**Get oriented & return to the main hub**

This quick-start helps you spot the **header/title** and the **Main Menu** back button so you can always find your way home.

**What you’ll see at the top**

* **Title:** The header shows a chart icon and the title **“SA2 Analytics Platform.”**
* **Back to main hub:** On the right, a button labeled **“Main Menu”** (with a left arrow) takes you back to the main hub route (/main). Its tooltip reads **“Back to Main Menu.”**
* **Mode toggles:** Next to the Main Menu button you’ll see two mode buttons: **Search SA2 Regions** and **Saved Searches (N)**. These let you flip between searching and your saved list without leaving the Home page.

**Steps**

1. **Confirm you’re on the Home page**  
   Look for the chart icon and the title **“SA2 Analytics Platform”** at the top-left of the header.
2. **Go back to the main hub**  
   Click **Main Menu** in the top-right of the header. It immediately routes to /main. Hover to see the tooltip **“Back to Main Menu.”**
3. *(Optional)* **Switch between Search and Saved**  
   Use **Search SA2 Regions** to explore, or **Saved Searches (N)** to open your saved list—both live next to **Main Menu** for quick context switching.

**Tip:** The **Search History** panel docks on the left by default—handy to retrace steps if you navigated away and came back. Toggle it via the side tab if you’ve hidden it.

**Behavioral notes (so there are no surprises)**

* The header always renders the **title** and the **Main Menu** button at the top of the page.
* Clicking **Main Menu** triggers a client-side navigation to /main (no dialog).
* The **Search History** panel is **visible by default**, with an **X** to hide; a slim **History** tab appears when hidden so you can show it again.
* While you’re here, you can toggle **Search SA2 Regions** / **Saved Searches (N)** directly from the header without losing your place.

**FAQ**

**1) Where’s the title located?**  
In the top header area, beside a chart icon: **“SA2 Analytics Platform.”**

**2) How do I return to the main hub?**  
Click **Main Menu** in the header; it routes to /main.

**3) Is there a tooltip for the back button?**  
Yes—**“Back to Main Menu.”**

**4) Does the back button ever disable?**  
No disabled state is defined in the page for **Main Menu**; it’s a standard button that navigates on click.

**5) Will I lose my search if I go to Main Menu and come back?**  
Your **Search History** persists for your user and is shown in the left panel when you return (panel is visible by default).

**6) Can I switch to Saved Searches without leaving the page?**  
Yes. Use the **Saved Searches (N)** header button to view/delete or open saved items; switch back with **Search SA2 Regions**.

**7) What else lives in the header?**  
A brief description line appears under the header depending on the mode (e.g., a description for Search vs. a count note for Saved).

**8) I hid the History panel—how do I bring it back?**  
Click the vertical **History** tab on the far left to show the panel again.

**9) Does the page show loading or ready states near the top?**  
Yes—informational cards appear under the header (e.g., **Loading SA2 Analytics Platform…**, **Ready** status bar, or an **Error** card).

**10) Can I navigate to other features from the header while viewing an SA2?**  
Yes—besides **Main Menu**, the page also exposes quick actions elsewhere (e.g., Residential/Homecare links in the SA2 overview), but these are below the header itself.

**11) Is the header where I set comparison levels or open tabs?**  
No. **Comparison Level** and the **Economics / Demographics / Health Sector / Health Stats** tabs are in the main content area beneath the header.

**Troubleshooting**

* **I clicked Main Menu but nothing happened.**  
  Ensure you’re online; the button performs a client-side push to /main. Try again or refresh.
* **I can’t see the left History panel to re-run a search after returning.**  
  If you previously hid it, click the slim **History** tab on the far-left edge to reopen.
* **Header looks right but content seems stuck on Loading.**  
  The page shows a loading banner first. If it persists or you see an error card, data may have failed to load—refresh or check connectivity.

**Quick reference checklist**

* See **“SA2 Analytics Platform”** in the header ✔️
* Use **Main Menu** (top-right) to go back to the hub ✔️
* Toggle **Search SA2 Regions** / **Saved Searches (N)** without leaving ✔️
* Restore past work from the left **Search History** panel ✔️

[Screenshot: Header area showing “SA2 Analytics Platform” at left, the “Main Menu” button at right, and the left Search History panel visible for context]

**Open questions for PM/Eng**

1. **Auth route consistency:** The page pushes to /auth/login in one path and /auth/signin in another—should these be unified?
2. **Main Menu destination:** Confirm /main is the canonical main hub and whether any state should be preserved when returning.
3. **History panel labels/actions:** The container wires clear/delete callbacks; confirm exact in-panel labels are standardized for documentation.

*All statements above are grounded in* /mnt/data/page.tsx *(Home experience).*

# **Find a place fast: search for SA2s, SA3/SA4/LGA, postcodes, localities, or facilities**

Audience: business users & data analysts in Australian aged care.

**What you’ll do**

1. **Open the Home (SA2 Analytics) page.** The header shows **“SA2 Analytics Platform”** and a **Main Menu** back button. Click **Main Menu** any time to return to the hub.
2. **(Optional) Show/Hide your Search History.** The **Search History** panel is visible by default on the left. Use the **X** button on the panel header to hide it, and the vertical **History** tab to show it again. You can **select** a past query, **delete** a single item, or **clear** your history via the panel’s controls.
3. **Switch to Search mode (if needed).** In the header’s toggle, choose **Search SA2 Regions** (vs **Saved Searches**).
4. **Type in the search bar.** Click **Search SA2 Regions** and start typing in the input with placeholder:  
   *“Search regions (SA2/SA3/SA4/LGA), postcodes, localities, or facilities…”*
5. **Watch the spinner.** While your query is processed, a small spinner appears at the right of the input. (Search is **debounced ~300 ms**; the dropdown closes if you click outside.)
6. **Use the results dropdown.** Pick a result. The list shows icons by type and helpful badges:
   * **Analytics Available** (for SA2s with data)
   * **No Direct Analytics** (for non-SA2 results)
   * **Near *{place}*** (proximity suggestions)
   * **Postcode Match** (when your query is a 4-digit postcode)
7. **If you selected a non-SA2:** You’ll see an **Analytics Not Available** card. Try a nearby SA2 from search.
8. **If you selected an SA2:**
   * See **Currently viewing: {SA2}** and (if signed in) a **Save SA2 / Saved** button.
   * Open quick links to **Residential** 🏢 and **Homecare** 🏠 for that SA2.
   * Review summary tiles like **Persons 65+ Years**, **Home Care**, **Residential Care**, **CHSP Participants**.
   * Choose a **Comparison Level**: **National**, **State**, **SA4**, **SA3** — this changes the box-plots’ reference distribution.
   * Explore **Economics**, **Demographics**, **Health Sector**, **Health Stats** tabs (each shows box-plots).
9. **No SA2 selected?** You’ll see **Landing Rankings** (a rankings section) plus an **Empty State** prompting you to search.

[Screenshot: SA2 Insights home with Search History open, “Search SA2 Regions” focused, and Comparison Level buttons visible]

**Behavioral notes (how the page behaves)**

* **Loading banners & alerts.** A blue banner shows steps like “Initializing…” then **“SA2 Analytics Platform Ready”** when finished; failures show a red error card.
* **Search debounce & dropdown.** Input has ~**300 ms** debounce; while searching you’ll see a **spinner**; clicking outside **closes** the dropdown.
* **History panel default.** The **Search History** panel is **visible by default**; use the **X** to hide, and the slim **History** bar to show again.
* **Save SA2 requires sign-in.** If not signed in, the “Currently viewing” save button isn’t shown; the overview card’s save button is **disabled** and saving will **redirect to sign-in**.
* **Analytics Not Available** card appears if you select a **non-SA2** item.
* **Comparison Level impacts charts.** Box-plots read **national/state/SA4/SA3** distributions per your selection; the charts label “vs National/State/SA4/SA3.”
* **Save/Unsave feedback.** Saving/unsaving shows **success/error** cards; the button flips between **Save SA2** and **Saved**.
* **Saved Searches list.** Shows **Saved Searches (N)** with **Clear All**, per-item **Residential** 🏢, **Homecare** 🏠, and **Delete** actions.
* **Landing Rankings & charts.** Rankings and heatmaps include **“vs {comparison}”** indicators and performance summaries.

**FAQs**

1. **Why does the Save button show “Saved” sometimes?**  
   Because the current SA2 is already saved for your account (currentSA2SavedStatus). Toggling updates the state and shows a success card.
2. **What happens when I click 🏢 Residential or 🏠 Homecare on a saved item?**  
   You’re navigated to the respective page with the SA2 name pre-filtered via the URL.
3. **Why do some results say “No Direct Analytics”?**  
   Non-SA2 results (e.g., SA3/SA4/LGA/postcode/locality/facility) don’t have SA2 analytics; the dropdown shows **No Direct Analytics**, and selecting them shows an **Analytics Not Available** card.
4. **How are search results prioritized?**  
   The search card copy notes “Results prioritized by population size.” (UI text).
5. **How do I restore a prior search from Search History?**  
   Open the **Search History** panel and click an item; the app re-runs the search and, if a specific SA2 was stored, restores that selection. You can also delete a single item or clear all.
6. **What if I’m not signed in and try to save an SA2?**  
   Saving from the overview redirects to **/auth/signin**. The icon-only save button on the SA2 overview is disabled when no user is present.
7. **Why do I see “Analytics Not Available” for some selections?**  
   That message appears when the selected item isn’t an SA2. Try a nearby SA2 using search.
8. **How do Comparison Levels change the plots?**  
   Box-plots recompute the distribution against **National**, **State**, **SA4**, or **SA3** groups; the chart shows the reference (e.g., “vs State”).
9. **Which metrics appear under each tab?**  
   Each tab filters a defined set of metrics:

* **Economics** (e.g., employment rate, median income, rent, SEIFA indices, unemployment).
* **Demographics** (e.g., estimated population, median age, %/no. aged 55–64 and 65+, density).
* **Health Sector** (e.g., CHSP, Home Care, Residential Care counts/providers/spend).
* **Health Stats** (e.g., long-term conditions, assistance needs, mental health, stroke).

1. **What does the Landing Rankings section show when no SA2 is selected?**  
   A rankings view appears (with charts) to explore performance across regions before choosing an SA2. Selecting an item from the rankings loads that SA2.
2. **Do charts show the comparison context?**  
   Yes. Box-plots, radar, and heatmaps display a **“vs {comparison}”** chip on the top-right.
3. **Will the dropdown disappear if I click elsewhere?**  
   Yes; clicking outside the search container closes the dropdown.

**Troubleshooting**

* **“Error loading SA2 data” banner.** If the API fails, you’ll see a red error card. Try reloading or come back later.
* **Search feels slow or empty.** The input is **debounced ~300 ms**; type a bit more or wait for the spinner to finish. If you clicked away, reopen the field to trigger results.
* **Saved search actions didn’t appear to work.** The app refreshes the saved list after actions; if you were signed out, you’ll be redirected to sign-in.
* **History delete/clear didn’t reflect.** The panel reloads history after changes; reopen the panel to confirm.
* **Selected a locality/LGA and saw no analytics.** Only SA2s have analytics; search again for the SA2 region covering that area.

**Quick reference checklist**

* Open **SA2 Analytics Platform** → ensure **Search History** is visible (optional).
* Toggle **Search SA2 Regions** (not **Saved Searches**).
* Type in the **Search** bar → watch the **spinner** → pick from the **dropdown**.
* For SA2s: **Save**, open **🏢 Residential** / **🏠 Homecare**, scan **summary tiles**.
* Set **Comparison Level** → browse **Economics / Demographics / Health Sector / Health Stats** tabs.
* Use **Saved Searches (N)** to revisit regions; use **Clear All** or **Delete** as needed.

**Open questions for PM/Eng**

1. **Search sources & scope.** The UI promises SA3/SA4/LGA/postcodes/localities/facilities, but the active search implementation (performSimpleSearch) only queries **SA2** data fields. The multi-source search (with proximity suggestions) is present but **commented out**. Should we enable the comprehensive search and associated badges for non-SA2 types?
2. **Result ordering.** The card description says “Results prioritized by population size,” but the current simple search does not explicitly sort by population. Confirm intended ordering and implement if required.
3. **History panel labels.** The panel supports **select / delete / clear** via props, but exact UI labels (button text vs icons) live inside InsightsHistoryPanel. Please confirm final copy/icons for the guide.
4. **Landing Rankings detail.** InsightsLandingRankings appears on the landing state, but user-visible labels and interactions aren’t in this file. Can we document its metric set and sorting rules?

**Component references (charts)**

* **SA2RankingChart**: shows a performance summary and “vs {comparison}” badge.
* **SA2HeatmapChart**: heatmap by metric/region with a comparison indicator.
* **SA2BoxPlot**: per-metric box-plot vs National/State/SA4/SA3, with a performance chip.
* **SA2RadarChart**: normalized 0–100% radar with “vs {comparison}” badge.

# Interpret search results & badges so you pick the right result

Audience: Business users & data analysts in Australian aged care.

When you type in the **Search SA2 Regions** bar, the dropdown shows mixed results (SA2/SA3/SA4/LGA/Postcode/Locality/Facility) with icons, helper badges, and a compact data preview. Here’s how to read each row and choose confidently.

[Screenshot: Search dropdown showing mixed result types with “Analytics Available”, “No Direct Analytics”, “Near {X}”, and “Postcode Match” badges]

## 1) Start a search

1. Click **Search SA2 Regions** and type a place, SA2/SA3/SA4/LGA code or name, postcode, locality, or a facility. The placeholder confirms what’s supported.
2. While the app searches, a small spinner appears on the right of the field.
3. The dropdown opens with results once matches are available.

**Note:** The results list states: “Search by SA2 name, postcode, or locality. Results prioritized by population size.” This hints at ranking logic.

## 2) Understand the row layout

Each result row contains:

* **Type & ID** — An icon and label (SA2/SA3/SA4/LGA/Postcode/Locality/Facility) followed by the code or ID.
* **Context chips** — Optional area and state tokens.
* **Helper badges** — See meanings below.
* **Quick stats** — If available: population, median age, median income, address; and distance for proximity suggestions.

**Tip:** Proximity suggestions are visually highlighted (light blue row with a blue left border) so you can spot them quickly.

## 3) Read the helper badges (what they mean & when to act)

* **Analytics Available** — This is an **SA2** that already carries analytics data. Pick these when you want the SA2 analysis to load immediately.
* **No Direct Analytics** — Non-SA2 items (e.g., SA3/SA4/LGA/Postcode/Locality/Facility) without direct analytics. Select these only if you’re orienting; the app will show a notice and suggest searching within the area for an SA2.
* **Near {X}** — A proximity suggestion pointing you to the closest relevant **SA2** near the non-SA2 place you searched (includes approximate km distance when available). Choose this to jump to a nearby SA2 with analytics.
* **Postcode Match** — Triggered when your query looks like a 4-digit postcode and the row is a **Postcode** type. Use it to narrow down to the right locality or to find nearby SA2s.

## 4) Pick the right row for your task

1. **Need charts now?** Pick a row with **Analytics Available** (SA2). It takes you straight into SA2 analytics.
2. **Only know a broader area (SA3/SA4/LGA)?** Consider a **Near {X}** suggestion in the list to pivot to a nearby SA2 with analytics.
3. **Working from a postcode?** Start with the **Postcode Match** row, then select the **Near {X}** SA2 suggestion to get analytics.

**Warning:** If you pick a non-SA2 row, the app will show **Analytics Not Available** with guidance to search for an SA2 in that area.

## FAQ

1. **Why do some results say “No Direct Analytics”?**  
   Because only **SA2** rows have analytics; non-SA2 types don’t.
2. **What should I do when I see “Analytics Not Available”?**  
   Search again for an **SA2** within that area or pick a **Near {X}** suggestion.
3. **How are types indicated?**  
   Each row shows an icon + label (SA2/SA3/SA4/LGA/Postcode/Locality/Facility) and a code/ID.
4. **What does “Near {X}” actually do?**  
   It’s a proximity suggestion that points you to nearby **SA2** options, sometimes with distance (e.g., “~3.4 km away”).
5. **Why am I seeing a “Postcode Match” badge?**  
   Your query looked like a 4-digit postcode and matched a Postcode result.
6. **What extra info appears on the right side of a row?**  
   Population, median age, median income, address, and for proximity items, an approximate distance.
7. **Are results sorted in a specific way?**  
   The UI states results are prioritized by population size.
8. **What appears first when the list mixes types?**  
   The code groups results as “original non-SA2”, then **SA2 with analytics**, then **proximity** suggestions (top 10 total shown).
9. **Do Postcode/Locality searches ever show SA2s directly?**  
   Yes—logic enriches SA2 matches and can propose nearby SA2s for localities.
10. **Will choosing a non-SA2 ever give me analytics?**  
    No—analytics render for SA2 only. Use **Near {X}** or re-search the SA2 name.

