geographic Location**, for example, will have Attribute search options like Street, Region, etc.)

Selecting an **Attribute Name** item will either open a text box (enter a value, as for **Model Number**) or another dropdown (select an item, as for **OS Type**):



3. Click **Search**.

4. In the results row(s) you can click on one of the results to view its details.

Create a CI Type

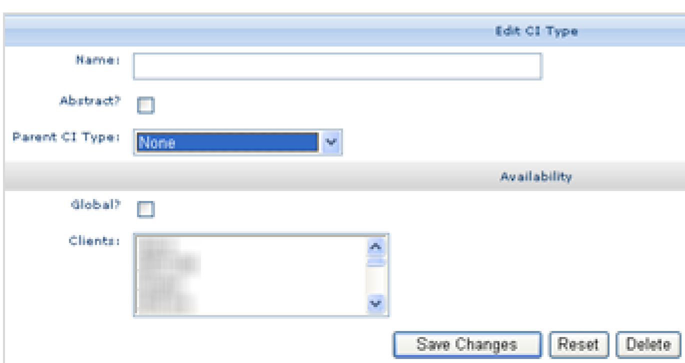
This section steps you through creating a new CI Type. Think of a CI Type as a class of configuration item with shared, definable characteristics.

NOTE: You will rarely, if ever, create a CI Type. More commonly, you will add specific items--a router, a client address, a site—of an *existing* CI Type. For examples of adding a CI of an existing CI Type, See *Add a CI* in the second half of this guide.

To create a new CI Type, follow these steps.

1. Click the **CI Types** tab, then click **New**.

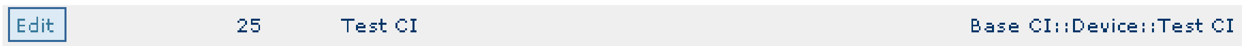
2. Enter CI Type details:
   a. Name
   b. Abstract?
   c. Parent CI Type – Associates your new CI Type with an existing type. For our example, we created a "Test CI" CI Type and associated it with **Device** Parent Type
   d. Global? – Check this to make the CI Type available to all clients
   e. Clients – Click the client(s) you want the CI Type available to. (Alt-Click or Shift-Click to select multiple clients)



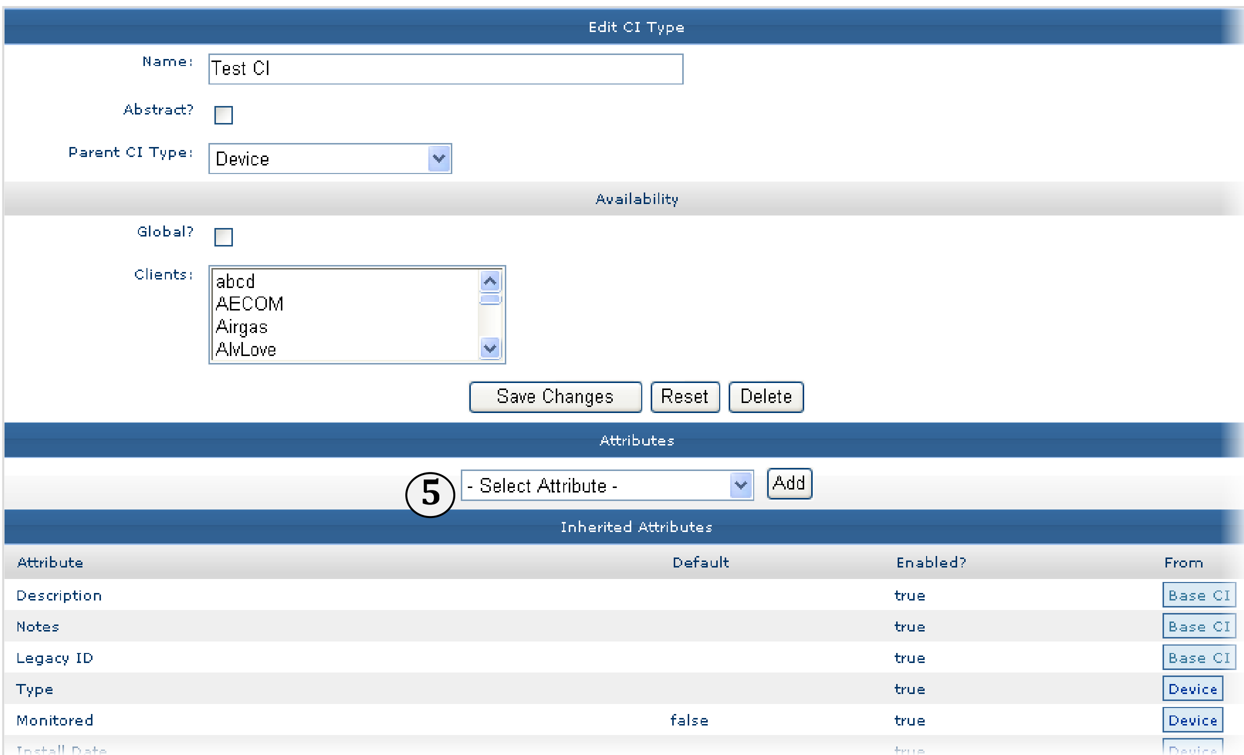
   f. Click **Save Changes**

Edit CI Type

3. Notice your newly created CI Type in the list (For this example, we created “Test CI”.) Click **Edit** to change your item (or any other that you have permissions to edit).



