Urban Developer Plugin

What is Urban Developer?

Urban Developer is an integrated urban water cycle modelling (IUWM) tool designed to meet the needs of water professionals facing the challenges of integrated water cycle service planning and assessment arising from the ever-increasing pressures on Australia's water resources.

Urban Developer is available as a plugin for eWater Source. The Urban Developer Plugin allows urban water cycle modelling to be integrated within Source's whole-of-river-system modelling framework.

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Urban Developer Scope

Urban Developer allows exploration of urban water systems in a level of detail and with a degree of flexibility not offered by existing integrated models.

Urban Developer provides the ability to simulate all three urban water cycle service networks (water supply, stormwater, wastewater), ranging in scale from a single allotment up to large clusters or small subdivisions.

Allotment Scale

The allotment scale represents household-level water supply, water use and water disposal services, and allows you to evaluate the cumulative effects of individual water use actions. For example, with Urban Developer's Water Use model, you can examine the cumulative effect of installing water-saving showerheads or dual-flush toilets in individual households.

Cluster Scale

A small grouping of 2 - 30 allotments, businesses and/or commercial premises.The cluster scale is particularly useful for exploring decentralised supply, treatment, reuse, and disposal options, as it enables potential for some economies of scale in infrastructure delivery, and ameliorates some of the need for expensive centralised distribution and collection infrastructure.

Subdivision and Suburb Scale

Beyond the cluster scale are the subdivision and suburb scales. Again, there is no clear delineation between these terms as there can be crossovers between them.

For example the term subdivision can be applied to the creation of two or more allotments but is typically used to describe developments in the 10s or 100s of houses.

Beyond the subdivision scale lies the broader suburb / catchment scale. This scale presents a number of key challenges for modellers as the number of houses and service system components becomes computationally prohibitive for individual process modelling. A key application of Urban Developer is as a platform to explore the representation of urban water systems at this scale and understand the impacts of decentralised management practices at the suburb and city scale.

Urban scenarios model water networks as a series of nodes and links. This lumped approach means that while some node models may have a spatial component, all activity at these nodes is assumed to occur at a single point. Modelling that requires spatial variation should use the functionality available in Source catchment scenarios.

Navigating the User Guide

The Urban Developer Plugin User Guide contains two parts:

1. Urban Scenarios: describes how to create, configuration and run an urban water systems model
2. Linked River System Scenarios: describes how to integrate an Urban Scenario with Source schematic or catchment Scenarios.

The Guide assumes that readers are familiar with the eWater Source modelling framework.

Acknowledgements

This material has been adapted from:

eWater Cooperative Research Centre (2011) *Urban Developer User Guide: Urban Developer v1.0.0*, eWater Cooperative Research Centre, Canberra, 29 June 2011. ISBN 978-1-921543-40-1

Further Reading

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Roberts, P. (2005). 2004 Residential End Use Measurement Study, Final Report: Yarra Valley Water, Victoria.

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