## Troubleshooting

* **I only get non-SA2 results and can’t see charts.**  
  Pick a **Near {X}** suggestion or refine your query to the SA2 name.
* **The list looks static after I type.**  
  Search updates are **debounced (~300ms)**; wait a beat or keep typing.
* **Dropdown closes unexpectedly.**  
  Clicking outside the search container closes it by design; click back into the field.
* **I chose a postcode but still don’t see analytics.**  
  Postcode rows don’t have analytics; use **Near {X}** SA2 suggestions shown with distance.

## Quick reference checklist

* Look for **Analytics Available** → choose for instant SA2 analytics.
* Seeing **No Direct Analytics**? → switch to an **SA2** or **Near {X}**.
* Query is a 4-digit postcode? → use **Postcode Match**, then pick a **Near {X}** SA2.
* Need ranking context? → results are **prioritized by population size**.
* Mixed list? → Expect non-SA2 first, then SA2 with analytics, then proximity suggestions (top 10).

## Open questions for PM/Eng

* Exact tie-breakers and secondary sort rules beyond “prioritized by population size” are not specified in the UI text. Clarify ordering for mixed-type results and proximity suggestions when counts exceed 10. (We cite only the displayed statement.)

# SA2 Insights — Home: Search, analyze & save an SA2

**Audience:** Business users & data analysts in Australian aged care.

**Job-to-be-done:** Search an SA2 region, view its analytics, compare at National/State/SA4/SA3, and save it for quick access.

Header shows **SA2 Analytics Platform** and a **Main Menu** back button.

## Step-by-step

1. **Open the Home experience**
   * Confirm you’re on **SA2 Analytics Platform**. Use **Main Menu** to return to the hub.
2. **Use the Search History panel** (left)
   * The **Search History** panel starts **visible**. Click the **X** to hide, or the side **History** tab to show again.
   * From the panel, you can **select** a prior search, **delete** one item, or **clear** all. (The panel wires to onSearchSelect, onDeleteSearchItem, onClearSearchHistory.)
3. **Find places fast with “Search SA2 Regions”**
   * Click **Search SA2 Regions** (toggle) if you’re on the Saved list. Type in the input with placeholder:  
     “**Search regions (SA2/SA3/SA4/LGA), postcodes, localities, or facilities...**”
   * Smart behavior: your query is **debounced (~300 ms)**, a spinner appears while searching, and the **dropdown closes on outside click**.
   * Result badges help you choose:  
     **Analytics Available** (SA2 with data), **No Direct Analytics** (non-SA2), **Near {X}** (proximity suggestion), **Postcode Match** (4-digit match). Results show type (SA2/SA3/SA4/LGA/Postcode/Locality/Facility), optional population/median age/income.
4. **Pick a result**
   * If you pick a **non-SA2**, you’ll see **Analytics Not Available** and a tip to search for an SA2 within that area.
   * If you pick an **SA2**, its analytics load and history is saved.
5. **Review the Selected SA2 overview**
   * Top-right actions: **Save** (requires sign-in), quick links to **Residential** and **Homecare** (navigate with SA2 filter).
   * Summary tiles include **Persons 65+ Years**, **Home Care**, **Residential Care**, **CHSP Participants**.
6. **Choose the Comparison Level**
   * Use **National / State / SA4 / SA3** buttons. Tooltips indicate scope (e.g., “vs All Australia”, “vs {State}”). This choice updates the charts to compare against that level.
7. **Explore the analysis tabs**
   * Tabs: **Economics**, **Demographics**, **Health Sector**, **Health Stats**. Each shows **box-plots** for relevant metrics, with a top-right chip **“vs {comparison}”** and a performance badge (Top 25% / Middle 50% / Bottom 25%).
8. **Save an SA2 for quick access**
   * Use **Save**. If you’re not signed in you’ll be redirected to sign-in; on success/failure a status card appears. The “Save” state flips to **Saved** when stored.
9. **Open Saved Searches**
   * Toggle **Saved Searches** to see your list, **Clear All** (with confirmation), open an item, or use the quick **Residential** 🏢 / **Homecare** 🏠 links; delete an item with the trash icon.
10. **No SA2 selected? Use “Landing Rankings”**

* The **Landing Rankings** grid appears on the empty state so you can jump into an SA2 by metric ranking. Selecting one loads that SA2.

## Behavioral notes (grounded)

* **Initial loading:** “Loading SA2 Analytics Platform...” full-page; then a blue progress card with steps (“Loading unified SA2 dataset…”, “Calculating…”) until **SA2 Analytics Platform Ready** (green card). Errors show a red card with the message.
* **Debounced search (~300 ms):** input changes trigger a 300 ms timer before searching; spinner shows while searching. Clicking **outside** the dropdown closes it.
* **History panel default:** visible on load; **Hide/Show** persists until you toggle again.
* **Save SA2 requires sign-in:** Save button is disabled without a user in the overview; attempts to save from the banner redirect to **/auth/signin**. On success/failure, a green/red message card appears and auto-clears.
* **Analytics Not Available:** shown when a **non-SA2** is selected.
* **Comparison Level impacts charts:** box-plots swap to **national/state/SA4/SA3** statistics; the chip shows **vs National/State/SA4/SA3**.
* **Tabs & metrics:** each tab renders only metrics declared for that category in the code.

## FAQ

1. **Why does the Save button show “Saved” vs “Save SA2”?**  
   The current SA2’s saved status is checked (isSA2SearchSaved) and the UI flips state accordingly; success/error messages appear when toggling.
2. **What happens when I click Residential/Homecare on a saved search?**  
   You’re navigated to /residential?sa2={name} or /homecare?sa2={name} with that SA2 pre-filtered.
3. **Why do some results say “No Direct Analytics”?**  
   Non-SA2 items (e.g., SA3/SA4/LGA/Postcode/Locality/Facility) don’t have direct SA2 analytics; that badge appears on those rows.
4. **How are results prioritized?**  
   The search card states “Results prioritized by population size.” SA2 results show population/age/income to help selection.
5. **How do I restore a prior search from Search History?**  
   Click an item in the **Search History** panel; it restores the query and SA2 (if captured). You can also delete one or clear all.
6. **What if I’m not signed in and try to save?**  
   You’ll be redirected to sign-in; the Save button in the overview is disabled without a user.
7. **Why do I see “Analytics Not Available”?**  
   You selected a non-SA2 item. Analytics only render for SA2s; try searching for an SA2 within that area.
8. **How do Comparison Levels change the box-plots?**  
   Charts recompute against the selected level’s distribution (National/State/SA4/SA3). The chip shows the active scope (“vs National”, etc.).
9. **Which metrics appear under each tab?**
   * **Economics:** employment, income, SEIFA, housing (exact metric list coded in that tab).
   * **Demographics:** population, age, density, working age.
   * **Health Sector:** CHSP, Home Care, Residential Care participants/providers/spend.
   * **Health Stats:** long-term conditions, assistance, unpaid assistance, stroke, etc.
10. **What does the Landing Rankings grid show when no SA2 is selected?**  
    A metric-based rankings view so you can jump straight into an SA2; selecting one triggers the SA2 overview.
11. **Do charts show how my SA2 performs?**  
    Yes—box-plots mark your SA2’s value and add a **Top 25% / Middle 50% / Bottom 25%** indicator.
12. **Is there a radar or ranking chart?**  
    Components for **radar** and **ranking** comparison exist (with “vs {comparison}” labelling), though the tab content uses box-plots on the Home page.

## Troubleshooting

* **Data failed to load (red error card):** The loader switches to an error state with the API message. Try reloading the page; the app won’t proceed until data loads.
* **Search feels slow or empty:** The input is **debounced (~300 ms)**. Type a bit, then pause; click the input to reopen results if needed; clicking outside closes the dropdown.
* **Can’t save an SA2:** Ensure you’re signed in; the Save control redirects to sign-in when no user is present.
* **Saved/History actions didn’t update:** The list refreshes after operations; if you still don’t see changes, toggle out/in of the view (Search ↔ Saved) or reopen the History panel.
* **Selected a non-SA2 and see no charts:** That’s expected; only SA2s have analytics. Use the suggestion in the yellow notice to search for an SA2.

## Quick reference checklist

* Open **SA2 Analytics Platform** → use **Main Menu** as needed.
* Manage **Search History**: show/hide, select, delete, clear.
* Search with the SA2 input (debounced; click-outside closes).
* Pick an **SA2** (look for **Analytics Available**).
* Save the SA2 (sign-in required) and note success/error message.
* Use **Residential/Homecare** quick links.
* Set **Comparison Level** (National/State/SA4/SA3).
* Explore **Economics/Demographics/Health Sector/Health Stats** tabs (box-plots).
* Try **Saved Searches**: open, **Clear All**, quick links, delete.
* Use **Landing Rankings** when no SA2 is selected.

[Screenshot: SA2 Insights Home with Search History open, “Search SA2 Regions” focused, badges visible in dropdown, and the “Comparison Level” buttons shown above tabs]

## Open questions for PM/Eng

* The card says “**Results prioritized by population size**”. Is a population-based sort applied to the list, or is this a planned enhancement? (Current simple search does not explicitly sort.)
* What’s the intended **maximum number of search results** shown? (UI slices to “up to 10” in some paths; confirm for simple search.)
* Should **radar/ranking** components appear on Home tabs or remain for future views? (Components exist but tabs render box-plots.)
* Any additional **toasts** beyond the existing green/red save status card (e.g., for history operations)?

### Notes on smart search behavior (as requested)

* **Debounce:** typing waits ~**300 ms** before running performSimpleSearch.
* **Click-outside to close:** clicking anywhere outside the dropdown **clears** results.  
  These behaviors are implemented in the Home page component’s effects and handlers.

# SA2 Insights — Home page user guide

Topic: **Search an SA2 region, view its analytics, and save it for quick access (with National/State/SA4/SA3 comparison)**

Audience: Business users & data analysts in Australian aged care.

## Get oriented

* The header shows **SA2 Analytics Platform** with a back button **Main Menu** to return to the hub.
* A **Search History** panel is fixed on the left and is **visible by default**. You can hide it (×) or show it again from the slim left tab (🕘).

## Step-by-step: find an SA2, view analytics, and save it

1. **Open Search**  
   In the header, make sure **Search SA2 Regions** (not **Saved Searches**) is selected.
2. **Type your query**  
   Click the input with placeholder **“Search regions (SA2/SA3/SA4/LGA), postcodes, localities, or facilities…”** and start typing. A spinner appears while searching, and the results dropdown opens. **Results prioritized by population size** appears under the Search header.
   * Each result shows its type (SA2/SA3/SA4/LGA/Postcode/Locality/Facility) plus helpful badges:  
     **Analytics Available**, **No Direct Analytics**, **Near {X}**, **Postcode Match**; SA2 rows show **Pop: {N}**, **Age**, **Income** when available.
3. **Pick the right result**  
   Click a **SA2** result to load analytics. If you select a non-SA2 (e.g., SA3/LGA/Postcode), you’ll see an **Analytics Not Available** notice with guidance to pick an SA2.
4. **Review the SA2 overview**  
   The overview shows:
   * **SA2 ID** and name.
   * Quick links to **Residential** (🏢) and **Homecare** (🏠) pages filtered to this SA2.
   * Four metric tiles: **Persons 65+ Years**, **Home Care**, **Residential Care**, **CHSP Participants**.
5. **Compare at your preferred level**  
   Use **Comparison Level** buttons: **National**, **State**, **SA4**, **SA3**. This affects the distribution behind the box-plots (indicator chip shows “vs …”).
6. **Explore the analytics tabs**  
   Open any tab to see box-plots for relevant metrics:
   * **Economics**
   * **Demographics**
   * **Health Sector**
   * **Health Stats**  
     Each metric renders as a box-plot with your SA2’s current value overlaid and a performance chip (Top 25% / Middle 50% / Bottom 25%).
7. **Save for quick access**
   * In the blue strip (“Currently viewing: …”), click **Save SA2**. If it’s already saved, you’ll see **Saved** and can click to remove it. Success/error messages appear in a banner and auto-clear. (Sign-in required; if not signed in, you’ll be taken to sign-in.)
8. **Use Saved Searches later**  
   Switch to **Saved Searches** to see your list.
   * **Clear All** removes all saved SA2s.
   * Per item: **Residential** (🏢), **Homecare** (🏠), and **Delete** (🗑️). Click the name to re-open that SA2.
9. **Re-run from history**  
   In **Search History**, click any past search to restore the query and (when present) the selected SA2. You can delete items or clear all.

**Note**  
When no SA2 is selected, you’ll see a **Landing Rankings** section plus an **Empty state** card prompting you to search.

## Behavioral notes (as implemented)

* **Loading states**:  
  A banner shows the current step (e.g., “Loading unified SA2 dataset…”, “SA2 Analytics Platform Ready”); failures surface an error card.
* **Debounced search (~300 ms)** with **click-outside to close** the dropdown.
* **History panel default**: visible; hide with the top-right (×) on the panel; show again via the slim left bar (🕘).
* **Save SA2 requires sign-in**: unauthenticated attempts redirect to sign-in; save buttons in the overview are disabled without a user.
* **“Analytics Not Available”** appears for non-SA2 selections.
* **Comparison level changes charts**: box-plots switch statistics to **National/State/SA4/SA3**, and all chart components show an indicator (“vs …”).
* **Saved status & toasts**: the **Saved** label and the green/gray button state update after save/unsave; a success/error alert banner appears and auto-dismisses after a few seconds.
* **Result ordering callout**: the UI says **Results prioritized by population size** under the search header; result rows show **Pop:** to help assess size. (See **Open questions** about actual sorting.)

## FAQ

1. **Why does the Save button show “Saved” sometimes?**  
   The label reflects whether the current SA2 is in your saved list (currentSA2SavedStatus). Clicking toggles save/unsave and shows a success/error banner.
2. **What happens if I click the 🏢/🏠 icons on a saved search?**  
   You’ll be navigated to **/residential?sa2={name}** or **/homecare?sa2={name}** with that SA2 pre-filtered.
3. **Why do some results say “No Direct Analytics”?**  
   Analytics on this page are **SA2-only**. Non-SA2 results (e.g., SA3/LGA/Postcode) get a **No Direct Analytics** badge and show an **Analytics Not Available** card if selected.
4. **How are search results prioritized?**  
   The search card notes **Results prioritized by population size**; SA2 rows display **Pop:** for transparency.
5. **How do I restore a prior search from history?**  
   Click an item in **Search History** to repopulate the query; if an SA2 id was recorded, it’s restored as the selection. You can delete individual items or clear all.
6. **What if I’m not signed in and try to save?**  
   You’ll be redirected to sign-in; the overview save button is disabled for unsigned users.
7. **Why do I see “Analytics Not Available”?**  
   You selected a non-SA2 item. Choose an **SA2** to view analytics.
8. **How do the Comparison Level choices change charts?**  
   Box-plots switch their underlying distribution (National/State/SA4/SA3). Each chart shows **vs {level}** in the corner and tooltips list the active distribution stats.
9. **Which metrics appear under each tab?**  
   Tabs render curated metric lists (e.g., Employment rate, Median income, SEIFA in **Economics**; Median age, 65+ population in **Demographics**; CHSP/Home Care/Residential counts, providers, spending in **Health Sector**; long-term conditions, assistance needs in **Health Stats**). See the explicit metric arrays in the code.
10. **What does “Top 25% / Middle 50% / Bottom 25%” mean on plots?**  
    It’s your SA2’s position vs the active distribution’s quartiles (Q1/Q3). The chip and tooltip reflect that performance.
11. **What appears when no SA2 is selected?**  
    You’ll see **Landing Rankings** (regional comparisons) and an **Empty state** card prompting you to search.
12. **Do charts show which level I’m comparing against?**  
    Yes. A small badge reads **“vs National/State/SA4/SA3”** (on box-plots, heatmaps, rankings).

## Troubleshooting

* **“Error loading SA2 data” banner**  
  The API fetch for /api/sa2 failed. The page surfaces an error card with the message. Try again later.
* **Search seems empty or slow**  
  Searches are **debounced ~300ms**; keep typing a moment. The dropdown closes on **click-outside**; click the box again to reopen.
* **Save/Unsave didn’t work**  
  Ensure you’re signed in (unauthenticated users redirect to sign-in). Check the success/error banner; the message auto-clears after a few seconds.
* **History “Delete” or “Clear” didn’t reflect**  
  Try the action again; the panel reloads after operations via the provided callbacks.
* **Selected a non-SA2 and see no analytics**  
  That’s expected—analytics are SA2-only. Pick an SA2 result (look for **Analytics Available**).

## Quick reference checklist

* Open **SA2 Analytics Platform** → **Search SA2 Regions**.
* Type a query; check **Pop**, **badges**, and pick an **SA2**.
* Review overview tiles; jump to **Residential**/**Homecare** if needed.
* Set **Comparison Level** (National/State/SA4/SA3).
* Explore **Economics / Demographics / Health Sector / Health Stats** tabs (box-plots).
* Click **Save SA2** (signed-in) and use **Saved Searches** later.
* Use **Search History** to restore prior searches; clear or delete as needed.