4. Notice in the **Edit CI Type** page under the **Inherited Attributes** section that—if you associated your device with a Parent CI Type--you can see the Attributes inherited from the parent type. To add additional attributes, select an item in the **Select Attribute** dropdown and click **Add.** More on Attributes following.

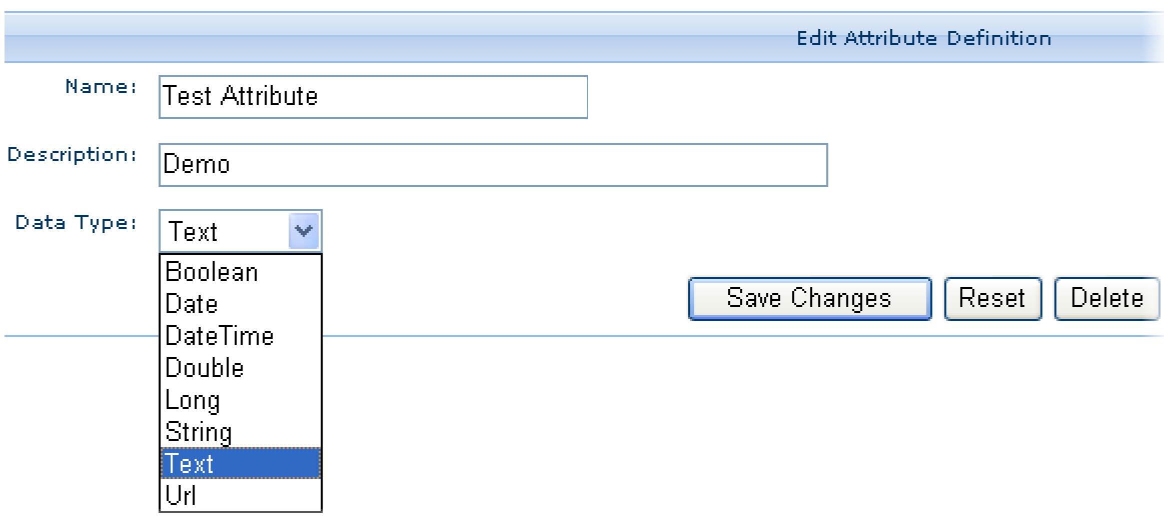


Create an Attribute

You can assign attributes to a CI type, including attributes you create from scratch. Attributes—examples include Address, Bill Stop, OOB Phone Numbers—can be attached to CI Types to provide more thorough CI information.

1. Click the **Attributes** tab, then click **New**.

2. In the **Edit Attribute Definition** page, enter Attribute details:
   a. Name
   b. Description - General description of CI. May be overwritten by automated processes; e.g., Interfaces will have the Description that is updated into the Description field of the Interface CI.
   c. Data Type

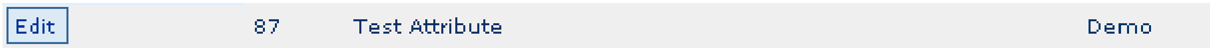


3. Click **Save Changes**.

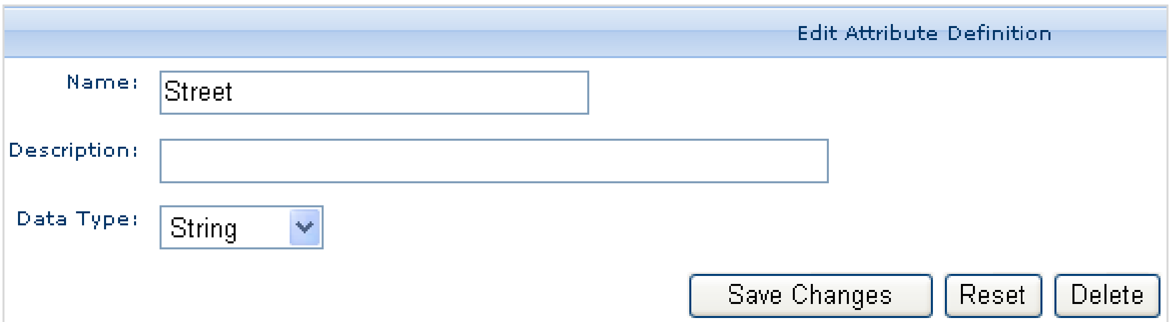
Edit Attribute

Notice your newly created Attribute in the list. You can Edit your attribute (or any other that you have permissions to edit):