[Screenshot: SA2 Insights home with Search History open, “Search SA2 Regions” focused, results dropdown showing badges, and Comparison Level buttons visible]

## Open questions for PM/Eng

1. **Population-priority ordering** — The UI copy says “Results prioritized by population size”, but the current simple SA2 search populates results without explicit sorting by population. Should we sort results by population descending before render?
2. **Landing Rankings** — Confirm intended content/metrics for **InsightsLandingRankings** and whether **SA2RankingChart**/**SA2HeatmapChart** are surfaced on Home (they are implemented as components with comparison labels, but not directly invoked in this page’s main flow).
3. **Radar chart** — SA2RadarChart is imported; confirm where/when it should appear on Home, and which metrics set it should use.
4. **History panel labels** — The panel wiring supports select/delete/clear; please confirm final user-visible labels (button copy) inside InsightsHistoryPanel.

# Restore a prior query from Search History

Bring back anything you searched before with one click. The **Search History** panel is **visible by default**, can be **hidden/shown**, and **clicking an entry re-runs that search (and restores the SA2 if it was part of the history item)**.

## Steps

1. **Open the Search History**  
   It’s pinned on the **left** and starts **open by default**. If you previously hid it, click the thin **History** tab (⏱ icon) to show it again.
2. **Pick a past search**  
   Click any item in the list. The app sets the search bar to that term and **re-runs the search** (debounced). If the history item includes an **SA2 ID**, the page **restores the selected SA2** as well.
3. (Optional) **Tidy up history**  
   Use **Delete** on a single row or **Clear** to wipe all history. Both actions are available from the panel.
4. **Hide the panel**  
   Click the **X** on the panel header to collapse it; the narrow **History** tab remains so you can reopen it anytime.

**Tip:** History is **per signed-in user** and loads automatically after you sign in.

**Note:** If a restored query resolves to a **non-SA2** location, you’ll see an **“Analytics Not Available”** notice until you choose an SA2 within that area.

# Manage your Search History (clear all or delete one)

Keep your **Search History** tidy right from the left panel. You can remove a single entry or clear everything in a couple of clicks.

## Steps

1. **Open the Search History panel**  
   The panel is **visible by default** on the left. If you’ve hidden it, click the **History** icon tab on the far-left edge to show it again. Use the **X** in the panel header to hide it.
2. **Delete a single history item**  
   In the panel list, use the **Delete** control on that row. This triggers the page’s delete handler and the list refreshes automatically.
3. **Clear your entire history**  
   Click the panel’s **Clear** action to remove **all** history entries for your account. The list reloads immediately after the clear completes.

**Tip**: You can also **re-run** one of your past searches by selecting it from the list—this restores the query and results context.

**Note**: Search History is tied to your signed-in user. The SA2 Analytics page requires you to be logged in; otherwise you’ll be redirected to sign-in.

**Warning**: **Clear** removes all entries at once. There’s no in-app undo. Use **Delete** on a single row when you only need to remove one.

## Troubleshooting

* **I don’t see the panel.**  
  It may be hidden. Click the **History** icon tab on the far-left to show it again.
* **Delete/Clear didn’t do anything.**  
  Make sure you’re signed in. History actions rely on your user session and are ignored if no user is present.
* **List didn’t refresh.**  
  The page re-queries your history after delete/clear. If it still looks stale, briefly toggle the panel or refresh the page.

## Quick reference checklist

* Panel open? → **History** icon (show) / **X** (hide).
* Delete one item → **Delete** on that row.
* Clear all items → **Clear** in the panel.
* Must be signed in to manage history.

[Screenshot: SA2 Insights home with **Search History** open, one row’s **Delete** control visible, and a **Clear** action in the panel header]

# Save an SA2 for quick access (and what “Saved” means)

Save any SA2 you’re viewing so you can jump back to it from **Saved Searches** with one click — or go straight to **Residential** 🏢 or **Homecare** 🏠 for that SA2.

## Steps

1. **Open the SA2 you want to save**  
   Use **Search SA2 Regions** and select an SA2. You’ll see an “Currently viewing: …” strip above the search bar and the **Save SA2** button appears there when you’re signed in.
2. **Save it**  
   Click **Save SA2**. The button immediately flips to **Saved** (green), and a success message appears: “**SA2 region saved successfully!**”.
3. **Unsaving (toggle off)**  
   Click **Saved** again to remove it. You’ll get “**SA2 region removed from saved searches!**”.
4. **Find all your saved SA2s**  
   In the header, switch to **Saved Searches (N)** to open the saved list. Each item shows the SA2 name/ID and the date saved.
5. **Use quick links**  
   On any saved SA2 row, use:  
   • 🏢 (Residential) → opens /residential?sa2=<name>  
   • 🏠 (Homecare) → opens /homecare?sa2=<name>
6. **Delete or clear**  
   • Delete a single saved SA2 with the 🗑️ icon.  
   • Clear everything with **Clear All** (you’ll be asked to confirm).

**Note**  
The SA2 overview card (top-right) also has a Save icon; it’s disabled when you’re not signed in and shows helpful tooltips.

## What “Saved” means (button states)

* **Signed in + not saved yet** → Button shows **Save SA2** (grey). Tooltip: “Save SA2”. Clicking saves and turns it green.
* **Signed in + already saved** → Button shows **Saved** (green). Tooltip: “Remove from saved”. Clicking removes and returns to grey.
* **Not signed in** →
  + In the **overview** card: the Save icon is **disabled** with tooltip “Sign in to save SA2 regions”.
  + In the **search** strip: the Save row doesn’t render until you’re signed in.  
    If you try to save, you’ll be redirected to **/auth/signin**.

**Tip**  
After saving/unsaving, the **Saved Searches** list refreshes automatically; success/error messages auto-dismiss after ~5 seconds.

## Behavioral notes

* **Requires sign-in**: Save actions push to **/auth/signin** if no user is detected; the overview Save control is disabled for signed-out users.
* **Reflects current state**: The UI checks whether the currently selected SA2 is saved and adjusts label/color/tooltip accordingly.
* **Toggle behavior**: One click saves; another click removes. Both paths display success or error messages and refresh the saved list. Messages clear after 5s.
* **Saved list management**: **Saved Searches (N)** shows count; inside, you can **Delete** individual rows or **Clear All** with a confirmation dialog.
* **Deep links**: Residential/Homecare icons on saved rows navigate to those pages pre-filtered by the SA2 name.

## FAQ

1. **Why is the Save button disabled or missing?**  
   You’re not signed in. The overview Save icon is disabled, and the save strip above search only renders when a user is present. Attempting to save redirects to sign-in.
2. **Why does the button say “Saved”?**  
   The app detects the selected SA2 is already saved and switches the control to the green **Saved** state with an “Remove from saved” tooltip.
3. **Where do I see what I’ve saved?**  
   Use the header toggle **Saved Searches (N)** to open your list.
4. **What happens when I click 🏢/🏠 on a saved row?**  
   You’ll be taken to **Residential** or **Homecare** pages with the SA2 applied via the ?sa2= query.
5. **Can I remove a single saved SA2?**  
   Yes — click the 🗑️ icon on that row.
6. **How do I clear all saved items?**  
   Click **Clear All** in the saved list header and confirm.
7. **Do I get feedback after saving or removing?**  
   Yes — success/error alert cards appear (e.g., “SA2 region saved successfully!”). They auto-dismiss after ~5 seconds.
8. **Does the saved list update immediately?**  
   Yes — after save/remove, the list reloads so the count and items are current.
9. **Can I save from multiple places?**  
   Yes — from the “Currently viewing …” strip above search, and the Save icon in the SA2 overview card. Both call the same toggle logic.
10. **What if I switch to another SA2 — will the button update?**  
    Yes — the app re-checks whether the new SA2 is saved and flips the control and tooltip accordingly.
11. **Why don’t I see Save when no SA2 is selected?**  
    The save controls render only when an SA2 is selected.

## Troubleshooting

* **Clicking Save takes me to sign-in**  
  You’re not signed in. Sign in, return to the page, and try again.
* **I clicked Save but nothing changed**  
  Check you’re viewing an SA2 (not SA3/SA4/LGA). Save applies to SA2s. Also check for any error alert shown above.
* **The green “Saved” label didn’t appear**  
  If a transient error occurred, an error alert appears. Retry once; the saved list should refresh if successful.
* **“Clear All” didn’t do anything**  
  Confirm the dialog when prompted; without confirmation, nothing is deleted.
* **Saved list count looks wrong**  
  It refreshes after save/remove. Toggle away from **Saved Searches** and back if needed to see the updated count.

## Quick reference checklist

* Select an **SA2** → click **Save SA2** (signed-in only).
* Saved? Button shows **Saved** (green). Click again to remove.
* Open **Saved Searches (N)** to revisit, **Delete**, **Clear All**, or jump to 🏢/**Residential** or 🏠/**Homecare** for that SA2.

[Screenshot: SA2 Insights home showing the “Currently viewing: <SA2>” strip with a green “Saved” button, and the Saved Searches panel listing items with 🏢, 🏠, and 🗑️ actions]

## Open questions for PM/Eng

* Is there a **maximum** number of saved SA2s per user? (Not defined in the file.)
* Are saves **deduplicated** by SA2 ID if a user clicks Save multiple times across sessions? (Implicitly handled by lookup, but not specified.)
* Should the success/error messages display **longer/shorter** than 5s or be user-dismissible? (Currently auto-dismiss after 5s.)

# Jump straight to sector views from an SA2

Use the quick links on the selected SA2 card to open Residential or Homecare sector pages **pre-filtered by that SA2**.

## How to do it

1. **Select an SA2.** Use search or pick one from your Saved Searches so the **SA2 overview card** appears.
2. In the SA2 card header, click **Residential** (🏢). It navigates to:
3. /residential?sa2=<Selected SA2 Name>

(implemented via router.push(...)). Tooltip: “View residential aged care facilities in this SA2 region.”

1. Or click **Homecare** (🏠). It navigates to:
2. /homecare?sa2=<Selected SA2 Name>

Tooltip: “View homecare providers in this SA2 region.”

1. **Alternative:** In **Saved Searches**, each saved SA2 row also has the 🏢 / 🏠 icons for one-click jumps to Residential/Homecare for that saved region.

**Tip:** These quick links work whether or not you’ve saved the SA2; saving is only needed for bookmarking.

## Behavioral notes

* **Navigation method:** Links use client-side navigation (router.push) and pass the SA2 **name** in the sa2 query parameter.
* **Where the links live:**
  + **Selected SA2 overview card**: header actions include 🏢 and 🏠.
  + **Saved Searches list**: each item shows 🏢, 🏠, and 🗑️ (delete).
* **No sign-in required to use quick links.** Only the **Save SA2** button checks sign-in.
* **When links aren’t shown:** If you select a non-SA2 (e.g., SA3/LGA), the app shows **Analytics Not Available** and the SA2 card (with quick links) won’t render.

## FAQ

**Where are the quick links?**  
On the **selected SA2** card header and on each row in **Saved Searches**.

**Do I need to save the SA2 first?**  
No. The 🏢/🏠 links work regardless of saved state; saving is separate.

**What exactly is passed to the sector page?**  
The SA2 **name** via ?sa2=<name> in the URL.

**Can I jump from a saved SA2 without loading it first?**  
Yes—use the 🏢/🏠 icons directly on the saved row.

**Why don’t I see the quick links after a search?**  
You likely selected a non-SA2 result. Pick an **SA2** to show the overview card (and its links).

**What do the tooltips say?**  
Residential: “View residential aged care facilities in this SA2 region.” Homecare: “View homecare providers in this SA2 region.”

**Does sign-in affect quick links?**  
No. Only saving/unsaving checks sign-in.

**Do comparison-level choices change where the links go?**  
No. Comparison levels affect charts, not navigation. (Links always include ?sa2=<name>.)

**What happens after I click a quick link?**  
You’re routed to **/residential** or **/homecare** with the SA2 filter applied via query string.

**Can I also delete a saved SA2 from the same row?**  
Yes—use the 🗑️ (Delete) icon in Saved Searches.

## Troubleshooting

* **I clicked a result and don’t see quick links.**  
  Ensure you selected an **SA2** result; non-SA2 selections show an **Analytics Not Available** card instead.
* **The sector page opened but isn’t filtered.**  
  Check the URL contains ?sa2=<SA2 Name>. The Home page sends this parameter on navigation.
* **I don’t see the icons in Saved Searches.**  
  Make sure you’ve toggled to **Saved Searches** (header buttons show “Search SA2 Regions” vs “Saved Searches”).

## Quick reference checklist

* Select an **SA2** so the **SA2 overview card** appears.
* Click **🏢 Residential** or **🏠 Homecare** in the card header.
* Or jump from **Saved Searches** using the same icons on a saved item.

[Screenshot: SA2 overview card showing the SA2 name with 🏢 Residential and 🏠 Homecare quick link icons in the header]

# Use Saved Searches (toggle, open, quick-nav, delete, clear all)

Quickly revisit SA2 regions you’ve saved, jump straight to Residential or Homecare views, or tidy things up with per-item delete and Clear All.

**Source:** All behaviors and labels below come from the Home page code.

## Steps

1. **Show the Saved Searches panel**  
   In the header, click **Saved Searches (n)** to switch the main area into the saved list view. Use **Search SA2 Regions** to switch back. The count updates automatically.
2. **Open a saved SA2**  
   Click anywhere on a saved row (the SA2 name). This loads that SA2 into the analysis view, sets the search box to the SA2 name, closes the Saved view, and logs the action to Search History.
3. **Quick-navigate to sector views**  
   On the right of each saved row:  
   • Click the 🏢 **Building** icon to open **Residential** facilities filtered by that SA2.  
   • Click the 🏠 **Home** icon to open **Homecare** providers filtered by that SA2.  
   Both actions navigate with the ?sa2= query set to the saved name.
4. **Delete one saved search**  
   Click the 🗑️ **Trash** icon on a row to remove just that saved item. The list refreshes immediately after deletion.
5. **Clear all saved searches**  
   At the top-right of **Saved Searches (n)**, click **Clear All** (visible only when there’s at least one saved item). Confirm the prompt to remove every saved search for your account.

## Notes, Tips, Warnings

* **Note — Empty state:** If you have none saved, you’ll see “No Saved SA2 Searches” with guidance to switch back to **Search SA2 Regions**.
* **Tip — Scan details fast:** Each item shows **SA2 {id}** and the **Saved** date; the list is scrollable (max height).
* **Warning — Clear All:** You’ll be asked to confirm. This action cannot be undone.

## Behavioral details (how it works)

* **Toggling views:** Header buttons switch between **Search SA2 Regions** and **Saved Searches (n)**. Returning to **Search** also clears any selected SA2/location and the current query.
* **Opening a saved SA2:** Loads the SA2 into the overview + tabs, hides the Saved view, and records the selection in **Search History**.
* **Quick-nav icons:**
  + 🏢 Building → navigates to /residential?sa2=<name>
  + 🏠 Home → navigates to /homecare?sa2=<name>
* **Delete one:** Removes the item and refreshes the list.
* **Clear All:** Shows a confirmation dialog, then clears all saved SA2 searches for the signed-in user and refreshes the list.

## FAQ

1. **Where do I find my saved SA2s?**  
   Click **Saved Searches (n)** in the header.
2. **How do I return to the normal search?**  
   Click **Search SA2 Regions**; this also clears any current selection and query.
3. **What happens when I click a saved row?**  
   The SA2 loads into the analysis view, the Saved panel hides, and the action is logged to Search History.
4. **What do the 🏢 and 🏠 icons do?**  
   They deep-link to Residential or Homecare pages filtered to that SA2 via a query string.
5. **Can I delete just one saved SA2?**  
   Yes—click the 🗑️ icon on that row.
6. **How do I remove everything at once?**  
   Use **Clear All** in the Saved Searches header (shown only when you have items). You must confirm.
7. **Why don’t I see Clear All sometimes?**  
   It only appears when savedSA2Searches.length > 0.
8. **Does Clear All ask for confirmation?**  
   Yes. You’ll see a confirmation prompt before the action proceeds.
9. **Will the list refresh after delete or clear?**  
   Yes. After deletion or clearing, the app reloads the saved list.
10. **Can I see when I saved an item?**  
    Each row shows the date (formatted from created\_at).

## Troubleshooting

* **“My saved list is empty.”**  
  You may not have saved any SA2s yet, or you just cleared them. Switch to **Search SA2 Regions** to find and save some.
* **“Clear All didn’t show up.”**  
  The button is hidden when there are zero saved searches. Add/save at least one item, then reopen Saved.
* **“Delete didn’t remove the row.”**  
  Try again. The code refreshes the list after a successful delete; if it still appears, reload the page.
* **“Clicking a saved row didn’t open analysis.”**  
  Ensure you clicked the row (not just an icon). Opening a row should load the SA2 and hide the Saved view.

## Quick reference checklist

* Open **Saved Searches (n)** ➜ see your list.
* Click a row ➜ load that SA2 into analysis.
* 🏢 for Residential, 🏠 for Homecare ➜ jump with SA2 filter.
* 🗑️ on a row ➜ delete one.
* **Clear All** ➜ remove every saved item (with confirmation).
* **Search SA2 Regions** ➜ exit Saved view.

[Screenshot: Saved Searches view showing a list of saved SA2s with the Clear All button and the 🏢/🏠/🗑️ actions visible]

## Open questions for PM/Eng

* **Ordering:** Are saved items sorted (e.g., newest first), and should that be explicit in the UI? (The current file doesn’t specify ordering.)
* **Limits:** Is there a maximum number of saved SA2s per user? (Not defined in the file.)
* **Cross-device sync:** Confirm saved searches persist across devices via the user account (implied, but not documented here).

# SA2 overview at a glance

Quickly understand any selected SA2: see its **SA2 ID** and four headline tiles — **Persons 65+ Years**, **Home Care**, **Residential Care**, and **CHSP Participants**.

## What you’ll see

1. **Card header** — the SA2’s name and action icons. The description line shows **“SA2 ID: {code}”**. Residential 🏢 and Homecare 🏠 icons jump straight to those pages for this SA2.
2. **Summary tiles (4)**
   * **Persons 65+ Years** — count of people aged **65 years and over** in this SA2. ABS defines “Age” in Census variables (e.g., 65 years and over groups people aged ≥65). ([Australian Bureau of Statistics](https://www.abs.gov.au/census/guide-census-data/census-dictionary/2021/variables-topic/population/age-agep?utm_source=chatgpt.com))
   * **Home Care** — number of **Home Care Packages** participants. The Australian Government subsidises providers to deliver coordinated in-home care for eligible older people. ([Health, Disability and Ageing](https://www.health.gov.au/our-work/hcp?utm_source=chatgpt.com))
   * **Residential Care** — number of **residential aged care** participants; for people who can no longer live independently at home. ([Health, Disability and Ageing](https://www.health.gov.au/our-work/residential-aged-care/about?utm_source=chatgpt.com))
   * **CHSP Participants** — number of participants in the **Commonwealth Home Support Program (CHSP)**, entry-level help to live independently at home. ([Health, Disability and Ageing](https://www.health.gov.au/our-work/chsp?utm_source=chatgpt.com))

**Note**  
The **overview tiles appear only when an SA2 is selected**. If you click a non-SA2 result (e.g., SA3/SA4/LGA), you’ll see an **“Analytics Not Available”** notice guiding you to pick an SA2.

## Helpful context (ABS)

* **What is an SA2?**  
  SA2s are **medium-sized areas** in the ASGS, designed to represent communities that interact socially and economically. Each SA2 has a **9-digit hierarchical code** (includes state + SA2–SA4 identifiers). ([Australian Bureau of Statistics](https://www.abs.gov.au/statistics/standards/australian-statistical-geography-standard-asgs-edition-3/jul2021-jun2026/main-structure-and-greater-capital-city-statistical-areas/statistical-area-level-2?utm_source=chatgpt.com))
* **Population concepts you may see elsewhere in the app**  
  The ABS **Estimated Resident Population (ERP)** is the official population measure based on **usual residence** (Census adjusted for undercount and residents temporarily overseas). ([Australian Bureau of Statistics](https://www.abs.gov.au/methodologies/regional-population-methodology/2021?utm_source=chatgpt.com))

[Screenshot: SA2 overview card showing “SA2 ID: 2XXXXXXXX” and four tiles — Persons 65+ Years, Home Care, Residential Care, CHSP Participants]

**Sources for UI and behaviour:** SA2 overview card, tiles, and the “Analytics Not Available” state are implemented on the Home page.

# Pick your comparison lens: National / State / SA4 / SA3

Use the **Comparison Level** buttons to change what distribution your SA2 is measured against (National, State, SA4, or SA3). The page explains this right where you switch lenses: **“Choose what level to compare this SA2 against in the box plots below.”**

## Steps

1. **Select an SA2.** Once an SA2 is chosen, the analysis section appears with its overview and the **Comparison Level** card.
2. **Pick your lens.** Click one of the buttons: **National**, **State**, **SA4**, or **SA3**. Your selection is visually highlighted.
3. **Read the on-screen hint.** Under the card title, you’ll see: “Choose what level to compare this SA2 against in the box plots below.”
4. **See the charts update.** Every box-plot tile shows a top-right badge like **“vs National”** or **“vs {State/SA4/SA3}”** and recalculates quartiles using the chosen level for this SA2.
5. **Scan performance quickly.** The plots keep your **current SA2 value** the same, but the **distribution (min/Q1/median/Q3/max)** shifts to the selected level; the badge confirms the context (e.g., vs Queensland (State)).

**Tip:** The default lens is **National** when the page loads. If you don’t change it, box plots compare your SA2 to **all Australia**.

## What changes under the hood

* **Active stats switch with your lens.** Box plots choose statistics from the selected hierarchy; if a finer level isn’t available, they **gracefully fall back to National**.
* **Context label follows the lens.** Charts display **vs National / vs {State} (State) / vs {SA4} (SA4) / vs {SA3} (SA3)** to keep the comparison explicit.
* **Name lookup for labels.** The page passes each SA2’s **STATE\_NAME\_2021 / SA4\_NAME\_2021 / SA3\_NAME\_2021** so charts can print friendly names in the badge and tooltips.

**Note:** The **Ranking** and **Heatmap** components also support a **“vs {…}”** indicator, consistent with the box plots, if used elsewhere in Insights.

## FAQ

**1) What does “compare this SA2 against the box plots below” actually mean?**  
It means the quartiles and ranges in each box plot are computed from the selected lens (National/State/SA4/SA3) for the **same metric**; your SA2’s point overlays that distribution.

**2) What’s the default lens?**  
**National.** That’s the initial state of comparisonLevel.

**3) If I pick State but no state stats exist, what happens?**  
The component automatically **falls back to National** stats for that metric.

**4) Do the metric values for my SA2 change when I switch lenses?**  
No. Only the **comparison distribution** changes; your SA2’s value stays the same.

**5) Where do the names shown in the badge (e.g., “Queensland (State)”) come from?**  
From the selected SA2’s attributes, e.g., STATE\_NAME\_2021, SA4\_NAME\_2021, SA3\_NAME\_2021.

**6) Which charts respect the comparison lens on the Home analysis tabs?**  
All **box plots** across **Economics, Demographics, Health Sector, and Health Stats** receive your current comparisonLevel and update accordingly.

**7) How can I tell at a glance which lens is active?**  
Each chart shows a **top-right badge** like “vs National” or “vs {Region} (SA3/SA4/State)”.

**8) Does the ranking or heatmap view show the same context?**  
Yes—those components include a **“vs {…}”** context indicator when used.

**9) Do tabs need to be reloaded after changing the lens?**  
No. The selected lens immediately affects the box plots rendered in each tab.

**10) Can I switch lenses without reselecting the SA2?**  
Yes. The buttons remain available for the selected SA2, and switching re-renders the stats.

## Troubleshooting

* **I don’t see the Comparison Level buttons.**  
  Make sure an **SA2 is selected**; the card appears in the **Selected SA2 Analysis** section.
* **Switching lenses doesn’t seem to change the plots.**  
  If a chosen hierarchy’s stats are missing, box plots **fall back to National**, which can look the same; check the **“vs …”** badge to confirm context.

## Quick reference checklist

* Select an **SA2**.
* Click **National / State / SA4 / SA3** in **Comparison Level**.
* Confirm the **“vs …”** badge on each chart.
* Review how your SA2 sits against that distribution.

[Screenshot: SA2 analysis showing the **Comparison Level** card with **National / State / SA4 / SA3** buttons selected, and a box plot tile displaying the **“vs National”** badge in the top-right]

# Analyze metrics with Box Plots (vs-tag & performance chip)

Use the **Box Plot** cards to see where your selected SA2 sits within a distribution, with a clear **“vs …”** context (National/State/SA4/SA3) and a **performance chip**: **Top 25%**, **Middle 50%**, or **Bottom 25%**.

## What you’ll use

* **Comparison Level** buttons (**National**, **State**, **SA4**, **SA3**) to set the “vs …” target shown on every chart and used for the distribution. The section says: “Choose what level to compare this SA2 against in the box plots below.”
* **Analysis tabs**: **Economics**, **Demographics**, **Health Sector**, **Health Stats** — each renders multiple **SA2BoxPlot** charts for selected metrics.
* Each chart displays a **“vs …” tag** (top-right) and, when enabled, a **performance chip** mapping your SA2’s value to quartiles.

## Step-by-step: read a Box Plot

1. **Select an SA2** (e.g., from search, saved, or rankings). The **Comparison Level** card and analysis tabs appear only when an SA2 is selected.
2. **Pick your comparison lens**: click **National**, **State**, **SA4**, or **SA3**. Charts update to that level’s distribution; the chip on each chart shows **“vs {…}”** (e.g., vs National or vs {State} (State)).
3. **Open a tab** (e.g., **Economics**). You’ll see Box Plots for the tab’s metrics (the page passes a curated set per tab). Metric labels are shortened for readability.
4. **Interpret the chart**:
   * The box shows **Q1–Q3**, the line is **median**, whiskers are **min/max** of the chosen comparison group. Tooltips list **Min, Q1, Median, Q3, Max, Mean, Count**, plus your **Current Value**.
   * The colored **dot** marks **your SA2’s current value**. Color reflects performance tier.
   * The **performance chip** at the bottom-right of the card reads **Top 25%**, **Middle 50%**, or **Bottom 25%** based on quartiles.
5. **Switch lenses anytime** (National/State/SA4/SA3). Charts recompute using the correct hierarchical stats; if a level is missing, the chart falls back to National. The **“vs …”** tag always shows the active target.

**Tip**: Other charts (Ranking, Heatmap, Radar) also display the **“vs …”** tag for consistency across the page.

## How the performance chip works

Small but mighty — it translates quartiles into a plain-English badge:

if value <= Q1 -> Bottom 25%

else if value >= Q3 -> Top 25%

else -> Middle 50%

(Implemented in the Box Plot component; chip text reads **Top 25% / Middle 50% / Bottom 25%**.)

**Note**: The chip appears when showPerformanceIndicator is on. The Home page enables it for each Box Plot.

## Behavioral notes (grounded in code)

* **Default lens**: **National** (useState('national')).
* **“vs …” tag**: Renders top-right on every Box Plot card, derived from the active lens and SA2’s State/SA4/SA3 names (e.g., “{State} (State)”).
* **Hierarchy data**: Charts use **hierarchical statistics** (National/State/SA4/SA3) per metric for the selected SA2; if a level’s stats are missing, they **fall back to National**.
* **Tabs & metrics**: Each tab passes a specific list of metrics to render individual Box Plots. Labels are shortened by a helper before display.
* **Chart sizing**: Home page renders Box Plots at ~**380×140** px per card.
* **Axis formatting**: Y-axis auto-formats large values (K/M).
* **Tooltips**: Include distribution stats for the active lens and the SA2’s current value, with the comparison context (“Compared to: …”).

**Warning**: The **Comparison Level** selector and analysis tabs are **only visible after you select an SA2**. If you don’t see them, pick an SA2 first.

## FAQ

1. **Where do I change the comparison target?**  
   In the **Comparison Level** card (**National / State / SA4 / SA3**). All Box Plots update and show a matching **“vs …”** tag.
2. **Why does the chip say Top 25% / Middle 50% / Bottom 25%?**  
   It maps your SA2’s value to quartiles of the chosen comparison group (≤Q1, ≥Q3, otherwise between).
3. **What if I pick State but the chart still looks national?**  
   If State/SA4/SA3 stats aren’t available, the component **falls back to National** automatically.
4. **What does the “vs …” label mean on the chart?**  
   It states which level’s distribution you’re being compared against (e.g., vs National, vs {State} (State)).
5. **Which tabs contain Box Plots?**  
   **Economics**, **Demographics**, **Health Sector**, **Health Stats** — each renders multiple Box Plots.
6. **Why are metric names short?**  
   The page shortens long metric labels before passing them to the chart for readability.
7. **What do the tooltip numbers represent?**  
   Distribution stats (Min, Q1, Median, Q3, Max, Mean, Count) for the active comparison level, plus your SA2’s current value.
8. **Is “higher = better”?**  
   The chip is purely **positional** within the distribution; it does **not** encode “good/bad” semantics — it uses quartiles only. (Quartile logic shown above.)
9. **Do charts update instantly when I switch levels?**  
   Yes — the page sets comparisonLevel, and each Box Plot reads the new level and re-computes with the correct stats.
10. **Can the performance chip be hidden?**  
    Yes — it’s controlled by showPerformanceIndicator. The Home page **enables** it.
11. **Are other charts consistent with the “vs …” tag?**  
    Yes — **Ranking** and **Heatmap** charts also show a **“vs …”** indicator.

## Troubleshooting

* **I don’t see the Comparison Level buttons or charts.**  
  Select an SA2 first; those UI elements render only in the **Selected SA2** view.
* **The chip keeps saying “National” even after choosing State/SA4/SA3.**  
  That level’s stats may be unavailable; the chart falls back to **National**.
* **Tooltips show odd values (e.g., very large numbers).**  
  That’s expected for raw metric scales; the y-axis uses K/M formatting to help readability.
* **A metric doesn’t appear in this tab.**  
  Tabs render a **curated list** of metrics; some metrics only show under certain tabs.
* **Chip is missing.**  
  The chip is controlled by showPerformanceIndicator; the Home page sets it **on** for Box Plots.

## Quick reference checklist

* Select an **SA2**.
* Pick **Comparison Level** (National/State/SA4/SA3).
* Open an analysis **tab** and scan **Box Plots**.
* Read the **“vs …”** tag and **chip** (**Top 25% / Middle 50% / Bottom 25%**).
* Hover for **Min/Q1/Median/Q3/Max/Mean/Count + Current Value**.

[Screenshot: SA2 Insights Home — an **Economics** Box Plot card with the **“vs State”** tag (top-right), the dot marking current value, and the **Top 25%** performance chip visible]

## Open questions for PM/Eng

* For metrics where “lower is better” (e.g., **Unemployment rate**), should the chip invert or remain purely positional? Current implementation is **quartile-only** without “direction of better”.
* Should the **fallback to National** be surfaced to the user (e.g., tooltip note) when State/SA4/SA3 stats aren’t available?
* Any size/overflow rules when many Box Plots render in one tab? Current page uses ~**380×140** per card.

# Economics: employment, income, property & SEIFA

Below are the **exact metrics** shown on the **Economics** tab and **how each renders via box plots**.

## Metrics shown on the Economics tab

When you select an SA2, the app filters the dataset to the following Economics metrics and renders each as a box plot (one per metric) :

* **Employment Rate (%)** — Labour force status - Census | % of total Census responding population employed
* **Median Employee Income ($)** — Personal income in Australia - year ended 30 June | Median employee income ($)
* **Median Attached Dwelling Price ($)** — Residential property transfers - year ended 30 June | Median price of attached dwelling transfers ($)
* **Median Superannuation Income ($)** — Personal income in Australia - year ended 30 June | Median superannuation and annuity income ($)
* **Median Weekly Rent ($)** — Rent and mortgage payments - Occupied private dwellings - Census | Median weekly household rental payment ($)
* **Owned Outright (%)** — Tenure type - Occupied private dwellings - Census | Owned outright (%)
* **Owned Outright (no.)** — Tenure type - Occupied private dwellings - Census | Owned outright (no.)
* **SEIFA Advantage/Disadvantage Index (IRSAD) – Decile** — Socio-economic indexes for areas (SEIFA) - rank within Australia - Census | SEIFA Index of relative socio-economic advantage and disadvantage (IRSAD) - rank within Australia (decile)
* **SEIFA Disadvantage Index (IRSD) – Decile** — Socio-economic indexes for areas (SEIFA) - rank within Australia - Census | SEIFA Index of relative socio-economic disadvantage (IRSD) - rank within Australia (decile)
* **Unemployment Rate (%)** — Labour force status - Persons aged 15 years and over - Census | Unemployment rate (%)

### Display names

The charts use a built-in **short name mapping** (e.g., “Employment Rate (%)”, “Median Weekly Rent ($)”, “SEIFA … – Decile”) to keep labels concise. This mapping is applied before rendering the plots.

## How the box plots render

Each Economics metric is rendered with the **SA2 Box Plot** component and includes: the distribution, your SA2’s marker, a comparison badge, and a performance chip.