4. Click **Edit**:



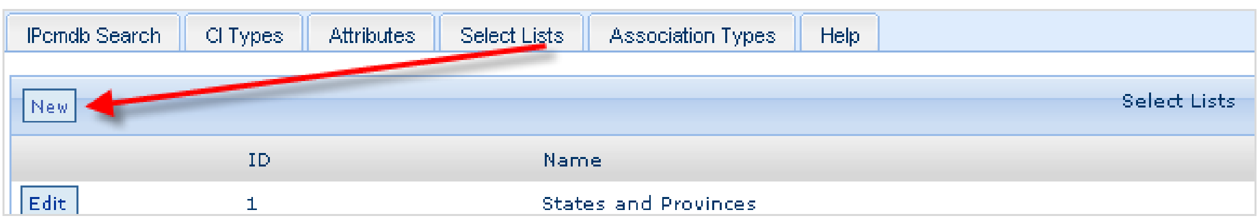
5. Edit one or more of the fields and click **Save Changes.**



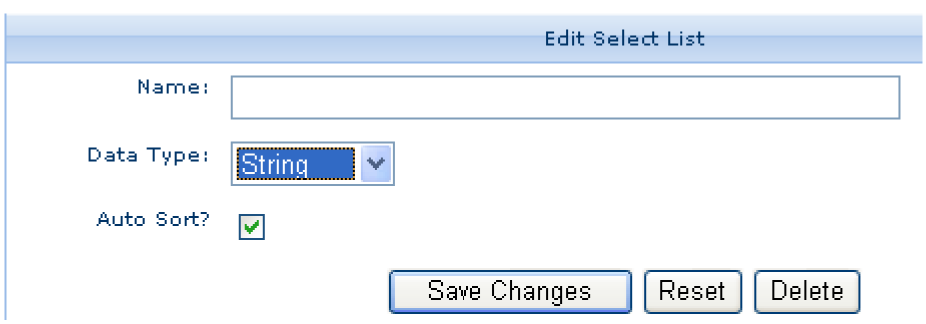
Create Select Lists

The **Select Lists** tab contains item lists with associated values, for example, Regions (AMER, APAC, CALA, EMEA) or Device Types (Appliance, Application Switch, etc.).

1. To add an item, click the **Select Lists** tab, then click **New**.

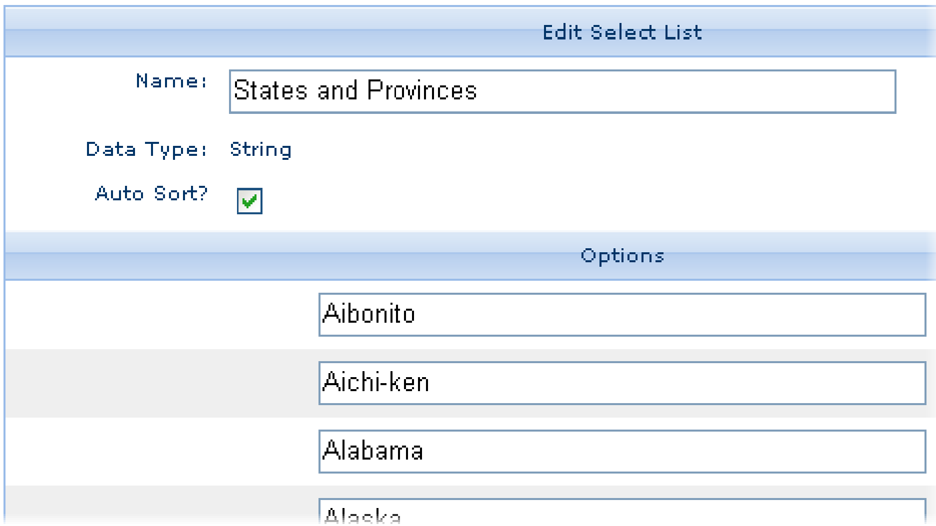


2. Enter the following and click **Save Changes.**
    a. Name
    b. Data Type
    c. Auto Sort?



Edit Select List

3. To Edit your Select List (or any other that you have permissions to edit), click Edit next to the items.
4. Enter your change and click **Save Changes**.



Create Association Types

CI associations are used to link different CIs that impact each other. The **Association Types** tab contains detail options regarding how CIs can relate to one another.

1. To add an Association Type, click the **Association Types** tab, then click **New.**

2. Enter some or all of the related fields:
    a. Name
    b. Abstract?
    c. Parent Association Type - Associates your new Association Type with an existing type.
    NOTE: Source CI Type must be equal to or descended from the parent's type.
    d. Source CI Type
    e. Source Description

f. Target CI Type

g. Target Description

h. Multiplicity – One to One, One to Many, Many to One, Many to Many

CI Associations

Site to Device (One to Many)

A Site may contain many Devices. A Device can belong to one and only one site.

Contact to Anything (One to Many)

Every CI type can have many contacts associated with it.

Device to Interface (One to Many)

A Device and can have many interfaces associated with it.

Interface to Circuit (One to One)

An Interface can be associated to exactly one circuit and vice versa.