**What’s in each chart**

* **Distribution (box)** shows **Min, Q1, Median, Q3, Max**; tooltip lists these plus **Mean** and **Count**.
* **Your SA2 marker (dot)** overlays the box; color indicates performance: **green (Top 25%)**, **yellow (Middle 50%)**, **red (Bottom 25%)**, derived from where the value falls vs Q1/Q3.
* **Comparison badge** (“**vs National/State/SA4/SA3**”) appears at top-right of each chart and reflects the chosen Comparison Level.
* **Performance chip** under the plot shows **Top 25% / Middle 50% / Bottom 25%** next to the formatted **current value**.

**Comparison level**

* The plots switch their underlying distribution based on your selection: **National**, **State**, **SA4**, or **SA3**. The page passes **hierarchical stats** for each metric/SA2 to the box plot, so the same SA2 value is evaluated **against the chosen level**.
* The “Comparison Level” controls (National/State/SA4/SA3) appear above the tabs; changing them updates the “vs …” badge and the distribution used in all box plots.

**Sizing & presentation**

* Each box plot in the Economics tab is rendered at approximately **380×140** with the performance indicator **enabled**.

**Note**  
If a metric lacks numeric data for the selected SA2 or the distribution, that metric won’t render a plot for that SA2. (The component requires numeric currentValue and statistics.)

## Why the plots can show “vs State/SA4/SA3”

The page **pre-computes hierarchical distributions** (National, State, SA4, SA3) for every SA2 × metric and passes them into the box plot. That’s what lets the same metric flip its comparison from National to, say, your **State** instantly.

[Screenshot: Economics tab showing box plots for Employment Rate, Median Employee Income, and SEIFA (IRSAD) with “vs State” badges]

## FAQs

**Which metrics qualify as “Economics” here?**  
Exactly the 10 listed above (employment, income, property price, rent, tenure, SEIFA, unemployment). The tab filters to these by name before rendering.

**Where do the short labels (e.g., “Median Weekly Rent ($)”) come from?**  
They come from a built-in display-name map that shortens verbose metric strings prior to plotting.

**What determines “Top 25% / Middle 50% / Bottom 25%”?**  
Your SA2’s value vs the distribution’s **quartiles**: ≤Q1 = Bottom 25%, ≥Q3 = Top 25%, otherwise Middle 50%.

**What does the “vs …” badge mean?**  
It indicates which **distribution** the box represents—National, your State, SA4, or SA3—matching your current Comparison Level.

**Can I change the comparison level for these plots?**  
Yes. Use the **Comparison Level** buttons (National / State / SA4 / SA3); the plots recalc against that level.

**How are the distributions computed?**  
The page calculates **min, Q1, median, Q3, max, mean, count** from the loaded SA2 dataset, plus hierarchical groupings.

**Why might a metric not appear for my SA2?**  
If the metric isn’t in the available metrics list or lacks numeric data for that SA2, the plot isn’t rendered.

**Do SEIFA metrics show raw scores or deciles?**  
They’re the **decile** measures as named in the metric strings (IRSAD and IRSD deciles).

**What else is shown with the plots?**  
Each plot shows your SA2’s **current value**, the **performance chip**, and a tooltip with full distribution stats.

**Do charts reflect the selected SA2 context (state/SA3/SA4 names)?**  
Yes. The component receives the SA2’s **state/SA4/SA3 names** to label the comparison context in tooltips and badges.

## Troubleshooting

* **The “Economics” plots are empty.**  
  Ensure a valid SA2 is selected and the metric has numeric data; the component skips non-numeric or missing values.
* **“vs …” badge doesn’t match what I expect.**  
  Check the **Comparison Level** buttons—plots reflect the currently selected level.
* **Numbers look odd (e.g., big values).**  
  Y-axis format abbreviates large values (K/M) in the box plots for readability. Hover for precise values.

## Quick reference checklist

* Select an **SA2** → open **Economics** tab.
* Pick **Comparison Level** (National / State / SA4 / SA3).
* Read each **box plot**: distribution + your SA2 marker + **Top/Middle/Bottom** chip + **vs …** badge.
* Hover for **exact stats** (min/Q1/median/Q3/max/mean/count + current value).

# Demographics: Age, Population, Density & Working-Age

Metrics under **Demographics** and how the **box plots** render.

This section explains which Demographics metrics appear in the SA2 Insights **Home** experience and exactly how their box-plots behave.

## What you’ll see in the Demographics tab

When an SA2 is selected, open the **Demographics** tab to view box-plots for the following metrics (shown only if they’re available in the dataset):

* **Estimated resident population (no.)**
* **Median age – persons (years)**
* **Persons 55–64 years (%)** and **(no.)**
* **Persons 65+ years (%)** and **(no.)**
* **Population density (persons/km²)**
* **Working-age population (15–64 years) (%)** and **(no.)**.

Each metric renders as a compact **box plot** with:

* A **“vs …”** badge (top-right) indicating the current comparison lens (National/State/SA4/SA3).
* A **performance chip** showing **Top 25%**, **Middle 50%**, or **Bottom 25%**, based on quartiles.
* A tooltip with **Min, Q1, Median, Q3, Max, Mean, Count**, plus the **Current Value**.
* A y-axis that formats large values as **K/M**.

## Steps: View and interpret Demographics box-plots

1. **Select an SA2**  
   Use the **Search SA2 Regions** workflow to pick a region. The analysis tabs (including **Demographics**) appear only when an SA2 is selected.
2. **Open the Demographics tab**  
   Click **Demographics** under the tab list. A short panel intro (“Population statistics, age distribution…”) appears above the charts.
3. **Choose a comparison lens**  
   Use **Comparison Level** buttons — **National**, **State**, **SA4**, **SA3** — to change the distribution used by each box-plot. The **“vs …”** badge updates accordingly. Default is **National**.
4. **Read the box-plot**  
   Hover any chart to see min, quartiles, median, max, mean, and sample count. Your SA2’s **current value** is highlighted; its position against **Q1/Q3** drives the performance chip (Top 25% ≥ Q3; Bottom 25% ≤ Q1; else Middle 50%).
5. **Scan multiple metrics fast**  
   Each plot is sized for quick comparison (compact 380×140 rendering) and uses shortened metric names for readability.

**Tip:** The exact set of metrics shown depends on what the app’s **available metrics** API returns; the Demographics tab filters that list to the items above.

## How the rendering logic works (in plain English)

* **Which distribution is used?**  
  The component picks **National**, **State**, **SA4**, or **SA3** statistics based on your **Comparison Level** selection. If a chosen level isn’t available for a metric, it falls back to **National**.
* **Performance banding:**
  + **Top 25%** if current value ≥ **Q3**
  + **Middle 50%** if **Q1 < value < Q3**
  + **Bottom 25%** if current value ≤ **Q1**.
* **Axis & tooltip:**  
  Values are **K/M-formatted** on the y-axis; the tooltip shows **Min/Q1/Median/Q3/Max/Mean/Count** and highlights your **Current Value** with color.

## FAQ

1. **Which Demographics metrics can appear?**  
   Population (no.), Median age, 55–64 (%) & (no.), 65+ (%) & (no.), Population density, Working-age 15–64 (%) & (no.). The app filters the API’s **available metrics** to exactly these.
2. **Do metrics ever hide?**  
   Yes. If a metric isn’t present in the **available metrics** returned by the API, it won’t render.
3. **What does the “vs National/State/SA4/SA3” badge mean?**  
   It shows the distribution the box-plot is using for quartiles and median. Change it with the **Comparison Level** buttons.
4. **How does the performance chip decide Top/Middle/Bottom?**  
   It compares your SA2’s current value to **Q1** and **Q3** of the active distribution. ≥Q3 = **Top 25%**, ≤Q1 = **Bottom 25%**, otherwise **Middle 50%**.
5. **Why do my charts change when I switch Comparison Level?**  
   Quartiles and median are recalculated using your chosen level (National, State, SA4, SA3), so the same SA2 value can land in a different band.
6. **What’s the default comparison?**  
   **National.** You can switch to **State/SA4/SA3** at any time.
7. **Where do the quartiles come from?**  
   They’re computed from the dataset for the chosen level; tooltips expose **Min/Q1/Median/Q3/Max/Mean/Count** used by the plot.
8. **Why are some values shown as 1.2K or 3.4M?**  
   That’s the chart’s y-axis formatting to keep scales readable.
9. **Do the metric labels get shortened?**  
   Yes. The UI trims category prefixes (e.g., drops “Demographics | …”) for display clarity.
10. **Why don’t I see Demographics until I pick an SA2?**  
    The tabs (including **Demographics**) are part of the **Selected SA2 Analysis**, so they appear only after you choose an SA2.
11. **Is there any loading/ready feedback before charts appear?**  
    Yes. You’ll see a loading banner while data and statistics prepare, then a green **“SA2 Analytics Platform Ready”** card with counts of regions and metrics.
12. **What if I switch to another tab (Economics, Health Sector, Health Stats)?**  
    Only the chosen tab’s metric set renders; each uses the same box-plot component and comparison logic.

## Troubleshooting

* **“No chart for a metric I expected.”**  
  It likely isn’t in **available metrics** for your dataset; the Demographics tab only maps over metrics that exist.
* **Performance band looks “off.”**  
  Check the **Comparison Level**. Your SA2 could rank **Top 25%** nationally but **Middle 50%** vs its **State/SA4/SA3** peers.
* **Numbers feel too big/small on the axis.**  
  K/M abbreviations are expected; hover for exact values in the tooltip.
* **Charts don’t show at all.**  
  Ensure an SA2 is selected; the tabbed analysis UI renders only in the **Selected SA2** state.

## Quick reference checklist

* Select an **SA2**
* Open **Demographics** tab
* Pick **Comparison Level** (National/State/SA4/SA3)
* Hover box-plots for **Min/Q1/Median/Q3/Max/Mean/Count**
* Read the **performance chip** (Top/Middle/Bottom)
* Repeat for **population, ages, density, working-age** metrics.

[Screenshot: Demographics tab showing box-plots for Population, Median age, Density, and Working-age with the “vs State” badge and a “Top 25%” performance chip visible]

## Open questions for PM/Eng

* Should Demographics plots **invert** the performance color for metrics where “lower is better” (if any), or is the current **≥Q3 = Top 25%** rule universal?
* Do we need **units/decimals** per metric (e.g., fixed decimals for ages, densities) beyond the current tooltip formatting?
* Confirm if the trimmed display names for Demographics metrics should follow a **specific naming map** or continue using generic prefix removal.

# SA2 Insights User Guide — Health Sector (CHSP, Home Care, Residential Care)

**Topic (job-to-be-done):** Explore Health Sector metrics for an SA2, covering CHSP, Home Care, and Residential Care — including **participants**, **providers**, and **spending** — and understand how they’re visualized.  
**Audience:** Business users & data analysts in Australian aged care.

[Screenshot: SA2 Insights home with Health Sector tab selected; an SA2 is chosen, Comparison Level buttons visible, and multiple “Health Sector Metrics” box plots shown with performance chips and a “vs National/State/SA4/SA3” tag]

## What you’ll see & use

* Page header **“SA2 Analytics Platform”** and **Main Menu** back button.
* Left **Search History** panel (default visible) with **Hide/Show**, **Delete item**, **Clear history** actions. Selecting an item restores its search.
* **Search SA2 Regions** bar with placeholder “Search regions (SA2/SA3/SA4/LGA), postcodes, localities, or facilities…”; results open in a dropdown with badges like **Analytics Available**, **No Direct Analytics**, **Near {X}**, and **Postcode Match**; description: “Results prioritized by population size.”
* **Saved Searches** toggle & list (with **Clear All**, per-item **Residential** 🏢 and **Homecare** 🏠 quick-links, and **Delete**).
* **Selected SA2** overview: **Save SA2** (requires sign-in), quick links to **Residential** and **Homecare**, and summary tiles (Persons 65+ Years, Home Care, Residential Care, CHSP Participants).
* **Comparison Level** buttons: **National**, **State**, **SA4**, **SA3** (affect all box plots).
* **Tabs**: **Economics**, **Demographics**, **Health Sector**, **Health Stats**. This section focuses on **Health Sector**.

## Step-by-step: View Health Sector metrics for an SA2

1. **Pick your SA2**
   * In **Search SA2 Regions**, type a name/postcode/locality; results dropdown appears. Choose a row with the **Analytics Available** badge (i.e., an SA2).
   * **Tip:** Dropdown closes when you click outside; searches are **debounced ~300 ms** as you type.
2. **Confirm you’re on the SA2 Overview**
   * The top “Currently viewing: {SA2}” bar appears with a **Save SA2** button (shows **Saved** when already saved), and quick links for **Residential** 🏢 and **Homecare** 🏠.
3. **Choose your comparison lens**
   * Click **National / State / SA4 / SA3** under **Comparison Level**. All charts will render **vs** the chosen level (chip appears on each chart).
4. **Open the Health Sector tab**
   * Select **Health Sector**. A “Health Sector Metrics” section appears followed by **box plots** — one per metric listed below.
5. **Read each box plot**
   * Each chart shows the **distribution** (min, Q1, median, Q3, max) for the selected comparison level and a dot for **This SA2**; a **performance chip** says **Top 25% / Middle 50% / Bottom 25%** based on quartiles. Tooltips show full stats.
6. **Switch comparison or SA2 at any time**
   * Toggling comparison or selecting a new SA2 instantly updates all Health Sector plots.

## Health Sector — Full metric list (rendered as box plots)

**Commonwealth Home Support Program (CHSP)**

* Number of Participants | Commonwealth Home Support Program
* Number of Providers | Commonwealth Home Support Program
* Participants per provider | Commonwealth Home Support Program
* Spending | Commonwealth Home Support Program
* Spending per participant | Commonwealth Home Support Program
* Spending per provider | Commonwealth Home Support Program

**Home Care**

* Number of Participants | Home Care
* Number of Providers | Home Care
* Participants per provider | Home Care
* Spending | Home Care
* Spending per participant | Home Care
* Spending per provider | Home Care

**Residential Care**

* Number of Participants | Residential Care
* Number of Providers | Residential Care
* Participants per provider | Residential Care
* Spending | Residential Care
* Spending per participant | Residential Care
* Spending per provider | Residential Care

**How each metric is visualized**

* **Chart type:** Box plot (min–Q1–median–Q3–max) with **This SA2** marked as a dot. The chart shows a **vs National/State/SA4/SA3** tag in the top-right. Tooltip includes distribution stats and current value. A **performance chip** summarizes quartile position.

## Behavioral notes (grounded)

* **Initial loading:** You’ll see a loading banner, then a green “SA2 Analytics Platform Ready • {regions} • {metrics}…” success card (or a red error card if loading fails).
* **Search debounce & closing:** Input is **debounced ~300 ms**; clicking outside the dropdown closes it.
* **History panel default:** **Visible by default** on the left; hide with **X**; when hidden, a slim **History** tab appears to show it again.
* **Save SA2 requires sign-in:** The button is disabled when not signed in; attempting to save navigates to sign-in. On success/failure, a message card appears.
* **Non-SA2 selections:** Selecting an LGA/SA3/SA4/postcode/locality shows an **“Analytics Not Available”** card explaining that detailed analytics are only for SA2s.
* **Comparison impacts charts:** Box plots compute stats for the chosen level (National/State/SA4/SA3) using hierarchical statistics and update the “vs …” tag.
* **Landing Rankings & Empty state:** With no SA2 selected, a **Landing Rankings** section and an Empty State prompt encourage you to search and select an SA2.

## FAQ (Health Sector focus)

1. **Where do I find Health Sector metrics?**  
   Open **Health Sector** tab under the SA2 analysis cards; each metric appears as a box plot.
2. **Which metrics are included?**  
   CHSP (participants, providers, participants per provider, spending, spend per participant/provider), Home Care (same six), Residential Care (same six).
3. **What does the performance chip (Top 25% / Middle 50% / Bottom 25%) mean?**  
   It’s based on quartiles of the selected comparison distribution (Q1, median, Q3).
4. **How do I change the comparison (National vs State vs SA4 vs SA3)?**  
   Use the **Comparison Level** buttons; the box plots switch to those distributions and show **vs …**.
5. **What does the box plot tooltip show?**  
   Min, Q1, median, Q3, max, mean, count, and **This SA2** value.
6. **Why do some search results show “No Direct Analytics”?**  
   Non-SA2 items (e.g., LGA, SA3/SA4, facility) don’t have SA2 analytics; select an SA2 result instead.
7. **How do I quickly jump from an SA2 to sector pages?**  
   Use the **Residential** 🏢 or **Homecare** 🏠 icons on the SA2 header to open those pages filtered by the SA2.
8. **Can I save an SA2 for later?**  
   Yes. **Save SA2** (requires sign-in). After saving, the button shows **Saved** and a confirmation card appears.
9. **What happens if I’m not signed in and click Save?**  
   You’ll be redirected to sign-in; the button is disabled otherwise.
10. **How are search results prioritized?**  
    The search card indicates results are “prioritized by population size.”
11. **How can I restore a prior query?**  
    Use the **Search History** panel: click any entry to re-run it; you can also **Delete** items or **Clear** all.
12. **Why do I see “Analytics Not Available” after choosing a search result?**  
    You selected a non-SA2 entity; analytics are only available for SA2 regions.

## Troubleshooting

* **“Error loading SA2 data” banner**  
  The page shows a red error card if the API fails. Refresh later; once resolved you’ll see the green “Platform Ready” card.
* **Search feels slow / empty**  
  Input is **debounced (~300 ms)**; give it a moment. Try more specific terms (e.g., SA2 name) or pick an SA2 result with **Analytics Available**.
* **Saved search action didn’t work**  
  Ensure you’re signed in; success or failure shows as a message card. If an error persists, re-sign-in and retry.
* **History delete/clear didn’t reflect**  
  The panel provides **Delete** and **Clear**; if the list doesn’t update, try toggling the panel or reloading.
* **I selected an LGA/SA3/SA4 and see no Health Sector charts**  
  That’s expected; detailed analytics render only for **SA2** selections. Use the search bar to pick an SA2.

## Quick reference checklist

* Search and **select an SA2** (look for **Analytics Available**).
* (Optional) **Save SA2** (sign-in required).
* Pick **Comparison Level**: National / State / SA4 / SA3.
* Open **Health Sector** tab.
* Review **CHSP**, **Home Care**, **Residential Care** box plots; read **performance chip** and tooltip.
* Use **Search History** to revisit past queries; **Saved Searches** for quick access.

## Open questions for PM/Eng

1. **Metric definitions & timeframes:** Are the CHSP/Home Care/Residential Care **spending** figures nominal annual dollars, period totals, or rolling? What reference year(s)? (No definitions in the file.)
2. **Units & formatting:** Should spending always be shown with currency symbols and thousand separators, and participants/providers as integers? (Box plot y-axis auto-formats; explicit rules not in file.)
3. **Population prioritization:** The UI copy says “prioritized by population size,” but the simple search logic currently collects matches without explicit sorting. Clarify expected ordering.

### How charts determine comparison & performance (for the curious)

* Each box plot switches its statistics to the selected **comparison level** (National, State, SA4, SA3) using **hierarchical statistics**, and labels the chart with **vs …**. The **This SA2** dot is colored by quartile (Top/Middle/Bottom).

**Components referenced:**

* **Home page** behavior, search, saved/history panels, tabs & comparison controls.
* **Box plots** (distribution, tooltip, performance chip, “vs …” chip).
* (Heatmap & ranking components exist in the project, but Health Sector tab renders **box plots** specifically.)

# Health Stats: long-term conditions, assistance, unpaid care

**Audience:** Business users & data analysts in Australian aged care.  
This section explains every Health Stats metric available on the **SA2 Analytics Platform** Home page and how the visualizations work.

## What you can do here

* Open the **Health Stats** tab to see box-plots for long-term conditions, need for assistance, unpaid assistance, and a related household composition metric.
* Compare your selected SA2 against **National / State / SA4 / SA3** benchmarks; the chosen comparison is shown on each chart.

## Steps

1. **Select an SA2**  
   Use the **Search SA2 Regions** bar to find a region and select an SA2 result (only SA2s have analytics). If you pick a non-SA2 (e.g., SA3/LGA), you’ll see an **Analytics Not Available** notice.
2. **Open the Health Stats tab**  
   In the analysis card, click **Health Stats** (red cross icon). This shows “Health Stats Metrics” and renders the charts listed below.
3. **Choose your comparison lens**  
   Above the tabs, use **Comparison Level** buttons (**National, State, SA4, SA3**). All Health Stats box-plots immediately switch to the selected baseline; each chart shows a “vs …” indicator.
4. **Read each chart**  
   Every metric is a **box-plot** with your SA2’s current value overlaid. A small chip labels performance as **Top 25% / Middle 50% / Bottom 25%** based on quartiles of the selected comparison group. The tooltip shows min, Q1, median, Q3, max, mean, and count.
5. (Optional) **Save the SA2**  
   Use **Save SA2** on the overview card to bookmark the region for quick access (requires sign-in).

## Full metric list (Health Stats tab)

The Health Stats tab renders a box-plot for each of these metrics (exact labels as implemented):

* **Long-term health conditions – Census | Arthritis (%)**
* **Long-term health conditions – Census | Asthma (%)**
* **Long-term health conditions – Census | Cancer (including remission) (%)**
* **Long-term health conditions – Census | Dementia (including Alzheimer’s) (%)**
* **Long-term health conditions – Census | Diabetes (excluding gestational diabetes) (%)**
* **Long-term health conditions – Census | Heart disease (including heart attack or angina) (%)**
* **Long-term health conditions – Census | Kidney disease (%)**
* **Long-term health conditions – Census | Lung condition (including COPD or emphysema) (%)**
* **Long-term health conditions – Census | Mental health condition (including depression or anxiety) (%)**
* **Long-term health conditions – Census | Stroke (%)**
* **Long-term health conditions – Census | No long-term health condition(s) (%)**
* **Long-term health conditions – Census | Other long-term health condition(s) (%)**
* **Core activity need for assistance – Census | Persons who have need for assistance with core activities (%)**
* **Core activity need for assistance – Census | Persons who have need for assistance with core activities (no.)**
* **Unpaid assistance to a person with a disability – Census | Provided unpaid assistance (%)**
* **Household composition – Occupied private dwellings – Census | Lone person households (no.)**

**How they render:** each metric uses the **SA2BoxPlot** component with the performance chip enabled and a visible “vs [comparison]” badge in the top-right.

## How the visualization works

* **Box-plots with overlay point.** Your SA2’s value is plotted against the distribution (min, Q1, median, Q3, max) of the currently selected comparison level.
* **Performance chip.** Automatically shows **Top 25% / Middle 50% / Bottom 25%** based on where the SA2 value falls relative to quartiles.
* **Comparison indicator.** Every chart shows **vs National / State / SA4 / SA3** depending on your selection.
* **Tooltips.** Hover to see detailed stats and your current value, color-coded by performance.

**Tip:** Switching **Comparison Level** (e.g., from National to State) can change the performance chip even if your raw value stays the same, because quartiles are recalculated for the chosen group.

## Behavioral notes

* **Tabs & labels:** The **Health Stats** tab trigger and the “Health Stats Metrics” header are defined in the Home page file.
* **Comparison Level controls:** Buttons for **National / State / SA4 / SA3** update the active comparison used by every box-plot; each chart repeats the “vs …” label.
* **Performance status:** The chip text (“Top 25% / Middle 50% / Bottom 25%”) comes directly from the box-plot component logic (quartile thresholds).
* **If no SA2 is selected:** You’ll see the landing rankings grid / empty state; charts appear only after selecting an SA2. Non-SA2 selections show **Analytics Not Available**.
* **Save SA2:** The **Save SA2** control is available on the selected SA2 overview; saving requires being signed in.

## FAQ

1. **Where do I find the Health Stats charts?**  
   Open the **Health Stats** tab in the analysis card after selecting an SA2.
2. **What metrics are included?**  
   All long-term conditions listed above plus **need for assistance**, **unpaid assistance**, and **lone person households (no.)**—each rendered as a box-plot.
3. **How is “Top 25% / Middle 50% / Bottom 25%” determined?**  
   The box-plot component compares your SA2 value to quartiles (Q1/Q3) of the selected comparison distribution.
4. **How do I change the benchmark (National vs State vs SA4 vs SA3)?**  
   Use the **Comparison Level** buttons; charts update and show “vs …” on each card.
5. **Why did my performance chip change after switching comparison level?**  
   Quartiles are recalculated for each benchmark group, so your relative position may change.
6. **Can I view tooltips with exact stats?**  
   Yes—hover a chart to see min, Q1, median, Q3, max, mean, count, and your current value.
7. **What if I select an SA3/LGA/postcode result?**  
   You’ll get an **Analytics Not Available** notice; only SA2s have analytics on this page.
8. **Is there a way to bookmark this SA2?**  
   Use **Save SA2** on the overview card (requires sign-in). Saved searches appear under **Saved Searches**.
9. **Does Health Stats use any heatmaps or radar charts here?**  
   No—the Health Stats tab uses **box-plots** for each metric. (Heatmap/Radar components exist elsewhere, not in this tab.)
10. **Where do I see how my SA2 ranks overall?**  
    Overall ranking/percentile summaries are provided by a separate ranking component, not within the Health Stats tab.
11. **Why is “Lone person households (no.)” in Health Stats?**  
    It’s included explicitly in the Health Stats tab’s metric list for contextual wellness and care-related insights.
12. **What units are used (%, counts)?**  
    Labels in the metric list indicate **(%)** or **(no.)**; charts display the raw values accordingly.

## Troubleshooting

* **I don’t see any charts.**  
  Confirm an **SA2** is selected; otherwise you’ll remain on the landing rankings or empty state.
* **“Analytics Not Available” appeared.**  
  You selected a non-SA2 location; search and pick an SA2 instead.
* **Performance chip seems off.**  
  Check your **Comparison Level**; quartiles change with National vs State vs SA4 vs SA3.
* **Saved SA2 not available.**  
  Saving requires sign-in; use **Save SA2** when signed in, then open from **Saved Searches**.

## Quick reference checklist

* Select an **SA2** (not SA3/SA4/LGA)
* Open **Health Stats** tab
* Pick **Comparison Level** (National/State/SA4/SA3)
* Read each **box-plot** + **performance chip**
* (Optional) **Save SA2** for quick access

[Screenshot: SA2 Insights — Health Stats tab open with multiple box-plots showing “vs State” and a **Top 25%** performance chip visible on one chart]

## Open questions for PM/Eng

1. Should **Lone person households (no.)** remain under Health Stats or move to Demographics for consistency? (It currently renders under Health Stats.)
2. Do we expose any explicit **units** or **formatting** per metric in tooltips beyond numeric formatting (e.g., always show “%” for percentage metrics)?
3. Should Health Stats ever include **radar** or **heatmap** summaries, or is it intentionally box-plot only?

# Explore without selecting: Landing Rankings (Home)

Use the **Regional Rankings** landing component to explore metrics across Australia and pick an SA2 to analyse—without running a search first.

**Where it appears:** The landing rankings show automatically when **no SA2 is selected** and the SA2 dataset has finished loading. The page passes allSA2Data, availableMetrics, sa2Statistics, and an onSelectSA2 callback into the landing component.

## Steps: Browse rankings and pick an SA2

1. **Confirm the platform is ready.** Look for the green **“SA2 Analytics Platform Ready”** banner (it appears after data loads and stats are calculated). If there’s an error banner, fix that before continuing.   
   **Note:** While loading, a blue banner shows the current step (e.g., “Calculating enhanced statistics…”).
2. **Find the landing rankings panel.** With **no SA2 currently selected**, the **InsightsLandingRankings** section is displayed. It’s wired to availableMetrics and sa2Statistics, so the rankings reflect the full dataset.
3. **Scan the rankings.** Ranking visuals in this project use normalized **percentiles** and include a “vs Comparison Level” annotation (e.g., National). Components such as **SA2RankingChart** and **SA2HeatmapChart** color by percentile and compute the comparison display (National/State/SA4/SA3).
4. **Drill into a region.** Click an SA2 entry within the landing rankings. The page’s onSelectSA2 handler will receive your selection and open the full SA2 analysis view.
5. **Change your mind?** Use the header **Main Menu** button to go back to the hub at any time, or toggle back to **Search SA2 Regions** to clear the current selection and return to the landing state.

**Tip:** Percentile-based charts indicate performance bands (Top 25%, middle, bottom). Colors are consistent across components so you can quickly spot high- vs low-performing regions.

**Warning:** If you open a non-SA2 location (e.g., SA3, SA4, LGA) you’ll see **Analytics Not Available**—only SA2s have detailed analytics. Pick an SA2 instead.

## Behavioral notes

* **Landing appears only when:** selectedSA2 is empty, **not** loading, and SA2 data is present.
* **Data pipeline & readiness:** The loader advances through steps, then shows “Ready”; on errors it shows a red alert with the error message.
* **What powers the rankings:** The page loads **all SA2 data** and **available metrics**, then calculates **enhanced statistics** (min, max, **Q1/Q3, percentiles**) and **hierarchical statistics** for State/SA4/SA3.
* **Comparison lens:** Ranking/heatmap visuals compute a comparison label (National/State/SA4/SA3) and annotate charts with “vs …”. Defaults to **National** unless otherwise specified in the visualization.
* **Empty state:** If no SA2 is selected, an **Empty State** section is also defined (appears alongside the landing experience).

## FAQ

1. **When do the Landing Rankings show up?**  
   When no SA2 is selected, loading is finished, and SA2 data/metrics are available.
2. **What metrics are ranked?**  
   The component is given availableMetrics from the SA2 API; rankings reflect those metrics.
3. **How are “percentiles” determined?**  
   The page computes enhanced stats (min, max, Q1, Q3, percentiles) after loading the dataset.
4. **What does the “vs National / State / SA4 / SA3” tag mean?**  
   Visuals compute a human-readable comparison label (e.g., “State Level”) used to annotate charts.
5. **Can I change the comparison level from the landing?**  
   Comparison controls are in the **Selected SA2** view (after you pick an SA2). The landing focuses on discovery.
6. **What happens when I click an SA2 in the rankings?**  
   The page’s onSelectSA2 handler receives it, sets the selection, and opens the SA2 analysis view.
7. **Why do I sometimes see “Analytics Not Available”?**  
   That appears for non-SA2 selections; only SA2s have detailed analytics.
8. **Will the landing show if loading fails?**  
   If the API fails, you’ll see a red error alert instead; fix the issue and reload to compute stats.
9. **Do charts indicate performance bands?**  
   Yes—ranking charts color by percentile (top/above median/below median/bottom) to show performance at a glance.
10. **What if a ranking chart has no data for a metric?**  
    Chart components render an informative placeholder when there’s no data to plot.
11. **How do I return to the landing after viewing an SA2?**  
    Use **Search SA2 Regions** (clears the selection) or **Main Menu** in the header.

## Troubleshooting

* **Blue loading banner stuck:** The dataset or stats are still computing; wait for the green **Ready** banner or check the console/error banner if it flips to red.
* **Red error banner:** The SA2 API or metrics call failed. Refresh, then try again so enhanced and hierarchical stats can be recomputed.
* **Landing rankings don’t appear:** Ensure no SA2 is selected and loading is complete; the component only renders in that state.
* **Clicked a non-SA2 item:** You’ll see **Analytics Not Available**; search/select an SA2 region instead.

## Quick reference checklist

* ✅ Confirm **Ready** banner
* ✅ Make sure **no SA2 is selected**
* ✅ Browse **Landing Rankings** (metrics/percentiles)
* ✅ Click an **SA2** to open full analysis
* ✅ Use **Main Menu** or **Search SA2 Regions** to return to landing later

[Screenshot: SA2 Insights Home showing the Landing Rankings section (no SA2 selected), with the green “SA2 Analytics Platform Ready” banner visible]

## Open questions for PM/Eng

1. What **sort & filter controls**, if any, are exposed in **InsightsLandingRankings**? (Not present in the file.)
2. Which **default metrics** are highlighted on the landing, and can users change them there? (Props include availableMetrics, but the UI behavior isn’t specified.)
3. Does the landing use **SA2RankingChart**, **SA2HeatmapChart**, or both—and how are they arranged? (Components exist, usage in landing not shown.)
4. Is a **comparison level** selectable on the landing, or always **National** until an SA2 is selected? (Comparison controls are clear in the SA2 view, not on landing.)

**Related UI anchors (for orientation):**

* Header title **“SA2 Analytics Platform”** and **Main Menu** back button.

# Understand “Analytics Not Available” (non-SA2 picks)

When you select something that isn’t an SA2 region (e.g., SA3/SA4/LGA, postcode, locality, facility), the Home page shows a yellow notice: **“Analytics Not Available — Detailed analytics are only available for SA2 regions.”** This is expected. Here’s why it happens and exactly how to proceed.

## What triggers the yellow notice?

You’ll see the yellow card **after choosing a search result that isn’t an SA2** (or an SA2 without attached analytics data). The page treats that as a selected “location” but **no SA2 analytics** is available, so it displays the **Analytics Not Available** banner with guidance to search for an SA2 in that area.

In the search dropdown, non-SA2 results also carry a small yellow badge, **“No Direct Analytics,”** reminding you that those items won’t open the analysis tabs. Conversely, true SA2 rows with data show **“Analytics Available.”** Proximity suggestions show **“Near {X}.”** These badges help you pick results that will open analytics.