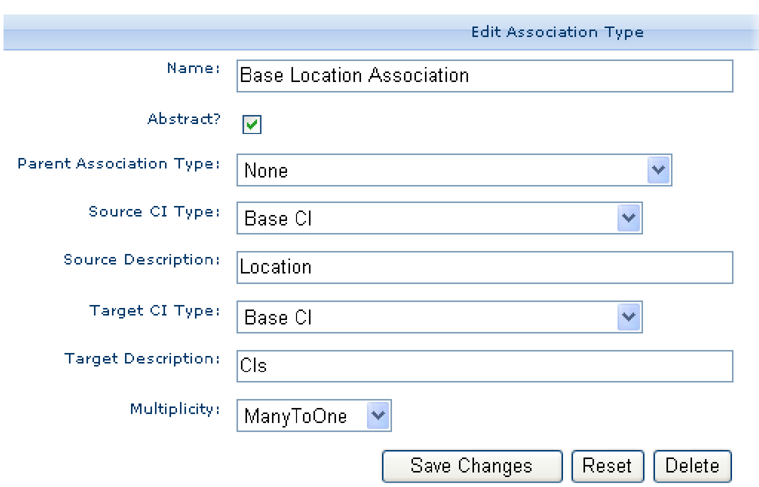
OOB Access to Device (One to Many)

An OOB CI and can have many Devices associated with it.

Edit Association Type

1. To Edit your Association Type (or any other that you have permissions to edit), click Edit next to the item.

2. Enter your change and click **Save Changes**.



Common IPcmdb Tasks

This section steps you through performing common IPcmdb tasks:

- Add a CI
- Disable a Device

Adding CI Types – Specific Differences

Following, you will step through how to add a **Site**. Before you similarly consider creating a device, interface, circuit, or OOB Access, however, be aware:

Create Device

You should not have to create a device in IPcmdb. Devices are automatically synced from the monitoring server.

Create Interface

You should not have to create an interface in IPcmdb. Interfaces are synced every hour form the monitoring server and automatically associated to the device.

Create Circuit

Create a new circuit and enter the requisite information. Associate the circuit to the interface on the router or switch that it is connected to.

Create OOB Access

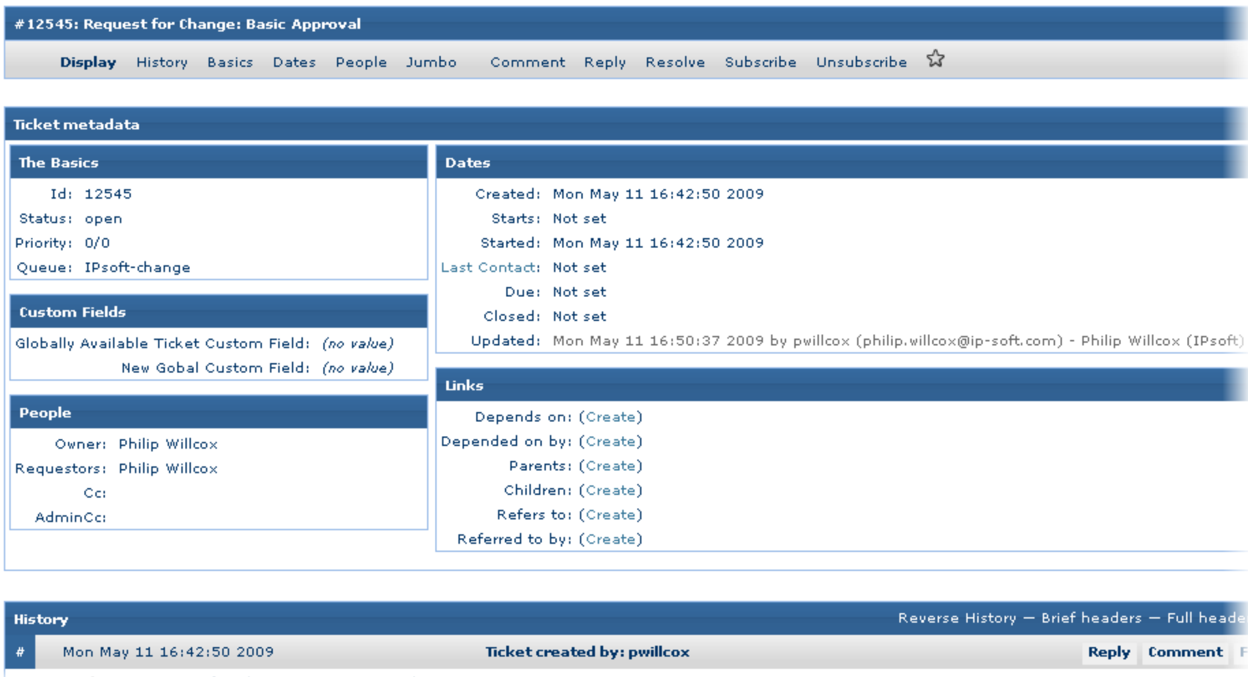
Create the Out of Band Access CI. The name should be in format: OOB-<PHONE NUMBER>. Associate the OOB CI with the device it is connected to.

Add a CI: Site

Earlier you stepped through how to Create a CI Type. This section shows you a more common task: how to add a specific CI—in this example, a site.