## Step-by-step: move from a non-SA2 pick to full analytics

1. **Start in Search.** Click **Search SA2 Regions** and type a place (SA2/SA3/SA4/LGA), postcode, or locality. The input placeholder confirms all supported query types:  
   “Search regions (SA2/SA3/SA4/LGA), postcodes, localities, or facilities…” Results note: “Results prioritized by population size.”   
   **Tip:** The search is **debounced (~300 ms)** and the dropdown **closes when you click outside**. If nothing shows at first, pause a moment or refine your text.
2. **Scan badges before selecting.**
   * Pick an SA2 row with **Analytics Available** to go straight to charts.
   * If you began with a postcode/locality/LGA, prefer a proximity suggestion marked **Near {X}** (these are SA2 suggestions).
   * Avoid rows with **No Direct Analytics** if you want full analytics.
3. **If you clicked a non-SA2 anyway:** You’ll land on a card titled with your pick and a yellow **Analytics Not Available** notice. Use the guidance there—**search for an SA2 within this area**—then select an SA2 result.
4. **Alternatively, browse the Landing Rankings.** If no SA2 is currently selected, the Home page shows **Regional Rankings** you can click to load an SA2 and its analytics.
5. **Use history or saved lists.**
   * **Search History** (left panel, visible by default) lets you quickly restore a prior SA2 search; you can hide/show the panel and manage items.
   * **Saved Searches** lists your saved SA2s; click one to reload analytics instantly. (You can also jump to **Residential** 🏢 or **Homecare** 🏠 for that SA2.)
6. **Review the analysis.** With an SA2 selected, you’ll see the overview tiles and the four tabs—**Economics, Demographics, Health Sector, Health Stats**—each rendering **box-plots** and performance indicators. Use **Comparison Level** buttons (**National / State / SA4 / SA3**) to change the reference distribution for the box-plots.

**Note**  
The yellow notice is a safeguard, not an error. It appears because analytics are intentionally scoped to SA2 regions on this page.

## Behavioral notes (what you’ll observe)

* **Yellow notice scope:** Shows when **a location is selected** but **no SA2 is set**; text explains analytics are SA2-only and suggests searching for an SA2.
* **Badges in results:**
  + **Analytics Available** (green) on SA2 with attached data.
  + **No Direct Analytics** (yellow) on non-SA2 rows.
  + **Near {X}** (blue) on proximity-based **SA2 suggestions**.
* **Search UX:** **Debounced ~300 ms;** dropdown **closes on outside click**. A spinner shows while searching.
* **Landing state:** When **no SA2 is selected,** the **Regional Rankings** section appears so you can explore/browse and then pick an SA2.
* **History panel:** **Visible by default**, with controls to **hide/show**, **delete**, or **clear** history; selecting an item re-runs that query and restores SA2 if recorded.
* **Saved Searches:** Toggle the **Saved Searches** view; per item you can **open**, **Residential** 🏢, **Homecare** 🏠, or **Delete**; there’s also **Clear All**.
* **Analysis tabs & comparison:** Box-plots label **vs National/State/SA4/SA3**, and show a performance chip (Top 25% / Middle 50% / Bottom 25%). (Rendered via the tab set and box-plot component.)

## FAQ

1. **What does “Analytics Not Available” mean?**  
   You selected something that isn’t an SA2 (or an SA2 without analytics attached). The Home page only renders analytics for SA2.
2. **How do I get analytics if I chose a postcode/locality?**  
   Pick a result with **Near {X}** (proximity **SA2** suggestion) or re-search and choose an **SA2** row with **Analytics Available**.
3. **Why do some rows say “No Direct Analytics”?**  
   They are non-SA2 items (e.g., SA3/SA4/LGA/postcode/locality/facility). Selecting them won’t load analytics.
4. **How are results ordered?**  
   The search card states **“Results prioritized by population size.”**
5. **I clicked outside the dropdown and it closed—bug?**  
   It’s by design: the dropdown **closes on outside click**. Click the input again to re-open.
6. **Search feels laggy—what’s happening?**  
   Queries are **debounced (~300 ms)** to reduce noise; pause briefly after typing.
7. **Can I restore a previous SA2 I viewed?**  
   Yes—use the **Search History** panel (left). It’s **visible by default** and you can re-run any item.
8. **Where can I browse if I don’t know an SA2 name?**  
   Use the **Regional Rankings** landing section (visible when no SA2 is selected) and click an SA2 from there.
9. **I want to get to sector views fast from an SA2.**  
   In the SA2 header, use the **Residential** 🏢 and **Homecare** 🏠 quick links.
10. **What changes when I switch Comparison Level (National/State/SA4/SA3)?**  
    Box-plots recompute their distribution against your chosen level (indicator shows “vs …”).
11. **Why is the Save button sometimes disabled?**  
    Saving requires a signed-in user; the button is disabled or redirects to sign-in if you’re not authenticated.

## Troubleshooting

* **I only see the yellow notice, no charts.**  
  Re-open **Search SA2 Regions** and choose an **SA2** row with **Analytics Available** (or a **Near {X}** SA2 suggestion).
* **I selected “SA2” but still got no analytics.**  
  Pick an SA2 that includes attached analytics (green **Analytics Available** badge). Some entries might match SA2 text but lack data.
* **Nothing matches my postcode/locality.**  
  Try shorter terms (e.g., suburb only) or pick a **Near {X}** proximity **SA2**. The search is debounced—give it a moment.
* **History operations didn’t reflect.**  
  The History panel supports **delete** and **clear**; if your list looks stale, toggle the panel hide/show or perform a quick search to refresh the view.
* **Charts look empty.**  
  Ensure an **SA2 is selected** (you’ll see the SA2 name, ID, and summary tiles). If not, use **Search** or **Regional Rankings**.

## Quick reference checklist

* See **“Analytics Not Available”**? → You picked a **non-SA2**. Re-search and choose an **SA2**.
* Prefer **Analytics Available** (green) or **Near {X}** (blue) rows; avoid **No Direct Analytics** (yellow) when you want charts.
* Use **Regional Rankings** when no SA2 is selected to browse into analytics.
* Leverage **Search History** or **Saved Searches** to jump back to known SA2s.

[Screenshot: SA2 Insights Home showing a selected non-SA2 location with the yellow “Analytics Not Available” card, plus the search dropdown highlighting “Analytics Available,” “No Direct Analytics,” and “Near {X}” badges]

## Open questions for PM/Eng

* Should non-SA2 selections automatically reveal a **short list of nearby SA2 suggestions** on the card (not just in the search dropdown) to reduce back-and-forth? The current behavior only suggests proximity SA2s **inside the dropdown**.
* For SA2 rows **without attached analytics data**, do we want to **hide** them, or always show with a clear **“No Direct Analytics”** badge? Today, availability is indicated via badges in the dropdown.

**Sources:** Home page code and UI behaviors are implemented in the SA2 Analytics page component.

# Empty state cues & available coverage (Home)

When no SA2 is selected on the Home page, the app shows a friendly **“Select an SA2 Region”** card. This card confirms that data is loaded and tells you **how many SA2 regions and metrics are available** (e.g., “1234 regions available • 98 metrics • Enhanced statistics ready”).

[Screenshot: SA2 Insights Home showing the “Select an SA2 Region” card with counts of regions and metrics]

## What you’ll see (and why)

1. **While data is loading**  
   A blue banner displays step-by-step loading text (e.g., “Loading unified SA2 dataset…”), then computing statistics and hierarchies.
2. **If something goes wrong**  
   A red error card appears with an error message.
3. **When data is ready**  
   A green success card confirms the platform is ready and echoes coverage (e.g., “SA2 Analytics Platform Ready • {regions} regions • {metrics} metrics • Enhanced statistics calculated”).
4. **No SA2 selected (the empty state)**  
   You’ll see the **“Select an SA2 Region”** card with a short prompt to use the search bar and a second line showing **“{regions} regions available • {metrics} metrics • Enhanced statistics ready.”** These counts come directly from the loaded dataset and metrics list.
5. **Explore-first option**  
   With no SA2 selected and data ready, the **Landing Rankings** component appears so you can browse and then pick an SA2—useful before you search.

## Steps: Read the empty-state coverage & proceed

1. **Confirm data finished loading.** Look for the **green “Platform Ready”** card showing regions and metrics counts.
2. **Find the empty-state card.** It reads **“Select an SA2 Region”** and shows the **coverage counts** (regions, metrics).
3. **Decide your next move:**
   * **Search now** using **Search SA2 Regions** (above) to locate an SA2.
   * Or **scan Landing Rankings** (shown on the home view with no selection) and click a region to open its analytics.

**Tip:** The coverage counts reflect the **currently loaded SA2 dataset** and **available metrics** in memory—no extra clicks required.

## Behavioral notes (grounded)

* **Loading flow:** Progressive loading messages; after success, a “ready” card appears. On error, a red alert shows details.
* **Empty state trigger:** Shown when **no SA2 is selected** and the app is **not loading**.
* **Counts source:**
  + **Regions** = number of SA2 entries loaded.
  + **Metrics** = number of available metrics fetched.  
    Both values are displayed on the empty-state card.
* **Explore-first:** **Landing Rankings** renders when **no SA2** is selected and data is ready, allowing selection from rankings.

## FAQ

1. **What do the counts on the empty-state card represent?**  
   The number of **loaded SA2 regions** and **available metrics** currently in memory, plus a note that enhanced statistics are ready.
2. **Why do I sometimes see a blue banner before the empty state?**  
   That’s the **loading status** showing each step until the dataset and statistics are ready.
3. **What if I see a red error card instead?**  
   The data failed to load; the card shows an error message. Try again after addressing the issue.
4. **Is the empty-state card supposed to show coverage even before I search?**  
   Yes—coverage is displayed as soon as data is ready, even with no selection.
5. **Do the counts update after new data loads?**  
   Yes—once the dataset and metrics list are fetched and processed, the displayed counts reflect those loaded values.
6. **Can I start exploring without typing in the search bar?**  
   Yes—use **Landing Rankings** (visible when no SA2 is selected) to click into a region.
7. **Why does the success card say “Enhanced statistics calculated/ready”?**  
   Because the app pre-computes distribution stats for metrics so charts can render instantly later. The message confirms this step completed.
8. **I don’t see the empty-state card—why?**  
   If an SA2 is already selected, you’ll see the SA2 overview and tabs instead of the empty-state card. Clear the selection to return to the empty state.
9. **Can I rely on the counts to judge coverage completeness?**  
   They show the **quantity** of regions and metrics loaded. They don’t by themselves indicate data quality for specific metrics.
10. **Where is the search bar it tells me to use?**  
    Above the card, labeled **“Search SA2 Regions”**, with description and loading spinner behavior.
11. **Why do I also see a rankings grid on the empty state?**  
    That’s the **Landing Rankings** section rendered specifically when no SA2 is chosen and data is available, to help you explore.

## Troubleshooting

* **The loading banner never disappears.**  
  Data may still be fetching or stalled. Check network and reload. If it fails, you’ll see the error card.
* **The empty-state counts look like zero.**  
  That indicates no regions/metrics were loaded (or they haven’t finished loading). Wait for the green “ready” card; if an error appears, resolve it first.
* **I don’t see Landing Rankings.**  
  It appears only when **no SA2 is selected**, **loading is false**, and **regions > 0**. If you already selected an SA2, clear it or navigate back.
* **Error card displayed. What next?**  
  Review the message on the red card and retry. The empty-state card won’t appear until the data loads successfully.

## Quick reference checklist

* ✅ Green **“Platform Ready”** card visible (coverage confirmed).
* ✅ **“Select an SA2 Region”** card shows **regions** and **metrics** counts.
* ✅ Use **Search SA2 Regions** or **Landing Rankings** to proceed.

## Open questions for PM/Eng

* Should the empty-state coverage line also indicate **data vintage** (e.g., year) for transparency?
* Do we want the empty-state card to **link to Landing Rankings** explicitly (CTA), or is the current implicit placement sufficient?
* When enhanced statistics are **recalculated**, should the success banner message update dynamically or stay static after first load?

# Loading & status messages (what’s happening behind the scenes)

How the **SA2 Insights Home** page boots, unifies the SA2 dataset, and prepares enhanced + hierarchical statistics—plus what each banner means on screen.

[Screenshot: Loading sequence on Home—full-screen “Loading SA2 Analytics Platform…”, then blue “Loading unified SA2 dataset…”, ending with green “SA2 Analytics Platform Ready • N regions • M metrics” card]

## What you’ll see, in order (status flow)

1. **Full-screen loader**  
   On first open (or while the user session is being resolved), you’ll see a centered spinner and the message **“Loading SA2 Analytics Platform…”**. This blocks the UI until initialization finishes.
2. **Blue info card: “Loading unified SA2 dataset…”**  
   When the app starts its data load, a blue card appears with a spinner and a live **loading step** label. It begins with **“Loading unified SA2 dataset…”** while calling /api/sa2.
3. **Blue info card: “Processing SA2 data structure…”**  
   After the API returns, the app transforms every record to ensure each object carries sa2Id and sa2Name for consistent downstream use. The loading step changes to **“Processing SA2 data structure…”**.
4. **Blue info card: “Calculating enhanced statistics (min, max, Q1, Q3, percentiles)…”**  
   Next, the app computes distribution stats for every metric across **all** SA2 regions (min, max, quartiles, mean, count).
5. **Blue info card: “Calculating hierarchical statistics (state, SA4, SA3 levels)…”**  
   For each SA2+metric pair, it also calculates **hierarchical** distributions (National, State, SA4, SA3) to power the comparison lens in box-plots.
6. **Green success card: “SA2 Analytics Platform Ready …”**  
   When computations complete, a green card confirms readiness and shows live counts:  
   **“SA2 Analytics Platform Ready • {regions} regions • {metrics} metrics • Enhanced statistics calculated”**.
7. **Red error card (only if something fails)**  
   If loading fails (e.g., API error), you’ll see a red card prefixed with **“Error:”** plus the underlying message (like an HTTP status).

**Note**: If no SA2 is selected afterward, the **Empty state** also reiterates counts:  
“{regions} regions available • {metrics} metrics • Enhanced statistics ready.”

## What’s happening under the hood

* **One-time guarded load**: The loader uses flags to avoid duplicate work (dataLoadingRef, dataLoadedRef).
* **Fetch & normalize**: /api/sa2 returns a keyed object; each entry is reshaped so every SA2 has sa2Id + sa2Name.
* **Metrics catalog**: A follow-up call /api/sa2?metrics=true captures the list of available metrics.
* **Enhanced statistics (global distributions)**: For every metric across all SA2s, the app computes min, max, **Q1/Median/Q3**, mean, and count. These power percentiles, ranks, and chart scales.
* **Hierarchical statistics (by region groups)**: SA2s are grouped by **State, SA4, SA3** codes and the same stats are computed per group—for **each SA2+metric pair**—so charts can switch between National/State/SA4/SA3 comparisons.
* **Charts consume these stats**:
  + **Box-plots** show **“vs National/State/SA4/SA3”** and a performance chip (Top 25% / Middle 50% / Bottom 25%) derived from quartiles.
  + **Heatmaps** and **ranking bars** display percentiles and comparative summaries.

**Quartile logic (as implemented):**

// values sorted ascending

const q1Index = Math.floor(count \* 0.25);

const medianIndex = Math.floor(count \* 0.5);

const q3Index = Math.floor(count \* 0.75);

const q1 = count % 4 === 0 ? (sorted[q1Index - 1] + sorted[q1Index]) / 2 : sorted[q1Index];

const median = count % 2 === 0 ? (sorted[medianIndex - 1] + sorted[medianIndex]) / 2 : sorted[medianIndex];

const q3 = count % 4 === 0 ? (sorted[q3Index - 1] + sorted[q3Index]) / 2 : sorted[q3Index];

(From the statistics calculators used during the “Calculating enhanced…” and “Calculating hierarchical…” steps.)

## Step-by-step: Interpreting the banners

1. **See the full-screen loader** → The app is initializing user/session + starting dataset load.
2. **Blue “Loading unified SA2 dataset…”** → Fetching /api/sa2.
3. **Blue “Processing SA2 data structure…”** → Normalizing raw data into consistent SA2 objects.
4. **Blue “Calculating enhanced statistics …”** → Computing min/max/Q1/Median/Q3/mean/count for **each metric** across **all SA2s**.
5. **Blue “Calculating hierarchical statistics …”** → Building National/State/SA4/SA3 distributions per SA2+metric.
6. **Green “Ready”** → You can now search, select an SA2, and see charts with **vs National/State/SA4/SA3** comparisons.

**Tip**: The success card’s **region**/**metric** counts reflect what actually loaded and what’s available for charting right now.

**Warning**: If you see a red **Error** card, the data didn’t finish loading; charts and comparisons won’t be available until it’s resolved.

## Behavioral notes

* **Progress is granular**: The blue card’s **loadingStep** text updates at each phase so you can tell where the process is (load, process, enhanced stats, hierarchical stats).
* **“Ready” includes counts**: The green card includes **{regions}** and **{metrics}**; the Empty state echoes these too.
* **Errors are explicit**: API failures surface the **status/message** in the red card (e.g., “API request failed: 500”).
* **Fallback data**: There’s an isUsingFallbackData flag in the loader state, but it’s **not set** during errors—no fallback source is currently used.
* **Authentication**: If initialization throws, the page navigates to sign-in (/auth/login).
* **Charts reflect the chosen comparison level** (National, State, SA4, SA3) once loaded; each box-plot displays **“vs …”** inline.