View Change Ticket

1. To begin the process of adding a CI, view the change ticket (see **Change Management** section for details) and gather relevant info, i.e., Contact, Device, Circuit Data information.



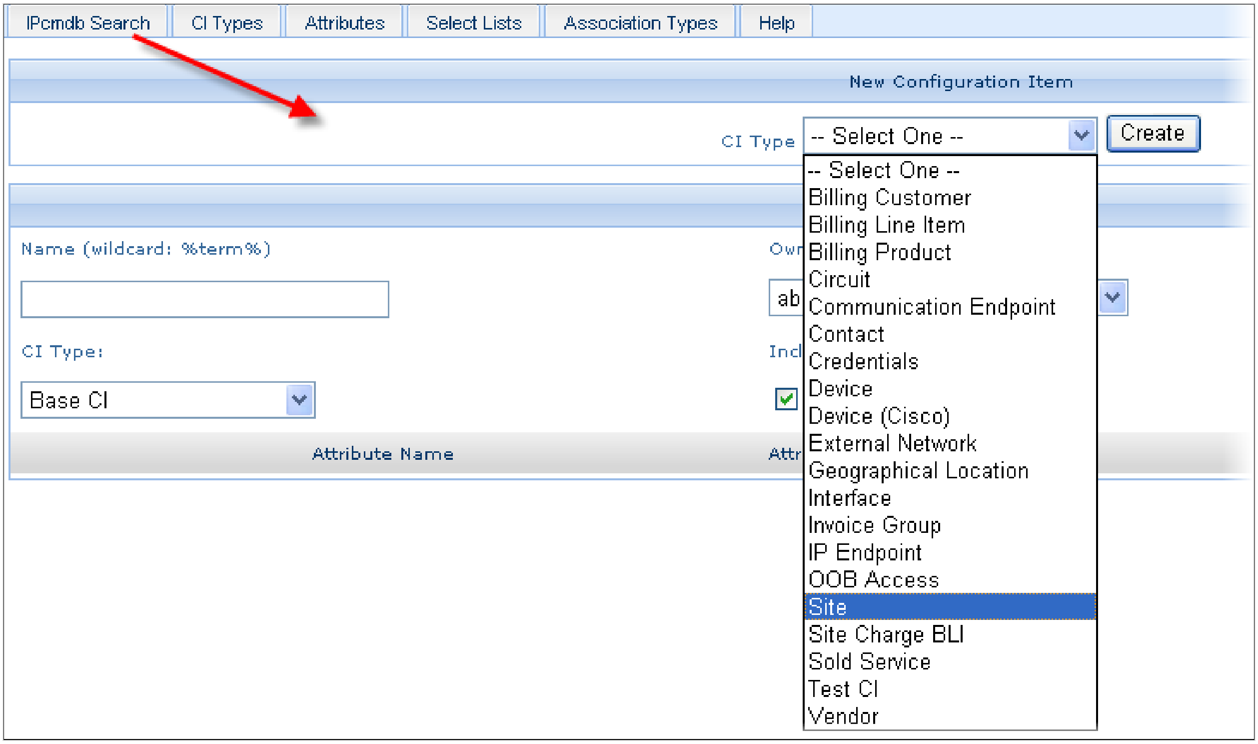
Search IPcmdb

2. Search IPcmdb for Site. Site exists?
   a. Yes – Skip ahead to Add Associations to a CI.
   b. No – Add site information (See Add Site, next; note CI Naming Conventions).
3. Validate Site, Contact info

Add Site

To add a site, start in the **IPcmdb Search** tab and follow these steps:

4. In the **CI Type** dropdown, select **Site** and click **Create.**



5. In the **Edit Configuration Item** screen, enter all required information (Required fields have a * next to them):
   a. Name - Site Name. Must be unique per client. Use the client provided Site Name or the IPsoft Site ID.
   b. Owning Client - This is the client that the CI belongs to
   c. Description - General description of CI. May be overwritten by automated processes; i.e., Interfaces will have the Description that is updated into the Description field of the Interface CI
   d. Notes - Other free form notes that are applicable to this CI, like hours.
   e. Legacy ID - This will be set if the data is imported from a 3rd party system. Used to keep track of data between systems.
   f. Street, State / Province, etc. – Address fields are self-explanatory
   g. Latitude - To find Latitude and Longitude for an address: http://stevemorse.org/jcal/latlon.php
   h. Longitude – See *Latitude*.
   i. Type – If the Type is known, set Type
   j. Status – Enabled or Disabled (see *Disable a Device or Site*)

CI Naming Conventions

Configuration Items (CI) names must be unique on a per client basis. When naming a CI in the IPcmdb, use the following conventions:

- Sites: Use the client provided Site Name or the IPsoft Site ID
- Contacts: <FIRST NAME> <LAST NAME>
- Circuit ID: Vendor Provided Identifier
- Devices: <IPmon Hostname>
    - ***Note:*** Devices are *automatically* synched, so you should not have to create one.
- Interfaces: <Device CI Name>--<Interface Name>
    - ***Note***: Interfaces are *automatically* synched, so you should not have to create one.