## FAQ

**1) Why do I see “Loading SA2 Analytics Platform…” full-screen?**  
The app is initializing your session and starting the dataset load; the UI is gated until that completes.

**2) Why does the blue card change text multiple times?**  
It reflects distinct phases: dataset fetch → data processing → enhanced stats → hierarchical stats.

**3) What does “Calculating enhanced statistics …” mean exactly?**  
The app computes min, max, Q1, median, Q3, mean, and sample count for each metric across all SA2s.

**4) What does “Calculating hierarchical statistics …” do?**  
It groups SA2s by State/SA4/SA3 and computes the same distributions for each group, per SA2+metric.

**5) Where do the region and metric counts in the green “Ready” card come from?**  
From the size of the loaded dataset and the returned metrics list after initialization.

**6) I got a red Error card—what failed?**  
Usually the /api/sa2 request or the API’s own response. The message shows the exact reason (e.g., HTTP code or API error text).

**7) Is there fallback data if the API fails?**  
A flag exists in state, but the current flow sets **no fallback**—errors surface to the red card.

**8) Do charts depend on these stats being ready?**  
Yes. Box-plots/heatmaps/rankings use the computed stats and show **“vs …”** annotations for comparisons.

**9) Why do I still see counts in the Empty state?**  
Because counts (regions/metrics) are available once loading finishes—even before you select an SA2.

**10) Can hierarchical stats fail independently? What happens then?**  
If a sub-calculation throws, the code logs a warning; the main load may still complete (no separate red card is shown for that).

**11) I was redirected to sign-in during loading—why?**  
If initialization errors while resolving the current user, the page navigates to /auth/login.

## Troubleshooting

* **Stuck on full-screen “Loading SA2 Analytics Platform…”**  
  Refresh. If it persists, sign in again; initialization may have failed and redirected to login.
* **Blue card never reaches “Ready”**  
  Check network/API health. The loader will show a red **Error** card if the API call returns a non-OK status or an error payload.
* **Green card shows 0 regions/metrics**  
  That would indicate an empty API payload/metrics response; verify /api/sa2 and /api/sa2?metrics=true.
* **Charts look off or comparisons missing**  
  Ensure hierarchical stats are available and that you’ve selected a comparison level; box-plots will fall back to National if a level is missing.

## Quick reference checklist

* Full-screen **“Loading SA2 Analytics Platform…”** appears on first load ✅
* Blue card cycles through: **Loading unified dataset → Processing data → Calculating enhanced stats → Calculating hierarchical stats** ✅
* Green card shows: **Ready • {regions} regions • {metrics} metrics • Enhanced statistics calculated** ✅
* Red card displays **Error** with the API message if loading fails ✅
* Empty state echoes counts when no SA2 is selected ✅
* Box-plots/heatmaps/rankings consume these stats and display **vs …** comparison labels ✅

## Open questions for PM/Eng

1. Should isUsingFallbackData ever switch to **true** with a local or cached dataset if /api/sa2 fails? Current flow doesn’t enable fallback.
2. If **hierarchical statistics** fail while enhanced stats succeed, should we surface a distinct warning card instead of only console warnings?
3. Do we want retry/backoff for /api/sa2 before surfacing the red **Error** card?
4. Should the green “Ready” card include time taken for each phase (if available) for support diagnostics? (Not currently captured.)

# How comparison levels technically work

Comparison levels let you view each metric for the selected SA2 against the distribution of **National**, **State**, **SA4**, or **SA3** peers. Under the hood, the app computes quartile stats per level and swaps the distribution used by the box plots when you change the comparison.

## What gets computed (and when)

1. **Load & prepare data.** On page init the app fetches the unified SA2 dataset and metric list, then moves through a status flow:  
   “Calculating enhanced statistics…” → “Calculating hierarchical statistics (state, SA4, SA3 levels)…” → “SA2 Analytics Platform Ready”.
2. **Enhanced (national) stats per metric.** For each metric across **all SA2s**, it computes: min, q1, median, q3, max, mean, count. These are stored in sa2Statistics and power percentiles/ranks and default views.
3. **Hierarchical stats per SA2 × metric.** For every metric and every SA2, it also computes stats within that SA2’s **State**, **SA4**, and **SA3** group (plus **National**) using 2021 codes, and stores them under a key like "<sa2Id>\_<metric>".

### Quartile math (per group)

* Values are filtered to numeric, sorted ascending, then:
  + q1Index = floor(n\*0.25), medianIndex = floor(n\*0.5), q3Index = floor(n\*0.75)
  + When needed, adjacent values are averaged (even splits).
  + If a group has no values, zeros are returned for all stats.

min = sorted[0]

max = sorted[n-1]

mean = sum(values) / n

q1 = (n % 4 === 0) ? avg(sorted[q1Index-1], sorted[q1Index]) : sorted[q1Index]

median = (n % 2 === 0) ? avg(sorted[medianIndex-1], sorted[medianIndex]) : sorted[medianIndex]

q3 = (n % 4 === 0) ? avg(sorted[q3Index-1], sorted[q3Index]) : sorted[q3Index]

## How charts use the comparison level

### Box plots (the main consumer)

* The **Comparison Level** setting is held in state ('national' | 'state' | 'sa4' | 'sa3'). The four buttons in the **Comparison Level** card update this state.
* Each **SA2BoxPlot** picks the active distribution from the hierarchicalStats for the selected SA2 & metric:
  + National by default
  + State / SA4 / SA3 if available; otherwise falls back to National.
* The chart shows a badge **“vs {National/State/SA4/SA3}”** and tooltips list the active distribution’s Min/Q1/Median/Q3/Max/Mean/Count.
* A performance chip is derived from quartiles:
  + **Top 25%** if value ≥ Q3
  + **Middle 50%** if Q1 < value < Q3
  + **Bottom 25%** if value ≤ Q1.

### Rankings & heatmaps (context indicator)

* **SA2RankingChart** and **SA2HeatmapChart** display the same **“vs {…}”** badge for context. Their tooltips summarize **National** statistics for each metric (as provided), while the badge reflects your chosen level.
* The underlying “enhanced” stats they receive originate from the national distribution computed earlier.

## Step-by-step: changing the comparison

1. **Select an SA2** so charts render for that region.
2. Open the **Comparison Level** card and click **National**, **State**, **SA4**, or **SA3**. The box plots immediately re-render using that level’s quartiles for each metric (badge updates to “vs …”).

## Edge cases & safeguards

* **Missing group stats:** If, say, an SA3 group lacks data for a metric, the box plot falls back to **National** stats for that metric.
* **No numeric values:** Stats default to zeros, avoiding chart crashes but effectively showing an empty distribution.

[Screenshot: Box plot showing “vs State” with the performance chip indicating Top 25%]

**Note:** Everything above is implemented in the Home experience’s page and chart components, including the data-load sequence, hierarchical grouping, quartile calculations, and per-chart behavior.

# Advanced visualizations (reference components)

**Topic (job-to-be-done):** Read at-a-glance multi-metric summaries with Radar, Heatmap, and Ranking charts that align with your chosen comparison level badge.

**Audience:** Business users & data analysts in Australian aged care.

## What these charts do

* **Respect the current comparison choice (badge):** Each chart shows a top-right badge like **“vs National / State / SA4 / SA3”** based on your selection.
* **Box-plots** on the page already switch their distribution to your chosen level (National/State/SA4/SA3). They pull the correct hierarchical stats behind the scenes.
* **Radar / Heatmap / Ranking** show the correct **comparison badge**, and provide built-in summaries/legends and tooltips. (Tooltips/legends in these components reference **national** statistics/median as implemented.)

**Note**  
The **Comparison Level** buttons live in the Home experience header area for a selected SA2. Pick **National / State / SA4 / SA3** there; your choice is then reflected in each chart’s “vs …” badge.

## Step-by-step: View advanced summaries with your comparison choice

1. **Select an SA2**  
   Use **Search SA2 Regions** to pick a region. Once selected, the page shows the SA2 overview and the **Comparison Level** control.
2. **Choose the comparison lens**  
   Click **National / State / SA4 / SA3**. This sets the active comparison level for the analysis area. (You’ll see the badge update immediately.)
3. **Read the Box-plots (live hierarchical comparison)**  
   Box-plots switch their distribution to your chosen level using hierarchical statistics (national/state/SA4/SA3). Tooltips show quartiles; the performance chip indicates **Top 25% / Middle 50% / Bottom 25%**.
4. **Use the advanced visualizations (reference components)**  
   If your implementation includes them on the page or in a downstream view:
   * **Ranking chart**: horizontal bars show **percentile** and **rank** per metric; a **Performance Summary** below shows **Avg Percentile**, **Top 25% Metrics**, **Bottom 25% Metrics**. The top-right badge reflects your comparison choice.
   * **Heatmap**: grid of regions vs metrics colored by **percentile (0–100)** with a visual scale; counts for **Regions / Metrics / Scale** shown below; the badge updates to your comparison level.
   * **Radar**: polygon for **This SA2** vs a **National Median** reference on a **0–100% of range** scale; the badge reflects your comparison choice.

**Tip**  
Hover any point/bar/cell to see **Current Value**, **Percentile/Rank**, and the summary stats provided by the component’s tooltip. (In Ranking/Heatmap tooltips, the statistics are labeled as **National** in the current implementation.)

## Behavioral notes

* **Comparison Level control**: Four buttons (**National, State, SA4, SA3**) appear once an SA2 is selected. Changing the selection updates the badge on all charts and **changes the distribution** for box-plots specifically.
* **Ranking chart summaries**: Automatically computes **Avg Percentile**, counts of **Top 25%** and **Bottom 25%** metrics below the chart.
* **Heatmap legend & counts**: Built-in **visual scale (0–100%)** and footer text with **Regions / Metrics / Scale**.
* **Radar legend & scale**: Legend shows **This SA2** vs **National Median**; footer shows **Scale: 0–100% of range**.
* **Tooltips**:
  + Ranking & Heatmap tooltips label distributions as **National Statistics** in the current code.
  + Box-plot tooltips reflect the **active** hierarchical set (National/State/SA4/SA3).
* **Empty/No-data states**:
  + Ranking: “**No ranking data available**”.
  + Heatmap: “**No regions available**” / “**No metrics selected for heatmap**”.
  + Radar: “**No metrics available for radar chart**”.

## FAQ

1. **Do Radar/Heatmap/Ranking actually change their distributions when I switch comparison level?**  
   They update the **“vs …”** badge to match your selection. Their tooltips/legend text reference **national** statistics/median as coded. Box-plots are the component that switches distributions using hierarchical stats.
2. **Where do I change the comparison level?**  
   Use the **Comparison Level** buttons (**National / State / SA4 / SA3**) visible after selecting an SA2.
3. **What does the Ranking chart’s summary mean?**  
   It shows **Avg Percentile** (mean of metric percentiles), and counts of metrics in **Top 25%** and **Bottom 25%**.
4. **What does Heatmap coloring represent?**  
   Cell color is the **percentile (0–100)** for that region/metric; a visual map shows the scale and labels.
5. **Why does the Radar chart say “National Median”?**  
   The reference ring/series is labeled **National Median** in the current implementation.
6. **What happens if there’s no data for a metric or region?**  
   You’ll see a friendly “**No … available**” message in each component’s placeholder.
7. **How do I know which comparison is active?**  
   Look for the top-right badge: **vs National / State / SA4 / SA3**.
8. **Can I read quartiles for a metric?**  
   Yes—open any **Box-plot** and hover to see **Min, Q1, Median, Q3, Max, Mean, Count** for the active comparison level.
9. **Where do these components appear on the Home page?**  
   Home renders **Box-plots** in four tabs (Economics, Demographics, Health Sector, Health Stats). Radar/Heatmap/Ranking are **reference components** available for use; wire-up depends on your implementation.
10. **What does the heatmap footer show?**  
    **Regions**, **Metrics**, and **Scale** summary text beneath the chart.
11. **How is percentile/ rank calculated in Ranking?**  
    Percentile values drive bar length and coloring; labels show **#Rank** and **percentile%** with the summary panel beneath.
12. **Do performance chips appear on Radar/Heatmap/Ranking?**  
    Performance chips (Top/Middle/Bottom) are part of the **Box-plot** component UI.

## Troubleshooting

* **Badge shows “vs State/SA4/SA3”, but numbers look national**  
  That’s expected with Radar/Heatmap/Ranking in the current code: badges update, but tooltips/legend mention **National** context. Box-plots fully switch distributions.
* **Ranking shows “No ranking data available”**  
  You may not have provided rankings for the selected metrics; supply data or pick different metrics.
* **Heatmap shows “No regions available / No metrics selected for heatmap”**  
  Ensure you’ve passed at least one region and one selected metric to the component.
* **Radar shows “No metrics available for radar chart”**  
  Include at least one metric with its statistics for the radar to render.
* **Box-plots don’t change when I switch levels**  
  They should. Verify that hierarchical statistics are available; the Box-plot selects the dataset for **National/State/SA4/SA3** per your choice.

## Quick reference checklist

* Select an **SA2** on Home.
* Set **Comparison Level** (National/State/SA4/SA3).
* Read **Box-plots** (live hierarchical comparison + performance chip).
* Use **Ranking** for quick percentiles + **Performance Summary**.
* Use **Heatmap** for many metrics across regions; check **Regions/Metrics/Scale**.
* Use **Radar** to see multi-metric shape vs **National Median**.

[Screenshot: Advanced visualizations with top-right “vs State” badge on Ranking, Heatmap, and Radar; Box-plot showing quartiles and performance chip]

## Open questions for PM/Eng

1. **Radar/Heatmap/Ranking & hierarchical stats:** Should these components adopt **state/SA4/SA3** distributions (like Box-plot) instead of always showing **National** in tooltips/legends? Current code suggests national summaries.
2. **Home page wiring:** Should Radar/Heatmap/Ranking be added to the Home tabs (or another section), or remain as reference components for downstream pages?

# Pick & apply a result (selecting sets the workspace)

When you click a row in the results dropdown, the app applies that selection to the whole workspace: it records your pick, loads analytics if available, and reveals the SA2 analysis UI.

## Steps

1. **Open the results dropdown** from the Search bar and **click a result**.  
   This triggers the selection handler.
2. The app **updates core state immediately**: it records your chosen location, replaces the query text with the selected name, and closes the dropdown.
3. If your pick is an **SA2 with analytics attached**, the app **sets the active SA2** and proceeds with analysis.
   * If your pick is an **SA2 without attached analytics**, the app **tries multiple code formats** (e.g., zero-padded ID) and even a **name match** to find the right SA2 analytics before giving up.
   * If it’s **not an SA2** (e.g., SA3/SA4/LGA/postcode/locality/facility) or analytics still can’t be found, the SA2 selection is cleared.
4. Your action is **saved to Search History** (query + selection + result count) so you can restore it later.
5. The workspace **reacts based on the outcome**:
   * **SA2 found** → Shows the **SA2 Overview** (Save button, Residential 🏢 / Homecare 🏠 quick links, metric tiles), the **Comparison Level** chooser, and **analysis tabs**.
   * **Not an SA2 / no analytics** → Shows an **“Analytics Not Available”** card with guidance.

## What updates where (at a glance)

* **Selection handler:** captures the item you clicked, updates the query, clears the dropdown, and attempts to bind SA2 analytics.
* **Search History:** logs every selection; history items can later re-run the search and restore the SA2 context.
* **Workspace UI:**
  + **Overview + Quick links:** Save (disabled when not signed in), Residential, Homecare.
  + **Comparison Level:** National / State / SA4 / SA3 toggle that drives the box-plots.
  + **Analysis Tabs:** Economics, Demographics, Health Sector, Health Stats.
  + **Fallback notice:** “Analytics Not Available” for non-SA2 picks.

## Tips & notes

* **Tip:** If you clicked an SA2 but didn’t see analytics, the app still tries **alternate ID formats** and a **name fallback** before giving up—try re-selecting if your code had leading zeros.
* **Note:** Clicking outside the dropdown closes it without changing the current selection.
* **Warning:** Selecting non-SA2 items won’t show the SA2 analysis; you’ll see an **informational card** instead.

[Screenshot: Result clicked in the dropdown; SA2 Overview, Comparison Level buttons, and analysis tabs now visible]

# Keyboard/mouse patterns that help (Search)

1. **Click inside the “Search SA2 Regions” box** to immediately re-run the **simple SA2 search** using whatever text is already there; this opens the current matches dropdown.
2. **Click anywhere outside** the search box/results panel to **dismiss the dropdown** (the app clears searchResults on outside-click).
3. **Pause typing (~300 ms)** to let the **debounced search** run and show results; while a search is in progress a small **spinner** appears on the right of the field.
4. **Click a result** to apply it: the selection handler updates the page state (sets SA2 when available) and closes the dropdown.

**Tip:** If you’ve typed a query already, a quick **single click back into the box** is a fast way to refresh and reopen the matches list.