Add Associations to CI

Depending on the type of CI, you can add various associations to it. To a Site, for example, you can associate Contacts, Devices (both shown following), and Site Charges:

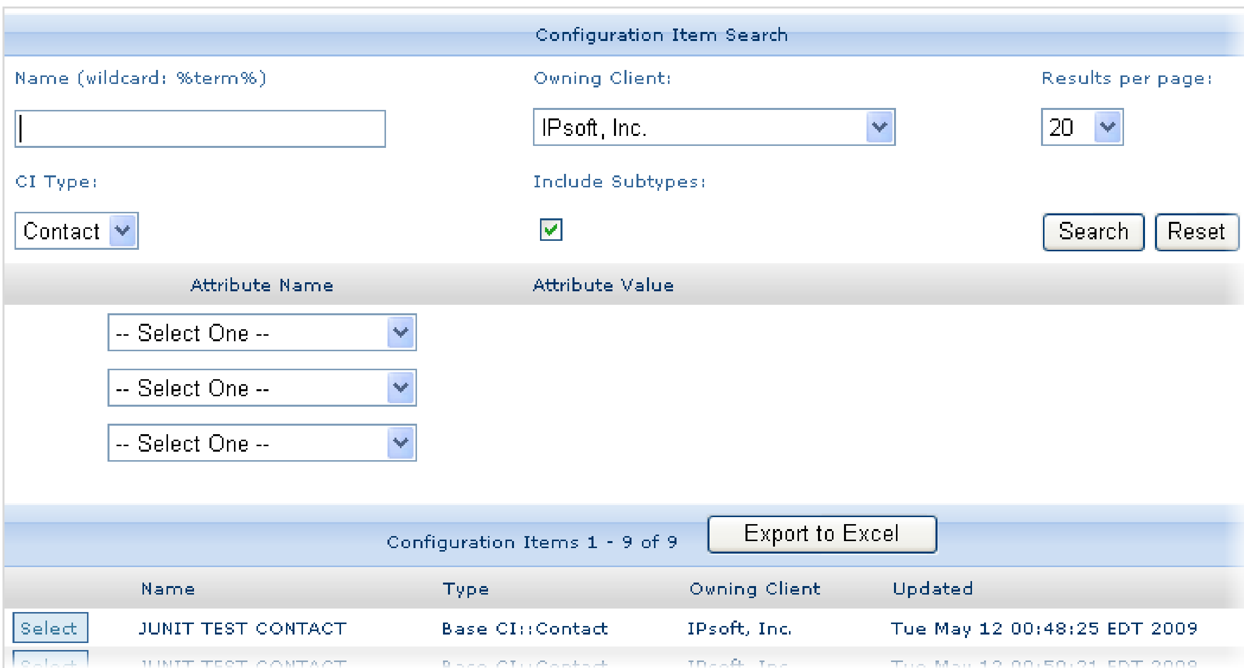
Associate a Contact

6. To add a Contact to the site, you first must have created the Contact. If you need to create one to add to the site and don't want to lose the new Site info you have added:
    a. **Save Changes** to the new site
    b. Create your contact (follow the steps in Add Site, but create a **Contact**)
    c. Search for the site you created (see IPcmdb Search) and add the contact to your Site as follows:

7. At the bottom of the **Edit Configuration Item** page under **Incoming Associations**, click Add next to **Contacts.**

8. Enter search criteria for the contact, for example, the name of the Site the person is the contact for and click **Search.**

9. Click Select next to result row contact you want to add.

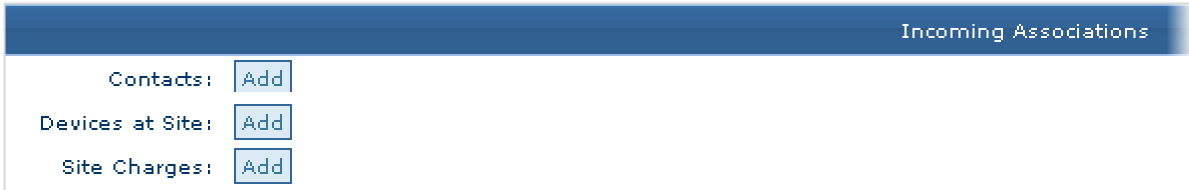


10. Close the Search screen and you will see under **Incoming Associations** that the contact is now associated with the Site.

Associate a Device to the Site

1. Associate Devices to Site
   a. Find the Site in **IPcmdb Search** and click **Edit** at the bottom of the Edit screen.

b. In the **Incoming Associations** section, next to **Devices at Site**, click 

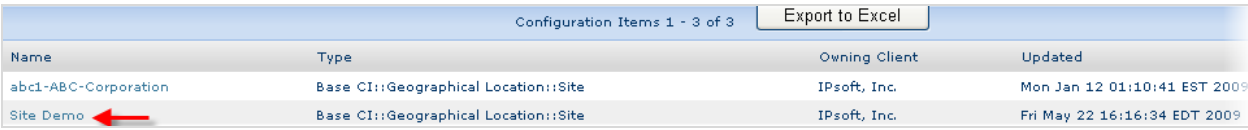


c. Find the device you want to associate in the search window and click **Select**.

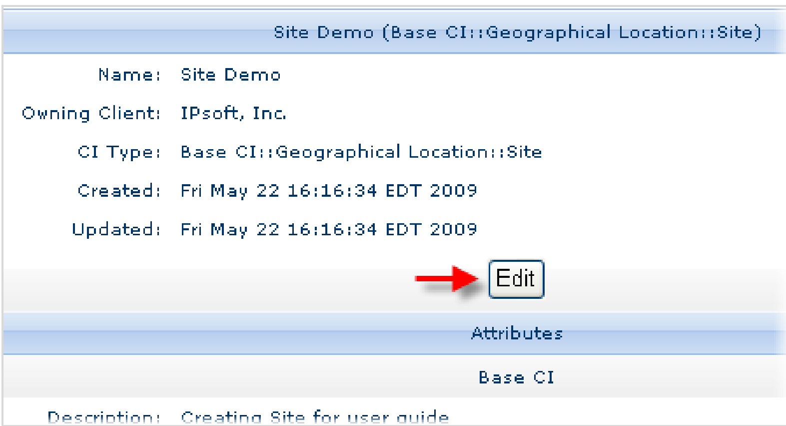
2. Validate device info and interface associations
3. Was OOB info provided by the customer?
   a. Yes – Add OOB Entry to IPcmdb and associate to Device
   b. No – Go to next step
4. Was circuit info provided by customer?
   a. Yes – Go to next step
   b. No – If it's a WAN device, request Circuit info from the customer
5. Does circuit exist in IPcmdb?
   a. Yes – Go to next step
   b. No – Add new circuit entry to IPcmdb
6. Associate Circuit to Interface and Vendor.

Edit a CI

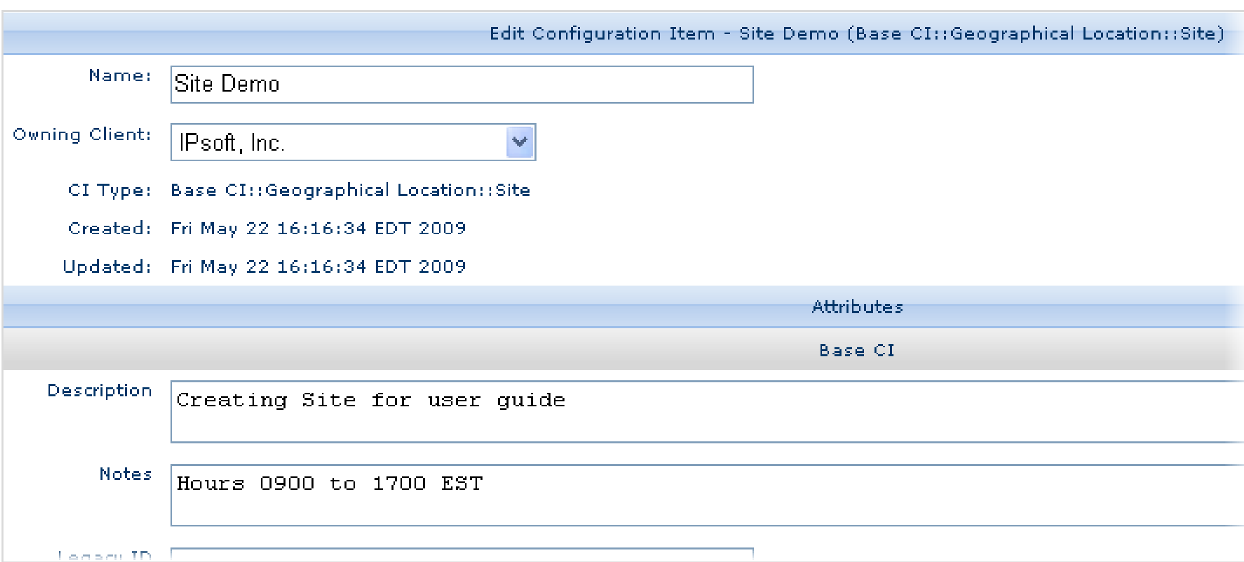
1. To update an existing CI, Search IPcmdb and click on the CI you want to Edit in the search results:



2. Click **Edit** in the detail screen for the CI.



3. Update CI data directly on the **Edit Configuration Item** page and click **Save Changes** at the bottom of the screen:



Edits Populate Across IPcenter

Changes you make to a CI in IPcmdb update elsewhere in IPcenter:

Monitoring Data - Edits Updated Daily

If you edit a monitored item—site, contact, circuit, OOB billing—the items are re-synched on a daily basis, so you will see the updates on monitored items within a day.

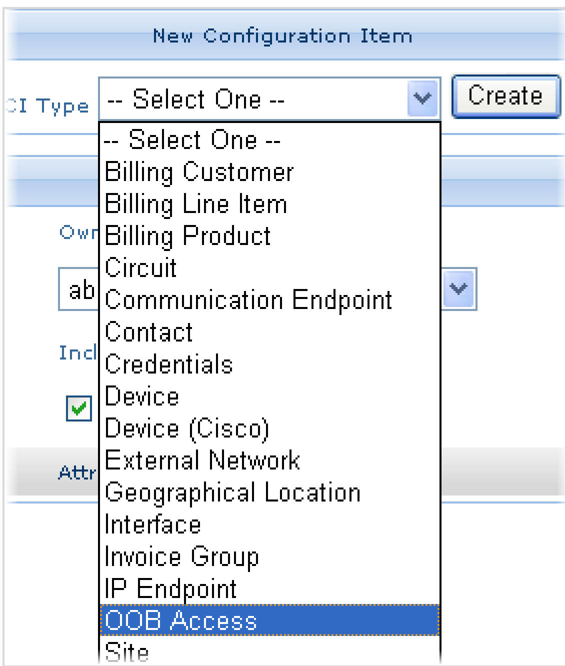
Contact Edits

If you edit a contact, your changes will be updated to all sites.

Add OOB Access Association

Add needed Outgoing and Ingoing Associations, including OOB Access information (OOB: Out-of-Bound) as follows:

1. For new, customer-provided OOB info, first create an OOB Access item and add customer information to it.



Disable a Device or Site

To disable a CI (in this example, a device), first you must perform a few steps in IPmon to prepare for the disable.

Disable Notifications in IPmon

1. Disable notifications for the device via the IPmon GUI

2. Execute multitool on the device that you would like to disable[3].

Edit the Device in IPcmdb

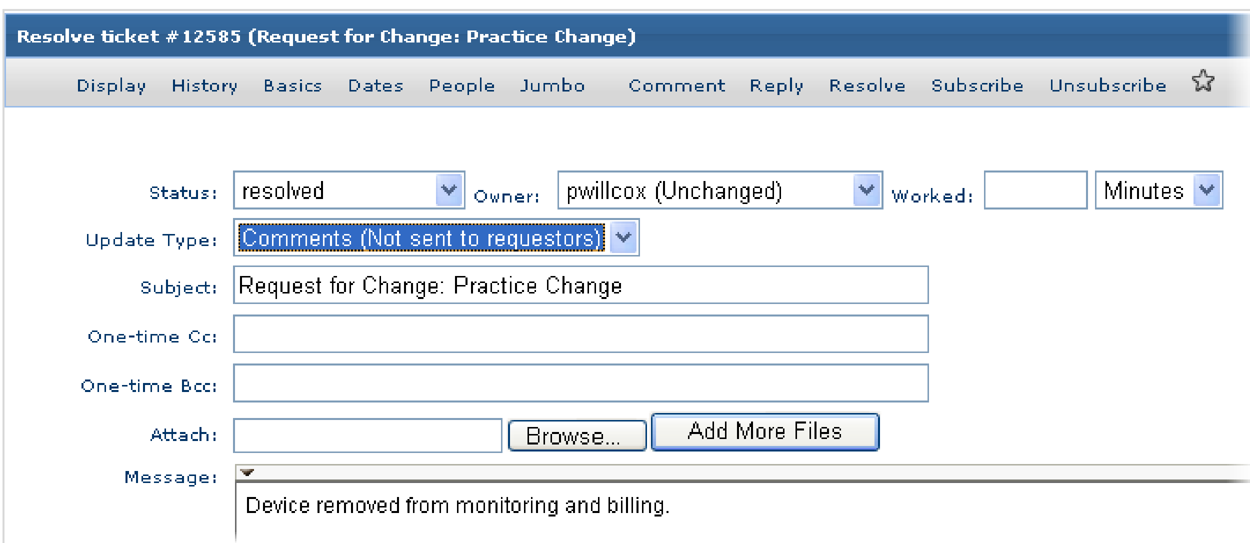
3. Find the device in the CMDB (Search IPcmdb)
4. Edit the device and set the following in the **Attributes** section of the **Edit Configuration Item** screen:
   - Monitored: False

   - IPsoft Managed: False

5. Click **Save Changes**.

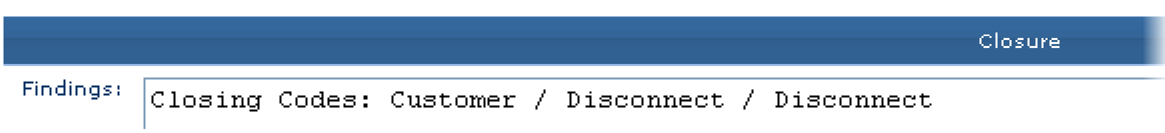
Update IPim / IPcm

6. Update IPim / IPcm, noting that the device has been removed from monitoring and billing.



7. Set the closing codes to: Customer / Disconnect / Disconnect:

   IPcm Closure section update:



[3] */apps/IPsoft/utils/multitool.pl –c <CLIENT CODE> --hostname <HOSTNAME> --monitor 0*